FINAL

WORK PLAN

MUNITIONS AND EXPLOSIVES OF CONCERN REMOVAL AND SURFACE CLEARANCE KICKOUT AREA

Fort Wingate Depot Activity
McKinley County, New Mexico

February 06, 2015

Contract No. W912DY-10-D-0025

Task Order No. DS02

Prepared for:

United States Army Corps of Engineers
CESWF-PEC-TM
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Prepared by:

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The WP has been prepared to provide a detailed description of the MEC and MPPEH Removal Action (RA) activities that will take place at the KOA MRS within the FWDA (excluding the AOCs and SWMUs). Specifically, the objective of the MEC removal task is to achieve a surface and subsurface clearance of the KOA defined boundary up to the inner fence and a surface clearance of the land from the inner fence to the HWMU boundary within the KOA.

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McKinley County, New Mexico

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*- MEC Investigations only

BIA = Bureau of Indian Affairs
BIA-NR = Bureau of Indian Affairs – Navajo Regional Office
BRACD = U.S. Army Base Realignment and Closure Division
DOI/BIA – Department of the Interior/ Bureau of Indian Affairs
FWDA BEC = Fort Wingate Depot Activity Base Realignment and Closure Environmental Coordinator
NN = Navajo Nation
NMED HWB = New Mexico Environment Department Hazardous Waste Bureau
POZ = Pueblo of Zuni
USACE SWF = U.S. Army Corps of Engineers, Fort Worth District
USACE SPA = U.S. Army Corps of Engineers, Albuquerque District
USACE SPK = U.S. Army Corps of Engineers, Sacramento District
USEPA 6 = United States Environmental Protection Agency Region 6

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

ACRONYMS

AOC	Area of Concern
AMSL	above mean sea level
APP	Accident Prevention Plan
AR	Department of the Army Regulation
Army	United States Army
ATF	Alcohol, Tobacco and Firearms
BATFE	Bureau of Alcohol, Tobacco, Firearms and Explosives
BCEE	Board Certified Environmental Engineer
BEC	Base Environmental Coordinator
BIA	Bureau of Indian Affairs
BIP	Blow in Place
BGS	Below Ground Surface
BLU	Bomb Live Unit
BRAC	Base Realignment and Closure
BRACD	Base Realignment and Closure Division
CAMU	Corrective Action Management Unit
CE	Conditional Exemption
CEHSM	Corporate Environmental Health and Safety Manager
CESWF	U.S. Army Corps of Engineers Fort Worth District
CESWT	U.S. Army Corps of Engineers Tulsa District
CFR	Code of Federal Regulations
CHMM	Certified Hazardous Material Manager
CIH	Certified Industrial Hygienist
COR	Contracting Officer's Representative
CORA	Certificate of Risk Acceptance
CWM	Chemical Warfare Materiel
DA	Department of Army
DDESB	Department of Defense Explosives Safety Board
DID	Data Item Description
DoD	Department of Defense
DOI	Department of the Interior
DOT	Department of Transportation

ECM	Earth Covered Magazine
EM	Engineering Manual
EOD	Explosive Ordnance Disposal
EPP	Environmental Protection Plan
ESS	Explosive Safety Submission
ESQD	Explosives Safety-Quantity Distance
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
HE	High-Explosive
HFD	Hazardous Fragmentation Distance
HTRW	Hazardous, Toxic, and Radiological Waste
HWCP	Hazardous Waste Contingency Plan
HWMU	Hazardous Waste Management Unit
IAW	In Accordance With
ICM	Improved Conventional Munitions
IDW	Investigation Derived Waste
ISO	Industry Standard Object
ISOC	Installation On-Scene Coordinator
ITS	Instrument Test Strip
JV	PIKA-Pirnie Joint Venture
KOA	Kickout Area
KO	Contracting Officer
MC	Munitions Constituents
MD	Munitions Debris
MDAS	Material Documented As Safe
MDEH	Material Documented as an Explosive Hazard
MEC	Munitions and Explosives of Concern
MFD-H	Maximum Fragmentation Distance-Horizontal
MGFD	Munition with Greatest Fragmentation Distance

mm	Millimeter
MPPEH	Material Potentially Presenting an Explosive Hazard
MRS	Munition Response Site
MSD	Minimum Separation Distance
NEW	Net Explosive Weight
NFA	No Further Action
NMDGF	New Mexico Department of Game and Fish
NMED	New Mexico Environmental Department
NMSHPO	New Mexico State Historic Preservation Office
NN	Navajo Nation
NTP	Notice to Proceed
OB/OD	Open Burn/Open Detonation
OE	Ordnance and Explosives
OESS	Ordnance and Explosives Safety Specialist
OSHA	Occupational Safety and Health Administration
PAM	Pamphlet
PE	Professional Engineer
PM	Project Manager
PMP	Project Management Professional
POC	Point of Contact
POZ	Pueblo of Zuni
PPE	Personal Protective Equipment
PWS	Performance Work Statement
QA	Quality Assurance
QA/QCM	Quality Assurance/Quality Control Manager
QAP	Quality Assurance Program
QC	Quality Control
QCP	Quality Control Plan
RA	Removal Action
RCRA	Resource Conservation Recovery Act
RCWM	Recovered Chemical Warfare Materiel
RRD	Range Related Debris
SM	Site Manager

SOP	Standard Operating Procedures
SSHP	Site Safety and Health Plan
SSI	Sub Surface Instruments
SWMU	Solid Waste Management Unit
SWPPP	Storm Water Pollution Prevention Plan
SUXOS	Senior UXO Supervisor
SZ	Support Zone
T&E	Threatened and Endangered
TP	Technical Paper
U.S.	United States
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
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
WERS	Worldwide Environmental Remediation Services
WMM	Waste Military Munitions
WP	Work Plan
WSMR	White Sands Missile Range

1.0 INTRODUCTION

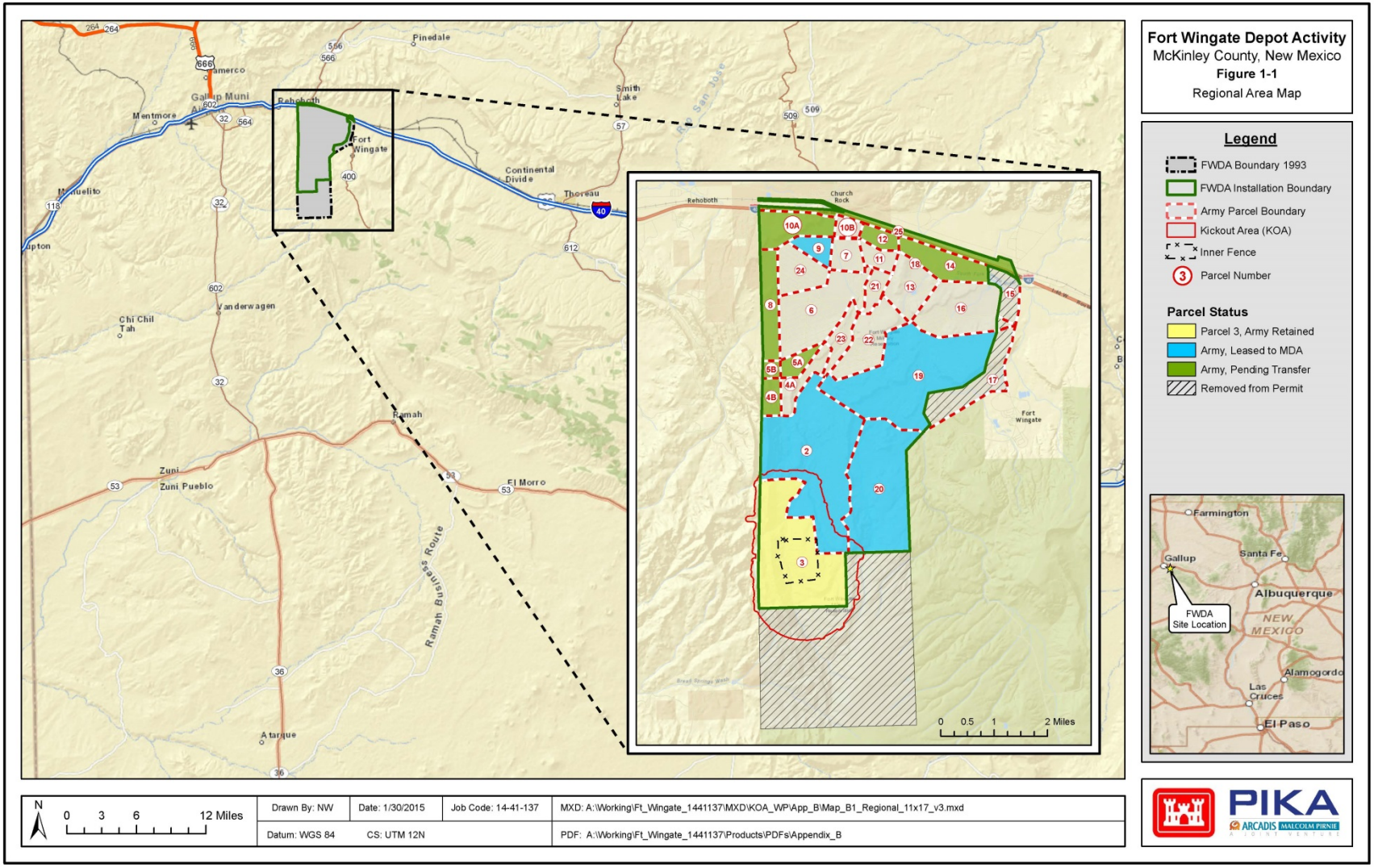
1.1 Project Authorization

In accordance with (IAW) Contract No. W912DY-10-D-0025, Task Order DS02, the PIKA-Pirnie Joint Venture (JV) will conduct a removal action (RA) of waste military munitions (WMM) and WMM scrap from designated areas of the Fort Wingate Depot Activity (FWDA) Kickout Area (KOA) Munitions Response Site (MRS). The location of FWDA is shown on Figure 1-1 (also included as Map B-1) and the Areas of Concern (AOCs) and Solid Waste Management Units (SWMUs) are shown on Figure 1-2 (also included as Map B-3). Throughout this Work Plan (WP), WMM and WMM scrap will refer to Munitions and Explosives of Concern (MEC), unexploded ordnance (UXO) including Improved Conventional Munitions (ICM), Material Potentially Presenting and Explosive Hazard (MPPEH), and Munitions Debris (MD). This WP is written for the United States (U.S.) Army (Army) in order to comply with and implement the FWDA Resource Conservation Recovery Act (RCRA) Permit Number NM6213820974. The JV will perform this work under the direction of the U.S. Army Corps of Engineers Tulsa District (CESWT) and U.S. Army Corps of Engineers Fort Worth District (CESWF) to implement the Army's Base Realignment and Closure (BRAC) mission to close FWDA and revert this property to the Department of the Interior (DOI). Throughout this WP, the JV, the CESWT, the CEWSF, and the Army will be collectively referred to as the "Army". An Explosive Safety Submission (ESS) and a Certificate of Risk Assessment (CORA) have been prepared and submitted to U.S. Army Corps of Engineers (USACE) for staffing and approval according to Army and Department of Defense (DoD) policy.

This WP was developed IAW USACE Data Item Description (DID) Worldwide Environmental Remediation Services (WERS) 001.01, Work Plans, USACE Engineering Manual (EM) 385-1-97, Change 1, and the FWDA RCRA Permit (dated December 2005 and revised in 2014). This chapter identifies the site setting and background information for the KOA and describes the methods and procedures to be employed for the MEC Removal and Surface Clearance.

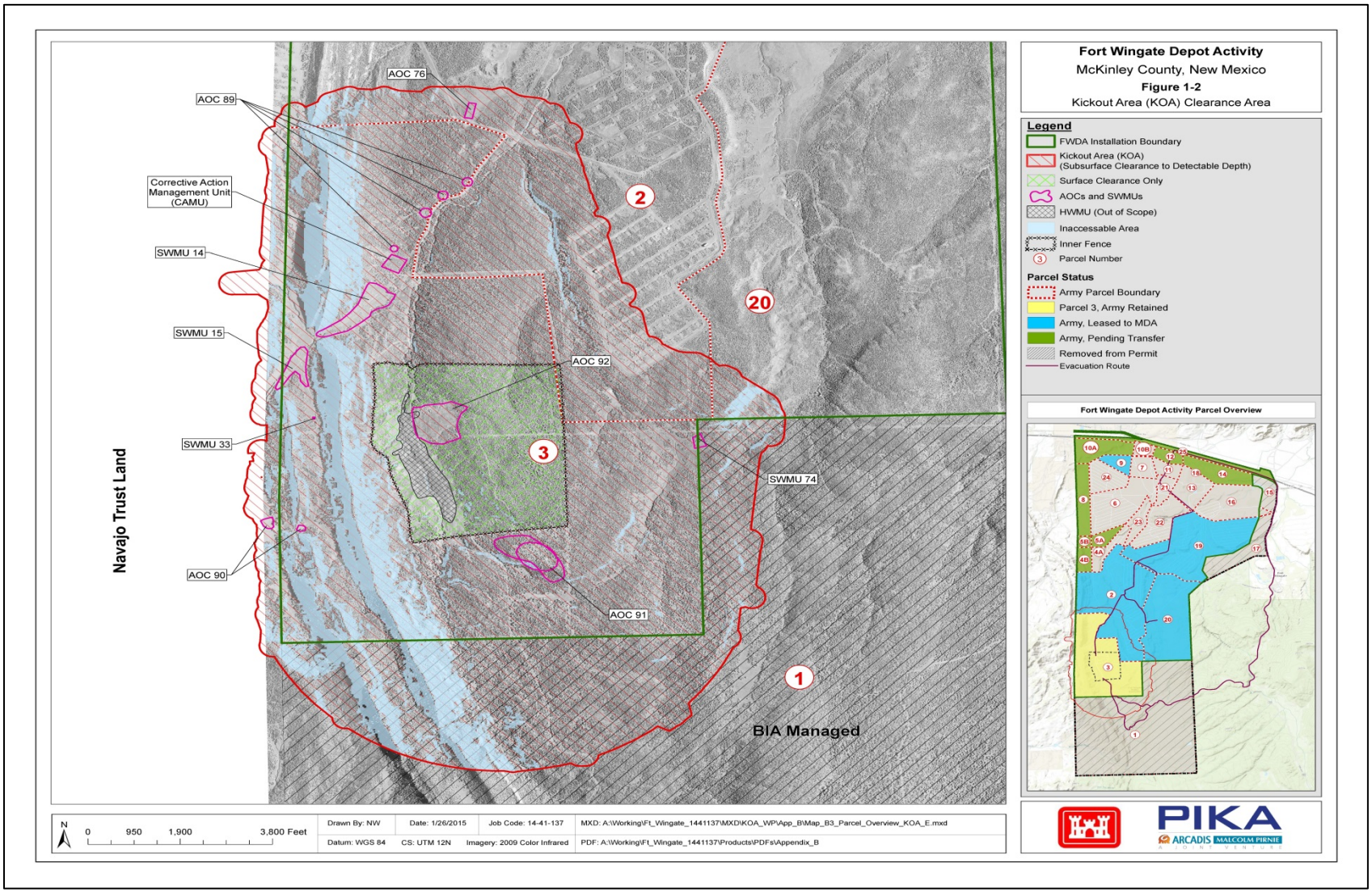
1

Figure 1-1: Regional Area Map



2

Figure 1-2: Kickout Area Clearance Area



1.2 Project Purpose and Scope

This WP's purpose is to provide a detailed description of the MEC and MPPEH RA activities that will take place at the KOA MRS. This RA project is being undertaken to locate, identify, and remove MEC and MPPEH (to include MD and range-related debris [RRD]) from designated areas within the KOA and IAW the New Mexico Environmental Department (NMED) issued RCRA Permit No. NM6213820974. Applicable sections of the Permit include: IV.A, IV.B, IV.C, IV.D, IV.F, VIII.B.1, and IX. All activities involving work in areas potentially containing WMM and WMM scrap will be conducted in full compliance with the USACE, the United States Environmental Protection Agency (USEPA), the Department of Defense Explosives Safety Board (DDESB), and other applicable DoD requirements regarding personnel, equipment, and procedures. The cleanup criteria (with respect to size) for the KOA removal will be WMM and WMM scrap 1.5 inches by 3 inches or larger.

The KOA is defined in the NMED RCRA permit as: "Kickout Area means the combined area of land adjacent to the Open Burn (OB)/ Open Detonation (OD) Unit, SWMU 14 (Demolition Landfill and Old Burning Ground), SWMU 15 (Old Demolition Area) and SWMU 33 ("Waste Pile" KPI) to which WMM were released during the operation of the OB/OD Unit and to which solid wastes were released during the operation of SWMU 14 (Demolition Landfill and Old Burning Ground), SWMU 15 (Old Demolition Area) and SWMU 33 ("Waste Pile" KPI). The Kickout Area is described in Permit Attachment 1." The OB/OD Unit according to the permit is the Hazardous Waste Management Unit (HWMU). The AOCs and SWMUs not mentioned in the permit (such as 90, 91, and 92) lie within the KOA boundary and are therefore part of the KOA.

To advance the project schedule, the Army is separating the surface and subsurface clearance activities from activities within the AOCs and SWMUs and is writing two WPs towards the development and approval of the KOA WP. The two WPs are:

- *Kickout Area MEC Removal and Surface Clearance Work Plan*, which includes the details necessary to conduct surface and subsurface clearance of MEC, MD and other metallic debris in the Kickout area only (this WP); and
- *Kickout Area Investigation and MEC Clearance Parcel 3 AOCs and SWMUs Work Plan.* This WP defines and articulates the balance of all MEC/MD investigations and clearances in the AOCs and SWMUs, arroyos and burial pits, and the maintenance of the roads and fences of Parcel 3 (to

be submitted for review at a later date). In addition this document includes Appendix A which is the *Soil Investigation Work Plan – Parcels 3 SWMUs and AOCs*.

This division allows the surface and subsurface clearance activities to be initiated immediately upon acceptance of this WP and notice to proceed (NTP). The WP associated with AOCs and SWMUs will be submitted for review and approved at a later date. The results and data generated from the work performed under these two separate plans will be presented in one Permit section IV.D final report for review.

1.2.1 RCRA Permit Compliance

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

1.2.1.1 *Section IV.A Confirmation of Kickout Area*

The Army has complied with Section IV. A of the RCRA permit and defined and identified the outer boundary of the KOA in 2009 *(PIKA 2009)*. The KOA as defined in the accepted report is shown on Map B-3.

1.2.1.2 *Section IV.B Surface Clearance In The Kickout Area*

This WP provides the details necessary for the Army to conduct investigations and removal of WMM and WMM scrap from the surface of the inner fence areas readily accessible by foot without the use of safety equipment on the steep slopes. At this time, it is the Army's intent to retain this property. This WP describes how the Army is using the best available technology, applied by trained and qualified personnel using geophysical equipment to conduct this investigation and surface clearance of the inner fence area located in the south central part of Parcel 3 as depicted on Map B-3.

1.2.1.3 *Section IV.C Clearance Of Designated Areas*

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

1.2.1.4 *Section IV.D Kickout Area Clearance Report*

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

1.2.1.5 *Section IV.E Annual Inspection and Removal*

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

1.2.1.6 *Section IV.F Transfer Of Lands Within The Kickout Area*

It is the Army's intent and mission to eventually return, if possible, all of the property in Parcel 3 (which includes the land within the KOA) to the DOI. To accomplish this the Army has written this WP to fully comply with this section of the Permit. This WP explains that the Army is using the best available technology, applied by trained and qualified personnel using geophysical equipment to conduct this investigation and clearance of 100% of the detected anomalies to the detection depths of the equipment in the KOA (depicted on Map B-3). This investigation and clearance also includes the Navajo Tribal lands to the west and part of the former Parcel 1 boundaries to the south (currently controlled by the Bureau of Indian Affairs) of the FWDA property. The Army will comply with Permit section VII.G.2.B by conducting the investigation, clearance and removal to detection depths of these off-property areas. The Navajo Nation (NN) have provided the Army with access to these properties and that letter is included in Appendix A of this Plan.

1.3 Investigation And Clearance Summary

The following section of this WP explains and provides the specific details of how the Army is using the best available technology, applied by trained and qualified personnel using geophysical equipment to conduct this investigation and clearance of 100% of the anomalies meeting the clearance criteria (measuring 1.5 inches by 3 inches or larger), where these investigations and clearances will occur. MEC and confirmed MPPEH items located at the site will be destroyed through explosive demolition operations. MEC deemed acceptable to move will be moved to the Conditional Exemption (CE) Igloos or the 10-day Corrective Action Management Unit (CAMU) permitted temporary storage area for later destruction at the CAMU IAW this WP. In the event such items are deemed unacceptable to move, they

move, they will be blow in place (BIP) IAW this WP. The team will store donor explosives in the CE Igloos for the project.

Discovered MPPEH certified as free of explosives will be reclassified as Material Documented as Safe (MDAS). MPPEH and MD inspection, handling, and final disposition as MDAS will be conducted IAW USACE EM 385-1-97, Change 1, DoD 4140.62, and DoD 6055.09-M. All MD and RRD recovered at KOA will be delivered to a metal recycler to be smelted following completion of the RA IAW EM 385-1-97, Change 1.

1.4 Work Plan Organization

The WP consists of 10 sections:

Section 1: Introduction

Section 2: Technical Management Plan

Section 3: Field Investigation Plan, provides the details of the surface and subsurface investigations and clearance of the inner fence and the KOA areas, excluding the AOCs and SWMUs

Section 4: Quality Control (QC) Plan, provides the Quality Assurance (QA)/QC procedures for documentation of the MEC clearance

Section 5: Explosives Management Plan

Section 6: Environmental Protection Plan provides the management plans for the: endangered or threatened species, cultural resources management, waste management , and the hazardous waste contingency for this project.

Section 7: Property Management Plan is not required for this project.

Section 8: Interim Holding Facility Siting Plan for Chemical Warfare Materiel (CWM) Projects is not required for this project.

Section 9: Physical Security Plan for Recovered Chemical Warfare Materiel (RCWM) Project Sites is not required for this project.

Section 10: References

The WP also contains eight appendices:

Appendix A: Correspondence

Appendix B: Site Maps

Appendix C: Schedule

Appendix D: Accident Prevention Plan (Internal Army document not included with this submittal)

Appendix E: Environmental Protection Plan Related Appendices
Appendix F: Spill Prevention Control and Countermeasures Plan
Appendix G: Minimum Separation Distance (MSD) Calculation Sheets
Appendix H: Response to Comments

1.5 Project Location

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

1.5.1 Climate and Vegetation

The following information regarding the site conditions at the FWDA is from the United States Geological Survey (USGS) Report 2013-5098 15 (Robertson et al., 2013). The climate of the region is arid to semiarid; precipitation has averaged 11.9 inches at FWDA (1940 to 1966); 11.3 inches at Gallup, New Mexico (1921 to 2005); and, 18.7 inches at McGaffey, New Mexico (1923 to 2005), in the Zuni Mountains (Western Regional Climate Center, 2010). The majority of the precipitation at the FWDA occurs during the monsoon season (midsummer and early fall); however, the slow release of spring snowmelt provides for a higher percentage of infiltration as compared to the precipitation from the intense monsoon thunderstorms (Anderson and others, 2003). The regional climate supports Ponderosa Pine and mixed fir forests above 7,500 ft and predominantly piñon and juniper forests from 6,800 to 7,500 ft; shrubs and grasses dominate below 6,800 ft (Anderson and others, 2003).

1.5.2 Regional Geology

The following information regarding the site conditions at the FWDA is from USGS Report 2013-5098 15 (Robertson et al., 2013).The FWDA is located in the Navajo Section of the Colorado Plateau physiographic region (Fenneman and Johnson, 1946) within the Gallup sag and at the northwestern edge

of the Zuni Mountains (Zuni uplift) Cather, 2003, 2004). The Zuni uplift is a northwest-striking, asymmetric uplift (Lorenz and Cooper, 2001). The uplift gently tilted the bedrock underlying the majority of the FWDA to the northwest at an angle of approximately 5 degrees from horizontal (Lorenz and Cooper, 2001); subsequent erosion has exhumed the various Triassic sedimentary layers visible across the surface of the FWDA.

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

Granites and smaller amounts of schist and gneiss of Precambrian age compose the underlying basement formation of the region and are exposed in the Zuni Mountains to the southeast (Gordon, 1961). The preservation of sedimentary deposits now visible at the surface on the FWDA began in the Late Pennsylvanian epoch; the depositional environment changed from marine to continental and restricted marine by the Early Permian period (Baars, 1962). The Petrified Forest Formation of the Chinle Group is the dominant formation exposed at FWDA and can be up to 800 ft thick (Anderson and others, 2003). The Petrified Forest Formation is composed of the Blue Mesa, Sonsela, and Painted Desert members. The Chinle Group was elevated from formation to group status by Lucas (1993) but this change has not been fully accepted (Dubiel, 1994; Woody, 2006). The Chinle Group designation is used for purposes of this report.

1.5.3 Surface Hydrology

The following information regarding the site conditions at the FWDA is from USGS Report 2013-5098 15 (Robertson et al., 2013). FWDA is located approximately 15 miles west of the Continental Divide. While no perennial streams are located within the FWDA's boundaries, the surface water collecting in drainages flows northward to the South Fork of the Rio Puerco. The South Fork of the Rio Puerco joins the Rio Puerco just east of Gallup and is part of the larger Rio Puerco and Little Colorado River watersheds. The FWDA contains multiple unnamed drainages that are high-gradient (100 ft./mile or greater) ephemeral streams and are typically fed by spring snowmelt or monsoon season thunderstorms (Anderson and others, 2003).

1.5.4 Groundwater Hydrology

The following information regarding the site conditions at the FWDA is from USGS Report 2013-5098 15 (Robertson et al., 2013). There are several water-bearing units underlying the FWDA (Shomaker, 1971). These include the San Andres-Glorieta Formations, the Shinarump Formation, and the Sonsela Member and several thin sandstone beds within the Painted Desert Member of the Petrified Forest Formation, as well as the Quaternary alluvium. In the Administration Area, the Quaternary alluvium contains interbedded layers of sediments with variable moisture content in the vertical profile (Michael Powers, U.S. Geological Survey, 2010). Groundwater in the region has been produced from the Shinarump Formation and the Sonsela Member of the Petrified Forest Formation (Errol L. Montgomery & Associates, Inc., 2003). Yields reported from these aquifers range from 5 to 50 gallons per minute.

The San Andres-Glorieta aquifer is the principal aquifer in the region. At the FWDA, the top of the San Andres-Glorieta aquifer is about 1,100 ft below land surface and has a thickness of about 200 ft (Shomaker, 1971). The San Andres-Glorieta aquifer is composed of the San Andres Limestone and the Glorieta Sandstone. The two units are considered a single aquifer because no impermeable bed separates them (Callahan and Cushman, 1954) and extensive interfingering makes determination of the contact difficult (Baldwin and Anderholm, 1992).

1.6 Kickout Area Description

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

For this WP, removal actions will include surface and subsurface clearance of MEC, MD and other metallic debris in the KOA only, and associated activities specific to the CAMU for disposal efforts, CE usage for storage, as well as maintenance of the CAMU and CE. Reference to the KOA for this WP excludes all MEC/MD clearance of SWMUs 14, 15, 33, and 74, and AOCs 76, 89, 90, 91, and 92 located in the KOA.

1.7 Fort Wingate Depot Activity History

The FWDA is located in McKinley County, New Mexico, approximately seven miles east of Gallup, New Mexico and currently occupies approximately 15,277 acres. The FWDA was originally established by the Army in 1862. In 1918, the mission of the FWDA changed from tribal issues to World War I related activities. Beginning in 1940, the FWDA's mission was primarily to receive, store, maintain, and ship explosives and military munitions, as well as disassemble and dispose of unserviceable or obsolete explosives and other military munitions. In January 1993, the active mission of the FWDA ceased and the installation closed as a result of the Defense Base Realignment and Closure Act of 1990. In 2005, environmental activities began under Permit EPA ID No. NM 6213820974 (FWDA RCRA Permit), which was finalized in December 2005 (NMED, 2005). In 2014, Permit NM 6213820974 was modified for activities in the CAMU located in Parcel 3. FWDA is currently undergoing final environmental characterization and restoration activities prior to final property transfer/return and reuse.

1.8 Previous Investigations at Fort Wingate Depot Activity

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

From November 1998 to May 1999, Environmental Hazards Specialists International, Inc. (2000) performed MEC location and removal actions at FWDA. They conducted a surface removal action of 82, 200 ft. x 200 ft. grids, and a subsurface removal action to a depth of four feet below ground surface (bgs) of 88 grids varying from 200 ft x 200 ft to irregular shape. Of the 337 items recovered, 32 were live. The 32 live items were seven 60-mm mortars, one M404 fuze, three 57-mm armor piercing HE, five 40mm

projectiles, two 75mm projectiles, four 37mm projectiles, two M83 fragmentation "Butterfly" bomblets, one M1 burster, one miscellaneous fuze components, two M66 base detonating fuzes, and four M148 fuzes.

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

In 2010, IAW the RCRA permit section IV.A, Confirmation of the KOA, the KOA outer boundary was delineated. This delineation established the estimated outer boundary by conducting radial transect investigations and adding 275 ft. from the furthest detected WMM or WMM scrap. The Army provided NMED a Site Specific Final Report (PIKA, 2009) to document this delineation. This Report was accepted by the USACE and approved by NMED. The present estimated KOA boundary includes Parcel 3, portions of Parcel 1 to the south, Parcel 2 to the north and Parcel 20 to the east, as well as, a segment of Trust Lands bordering the western side the FWDA Facility.

1.9 Initial Summary of Munitions and Explosives of Concern Risk

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

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2.0 TECHNICAL MANAGEMENT PLAN

2.1 Objectives

The objective of this project is to provide all Military Munitions Response Program services under the WERS Multiple Award Task Order Contract necessary to conduct the following:

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

Specifically, the objective of the MEC removal task for this WP is to achieve:

- A MEC surface and subsurface clearance conducted over approximately 2,844 acres of the KOA IAW with RCRA Permit IV.C and IV.F; and
- A MEC surface clearance over 300 acres within the inner fence area of the KOA IAW the RCRA permit IV.B

These MEC RAs will not occur in areas too steep and requiring specialized safety equipment to safely work. The designated clearance areas and depths are shown on Map B-3 (Appendix B). 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 totals 523 acres due to incline averages of approximately 35 percent grade or more as shown on Map B-2 and B-3 in Appendix B. Parcel 3 is known to contain ICM, 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.

ICM and non-ICM area will be cleared using personnel whose experience requirements are specified in DA PAM 385-63. ICM areas will include team makeup of UXO Technicians II (UXOTII) and higher. Non-ICM areas will include team makeup of UXO Technicians I (UXOTI) and higher. UXOTIs will not conduct UXO related activities or clearance operations within the ICM designated area.

All recovered MEC will be destroyed through BIP, transported to the CE Igloos or the 10-day CAMU permitted temporary storage area for later destruction at the CAMU IAW this WP. MPPEH will be further inspected to make a determination if an explosive hazard exists. If the inspection indicates there is a known or possible explosive hazard, the MPPEH will be classified as Material Documented as an Explosive Hazard (MDEH) and will be destroyed through BIP, transported to the CE Igloos or the 10-day CAMU permitted temporary storage area for later destruction at the CAMU IAW this WP. If the inspection indicates there is no explosive hazard, the MPPEH will be designated as MDAS. All MDAS (to include MD and RRD) certified and verified to be explosive free will be documented on a DD Form 1348-1A, IAW USACE EM 385-1-97, Change 1.

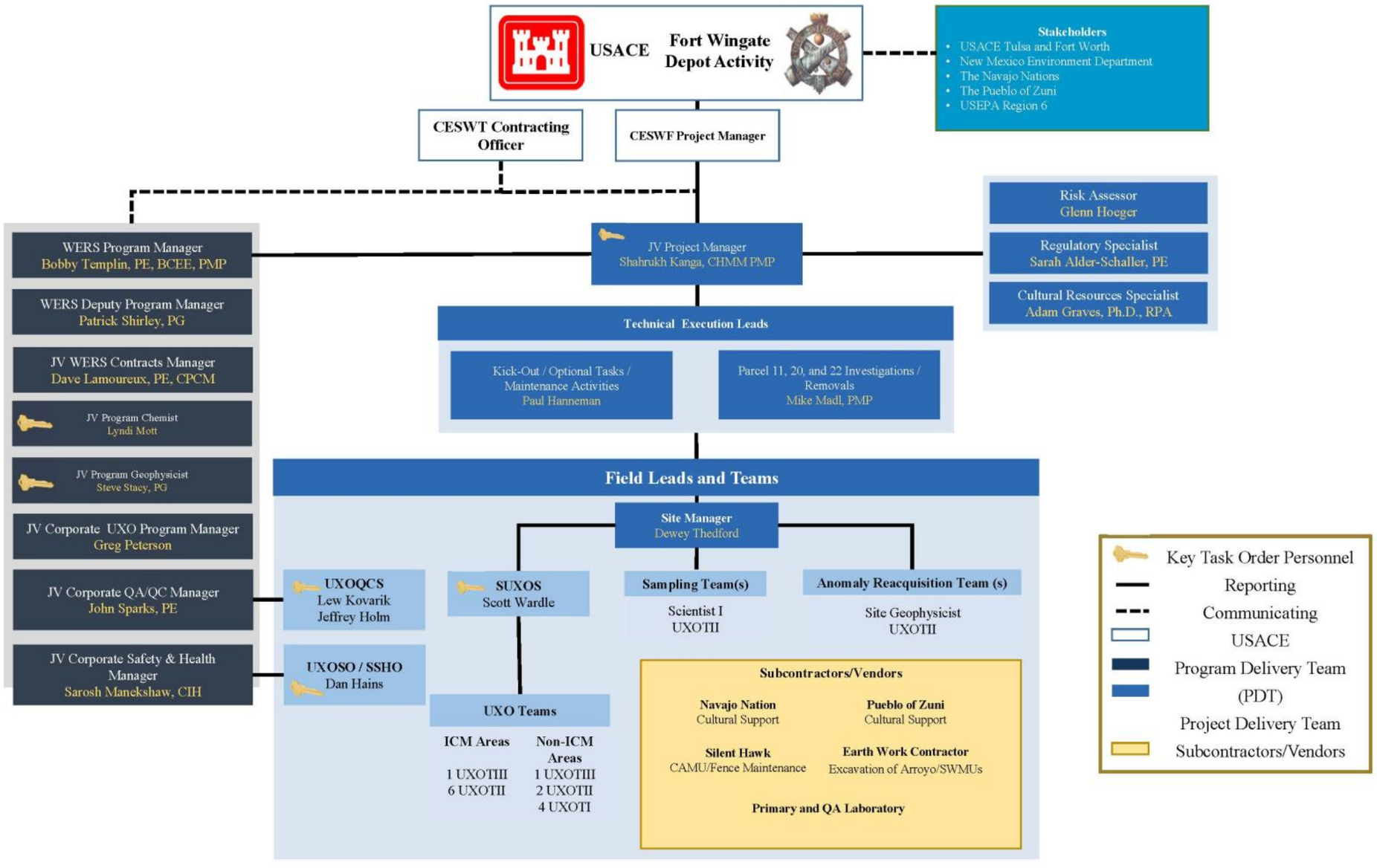
2.2 Organization

In addition to the JV, the project team consists of:

- Mr. Allen Bassett, CESWT Contracting Officer (KO);
- Mr. Scottie Fiehler and Mr. Ken Kebbell, CESWT Contracting Officer's Representatives (COR);
- Mr. Dennis J. Myers , CESWF Project Manager (PM);
- Mr. Steve Smith, CESWF Program Manager;
- Mr. Mark Patterson, Base Realignment and Closure Committee Environmental Coordinator;
- Mr. Richard Cruz; FWDA Manager and Site Caretaker;
- Mr. Larry Rogers, Navajo Nation;
- Governor Val Panteah, Pueblo of Zuni; and
- Other team members responsible for overall contract management.

Figure 2-1 depicts the overall project organization and identifies key CESWF, CESWT and JV personnel.

Figure 2-1. Project Organization Chart



2.3 Personnel

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

Table 2-1: Personnel Responsibilities

TITLE/NAME	PERSONNEL	RESPONSIBILITIES
Program Manager	Bobby Templin, Professional Engineer (PE), Board Certified Environmental Engineer (BCEE), Project Management Professional (PMP)	- Ensures resources are available - Document review - Conflict resolution/stop work
PM	Shahrukh Kanga, Certified Hazardous Materials Manager (CHMM), PMP	- Project schedule and budget control - CESWT/CESWF PM coordination - Document preparation - Notifications - Conflict resolution/stop work
Corporate Environmental Health and Safety Manager (CEHSM)	Sarosh Manekshaw, Certified Industrial Hygienist (CIH)	- Accident Prevention Plan (APP) preparation/approval - APP review/modification/ implementation audits - Conduct/assist with site, task and hazard-specific training
Corporate Quality Assurance/Quality Control Manager (QA/QCM)	John Sparks, PE	- Manages the quality assurance (QA) organization - Maintains project QA program - Approves QA required documents
Site Manager (SM)	Dewey Thedford	- Oversees project operations - Document preparation - Notifications - Conflict resolution/stop work
Senior UXO Supervisor (SUXOS)	Scott Wardle	- Documentation preparation/review - Supervision of all UXO teams and equipment - Oversee demolition operations - USACE Ordnance and Explosives Safety Specialist (OESS) coordination - Conflict resolution/stop work
UXO Safety Officer (UXOSO)	Dan Hains	- APP & WP implementation - Documentation/reporting

TITLE/NAME	PERSONNEL	RESPONSIBILITIES
		- Safety inspection - Site safety control - Accident prevention - Conflict resolution/stop work
UXO Quality Control Specialist (UXOQCS)	Lew Kovarik and Jeffrey Holm	- APP & WP implementation - Documentation/reporting - Conduct QC evaluations - Implement/approve corrective action - Inspection of MD/RRD - Conflict resolution/stop work
Field Personnel UXOTI-III	Various	- MEC/MD/RRD clearance from grids - Conduct demolition activities - WP and APP adherence - Accident prevention
Cultural Resources Personnel	Various	-Delimit/flag all archaeological resources for avoidance -Identify and delimit culturally significant items for avoidance during MEC project activities -Monitor cultural resources associated with all MEC project activities and work.

2.3.1 Program Manager

Mr. Bobby Templin, PE, BCEE, PMP, is the Program Manager for this project and has the overall responsibility for project objectives being met. Mr. Templin will manage the JV resources needed for site operations and is responsible for the overall implementation of the project. The Program Manager is authorized to temporarily stop work to correct an unsafe condition or procedure.

2.3.2 Project Manager

Mr. Shahrukh Kanga, CHMM, PMP, will serve as the PM for this project. The PM has the following responsibilities to ensure safe and timely delivery of the project:

- Manage the funding, manpower, and equipment necessary to conduct site operations.
- Act as the Point of Contact (POC) for communicating with the CESWF PM/OESS.
- Oversee the overall performance of all the JV individuals assigned to the project and maintain complete project staffing requirements.

- Review of the Performance Work Statement (PWS) and ensuring necessary elements are addressed in project plans.
- Coordinating all contract and subcontract work and controlling costs and schedules.
- The PM is authorized to temporarily stop work to correct an unsafe condition or procedure.

2.3.3 Corporate Environmental Health and Safety Manager

Mr. Sarosh Manekshaw, CIH, the JV CEHSM, will provide occupational safety and health management duties as presented in detail in the APP/Site Safety and Health Plan (SSHP) for this project. The CEHSM will direct how the APP/SSHP are implemented to include delegating authority to the UXOSO and directing the enforcement of the APP/SSHP, including removing individuals from the project for environmental, safety or health non-compliance.

2.3.4 Site Manager

Mr. Dewey Thedford, the Site Manager (SM), will provide logistic coordination between stakeholders and USACE and the SUXOS. The SM will also write and submit site reports (e.g., daily report, weekly etc.) as required for site operations. The SM will report to the SUXOS directly, but be tasked by both the SUXOS and the PM. He will complete site day to day requirements as needed. The SM is authorized to temporarily stop work to correct an unsafe condition or procedure.

2.3.5 Senior Unexploded Ordnance Supervisor

Mr. Scott Wardle, the SUXOS, directs and supervises operations of all field teams performing MEC activities and will monitor their performance, helping them achieve maximum operational safety and efficiency. The SUXOS reports directly to the PM and will implement the approved plans in the field and must review and approve any changes. The SUXOS is authorized to temporarily stop work to correct an unsafe condition or procedure.

Additional responsibilities of the SUXOS include, but are not limited to:

- Authorize initiation of all demolition operations.
- Coordinate all on-site field activities to preclude impacts to productivity and ensure compliance with the SSHP.
- Directly interface with, and relay safety and health concerns to the PM.
- Ensure all MEC site operations are conducted IAW all relevant safety and health specifications, regulations, and standards.

- Manage the on-site manpower and equipment necessary to safely conduct the MEC tasks associated with the field activities.
- Prepare and submit daily, a detailed accounting of activities performed each workday.

Mr. Wardle meets the requirements for SUXOS as presented in the DDESB approved "UXO Personnel Training and Experience requirements" found in Technical Paper (TP) Number 18 – Minimum Qualifications for UXO Technicians and Personnel.

2.3.6 Unexploded Ordnance Safety Officer

The UXOSO, Mr. Dan Hains, will implement the APP/SSHP and verify compliance with applicable safety and health requirements. The UXOSO will also: implement the explosives safety program in compliance with all DoD, federal, state, and local statutes and codes; analyze MEC and explosives operational risks, hazards, and safety requirements; establish and ensure compliance with all site-specific safety requirements for MEC and explosives operations; and enforce personnel limits and safety Exclusion Zones (EZ)s for MEC clearance operations.

Additional responsibilities of the UXOSO include, but are not limited to:

- Analyze MEC and explosives operational risks, hazards, and safety requirements.
- Conduct on-site safety and health training for the JV and subcontractor personnel.
- Conduct the UXO safety portion of any visitor orientation.
- During disposal operations, the UXOSO will monitor compliance with the safety measures contained in the SSHP and associated documents.
- Ensure the proper use of personal protective equipment (PPE) IAW the requirements of the SSHP.
- Establish and ensure compliance with site-specific safety requirements.
- Investigate and document injuries, illnesses, accidents, incidents, and near misses.
- Prior to the start of disposal activities, the UXOSO will verify that the area around the operating site is clear of all nonessential personnel and that other UXO Supervisors have been notified.
- Provide the UXO safety portion of training sessions or briefings.
- Stop work if health and/or safety are jeopardized or compromised.

2.3.7 Unexploded Ordnance Quality Control Specialist

Two UXOQCSs, Mr. Lew Kovarik and Mr. Jeffrey Holm, will have the responsibility of ensuring that all site deliverables meet the requirements of the PWS. The UXOQCS is responsible for monitoring and

ensuring all site MEC activities are conducted IAW this WP. Each UXOQCS will have parallel duties as described below to ensure complete coverage of the process. QC personnel will coordinate their operations under the coordination of the SUXOS. All QC reporting will be consolidated into joint daily reports to ensure effective communications and data management. The UXOQCS will conduct QC inspections of all MEC and explosives operations for compliance with established procedures, and direct and approve all corrective actions to ensure all MEC-related work complies with contractual requirements.

Additional responsibilities of the UXOQCS include, but are not limited to:

- Verify the completion of daily safety inspections and weekly safety audits.
- Develop and implement corrective action plans to eliminate or mitigate hazards.
- Stop work if health and/or safety are jeopardized or compromised.
- Review and verify correct/proper identification of recovered MEC, MPPEH, or MD.
- Ensure MEC/MPPEH/MD has been effectively removed from all designated clearance areas.
- Conduct QC inspections of all MEC and explosives-related operations.
- Verify appropriate personnel are being utilized during all field activities.
- Maintain all inspection and surveillance documentation (e.g., QC reports, nonconformance and corrective action documents).
- Perform and document daily inspections/surveillances of job site activities. Appropriate technical assistance will be provided to perform the inspections/surveillances, as necessary, for the specific field investigation activities being performed.
- Verify all required equipment calibration has been performed and that inspection and standardization results comply with contract requirements and the WP.

2.3.8 Unexploded Ordnance Team Leaders

The UXO team leaders will be UXO Technician III (UXOTIII) level and will have the responsibility of ensuring all MEC operations are conducted IAW this WP and at the direction of the SUXOS. Each team leader will manage up to six UXO technicians.

2.3.9 Field Teams

Each subsurface clearance team working within the designated ICM area (inside Parcel 3) will consist of one UXOTIII and six UXOTIIs meeting the requirements of DA PAM 385-63. Subsurface clearance

teams working outside the designated ICM area (outside of Parcel 3) will consist of one UXOTIII, two UXOTIIs, and four UXOTI's or higher. The surface clearance team working within the inner fence of the KOA will consist of three UXOTIII, and eighteen UXOTIIs meeting the requirements of DA PAM 385-63. Field teams will conduct the MEC clearance throughout the duration of the project and will be responsible for adhering to the approved WP, APP and incorporate accident prevention procedures.

2.3.9.1 *Cultural Recourses Monitoring*

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

The JV has contacted the NN and the POZ to renew previous contracts for cultural support of this project. Both Tribes appear supportive and receptive to re-establishing these contracts. Subcontracts will be established with both the NN and the POZ outlining the expectations from each Tribe (document review, cultural awareness training, and assisting the field teams) to ensure the project objectives are met. Section 6.0 of this WP contains the coordination of cultural resources management and identification of designated areas in compliance with RCRA Permit section IV.C. Site personnel will be trained on Tribal concerns and potential cultural resources that may be encountered. If culturally sensitive issues arise or suspect items are encountered, the team leader will contact the SUXOS, who will in turn contact the PM/OESS. The PM/OESS will notify the Army personnel.

2.4 Communication and Reporting

The JV PM will interact with the CESWF PM for all matters concerning project management, and the PWS. All contract-related issues will be reported directly to the COR for consideration and/or approval. The SUXOS will report directly to the SM/JV PM for all matters concerning site operations. The JV field staff will report directly to the SUXOS. Regarding safety issues, the UXOSO will have direct access to and will report functionally to the CEHSM. For matters concerning QC, the UXOQCS will have direct access to and report functionally to the JV QA/QCM. The UXOSO and UXOQCS will report

administratively to the SUXOS. The JV subcontracted Cultural Resources Personnel will report directly to the SUXOS concerning cultural resources.

Project management communications for this project will generally be conducted as:

- **Removal Action Support Tasks –** The SUXOS will communicate field investigation and RA information to the JV's PM, who will in-turn inform CESWT/CESWF. All issues will be immediately reported to the CESWT/CESWF PM as they occur in the field.

A map-tracking grid clearance will be generated each week. MEC clearance progress maps will be generated at the end of each week and included within a report at the start of the following week indicating the number of grids cleared, the number of grids requiring Government OESS QA review, and the clearance plan for the upcoming week.

- **Task Order Management –** The JV's PM or other staff members will address all task order management information (e.g., budgetary issues, change orders) directly to CESWT/CESWF PM.

The JV will prepare and submit electronic copies of the status reports IAW DID WERS-016.02 to CESWT/CESWF and other parties as designated by CESWT/CESWF IAW DID WERS-016.02. Status reports will be submitted monthly by the JV during non-field work periods and weekly when project field activities are occurring. These progress reports will document the project activities conducted by the JV in its' performance of the project tasks. They will include schedule updates, progress updates, and a Safety Exposure Report. These reports will be maintained onsite and included in the KOA Final Report.

2.5 Deliverables

The Army will prepare a single KOA Report (Permit Section IV.D) describing the MEC removal activities conducted over the course of the project. This Report will contain findings of the investigations and clearance actions, conclusions, and if necessary, recommendations about changes to the fence footprint, or additional protective actions. A draft KOA Report will be submitted to the CESWT/CESWF for review and comment; corresponding revisions will be incorporated and the document submitted as 'Final' to the Tribes and NMED (with a copy to the CESWT/CESWF and Army) for review and comment. Geographic Information System (GIS) data files will be provided in the Final Report.

The Army's intent is to advance the schedule for the investigation and clearances of the KOA. To accomplish this, the Army has requested that the Tribes and NMED conduct concurrent reviews of this

Final WP and the KOA Report. Both Tribes and NMED have agreed to aid the Army and will conduct concurrent reviews. NMED will however provide their final approval only after reviewing the Tribes comments.

2.6 Schedule

The Army has developed a proposed Project Schedule for the completion of all tasks and it is presented in Appendix C.

2.7 Periodic Reporting

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

2.7.1 Project Records

Project records will be maintained in project files for the contract duration. Project records will be maintained electronically and in hard copy format in the project offices. Relevant project records will also be maintained in the office trailer.

2.8 Public Relations Support

JV personnel will not make available or publicly disclose any data generated or reviewed under this contract. When approached by any person or entity requesting information about the subject of this data or this contract, the JV personnel shall defer to the CESWT/CESWF COR for response.

2.8.1 Dissemination of Data

Reports and data generated under this contract shall become the property of the Government and distribution to any other source by the contractor is prohibited unless authorized by the CESWT/CESWF COR.

2.9 Field Operation Management Procedures

The JV's field management staff will include a SM, SUXOS, UXOSO, two UXOQCS, and UXO Technician III Team Leaders. The UXO clearance teams working within the designated ICM area will consist of one UXOTIII and six UXOTIIs and the UXO Team working the inner fence will consist of three UXOTIIIs, and 18 UXOTIIs. Both of these teams will meet the requirements of DA PAM 385-63 and/or the approved CORA. The UXO clearance teams working outside the designated ICM area will consist of one UXOTIII, two UXOTIIs, and four UXOTI's or higher, and meet the requirements of EM 385-1-97. The Army will also have a four-man demolition/scrap team consisting of two UXOTIIIs and two UXOTIIs. These personnel meet or exceed the requirements defined in DDESB TP 18. The JV will utilize eight UXO clearance teams and one UXO demo/scrap team for this project.

The Army's methods of communication will include daily team kickoff meetings, weekly team planning sessions, and daily reviews with the CESWT/CESWF COR/PM and FWDA personnel, as appropriate. Records of these meetings will be maintained and transmitted within this team and included with the Final KOA Report. The SUXOS will establish a daily communications protocol with the FWDA POC identifying the times the JV work force enters and leaves the site, daily accounting of personnel and equipment, and radio usage.

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

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3.0 FIELD INVESTIGATION PLAN

3.1 Overall Approach to Munitions Response Activities

The overall objective of this WP is to conduct a MEC surface and subsurface clearance of the KOA except for the hogback (inaccessible areas) and the AOCs/SWMUs; however only a MEC surface clearance of the inner fence area inside Parcel 3 will be conducted. The removal includes MEC and all metallic debris measuring 1.5 inches by 3 inches or larger. The removal will not occur in areas too steep to safely work in as shown on Map B-3 in Appendix B. A separate WP will be written and submitted to NMED defining and explaining the investigation and clearance to detection depths, soil characterization, sampling of all the AOCs and SWMUs as explained in Section 1.2.

MEC surface and subsurface clearance of the KOA supports an advanced approach for the grid system based on anomaly densities and terrain features of the KOA. A New Mexico state licensed professional surveyor (escorted by UXO Technicians) will install stakes at specific locations to delineate required exterior boundaries and internal divisions such as AOCs and SWMUs (which are excluded). The licensed professional surveyor will certify all surveying requirements to include all control points, grid corners, and boundaries as required IAW DID WERS-007.01. 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. Map B-7 shows the anticipated KOA area grid system (200 ft. x 200 ft.). The Army will initially establish these grids , but will reserve the right to adjust grid sizes based on the terrain and field conditions.

Areas containing low-lying vegetation will be searched using hand-held 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 Army will coordinate with the NN and the POZ as required to determine vegetation removal extents and limitations. The JV will coordinate with the Tribes (according to the consultation procedures in Permit Section VIII.B.1) for work in designated access areas for archaeological sites and cultural resources. 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 PPE as required by EM 385-1-1 and described in the APP.

MEC and MPPEH removal will be conducted using analog geophysical methods and detection instruments (Schonstedt 52cx, Whites (model XLT/DFX) and Vallon (model VMH3CS) all metals detectors including newer technologies such as the 42-inch and 55-inch ML-3s developed by Sub-Surface Instruments [SSI]). Metallic debris measuring 1.5 inches by 3 inches or larger will be removed from the surface by hand digging of subsurface anomalies to detectable depth. Every grid will be surveyed 100% by each type of detector (ferrous and all-metals). The SUXOS and the UXOTIII Team Leader will determine the quantity of each detector to be used for each grid. MEC items not acceptable to move will be BIP. MEC items acceptable to move will be transported to the CE Igloos or the 10-day CAMU permitted temporary storage area until they can be disposed of, when required, using demolition explosives in the CAMU. MD and RRD recovered during clearance activities will be relocated to an MD processing area outside of the immediate work area for inspection and certification IAW USACE EM 385-1-97, Change 1. During the inspection process MD and RRD verified as MDAS will be separated and stored in independent secure storage containers.

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

3.2 Data Quality Objectives

3.2.1 Data Quality Objectives

The process used for development of the data quality objectives for the MEC investigation and removal in the KOA to achieve NMED No Further Action (NFA) is described in the sections below.

3.2.2 Statement of Problem

The surface and subsurface soil of the KOA are contaminated with WMM or WMM scrap. WMM may include; MEC, MD, UXO, (such as primed, fuzed, armed, or otherwise prepared for action, fired,

dropped, launched, projected), and may remain unexploded by malfunction, design, or any other cause. WMM scrap may include; munitions packaging, banding, fragmentation, packing or shipping debris, or other facility production scrap that may be on site.

3.2.3 Identification of the Problem

The KOA does not comply with sections IV.B, IV.C and IV.F of the RCRA Permit. This WP is designed to allow the Army to achieve compliance with sections IV.B, IV.C and IV.F of the RCRA Permit.

3.2.4 Identification of Project Goals

To comply with the RCRA Permit and to achieve a NFA from NMED, this WP is written with the Army's intent to conduct an investigation and removal of WMM or WMM scrap from the KOA.

3.2.5 Identification of Inputs to Achieve the Goals

3.2.5.1 *Identification of Boundaries*

As required by section IV.A, the Army has confirmed and delineated KOA the area of FWDA.

3.2.5.2 *Establishing Clean up Criteria*

The Army has determined (in compliance with RCRA Permit sections IV.B, IV.C and IV.F) the clean-up criteria for the identification and removal of all surface and subsurface WMM will be all MEC and metallic debris measuring 1.5" x 3" or larger to detection depths. This criterion is based on the smallest high explosive munition found outside the HWMU and SWMUs to date, the 40mm Bofors projectile. The size dimensions are based on a low ordered projectile where only half of the projectile remains that may contain high explosives. This WP is written to achieve these KOA clean-up criteria.

3.2.5.3 *Identification of Defining Acceptance of the Cleanup Criteria*

Once the investigation and removal is completed the Army will conduct QC and QA steps, as defined in this WP. When the investigation area(s) are determined to be within the boundaries and meeting the cleanup criteria, the Army will issue a signed DD Form 948, stating the area(s) have met the established cleanup criteria for the investigation and removal.

3.2.6 Technical Approach to Achieve the Goal

Section 3.6 of this WP provides specific details of the investigation and removal of WMM or WMM scrap. In summary, the KOA will be divided into grids and the grids further sub-divided into investigation/clearance lanes. UXO technicians, using hand-held analog geophysical instruments, will

investigate each lane to locate, identify and remove WMM or WMM scrap 1.5 inches by 3 inches and larger from the surface and subsurface soil to detection depths.

3.2.7 Confirmation of Achievement of the Goal

Section 4 of this WP provides specific details of the QC and QA procedures and protocols used to ensure that the removal of all surface and subsurface WMM or WMM scrap 1.5 inches by 3 inches and larger on the surface or subsurface to detection depths has been achieved. The Army issuance of a signed DD Form 948 will confirm the removal of surface and subsurface WMM or WMM scrap. The Army will comply with section IV.D of the RCRA Permit and provide NMED a Final Report summarizing the clearance actions and include all signed DD Form 948s for the KOA. This report will provide the NMED with documentation that the Army has complied with sections IV.B, IV.C, IV.D and IV.F of the RCRA Permit establishing eligibility for NFA.

3.3 Identification of Areas of Concern

SWMUs 14, 15, 33, and 74, and AOCs 76, 89, 90, 91, and 92 located in the KOA are not addressed in this WP, but will be delineated and marked during this phase of the MEC investigation and removal, to be compliant with Permit sections IV.F and Section II. As previously stated in 1.2, the investigation and clearance of these areas will be outlined in the next WP. There are no other AOCs related to the MEC clearance identified for this phase of the WP.

3.4 Instrument Test Strip

An instrument test strip (ITS) will be established to verify functionality and simulate the techniques needed to detect MEC while traversing the established grids for the KOA surface and subsurface clearance. The ITS will be approximately 50 ft. long and 5 ft. wide and coordinates will be collected for documentation and retrieval purposes. The ITS will be cleared of all anomalies prior to its use. The ITS will be swept at the beginning of fieldwork activities each day by the analog geophysical instruments being utilized for those scheduled tasks.

The purpose of the ITS is a QC measure demonstrating the functionality of the detection equipment being used during the MEC/MPPEH RA operations and the ability of the equipment operator to detect items that may be encountered in the field. The UXOQCS will place three inert munitions items recovered from the site or the equivalent Industry Standard Object (ISO) simulant to include MEC and metallic debris measuring 1.5 inches by 3inches or greater at various depths and orientations to accommodate the

clearance activities performed at the KOA. ISOs have been defined as schedule 40 pipe nipples, threaded at both ends, made from black welded steel, manufactured to an American Society for Testing and Materials specification. The objects are available through McMaster-Carr as well as most hardware and plumbing stores. The three ISO sizes being used for the KOA are listed in Table 3-1 below. The location of each item placed will be marked with the depth, orientation and nomenclature on a stake adjacent to each item. The Army reserves the right to place additional blind seed items in the ITS. If an instrument is found to be functioning improperly during the daily function test, it will be replaced and removed during the field activities until it has been repaired and passes the function test.

Table 3-1: Equivalent ISO Simulant Items

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	4 inch	4.500 inches (115mm)	12 inches (306mm)

3.5 Location Surveys and Mapping Plan

A New Mexico state licensed professional surveyor will perform location surveying and mapping at the KOA IAW DID WERS-007.01. Using one survey team, the surveyor will establish the boundaries of the clearance zone within the KOA, AOCs and SWMUs. The surveyed KOA MRS will be marked 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, 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 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 UXO qualified personnel. The UXO technician will perform a visual MEC survey for surface ordnance 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 up to five additional monuments.

3.5.2.1 *Accuracy*

A tabulated list of all control points and monuments showing their final adjusted coordinates established and/or used for survey 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.

3.5.2.3 *Plotting*

All of the control points (monuments, and property corners) recovered and/or established at the site will be plotted at the appropriate coordinate points on reproducible electronic or hard copy media for production of planimetric or topographic maps at scales appropriate for the parcel size. All plotting will be done IAW DID WERS-007.01.

3.5.3 Mapping

Mapping will be completed IAW DID WERS-007.01. The location, identification, coordinates, and elevations of all the control points recovered and/or established at the site will be plotted on reproducible media for planimetric or topographic maps at the scale specified in the task order. Each control point will be identified on the map by its name and number and the final adjusted coordinates and elevations (to the closest 0.001 meter and 0.01 foot). Each map will include a grid north, a true north, and a magnetic north arrow and showing the differences between them in degrees, minutes, and seconds. Grid lines or tic marks

at systematic intervals with their grid values will be shown on the edges of the map. Also, a legend showing the standard symbols used for the mapping and a map index showing the site in relationship to all other sites within the boundary lines of the project area will be shown. The coordinates for the grid corners will be shown to the nearest foot (1.0 ft), but may require greater accuracy to meet geophysical mapping and re-acquisition requirements. The locations of individual recovered MEC items will be plotted and identified on the map.

3.6 Geographic Information System Plan

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

3.7 Intrusive Investigation

3.7.1 Preliminary Activities

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

- Coordination with the designated FWDA POC to finalize access requirements, location of any temporary facilities to be used, and communications requirements;
- Contact and coordination with the FWDA POC and local fire, medical, and other emergency services to ensure availability of services, and the appropriate response actions IAW the WP and APP;
- Coordination through the Army for access to Bureau of Indian Affairs /Tribal controlled areas;
- Coordination with the NN and the POZ for cultural resources training;
- Coordination with the Missile Defense Agency site caretaker about the investigations being conducted on Missile Defense Agency property;
- Contact and coordination with local vendors for accommodations and vendors/suppliers for routine purchases to ensure smooth project start up; and,

- Inspection of each work area to identify possible environmental constraints, terrain limitations, and other interferences.

3.7.2 Equipment

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

As part of the initial equipment set-up and testing, the JV will also install and test its communication equipment including the following:

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

3.7.3 Site-Specific Training

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

- Field equipment operation, including the safety and health precautions, field inspection and maintenance procedures being used.
- Interpretation of relevant sections of this WP and APP/SSHP as they relate to the tasks being performed.
- Personnel awareness of potential site and operational hazards associated with site-specific tasks and operations.

- How to respond when approached by any person or entity requesting information about the subject of this data or this contract, specifically, the JV personnel shall defer to the CESWT/CESWF COR.Public relations to ensure personnel will not make any public statements to the media without prior coordination with and approval of CESWT COR.
- Environmental concerns and sensitivity including endangered/threatened species and historic, archaeological, and cultural resource issues (this includes the NN and POZ cultural resources training as outlined in the Environmental Protection Plan [EPP] provided under separate cover).
- Additional CESWT and/or FWDA training as required.
- Identification of features, hazards, and disposal methods of MEC (including ICM) that may be encountered.

3.7.4 Project Notifications

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

3.7.5 Compliance with Plans and Procedures

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

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

3.7.6 General Site Practices

All operational activities at the KOA will be performed under the supervision and direction of qualified UXO personnel. Non-UXO qualified personnel will be prohibited from performing any operation unless

they are accompanied and supervised by a UXO technician. Throughout the entire project, the JV personnel will adhere to the following general practices.

- **Work Hours:** Operations will be conducted only during daylight hours. The Army intends to work five 10-hour days each week, as weather and conditions permit. The JV will request permission from the KO if it intends to modify the work schedule. Due to the inherent risk associated with MEC operations, UXO personnel will be limited to a 60-hour workweek consisting of a maximum of 45 hours of MEC field operations. No single workday will exceed ten hours. Twenty-four hours must separate each MEC field operation workweek. These work restrictions apply only to UXO personnel.
- **Basic Procedures and the JV Standard Operating Procedures (SOP):** During site operations, the JV personnel will adhere to the operational and Environmental Safety & Health procedures outlined in the JV SOPs referenced and presented in the APP.
- **Site Access:** As there are multiple contractors working within the KOA, a weekly managers meeting will be held with the Government and the onsite OESS for forward planning, agreement for all contractors, and Government approval of the weekly schedule. The JV will also coordinate with the FWDA POC and the USACE OESS daily for site access and controls of all areas. The JV will control access to all areas where work is being conducted. No hazardous MEC operations will be conducted when non-UXO or unauthorized personnel are inside the defined MSD zone.
- **Handling of MEC:** Only UXO qualified personnel as defined in DDESB TP 18 will handle MEC items. During all operations with the potential for encountering MEC, all JV personnel will adhere to the general procedures outlined in EM 385-1-97, Explosives Safety and Health Requirements Manual.
- **Visitor Safety:** All visitors entering the site will report to the SUXOS and sign the visitor's log. All site visitors will receive a safety briefing, as outlined in the SSHP, and visitors will be escorted at all times by UXO personnel when inside the MEC area.
- **ICM Areas**: Only personnel meeting the requirements of DA PAM 385-63 and/or approved in the site CORA will be allowed to perform clearance activities in designated ICM areas. ICMs found outside the designated ICM areas will be handled IAW the WERS basic contract Section 2.9 and properly marked and reported to the OESS. The OESS will coordinate with USACE PM to determine and inform the JV of the path forward for any ICMs found outside of the designated ICM area.

3.7.7 Overall Safety Precautions and Practices

The JV will conduct safety and operational briefings daily. Additionally, the SUXOS or UXOSO may hold a safety stand-down to conduct training, at any time a deviation or degradation of safety warrants a review. The safety and operational training and briefings will be performed IAW the SSHP for this project as summarized below:

- **Daily Safety Briefing:** Each day, prior to the commencement of work, the UXOSO will conduct a safety briefing for all site personnel. In addition, the UXOQCS or SUXOS may provide operational briefings such as Plan of the Day or quality lessons learned. A written record of this meeting will be maintained in the JV Safety Meeting Attendance Log. The briefing will focus on specific daily hazards, potential hazards and risks that may be encountered, and the safety measures that should be used to eliminate or mitigate those hazards. These briefings will provide personnel with the known or potential task-specific hazards related to the day's operation. The Activity Hazard Analysis forms will be available and used during the safety briefing to inform personnel of the task-related hazards. The Activity Hazard Analysis forms will also be used to inform personnel of the PPE and safe work practices used to mitigate the task hazards. In addition to the daily safety briefing, each Team Leader will hold a daily tailgate safety meeting to discuss the day's operations, individual team assignments and any other concerns for the day's operations.
- **Environmental Concerns:** The promotion of environmental sensitivity and cultural resources will be an ongoing part of the daily safety and operational briefs.
- **UXO Refresher:** Prior to the performance of field operations all UXO personnel will be given UXO refresher training by the UXOSO, UXOQCS, or SUXOS, on the known MEC/ICM that may be encountered on-site. The refresher will include topics related to explosives and munitions items that may be encountered on-site, including the identification of the MEC, the hazards, and the disposal methods. Periodic training will be conducted as UXO are encountered and included as part of the daily team tailgate meetings.
- **Additional Training:** The SSHP prepared for this project details additional on-site training.

3.7.8 Vegetation Removal

The Army will conduct limited mechanical brush removal within the proposed areas to facilitate MEC removal operations; however, the Army expects only limited and light vegetation removal will be required. Prior to any vegetation removal the Army will coordinate with the Tribes and FWDA for any

vegetation removal restrictions. Elements such as cottonwood trees and other culturally significant features will be marked and avoided. Prior to, and during vegetation removal, UXO technicians will visually search the area where the vegetation will be removed to ensure the area is free of surface MEC items or other items that may present a physical hazard. During the brush removal, the affected site personnel will utilize all the safety and health PPE specified in the APP. The UXO technicians cutting the vegetation will wear PPE as required by EM 385-1-1. The UXO team will clear vegetation using hand-tools or light machinery. Vegetation will be cut no closer than six inches from the ground surface using weed whackers for low-lying vegetation and bush hogs or chain saws for thicker vegetation. During any vegetation removal strict attention will be given so as not to remove any root ball of the vegetation being cut. Cut vegetation will be removed from the immediate work area and placed outside of the area and allowed to degrade naturally at the project site. The SUXOS will coordinate with FWDA personnel to determine the optimal location(s) to place the vegetation removed from the clearance area.

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

The Army is complying with Sections IV.B and IV.E of the Permit by conducting MEC and MPPEH clearances within the KOA. This section contains the details of the Army adhering to these RCRA requirements.

3.7.9.1 *Munitions and Explosives of Concern and Material Potentially Presenting an Explosive Hazard Surface Clearance Inside Parcel 3 Inner Fence (per Section IV.B)*

The Army's intent, at this time, is to retain the property inside the Parcel 3 inner fence which contains the OB/OD area and the HWMU. This section provides details of the Army's compliance with Section IV.B and its plans to conduct a surface clearance of the inner fence area, excluding AOC 92 and the HWMU.

The UXO clearance teams will perform MEC surface clearance of the inner fence utilizing standard "mag and flag" clearing techniques, (Map B-3 depicts this surface clearance area). Upon arrival at the assigned grid, Team Leaders will verify location and install grid stakes as necessary. Once the grid has been established and staked, team members will use handheld inverted marking paint guns and biodegradable high visibility paint to mark lane divisions as they sweep with the use of analog geophysical instruments to assist in detection of MEC and MEC-like metal objects. Control lanes will run north to south and will be approximately five feet in width with some variations based on terrain and vegetation hazards. Where feasible, dependent on light vegetation and moderate to flat terrain, UXO personnel will use the ML-3(s)

analog geophysical instruments and increase the lane width up to 7 feet. 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. Surface/subsurface detection will be performed with instruments such as the Schonstedt 52cx, White's (model XLT/DFX/SST) and Vallon (model VMH3CS) all metals detectors including newer technologies such as the 42-inch and 55-inch ML-3s developed by SSI. The Army will utilize the all metals detectors to augment the delineation and detection capabilities in areas of high hot rock/iron deposit influence and to confirm non-ferrous debris saturations.

3.7.9.2 *Munitions and Explosives of Concern and Material Potentially Presenting an Explosive Hazard Clearance Inside Kickout Area (per Section IV.C and IV.F)*

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 V.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 KOA (Map B-3 depicts this clearance area), excluding the Parcel 3 inner fence area, and the AOCs and SWMUs (Section IV.F and IV.C). A surface clearance of Parcel 3 inner fence area will be conducted (Section IV.B); the surface and subsurface clearances of the AOCs and SWMUs will be conducted under the Kickout Area Investigation and MEC Clearance Parcel 3 AOCs and SWMUs Work Plan, which is currently being written.

Upon arrival at the assigned grid, Team Leaders will verify location and install grid stakes as necessary. Once the grid has been established and staked, team members will use handheld inverted marking paint guns and biodegradable high visibility paint to mark lane divisions as they sweep with the use of analog geophysical instruments to assist in detection of MEC and MEC-like metal objects. Control lanes will run north to south and will be approximately five feet in width with some variations based on terrain and vegetation hazards. Where feasible, dependent on light vegetation and moderate to flat terrain, UXO personnel will use the ML-3(s) analog geophysical instruments and increase the lane width up to 7 feet. 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. Surface/subsurface detection will be performed with instruments such as the

Schonstedt 52cx, Whites (model XLT/DFX) and Vallon (model VMH3CS) all metals detectors including newer technologies such as the 42-inch and 55-inch ML-3(s) developed by SSI. The Army will utilize the all metals detectors to augment the delineation and detection capabilities in areas of high hot rock/iron deposit influence and to confirm non-ferrous debris saturations.

Arroyos located within the KOA 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. 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.

Surface anomalies meeting the clearance criteria (measuring 1.5 inches by 3 inches or larger) will be identified and removed . Identified subsurface anomalies will be hand dug by UXO technician personnel to determine the identity of the anomaly. To access the anomaly, UXO technicians will hand dig with a shovel following the procedures outlined in EM 385-1-97, Change 1, Explosives Safety and Health Requirements Manual. 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 qualified UXO technicians, one of whom will be the UXOTIII Team Leader. If the surface/subsurface contact proves to be non-MEC, it will be removed and the hole will be rechecked with an analog geophysical instrument. Investigations will be done to the clearance depths if additional anomalies are detected in the investigation area. Once the hole has been determined not to contain an anomaly it will be refilled. All investigation areas will be backfilled and hand tamped. If the contact is MEC, it will be marked and handled IAW the procedures described in EM 385-1-97, Change 1.

3.7.9.3 *Munitions and Explosives of Concern Items Encountered*

The MEC identification process will start when the suspected item is located. The UXO technician locating the item will contact the UXO Technician III Team Leader when the MEC is identified and the Team Leader will confirm the identity. Once the item has been identified and marked with a pin flag, the SUXOS and UXOSO will be notified and requested to evaluate whether the MEC item is acceptable to

move. If the MEC item is acceptable to move it will be transported to the CE Igloos or the 10-day CAMU permitted temporary storage area for later destruction at the CAMU IAW this WP. If the item is determined unacceptable to move it will be BIP. The USACE OESS will be notified and assistance requested if the JV cannot make a positive identification.

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

- The grid number where the item was found.
- Item number assigned.
- Type of item.
- Location of item in coordinates.
- Depth below ground surface/orientation.
- Digital photograph and disposition.

Post disposal actions for all MEC include re-inspection of all produced ordnance debris to ensure it can be classified as MDAS. If the demolition operation fails to reduce the MEC to MDAS, demolition operations will be repeated until all ordnance debris can be designated as MDAS and controlled as indicated in Section 3.7.9.6.

3.7.9.4 *Material Potentially Presenting an Explosive Hazard Items Encountered*

When suspected MPPEH is located the UXO technician locating the item will contact the UXO Technician III Team Leader. Once the item is identified as MPPEH it will be further investigated to determine if an explosive hazard exists. The MPPEH will be properly inspected and verified as shown in Section 3.7.9.5 below. If the MPPEH has an explosive hazard it will be designated as MDEH; if not, it will be designated as MDAS. Items designated as MDEH will undergo explosive demolition operations as discussed for MEC items in paragraph 3.11.1. MDAS and recyclable scrap will be controlled as discussed in paragraph 3.7.9.6.

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

All suspected MPPEH will be 100 percent inspected by the UXO Field Team. Two separate UXO qualified personnel will conduct the inspections prior to removing any material from the grid. At a minimum a UXO Technician II will conduct a 100 percent inspection and a UXO Technician III will

conduct a 100 percent re-inspection within the clearance grid to determine if the item is MDEH, orMDAS (including MD or RRD) and ensuring it does not contain an explosive hazard. The MD will then be segregated from other scrap and both will be placed in temporary secure staging areas designated at the start of the project.

Items determined to be MEC or MDEH during the inspection/re-inspection process will be disposed of via explosive operations as discussed in paragraph 3.11.1

The SUXOS will perform random spot checks to ensure and verify the established inspection process is being implemented as required by the WP and that all located MD and RRD being placed in the secure storage containers are free of any explosive hazards and can be maintained in a secure separate fashion. If the security of the lockable storage containers or drums is breached in any way the contents must be 100 percent re-inspected by two separate UXO Technicians, as described above.

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

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

3.7.9.6 *MD Final Disposition*

The SUXOS will certify the debris is free of explosive hazards and the OESS will verify the MPPEH inspection process has been followed. If an OESS is not on-site, the UXOQCS, or a similarly trained individual can be delegated to verify the MPPEH process.

The DD form 1348-1A used to document the description of the container will be used as the certification/verification documentation for each container. All DD 1348-1As must clearly show the typed

or printed names of the SUXOS and UXOQCS, organization, signature, contractor's home office, and the field office phone number(s) of the persons certifying and verifying the debris as free of explosive hazards. Also, the following must be present on the Form:

a. Basic material content (Type of metal; e.g., steel or mixed);
b. Estimated weight;
c. Unique identification of each of the containers and seals stated as being turned over;
d. Location where MD or RRD was obtained; and,
e. Seal identification, if different from the unique identification of the sealed container.

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

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

The following certification/verification will be entered on each DD 1348-1A for turnover of MDAS and will be signed by the SUXOS and UXOQCS if the OESS is not on site. This statement will be in accordance with USACE EM 1110-1-4009, Chapter 14 where only MD is being processed:

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

The Army will arrange for maintaining the chain of custody and final disposition of the certified and verified materials. The certified and verified material will only be released to an organization that will:

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

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

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

3.8 Site Control During Munitions and Explosives of Concern Operations

For the purpose of this WP, a MEC operation is defined as any activity involving investigation, inspection, demolition, or handling of any MEC or explosive materials. Once a MEC operation commences in an area, only essential personnel involved in the on-site activities will be permitted into the MSD. The Explosive Safety Quantity-Distance Arcs for various scenarios are shown on Maps B-4 to B-6 in Appendix B.

Prior to the field mobilization, the JV will coordinate with the FWDA POC to close access to the KOA to personnel as a means to control site access. Signs will be posted to warn personnel and the public that hazardous operations are being conducted. The posted signs and project personnel will ensure that non-essential personnel are restricted from the EZ during MEC operations. Project personnel will maintain sharp vigilance to ensure that non-essential personnel do not encroach around posted signage into the EZ during MEC operations.

3.9 Minimum Separation Distances

3.9.1 Minimum Separation Distances for 155mm series High Explosive Projectile and the AN-M66A2, 2000 lb. HE Bomb

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

flares, and bulk explosives. For this project the Munition with the Greatest Fragmentation Distance (MGFD) selected for intentional detonations for the KOA MRS is the AN-M66A2, 2000 lb. HE Bomb for the Parcel 3, KOA Inner Fence Area; and the 155mm HE series Projectiles for the KOA MRS from the Parcel 3, KOA Inner Fence Boundary to the KOA Boundary (see Maps B-3 and B-4 in Appendix B). During intentional detonation operations, facilities or structures within the MSD will be vacated.. All MSD restrictions will be established IAW this plan for the KOA MRS and will be enforced for all personnel during all operations/activities.

Sandbag or water mitigation may be used as engineering controls to reduce the intentional detonation MSD on MEC items authorized for the sandbag mitigation procedure. These controls will be used in accordance with HNC-ED-CS-98-7, Amendment 2 dated November 2014, HNC Safety Advisory dated 7 November 2011, and DDESB Memo dated 22 May 2014. Water mitigation will be used in accordance with HNC-ED-CS-S-00-3 *Use of Water for Mitigation of Fragmentation and Blast Effects Due to Intentional Detonation of Munitions*, dated September 2000. Tamping (single or multiple items) may be used in accordance with DDESB TP 16 and the Buried Explosion Module Version 6.3.2. These documents will be available on site.

The maximum net explosive weight (NEW) for a consolidated shot will be limited so that the K328 overpressure distance for the total NEW (including donor charges) does not exceed the MSD for the intentional detonation, which is 3,593 feet for the Inner Fence Area and 2,894 feet for the KOA from the Inner Fence Boundary to the KOA Boundary.

Table 3-2: Minimum Separation Distances

MRS	MGFD	MSD (Feet)[1]				
		For Unintentional Detonations		For Intentional Detonations		
		Hazardous Fragment Distance (HFD)	TSD (K40) K24 K18	Without Engineering Controls Maximum Fragment Distance – Horizontal (MFD-H)	With Engineering Controls (Sandbag Mitigation)	With Engineering Controls (Water Mitigation)
KOA[2]	155 mm Series Projectile	450[3]	TSD – 123[4] K24 – 74[4] K18 – 55[4]	2894[5]	Not Permitted	Not Permitted
KOA Inner Fence Area	AN-M66A2, 2000 pound HE Bomb	910	TSD – 440 K24 – 264 K18 – 198	3593	Not Permitted	Not Permitted

Notes:
(1) See Appendix G for fragmentation database review sheet.
(2) Excluding AOCs, SWMUs and the Inner Fence Area.
(3) Based on the 155mm M107 (Comp B filled projectile).
(4) TSD for manual MEC/MPPEH Clearance is the K40 Distance for 155mm M795 projectile.
(5) Based on the 155mm M107 (TNT filled).

3.9.2 Minimum Separation Distances for Unintentional Detonations

The MGFD for unintentional detonations for the KOA MRS is the AN-M66A2, 2000 pound HE Bomb for the Parcel 3, KOA Inner Fence Area; and the 155mm HE series Projectiles for the KOA MRS from the Parcel 3, KOA Inner Fence Boundary to the KOA Boundary (see Maps B-3 and B-4 in Appendix B). During MEC operations, facilities or structures within the MSD will be vacated to the applicable MSD while the intentional detonation operations are being conducted. According to the DDESB Fragmentation Database (see Appendix G), the Hazardous Fragment Distance for an unintentional detonation is 910 ft based upon the AN-M66A2, 2000 pound HE Bomb for the KOA Inner Fence Area and 450 ft based upon the 155mm M107 (Comp B) Projectile for the KOA MRS from the Parcel 3, KOA Inner Fence Boundary to the KOA Boundary. According to the DDESB Fragmentation Database, the K40 distance is 440 ft for the AN-M66A2, 2,000 pound HE Bomb and 123 ft for the 155mm M795 Projectile. Team separation

distance will be no less than 440 ft for the KOA Inner Fence Area and no less than 123 ft for the KOA MRS from the Parcel 3, KOA Inner Fence Boundary to the KOA Boundary.

Preliminary site work such as surveying does not require the establishment of an MSD for Quantity Distance purposes. The MSD restrictions from MEC areas to non-project personnel will be applied during all subsurface MEC activities. Project personnel are defined as those on-site contractor and DoD personnel required to participate in the MEC activities, along with those approved and authorized visitors. All others are defined as non-project personnel.

3.9.3 Set-up Work Zones

In addition to the MSD, additional work zones will be established prior to initiating MEC investigation activities. EZs will be established around the operation defining the investigation areas. The areas outside of the MSD will serve as the Support Zones (SZs). A designated site for personnel to meet will be established within the SZ and will contain a first aid kit, an eyewash station, a fire extinguisher, and emergency communications.

3.10 Personnel Designation

For the purpose of this WP, it is necessary to define the terms “essential personnel” and “non-essential personnel.” Essential personnel are defined as those Army and subcontractor personnel essential to the safe and effective performance of the MEC removal activities; all others are designated as non-essential. Essential personnel will be designated as such by the SUXOS.

The Army will conduct safety and operational training on a daily basis starting with the morning briefing. Daily safety training will typically be conducted by the UXOSO; however, with regard to safety, the Army solicits and welcomes comments and input from all employees. The SUXOS will also conduct operational training sessions and briefings. This training will address team assignments, potential problems and their respective resolutions and productivity status.

3.11 Disposition Techniques

3.11.1 Munitions and Explosives of Concern Disposal

The Army will be responsible for the disposal of all MEC encountered during site activities. Demolition operations will be coordinated by the SUXOS and will be conducted IAW the procedures outlined in DA

Technical Manual 60A-1-1-31, USACE EM 385-1-97, Change 1, Explosives Safety and Health Requirements Manual, and the JV's MEC Demolition SOP.

During disposal of MEC, safety is the primary concern. The most obvious requirements are to protect personnel, the general public, and the environment from fire, blast, fragmentation and noise. Planned detonation of explosives requires more stringent safety distance requirements than those for ordnance in storage.

Detailed demolition procedures are found in the JV's SOP-207, MEC Operations, Disposal of MEC located in Attachment 3 of the APP. Physical control of the on-site disposal operations will be accomplished by blocking access roads/trails to the site at the point of the EZ. Control of the disposal operations must be maintained to ensure no unauthorized access of the site by non-essential personnel. During disposal preparation, all non-essential personnel must evacuate to locations outside the EZ to a designated location, and all essential personnel will be evacuated to a designated location outside the EZ prior to demolition.

The MFD-H for the KOA during disposal operations is 3,593 ft for the KOA Inner Fence Area and 2,894 ft for the KOA MRS from the Parcel 3, KOA Inner Fence Boundary to the KOA Boundary. When authorized, demolition operations may be conducted using sandbag mitigation as described in Section 3.9.1. While preparing MEC for detonation, the UXOSO will ensure the number of personnel on-site is kept to the minimum required to safely accomplish the disposal task. The JV will communicate with the FWDA POC and assist with the coordination for the evacuation of non-essential personnel from all inhabited buildings and storage structures within the MSD IAW with this plan and the approved ESS as Amended.

3.11.2 Munitions and Explosives of Concern Transportation

If MEC is encountered, BIP operations are most likely to be conducted. In the event MEC is deemed acceptable to move, transportation of MEC will be done in a specially-equipped pickup truck, dump truck or flatbed truck. The transportation of MEC will be conducted IAW Section 5.6 of this WP, the JV Safe Vehicle Operation SOP-515, and the JV MEC Operations, Transportation of Explosives SOP-203. These SOPs are contained in Attachment 3 of the APP which is being provided under a separate cover.

3.11.3 Planned or Established Demolition Areas

All MEC items unacceptable to move will be BIP, and MEC deemed acceptable to move will be moved to the CE Igloos or the 10-day CAMU permitted temporary storage area for later destruction at the CAMU IAW this WP (shown on Map B-5).

3.11.4 Collection Points

Collection points are those areas used to temporarily accumulate MEC determined acceptable to move by the SUXOS and UXOSO. Acceptable to move MEC for this project will be secured in the southwest corner of each grid until transported to the CE Igloos or the CAMU for a demolition event to be scheduled at the earliest opportunity. MEC items at the CAMU will be laid out as shown in U.S. Army Engineering and Support Center, Huntsville publication "*Procedures for Demolition of Multiple Rounds (Consolidated Shots) on Ordnance and Explosives (OE) Sites"*, dated August 1998 with terminology update dated March 2000 for the project. The maximum NEW at a collection point will be limited so the K40 overpressure distance for the total NEW does not exceed the HFD for the area.

On the day of the demolition event (consolidated shot) the maximum NEW for each individual consolidated shot will be limited so the K328 overpressure distance for the total NEW (including donor charges) does not exceed the MSD for the intentional detonation.

3.12 Corrective Action Management Unit Operation

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

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

Designated temporary storage area(s) for recovered MEC will be located within the CAMU and will be used only if treatment and disposal processes are delayed. The temporarily stored materials will be treated/disposed of as soon as the next treatment/demolition day can be scheduled. At no time will items be held within the CAMU for more than 10 calendar days. Any materials placed in the designated temporary storage area will be properly segregated and stacked in a manner minimizing the possibility of spreading contamination. This area (i.e., Parcel 3) provides the required security measures, as it is within a locked and controlled double fence. The FWDA caretaker performs security checks of the area, as required.

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

At the CAMU, the Army will treat MEC such as propellants, bulk explosives, metal powders, detonators, and miscellaneous munitions constituents. Incidental solid wastes such as wooden or ammunition boxes, banding material and containers that can be safely separated from the munitions item/constituent, will upon successful inspection, be certified as MDAS IAW DOD and USACE regulations and requirements. These wastes will then be sent off-site for proper final disposition.

In addition to MEC/MPPEH/MD items being recovered from the project, the Army team may also be tasked to treat MEC/MPPEH/MD found on other Parcels of FWDA by USACE or other contractors. These items will be managed through inspection upon receipt, inventory documentation, storage, and treatment/demolition utilizing the same procedures.

Processed scrap metal or MD will be certified as MDAS and transported off-site for recycling or disposal IAW all local, state, and federal rules, laws, and regulations.

3.12.1 Corrective Action Management Unit Records

Pursuant to section IX.M of the Permit, during the operations of the CAMU the Army will continue to maintain records documenting the treatment and maintenance operations. The records will include, the volume and type of munitions treated, method of treatment, type and volume of ignition source, estimated volume of incidental solid waste treated, the reason separation (of the solid waste) was not possible and

the date and time of each treatment. In addition, a detailed record of the maintenance and repairs conducted to prevent migration of contamination at the CAMU will also be documented. This logbook record will be maintained at the field office, with a copy located at the FWDA information repository (located at: Ft. Wingate Army Depot, 7 Miles East of Gallup, Bldg. 1, Ft. Wingate, NM 87316). The log book will made available for review during normal business hours.

3.13 Soil Sampling for Munitions Constituents

MC sampling will not be conducted under the WP for this task. Soil sampling of the AOCs and SWMUs will be covered under a separate WP.

3.14 Backfilling Excavations

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

3.14.1 Munitions and Explosives of Concern Accountability/Daily Reporting

The Army will document all activities accomplished at the sites, on a grid-by-grid basis. In addition, operational data will be provided to the USACE OESS on a daily basis. Data to be provided includes:

- Personnel on-site.
- Grids started and finished.
- MEC nomenclature located by grid.
- MD and RRD (by pound).
- Daily Safety Briefing.
- The JV Daily QC Report.

3.14.2 Demobilization

Upon completion of the tasks covered under this PWS, the JV will demobilize from the site. The demobilization activities will consist of the following steps.

1. Remove temporary facilities.
2. Recycle/dispose of all material in the CE Igloos before returning control to the government.
3. Perform final maintenance of the CAMU.
4. A final walk through will be performed by the FWDA Caretakers, USACE, and JV to correct any identified issues

5. Demobilize personnel and any remaining equipment and supplies.

4.0 QUALITY CONTROL PLAN

4.1 Corporate Commitment to Quality

This Quality Control Plan (QCP) provides the procedures for controlling and measuring the quality of all work performed during site activities. The JV's work procedures and processes covered in this WP and QCP will follow the requirements of the WERS DIDs and the RCRA Permit.

This QCP has been developed to ensure compliance with appropriate industry and regulatory standards. It will be used to ensure activities related to this project are conducted in a planned and controlled manner, tasks conform to contractual requirements, and appropriate documentation is generated to support each activity for which the JV is responsible. All QC activities will be performed and documented IAW applicable professional and technical standards and contract requirements.
It is the JV's policy to perform all work in conformance with applicable standards of quality. The procedures specified in the QCP will be considered the minimum acceptable standards. Additional requirements exceeding the strict procedures reflected in this QCP may be specified by the client or regulatory agencies and will be complied with. Procedures less stringent than those specified will not be adopted without prior written approval from the client and the Quality Program Management Team.
This QCP must be reviewed and formally approved before field operations commence. It is the personal responsibility of all personnel associated with this project to understand and maintain the quality issues applicable to their work assignments.

4.2 Quality Assurance/Quality Control

4.2.1 Quality Assurance

The JV's internal QA will be accomplished by the JV QC Manager, who will evaluate the field investigation activities. The purpose of the evaluation will be to ensure the field activities meet the specifications of the PWS and approved WP. The Government OESS will perform QA for this site ensuring the performance metric as described in the PWS is adhered to and achieved. .

The JV has a Corporate Management Plan that is documented and implemented through our QC Manual, and uses the three phases of inspection; Preparatory, Initial, and Follow-up phases, which are detailed in the site-specific QCP below.

4.2.2 Site-Specific Quality Control Plan

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

- Determining compliance with this plan and all other elements of the WP.
- Determining the effectiveness of work performed.
- Inspecting the maintenance and accuracy of site records.
- Testing, calibrating or response checking equipment used to perform tasks.

4.2.3 Quality Program Management Structure

The following section describes the structure of the quality management team. Personnel were selected based on previous experience and their familiarity with the QA/QC system. The project team will provide the specific technical and management capabilities and qualifications to perform the contract work.

4.2.4 Program Manager

The Program Manager (Bobby Templin) is ultimately responsible for the effective implementation of the QCP for all field operations. The Program Manager issues the Corporate Policy Statement and directs management and workers to follow the requirements of the QCP.

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

4.2.5 Corporate Quality Control Manager

The QC Manager (John Sparks) reports to the Program Manager and has the authority and overall responsibility for independently verifying that quality is achieved. The QC Manager will:

- Foster a culture of excellence for quality.
- Manage the QA organization and maintain the JV Corporate Quality Assurance Program (QAP).
- Approve QA requirement documents, project and program implementing procedures, and subcontractor additions to the JV Corporate QAP.

- Assess the effective implementation of the JV Corporate QAP.
- Ensure all personnel are properly trained and adequately experienced for the duties.
- Establish guidelines to assist in the development of program, project, site and task specific QC policies and procedures.
- Ensure corrective actions are documented and acknowledged by the PM and field personnel, as well as communicated to the client, when adverse situations or defective work result from a project activity.
- Conduct periodic field audits of the programs, projects and sites and submit a report of findings to the Program Manager.
- Ensure project deliverables are defined prior to initiation of field operations and are submitted as required by the WP and project schedule.
- Report regularly to the Program Manager on the adequacy, status, and effectiveness of the QC program.

4.2.6 Project Manager

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

- Review and approval of sampling, testing, and field investigation methods and QCP, including designs, schedules and labor allocations.
- Preparation of progress reports with the assistance of key support personnel.
- Overall project quality management.
- Coordinating with the SUXOS, UXOSO and UXOQCS to ensure that project quality and safety issues are addressed.
- Developing project plans and associated documentation.
- Technical review of all project deliverables.
- Maintaining effective contact with the client.
- Scheduling activities and preparing documents and reports associated with the project.

4.2.7 Senior Unexploded Ordnance Supervisor

The SUXOS (Scott Wardle) is the senior UXO Technician and on-site supervisor. He controls operations of all field teams performing activities and will directly supervise field performance assisting personnel to achieve maximum operational safety and efficiency. He reports directly to the PM. He will implement the approved plans in the field and must review and approve any changes. He supervises all teams and personnel on a project including:

- Ensuring compliance with contract documents specifications relating to QC.
- Assessment of the effective implementation of the project QCP.
- The authority to stop work when significant conditions adversely impact the quality of work and such action is warranted.
- Identify quality problems and make sure that unsatisfactory conditions are controlled until proper resolution has occurred.

4.2.8 Site Safety and Health Officer/Unexploded Ordnance Safety Officer

The Site Safety and Health Officer (Dan Hains) for this project is the UXOSO. The UXOSO will be responsible for:

- Implementing the Corporate Environmental Health and Safety Program.
- Reviewing and monitoring compliance with project-specific health and safety plans.
- Reporting noncompliance with Safety and Health criteria to SUXOS and PM and documenting these non-conformances on the Non-conformance Report.
- Performing Root Cause Analysis for Safety and Health related occurrences.
- Coordinating corrective measures for health and safety deficiencies.
- Developing preventative measures to prevent future occurrences.
- Conducting required training and medical monitoring of personnel.

The UXOSO has the authority to require corrective measures related to health and safety issues and to stop work, if required, to ensure a safe working environment.

4.2.9 Unexploded Ordnance Quality Control Specialist

The UXOQCS (Lew Kovarik/ Jeffrey Holm) has the responsibility and authority to enforce the site-specific QC plans and procedures. This individual reports to directly to the Corporate QC Manager and coordinates site activities with the SUXOS. Each UXOQCS will have parallel duties to ensure site wide

coverage of project responsibilities and all reporting will be consolidated into joint daily reports. The UXOQCS's responsibilities include:

- Coordinating, as necessary, to make sure that QC objectives appropriate to the project are set and all personnel are aware of these objectives and standards.
- Maintaining a QC log to document details for field activities during QC monitoring activities and reporting.
- Coordinating with the SUXOS to ensure that QC procedures are being followed and are appropriate for achieving data validity sufficient to meet QC objectives.
- Conducting daily QC surveillances of all site activities using the three phase inspection process and recording the findings.
- Completing the QC Reports for the Preparatory, Initial and Follow-on QC Report.
- Reporting noncompliance with QC criteria to SUXOS and PM and documenting these non-conformances on the Non-conformance Report.
- Performing Root Cause Analysis for quality deficiencies.
- Coordinating corrective measures IAW project specifications.
- Developing preventative measures to prevent future occurrences.
- Conducting quality, standards and proficiency training.
- Initiating a Rework Items List on non-conformance areas that must be accomplished to meet quality specifications.
- Conducting QC Meetings as required. Record meeting outcomes in the Daily QC Report.
- Coordinating Corrective Action Requests for administrative and engineering resolutions.
- Ensuring that lessons learned are documented to the JV Quality Manual for analysis.
- Stop work, if required, to ensure a safe working environment

4.3 Milestones

Project updates shall be made to CESWT at the completion of each milestone listed in the Project Schedule (Appendix C) or more often as appropriate.

4.4 Critical Issues/Activities

The JV has identified the issues/activities listed below (Sections 4.5 through 4.8) as being critical to the delivery of a quality product. The following paragraphs describe the QC criteria the JV will apply to these critical issues/activities and the methods used to monitor quality.

4.5 Employee Qualifications

Prior to an employee's initial assignment or any change in duties/assignment, the SUXOS will physically review the employee's licenses, training records and certificates to make sure the employee is qualified and capable to perform the duties to which they are being assigned.

The JV will make sure the UXO qualified personnel meet the standards required by DDESB TP 18 and DA PAM 385-63 for personnel working in the designated ICM areas. UXO personnel may receive years of experience credit being granted for an active duty military explosive ordnance disposal (EOD) position and/or for served time as a UXO Technician I, II, III, UXOSO or UXOQCS through work with a munitions response contractor. The JV will provide certification for each hired worker showing their proper training and requisite experience per Table 4-1 of DDESB TP 18 for the position being filled and in compliance with 29 Code of Federal Regulations (CFR) 1910.120. The JV will submit a Personnel Qualifications Certification Letter that the UXO personnel meet the qualifications of DDESB TP 18. The UXOSO will maintain personnel files on each employee, including copies of licenses, training records and certificates of qualifications that support the employee's placement and position. At a minimum the files will include:

- Naval School, Explosive Ordnance Disposal (NAVSCOLEOD) certification or certification IAW DDESB TP 18 approved schools (UXO personnel only).
- Current certificate of medical clearance/annual physical examination IAW 29 CFR 1910.120.
- 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) safety training certification.
- 8-hour HAZWOPER supervisor certification (required by position).
- Current 8-hour annual HAZWOPER refresher certificate.
- Current certificate for Cardiopulmonary Resuscitation training and First Aid (required by position).
- Current and Valid Driver's License (with restrictions identified) (if required).
- Drivers transporting MEC deemed safe to move and explosives will be trained IAW the JV Safe Vehicle Operation SOP-515 and the JV MEC Operations, Transportation of Explosives SOP-203 (SOPs are contained in the APP).

4.6 Publications

The JV has conducted a technical review of the PWS and all pertinent data, and compiled a list of required publications to be maintained at the site. In addition to this list, the JV will make available, in a timely manner, any additional manuals the project team may require. Prior to the start of operations and periodically throughout the project, the SUXOS will check to ensure site publications are present and in good repair. Results of this inspection will be recorded and reported to the PM. The currently identified publications include:

- FWDA RCRA Permit No. NM6213820974
- Corporate Environmental Safety and Health Program.
- OSHA, 29 CFR 1910, Occupational Safety and Health Standards for General Industry.
- OSHA, 29 CFR 1926, Occupational Safety and Health Standards for the Construction Industry.
- EM 385-1-1, Safety and Health Requirements Manual.
- EM 385-1-97, Explosives Safety and Health Requirements Manual.
- DOD 4145.26-M, Contractor's Safety Manual for Ammunition and Explosives.
- DOD 6055.09-M, DOD Ammunition and Explosives Safety Standards.
- DA PAM 385-64, Ammunition and Explosives Safety Standards.
- Department of the Army Regulation (AR) 385-10, The Army Safety Program.
- DA PAM 385-63, Range Safety.
- AR 385-40 w/supplement, Accident Reporting and Records.
- Alcohol, Tobacco and Firearms (ATF) 27 CFR 555, Commerce in Explosives.
- ATF P 5400-7.
- Material Safety Data Sheets for hazardous substances used on-site.
- USACE “Use of Sandbags for Mitigation of Fragmentation and Blast Effects Due to Intentional Detonation of Munitions”. HNC-ED-CS-S-98-7, HNC Safety Advisory and DDESB Memo dated 22 May 2014
- USACE Procedures for Demolition of Multiple Rounds (Consolidated Shots) on Ordnance and Explosives Sites.
- DDESB TP 16 and the Buried Explosion Module.
- The JV Corporate QAP.
- The JV Quality Procedures.

4.7 Monitoring Equipment Calibration and Testing

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

4.7.1 Maintenance Program

All tools, instruments, and equipment used on-site will be properly maintained and calibrated (as necessary) IAW the manufacturer's specifications or standard industry practices. This applies to communications equipment, vehicles/machinery, environmental monitoring equipment, and PPE. Equipment will be protected from dust and contamination and visually checked for damage prior to use. Preventative maintenance will be performed on a regular basis. Critical spare parts will be kept on-site to minimize downtime.

The JV has an aggressive maintenance program implemented as described below:

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

4.7.2 Logs and Records

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

- Daily Journal: The SUXOS will maintain the daily journal. This journal will provide a summary of all operations conducted to include information on weather conditions, problem areas, WP modifications, injuries, start/stop times, tailgate safety briefs, equipment discrepancies, training conducted, visitors, and any additional items deemed appropriate.
- Safety Log Book: The UXOSO will maintain this safety log book. The log will be used to record all safety related matters associated with the specific project such as: safety briefings/meetings, including items covered and attendees; safety audits; near-misses/accidents/incidents. It will include cause and corrective action taken; weather conditions; and any other matters encompassing safety.
- Training Records: The UXOSO will maintain training records for all site personnel. These records will contain training certificates, licenses and other qualifying data for an individual's duty position.
- QC Log Book: The UXOQCS will maintain this log and will record the performance and results of QC checks and audits.
- Visitors Sign-in Sheet: The SUXOS and UXOSO will maintain this log for all personnel not directly involved in the project site activities. This log will identify visitors by name, company, date, time in/out and a contact phone number.
- Photographic Record: The SUXOS will maintain a photographic record to log all video recordings and photographs taken to document work and/or site conditions. Photographs and video tapes will be marked with a unique identifying number relating back to the photographic log, and will be maintained on file until the end of the project. Photographic negatives and duplicate copies of video tapes will be forwarded to the JV corporate office for safekeeping.
- Site Maps: The SUXOS and UXOQCS will maintain working maps of the operating areas. These maps will be used to document task progression and other pertinent activities and locations.

Log books and records will be inspected by the UXOQCS on a weekly basis. These inspections will focus on the completeness, accuracy, and legibility of the entries and records. Results of these inspections will be forwarded to the SUXOS. The log keeper's immediate supervisor will review and initial in the log book concurrence with the log book entries on a daily basis. The log books are utilized to formulate the final report and serve as an "Official Document" in the event of any problem area identified after the completion of the project. All log books will be maintained on file (at the JV Corporate Office located at 12723 Capricorn Drive, Suite 500, Stafford, TX 77477) for a period of seven years after project completion. These logs may be digitally archived.

4.7.3 Quality Assurance Audits

An audit is an examination and evaluation performed to determine whether essential site-specific elements have been identified, performed, documented, and effectively implemented IAW specified requirements. As part of the JV Corporate QAP, the JV will conduct both internal and external audits. This is to ensure all procedures and protocols are being followed and the resulting data is accurate and defensible. Field audits will concentrate on products, procedures, proper documentation, and checks of resulting data for completeness and accuracy within established QC limits including the JV subcontractor requirements. The Government OESS will perform QA for this site ensuring the performance metric as described in the PWS is obtained and adhered to.

4.7.4 Quality Control Surveillance

The JV will perform daily, random and scheduled surveillance of all work areas and definable features of work to maintain control over field activities identified in the WP.

4.7.5 Quality Control Inspections

The JV will perform daily, random and scheduled inspections of all work areas and definable features of work to verify quality performance. To ensure that quality work is conducted, QC inspections will be conducted according to the criteria specified in the following paragraphs. All inspections will be conducted by the responsible personnel and documented accordingly.

4.7.5.1 *Geophysical Inspections*

JV UXO clearance teams will conduct QC activities per the recommendations of Table 4-1, Performance Requirements for Removal Action using Analog Methods (DID WERS-004.01), as shown below.

Table 4-1: Performance Requirements for Removal Actions using Analog Methods

Requirement	Limited Applicability (Specific to Collection Method/Use)	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.
Coverage[2]	All	All blind coverage seeds and blind detection seeds recovered	Variable rate at 2,3 or 4 times # operators, per lot[4]	Redo lot
Detection and Recovery[2]	No DGM QC remapping	All blind detection seeds recovered	1 to 5 per lot[4]	Redo lot
Anomaly Resolution[3]	Verification checking of excavated locations (analog or digital instrument)	2nd party checks open holes to determine: 90% confidence <1% unresolved anomalies. Accept on zero.	Rate varies depending on lot size. See Table D-5 in DID WERS-004.01 for Acceptance Sampling Table.	Redo lot
Geodetic Equipment Functionality	All	Position offset of known/temporary control point within expected range as described in this WP.	Daily	Redo affected work

1. Function checks of analog geophysical instruments [e.g., Schonstedt 52cx, White's (model XLT/DF) and Vallon (model VMH3CS) all metals detectors including newer technologies such as the 42-inch and 55-inch ML-3s developed by SSI] 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.

   Blind seed items will be placed within a subset of the surveyed clearance grids along the KOA areas as a QC check on the UXO technicians' ability to detect subsurface anomalies. Seed item placement will include surface and subsurface locations. Once placed, the locations of all seeded items will be recorded with a handheld GPS. The seed items will be photographed, and the depth, orientation and inclination will be recorded and documented. All of the seeded items will be painted blue and tagged with a non-biodegradable label identifying the items as inert and providing a contract reference, a POC address, phone number, and a target identifier. All seed items located by the UXO clearance teams will be recorded on the grid sheet and the find will be reported to the UXOQCS. The UXOQCS will reuse the recovered seed items and place them within future planned grid clearance locations. In addition to the known seed items, blind seed items may be buried by the Government, and/or the contractor's UXOQCS, for QC. The JV will allot sufficient time for burial of blind seed items.

2. At a minimum, the UXOQCS will conduct QC checks of each grid the UXO teams have completed mag and dig clearance. The performance metrics for subsurface clearance includes the UXOQCS finding no ferrous metal items (including, but not limited to MEC and MPPEH) and metallic debris measuring 1.5 inches by 3 inches or largerto a depth the lesser of 11 times the item diameter (or width) or the specified clearance depth, or the entire grid will require a second investigation by the UXO team. The UXOQCS will use instruments such as the Schonstedt 52cx, White's (model XLT/DFX) and Vallon (model VMH3CS) all metals detectors including newer technologies such as the 42-inch and 55-inch ML-3s developed by SSI to conduct QC on grids. The UXOQCS will notify the USACE OESS when a sufficient number of grids have been completed to conduct the Government's QA check. The UXOQCS will update the USACE OESS on an as-needed basis for the QA checks (e.g., start of each week, every other day, daily).

3. QC inspections and/or surveillance will be accomplished using QC surveillance and checklists developed specifically for this process. Inspection and/or surveillance points and sampling frequency for each selected definable feature of work are shown in Table 4-1 above. Sampling frequencies above are at a normal state and may be tightened or relaxed (with USACE concurrence and documented field change) based on a variety of factors such as team performance, project duration, geophysical and intrusive investigation results.

4. Each seven (7)-man UXO team will have six (6) operators. A variant number of ISO(s) ranging from one (1) to five (5) will be seeded in each lot. The coverage seeds (e.g., nails, ball bearings or equivalent) will be set for that lot variably to meet the requirements of Table 4-1.

4.7.5.2 *Quality Control Requirements using Analog Methods*

QC inspections and/or surveillance will be accomplished using QC surveillance and checklists developed specifically for this process. Inspection and/or surveillance points and sampling frequency for each selected definable feature of work are shown in Table 4-1 above. Sampling frequencies above are at a normal state and may be tightened or relaxed based on a variety of factors such as team performance, project duration, geophysical and intrusive investigation results.

4.7.5.3 *Munitions and Explosives of Concern, Material Potentially Possessing Explosive Hazard, and Munitions Debris Inspections*

An inspection will be made, as discussed in Chapter 3, on any discovered MEC, UXO or MPPEH to determine if it is acceptable or unacceptable to move. If the item is determined to be acceptable to move, it will be moved to the designated grid consolidation point and destroyed. If it is determined the item is not acceptable to move, the item will be BIP.

All MD will be inspected by two qualified UXO technicians before it is moved from the grid to a secure temporary processing location.

4.7.5.4 *Other Quality Control Inspections*

If GPS equipment is used for portions of the project, the functionality of the equipment relative to a known control point will be established prior to the start of each day of use (vertical control or topography will not be confirmed).

4.7.6 Phase Inspection Process

The UXOQCS will ensure that the three-phase control process is implemented for each definable feature of work, regardless of whether they are performed by the JV or its subcontractors. Each control phase is important for obtaining a quality product. However, the preparatory and initial inspections will be particularly invaluable in preventing problems. Production work will not be performed on a definable feature of work until a successful preparatory phase inspection has been completed and initial phase inspection criteria have been identified and prepared.

4.7.7 Preparatory Phase Inspection

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

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

- Required plans and procedures have been prepared and approved and are available to the field staff.
- Field equipment is appropriate for its intended use, available, functional, and properly calibrated.
- Responsibilities have been assigned and communicated; the field staff has the necessary knowledge, expertise, and information to perform their jobs.
- The arrangements for support services have been made.
- The prerequisite site work has been completed.

Discrepancies between existing conditions and approved plans/procedures will be resolved and corrective actions taken for unsatisfactory and nonconforming conditions identified during a preparatory phase inspection. This will be verified by the SUXOS, or their designee, prior to granting approval for work to

begin. The UXOSO will discuss job hazards with site personnel and verify that the necessary safety measures are in place and ready for use. The UXOQCS will verify the completion of this task.

4.7.8 Initial Phase Inspection

An initial phase inspection will be performed the first time a task is performed. The purpose of the inspection will be to:

- Check the preliminary work for compliance with procedures and contract specifications.
- Verify inspection and testing and the established acceptable level of workmanship.
- Check safety compliance, review the minutes of the Preparatory Phase Inspection.
- Check for omissions and resolve differences of interpretation.

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

4.7.9 Follow-up Phase Inspection

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

The SUXOS will oversee and observe the same activities as under the initial inspection. Discrepancies between site practices and the approved plans/procedures will be resolved and corrective actions for unsatisfactory and nonconforming conditions or practices verified by the SUXOS or his designee, prior to granting approval to continue work. Follow-up phase inspection results will be documented in the QC log book on the Follow-up Inspection Checklist and summarized in the Daily QC Report. Additional inspections performed on the same task may be required. Additional preparatory and initial inspections and may be warranted under any of the following conditions:

- Unsatisfactory work.
- Changes in key personnel.
- Resumption of work after a substantial period of inactivity (e.g., two weeks or more).
- Changes to the project PWS/specifications.

4.7.10 Lessons Learned

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

Topics for consideration for determining lessons learned include:

- Problems encountered.
- Solutions developed to solve the problems.
- Alternative procedures or processes that improved the operations.
- Quality/Productivity Improvements.
- Economic impacts
- Resolving scheduling conflicts

4.7.11 Project Correspondence

All written and verbal (i.e., person-to-person or via telephone) correspondence will be documented and routed to the JV PM. Incoming written communications will be annotated with the date received. Telephone communications to office personnel will be recorded on a Telephone Conversation/Correspondence Record form. Of critical importance is the documentation of activities that stop work or require a communication to or from CESWT.

4.8 Project Records

Project records will be maintained in project files (at the JV Corporate Office located at 12723 Capricorn Drive, Suite 500, Stafford, TX 77477) for the contract duration and be protected from unauthorized

access. Upon completion of the contract, records will be reviewed, organized, consolidated and archived. Digital archiving may be utilized.

5.0 EXPLOSIVES MANAGEMENT PLAN

5.1 Introduction

This plan addresses procedures associated with the requisition, receipt, storage, transportation, inventory and use of demolition materials at the KOA. This plan incorporates local, state and federal laws and regulations to include Bureau of Alcohol, Tobacco, Firearms and Explosives (BATFE) PAM ATF P5400-7, which is an excerpt from 27 CFR Part 55; DoD 6055.09-M, Department of Transportation (DOT) Regulations, AR 190-11 and the JV policies and procedures. A copy of the JV BATFE license will be available on-site.

Procedures to be followed during use of explosives, removed MEC and related material in support of removal actions and demolition activities are detailed in this plan. The measures are applicable to all the JV employees, clients and visitors entering a MEC contaminated work site where explosives, MEC or related material and demolition materials are being stored on-site.

During explosive operations, safety is the primary concern. The most obvious requirements are to protect personnel, the general public and the environment from fire, blast, noise, fragmentation and toxic releases. Proper inspection, handling, packaging and inventory controls are all tasks that must be considered to conduct a safe and efficient operation.

All transactions relating to explosive material acquisition and expenditures of explosive materials will be maintained for a period of five years. Records will be maintained at the project office during on-site and subsequently moved to the business unit of the BATFE license holder.

5.2 Licenses/Permits

The procedures detailed in this plan have been developed to ensure that a safe and efficient MEC and demolition material operation is conducted. Each individual authorized to receive, issue, transport and use explosives will be identified by name and will assume accountability when signing receipt or transfer documents. At each project site, any licenses or permits required to purchase, use, transport or store explosives will be on post and made available to federal, state or local agencies upon request.

Explosives are purchased under a "User of High Explosives License" issued by the BATFE. The license holder must provide written authorization designating the individuals authorized to purchase, store or use explosives. A copy of the letter will be maintained in the project office and will reflect:

- Name of Individual;
- Home Address;
- Date of Place of Birth; and
- Social Security Number.

5.3 Acquisition

The JV only acquires explosives from licensed explosive manufacturers who provide the best value to the government. Jet perforators and/or boosters, both with detonation cord used along with electric detonators, are used for demolition shots to control the operation and reduce the NEW to be used (when, and if, needed). The JV uses DOT Class 1.4 explosives whenever possible, which are safer to handle, easier and less expensive to ship, store and more readily available for use. A generalized demolition materials list anticipated for use at the KOA are presented in Table 5-1.

Table 5-1: Demolition Material Anticipated for Use at Fort Wingate KOA

DESCRIPTION	ESTIMATED QUANTITY	DOT HAZARD CLASS AND DIVISION	TOTAL NEW	UN NUMBER
BOOSTERS (1 POUND)	500 each	1.1D	500 pounds	UN 0042
BOOSTERS (0.5 POUND)	500 each	1.1D	250 pounds	UN 0042
PERFORATORS (19-22 GRAM)	1,000 each	1.4S	50 pounds	UN 0441
DETONATION CORD (80-100 GRAIN)	10,000 ft	1.4D	143 pounds	UN 0065
ELECTRIC SQUIBS	200 each	1.4S	0.64 pounds	UN 0454

DESCRIPTION	ESTIMATED QUANTITY	DOT HAZARD CLASS AND DIVISION	TOTAL NEW	UN NUMBER
SMOKELESS POWDER	85 pounds	1.3C	85 pounds	UN 0161
SAFETY/TIME FUSE	2,000 feet	1.4S	13.6 pounds	UN 0105
FUSE LIGHTERS	200 each	1.4S	0.02 pounds	UN 0131
BLASTING CAPS, ELECTRIC	1,500 each	1.4B	3 pounds	UN 0255

The SUXOS will be responsible for initiating requisitions for demolition materials. This will be accomplished by submitting a purchase order request through the JV PM who reviews and approves the request before forwarding it to accounting. Procurement of explosive materials will be limited to the amount needed to complete the operations outlined in specific task orders. The requisition of explosives will be IAW the JV purchasing policy to ensure the best possible price for acquiring the explosive materials.

The JV will purchase the required explosives from WESCO a licensed vendor utilizing the competitive bidding process. The distributor will provide a certified statement of the intended use of the explosive material. This source will be licensed by the BATFE and the state to sell and transport initiators/high explosives and will be capable of re-supply within a 24-hour period.

5.4 Initial Receipt and Issuing Procedures

Initial receipt of demolition explosives and materials will be conducted IAW the JV Explosives Acquisition, Storage and Accountability SOP, which is provided in the APP.

5.4.1 Responsibilities

5.4.1.1 *Senior Unexploded Ordnance Supervisor*

The SUXOS maintains overall responsibility to process and requisition for the required demolition materials. The SUXOS is also ultimately responsible for maintaining accountability of demolition materials and immediately reporting any losses or discrepancies to the BATFE, CESWT/CESWF PM/KO, FWDA POC and the JV PM. The SUXOS will also ensure all deliveries are coordinated with FWDA and local law enforcement agencies and that all explosives ordered for operations are properly consumed.

5.4.1.2 *Individual Personnel*

All the JV employees are responsible for ensuring the proper and safe handling, use and control of demolition explosives/materials. In addition, these personnel are responsible for the proper consumption of explosives/materials.

5.4.1.3 *Authorized Personnel*

Only the JV SUXOS, UXOSO, and UXOQCS will be permitted to receive and issue explosives.

5.5 Conditional Exemption Explosive Storage Magazines

The JV will store project explosives in DDESB sited BATFE Type I ECM. The ECMs operate under a CE IAW DoD 6055.09-M-V7. The ECMs have been previously sited and DDESB approved for CE storage per DDESB Approval Memorandum, DDESB-PE, 30 May 2008, Subject: DDESB approval of request for a Time Critical Removal Action (TCRA), Explosives Safety Submission (ESS) for FWDA, McKinley County, New Mexico, and will require no change to the previously approved limits.

A total of eight ECMs in Explosive Storage Area B (Map B-4 in Appendix B), have each been sited for a storage limit of 20,000 pounds NEW for Hazard Division 1.1, and have been designated for CE Storage of recovered MEC and demolition/donor explosives. All of the qualifying conditions of the CE, which include the type of munitions stored, how the munitions are stored, the notification requirements, as well as stringent recordkeeping and documentation requirements, will be met IAW the ECM SOP.

All stored explosives will be compatible IAW DoD 6055.09-M, BATFE Publication 5400.7 and DA PAM 385-64. All magazines are properly grounded, lightning protected, set-up and secured IAW

National Fire Protection Agency 780, USACE EM 385-1-97 and DA PAM 385-64. The CE igloos are located inside a secure perimeter fence with approved access only. The DoD hazard classification and storage compatibility group for donor explosives are established in EM 385-1-97, Chapter 1, Section 9, Table 1.9-1.

5.6 Transportation

5.6.1 Procedures for Transporting Explosives

Transportation of explosives will be conducted IAW the JV Explosives Transport SOP-203, which is provided in the APP. The roads to be traveled are located within FWDA boundaries and will include both paved and unpaved roads. The JV personnel transporting explosives will use two BATFE-approved day boxes for the transport of demolition materials. The first box will contain the detonators, and the second box will contain the perforators, boosters, detonation cord, or powders. A predetermined route will be identified and used when transporting explosives.

5.6.2 Requirements for Explosives Transport Vehicle

The vehicles used by the JV to transport explosives will be inspected prior to use each day using the JV vehicle checklist. DD Form 626 will be completed. The requirements for the vehicle used to transport explosives include the items listed below:

- The vehicle engine will not be running and wheel chocks will be set when loading/unloading explosives and materials.
- The explosives will be transported in a covered pick-up truck whenever possible. When using an open vehicle, explosives will be covered with a flame resistant tarpaulin (except when loading/unloading).
- The area of the vehicle where the explosives are placed for transportation will have a plastic bed liner, dunnage or sandbags placed in the area to protect the explosives from contact with the metal bed and fittings.
- The explosives transport vehicles will have placards, a first aid kit, two 10-pounds ABC fire extinguishers and communications capabilities.
- Compatibility requirements will be observed.
- Drivers will comply with posted speed limits, but will not exceed a safe and reasonable speed for conditions at hand.

5.7 Inventory

The JV Explosives Acquisition, Storage and Accountability SOP-206 lists the procedures to be followed for the inventory, notification of loss/theft, return of unused materials/storage of unused materials at the end of each day and the disposition of demolition material/explosives at the conclusion of the project.

5.7.1 Reconciliation of Discrepancies

In the event there is a discrepancy during the inventory, the item(s) will be recounted a minimum of two additional times. If a discrepancy still exists, the JV PM, FWDA POC, CESWT/CESWF PM/KO and BATFE will be notified.

5.7.2 Lost, Stolen or Unauthorized Use

If it is discovered explosive items have been lost, stolen or used without proper authorization, the JV PM, FWDA POC, CESWT/CESWF PM/KO and BATFE will be notified.

5.7.3 Return of Explosives to Storage

Following each occurrence of a receipt or issue of explosives/materials, the SUXOS will conduct a joint inventory in conjunction with the UXOSO or UXOQCS of the affected explosives materials. Only those items issued/returned will be inventoried.

5.7.4 Forms

All forms associated with the receipt, storage, inventory and use of demolition explosives/materials will be kept onsite with the SUXOS and/or UXOSO.

6.0 ENVIRONMENTAL PROTECTION PLAN

This EPP has been prepared to document environmental protection activities to be implemented as part of environmental remediation efforts at the project sites at FWDA; Maps B-2 and B-3 (Appendix B) show the Parcels which this plan covers. The intent of this EPP is to prevent environmental pollution or damage during and as a result of remediation efforts, control and manage both the non-hazardous waste, and provide a contingency plan in the event that unanticipated hazardous waste is encountered during these investigations. This EPP was prepared IAW federal and state rules, laws, and regulations. Section 6.1 of this plan includes the environmental protection plan, Section 6.2 contains the Waste Management Plan, and Section 6.3 contains the Hazardous Waste Contingency Plan. This EPP has been prepared to document environmental protection activities to be implemented as part of environmental remediation efforts at all of the above listed sites at FWDA. The following laws and regulations in whole or part are pertinent to this project:

- Fish and Wildlife Act of 1956
- Fish and Wildlife Coordination Act of 1958
- National Historic Preservation Act of 1966
- Endangered Species Act of 1973
- Clean Water Act of 1977
- Clean Air Act of 1970
- Resource Conservation and Recovery Act of 1976

The Army will establish and maintain environmental protection of the sites throughout the course of the project. The Army will record and maintain field reports of any problems encountered in complying with laws, regulations, and ordinances. Immediate corrective actions will be taken to correct pollution of or damage to the environment as the result of accident, natural causes, or failure to follow the procedures set out in this EPP, as described in the following sections.

6.1 Potential Site Resources

A presence/absence survey will be conducted at all sites to identify any threatened and endangered (T&E) species, their habitat, wetlands, or other natural resources requiring avoidance during the implementation of environmental remediation efforts at all sites. This survey is tentatively scheduled for May/June 2015 to coincide with the flowering period of the Zuni fleabane. The results of this survey

will be documented in a memorandum to be included as Attachment E-1 of Appendix E. Historical information regarding environmental and cultural resources is provided below.

6.1.1 Land Resources

FWDA is located among the red rocks located seven miles east of Gallup, New Mexico, and next to the reservations of the NN and the POZ. The land in and around FWDA is mostly privately held or owned by the U.S. government. The principal drainage in the region is the South Fork Rio Puerco, an ephemeral, east-west flowing stream, located north of Parcel 18 within the installation boundary. In section 1.0 of this WP is site specific information about the climate and vegetation (Section 1.5.1), regional geology (Section 1.5.2), site description (Section 1.6) and FWDA history (Section 1.7).

6.1.2 Threatened and Endangered Species

The United States Fish and Wildlife Service (USFWS) list shows five T&E species as having the potential to live in McKinley County. No critical habitat occurs in the vicinity of the sites under the scope of this PWS; however, critical habitat for the Mexican spotted owl does exist approximately 10 miles southeast of the project site in the Zuni Mountains. The New Mexico Department of Game and Fish (NMDGF) Biota Information System also identified five state threatened species living in McKinley County, which are not otherwise protected under the federal Endangered Species Act. In addition to the T&E species, both the federal and state listings show two potential species as potential candidates that may be added to the lists. Federal and state T&E species for McKinley County are described in Table 6-1.

Black-footed ferrets are the only listed species with suitable habitat occurring within the project site. Black-footed ferrets are highly dependent on prairie dogs for food and usually use prairie dog burrows for shelter. Prairie dogs occur in prairie and grassland habitat (AZGFD 2013). Black-footed ferrets once occupied most habitats in western North America associated with prairie dogs (USFWS, 2013a). Two reintroductions have taken place in north-central New Mexico, and the USFWS estimates two breeding pairs currently exist in the state (USFWS, 2013a). Because of their low numbers in the region, it is unlikely that any black-footed ferrets are located in the project area vicinity. Additionally, black-footed ferrets that may inhabit the project area vicinity are considered an “experimental” population under Section 10j of the Endangered Species Act and does not warrant full protection under the Endangered Species Act.

Zuni fleabane has the potential to occur on the project site. Zuni fleabane is an herbaceous perennial that can grow up to two feet tall. It occurs in selenium-rich red or gray detrital clay soils derived from the Chinle and Baca formations and is associated with pinyon-juniper woodland. The elevation range is between 7,300 and 8,000 feet amsl. The primary habitat is steep, (up to 40 degrees) north facing slopes. Zuni fleabane is a federally and state listed threatened species (USFWS 2014).

Gray vireos occur in mature, arid chaparral, or pinyon juniper woodland mixed with sagebrush, thorn scrub or desert scrub. Suitable habitat for gray vireo occurs in areas surrounding the project site. Gray vireos occupy breeding sites in northern New Mexico from May through July, and tend to breed in juniper savannahs (Delong and Williams, 2006). Juniper savanna habitats exist on land surrounding the project site, particularly to the southwest. Because junipers do not exist within the KOA, it is unlikely that breeding gray vireos will reside within the project site boundaries; however, individuals may pass through the project site temporarily for foraging or migration.

Additionally, burrowing owls have the potential to occupy the project site. Burrowing owls prefer open areas with short ground cover including pastures, native prairie, agricultural fields, airports, and golf courses. This species uses burrows year round for roosting and raising young (NWF 2014). Burrowing owls are considered a species of concern by the USFWS and are also protected under the Migratory Bird Treaty Act. Burrowing owls are known to inhabit the Great Basin Desertscrub and are often associated with prairie dog communities (NMDGF 2007). No individual burrowing owls or signs of burrowing owls were seen on site (NMDGF 2007).

1 **Table 6-1: Federal and State Threatened and Endangered (T&E) Species for FWDA**

Common Name	Habitat Requirements	Federal Listing	NM State Listing	Exclusion Justification
Black-footed ferret (Mustela nigripes)	Open habitat, the same habitat used by prairie dogs: grasslands, steppe, and shrub steppe.	Endangered	Endangered	Unlikely to reside in the project area.
Southwestern willow flycatcher (Empidonax traillii extimus)	Thickets, scrublands, swamps, and open woodlands. Usually limited to areas near open water.	Endangered	Endangered	No suitable habitat in the project area.
Mexican spotted owl (Strix occidentalis lucida)	Old growth mixed conifer forests.	Threatened	Endangered	No suitable habitat in the project area.
Zuni fleabane (Erigeron rhizomatus)	Pinyon-juniper woodlands at elevations from 7,300 - 8,000 feet amsl	Threatened	Threatened	Suitable habitat in the project area.
Whooping crane (Grus americana)	Marshes, shallow lakes, lagoons, salt flats, grain and stubble fields, and barrier islands.	Endangered: Experimental, Non-essential Population	N/A	No suitable habitat in the project area.
Yellow-billed cuckoo (Coccyzus americanus)	Areas of open woodlands containing deciduous trees. Nests in cottonwoods or other riparian trees.	Candidate	Candidate	No suitable habitat in the project area.
Zuni bluehead sucker (Catostomus discobolus yarrowi)	Shady, cobbled streams with frequent runs and pools.	Candidate	Candidate	No suitable habitat in the project area.
Artic peregrine falcon (Falco peregrines tundrius)	Open areas with suitable cliffs for nesting.	Not applicable	Threatened	No suitable habitat in the project area.
Bald eagle (New Mexico population) (Haliaeetus leucocephalus)	Forests or riparian areas within close proximity to open water suitable for foraging.	Not applicable	Endangered	No suitable habitat in the project area.
Costa's hummingbird (Calypte costae)	Desert, semi-desert, brushy foothills, and chaparral. Nests in canyons and washes.	Not applicable	Threatened	No suitable habitat in the project area.
Gray vireo (Vireo vicinior)	Rocky hills covered with sparse bushes and scrub, in juniper, hackberry, and oak (in New Mexico).	Not applicable	Threatened	Unlikely to reside in the project area.
Peregrine falcon (Falco peregrines anatum)	Open areas with suitable cliffs for nesting.	Not applicable	Threatened	No suitable habitat in the project area.

2 Sources: AMEC,2013; NMDGF's Biota Information System

6.1.3 Wetlands

Wetlands are defined by the USACE (33 CFR 328.3, 1986) and the USEPA (40 CFR 230.3, 1980) as "areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions." Many wetlands and other aquatic features, including ephemeral, intermittent, and perennial streams, are considered waters of the U.S. by the USACE and these "'jurisdictional" areas are protected under Section 404 of the Clean Water Act (33 CFR 328.3, 1986).

Wetlands are a sensitive and unique habitat type that can provide valuable cover and water for wildlife. Wetland identification was completed as part of a preliminary site reconnaissance in July 1995. No wetland areas have been identified within any of the sites.

6.1.4 Vegetation

Vegetation at the sites ranges from grasslands (examples are ricegrass, wheatgrass cheatgrass, needle-and-thread grass, and timothy) and sagebrush scrublands to pinyon (Pinus edulis)-juniper (Juniperus scopulorum) and ponderosa pine (Pinus ponderosa)-woodlands. Desert scrub is most commonly found at lower elevations where temperature fluctuations and extremes are great and sandy soil is present. Woodlands are found at mid-elevations where soil moisture is higher and the minimum temperature is lower. True conifer forests are limited to the highest elevations where temperatures are low, soil moisture is high, and pines and other conifers are dominant (U.S. Army 1995).

6.1.5 Surface and Groundwater Resources

The FWDA lies between the South Fork Rio Puerco and the northern foothills of the Zuni Mountain range. All drainages in this area are intermittent with flow occurring only during, and after, heavy rainfall events or during snowmelt (Program Management Corporation, 1999).

Two major drainage systems are located within FWDA: Milk Ranch Canyon and Fenced-Up Horse Canyon. Bread Springs Wash is a minor drainage system. The southeastern corner of the installation is drained to the east by several small parallel washes feeding into Milk Ranch Canyon. The surface drainage from the remaining eastern portion of the installation flows to the northeast and also drains into Milk Ranch Canyon. The western portion of the installation is drained by a network of washes into Fenced-Up Horse Canyon, which flows north into the South Fork of the Rio Puerco. Bread Springs Wash drains the extreme southwestern corner of FWDA. All flow from Bread Springs Wash is diverted to the

west side of the Hogback and eventually empties into the South Fork Rio Puerco west of Gallup (U.S. Army 1995).

There are several water-bearing units underlying the FWDA. These include the San Andres-Glorieta Formations, the Shinarump Formation, and the Sonsela Member and several thin sandstone beds within the Painted Desert Member of the Petrified Forest Formation, as well as the Quaternary alluvium. The San Andres-Glorieta aquifer is the principal aquifer in the region. At the FWDA, the top of the San Andres-Glorieta aquifer is about 1,100 ft. bgs and has a thickness of about 200 ft. Groundwater from the San Andres-Glorieta aquifer has been the sole source of the water used at the FWDA and is produced from a single well located in the Administration Area. The Army does not anticipate contact with or disturbance of surface or groundwater during the environmental remediation efforts.

6.1.6 Air Quality

McKinley County, New Mexico is an attainment area for all USEPA Air Quality Criteria (USEPA, 2012). Therefore, small short-term increases are allowable without a permit.

6.1.7 Cultural Resources at Ft Wingate Depot Activity

The cultural resources within the boundaries of the FWDA have been the subject of a number of studies. Based on those studies, over 750 cultural and historical sites have been identified on FWDA. Greater densities of sites occur on upland surfaces and gentle slopes, while fewer sites occur on the alluvial flats. The lower-elevation sites tend to be lithic scatter sites. The Fenced-Up Horse Canyon contains the highest frequency of pueblo sites; however, this area is approximately 2.5 miles from the project site and will not be affected by project activities.

6.1.7.1 *Managing Cultural Resources*

A Programmatic Agreement among the U.S. Army, the NN, the POZ, and the New Mexico State Historic Preservation Officer was signed in 2008 and currently provides the framework at the FWDA for federal actions that may impact cultural resource sites. In accordance with Section 106 of the National Historic Preservation Act, USACE has consulted with the NN, the POZ, and the NMSHPO.Both Tribes have determined there are potential cultural resources within the sites that will likely be affected by operations.

The JV has contacted the NN and the POZ to renew previous contracts for cultural support of this project. Both Tribes appear supportive and receptive to re-establishing these contracts. Subcontracts will be

established with both the NN and the POZ outlining the expectations from each Tribe (document review, cultural awareness training, and assisting the field teams) to ensure the project objectives are met.

Site personnel will be briefed on Tribal concerns and potential cultural resources that may be encountered. If culturally sensitive issues arise or suspect items are encountered, they will be addressed, on-site Army personnel will be notified immediately, and the Army will act in accordance with the Programmatic Agreement.

6.1.7.2 *Project Cultural Resource Implementation*

A key component of the approach for identification and treatment of cultural resources will be cultural resources awareness training at FWDA for the JV team and subcontractors. Prior to kickoff, the JV will have cultural experts from both the NN and POZ train field teams to describe the cultural importance of the FWDA landscape and provide a basic training to help recognize the cultural resources that may be present on or below the ground surface. The Army and Tribal experts will review available mapping provided by USACE to locate and field mark (if agreeable to the Tribes) known cultural resource sites prior to our field activities.

Pursuant to Section IV.C of the Permit the Army is required to conduct surface and subsurface clearance of cultural areas. To achieve this goal, a UXO team with Tribal cultural experts will locate the areas/sites and mark them with flag tape; and while the Tribal experts are at the site, the UXO technicians will conduct a survey of the area to make a determination of MEC/MD density. The results of these surveys will be recorded and these data will provide the field team and the Tribes an estimate of how much clearance effort will be needed to that area; this information will aid the discussions on the potential impact assessment.

In work areas where previous adequate cultural resources surveys have not been conducted, and prior to conducting UXO clearance, the JV and Tribal experts will conduct a cultural resources survey (non-intrusive) to identify and document any archaeological sites or sites of traditional or religious value. The JV will provide MEC avoidance training for the cultural resources personnel and a JV UXO Technician II will escort all cultural resources personnel at all times during surveys. Details of the UXO investigations and clearance of the cultural areas is found in Section 3.0 of this plan. The Draft Cultural Resources Management Plan has been submitted to the Army for review.

6.1.7.2.1 Tribe and Site-Specific Training

The NN's and the POZ's cultural expert(s) will attend a 4-hour training provided by the JV for working in a UXO contaminated environment. Each Tribal expert will lead a 2-hour training session for all UXO technicians in cultural awareness. Pictures, graphics, or other visual aids will be used as training tools.

6.1.7.2.2 Cultural Resource Protection Procedures

As part of the site mobilization and training, the Tribal experts will provide the JV with a list of the "what-if scenarios" for field actions upon discovery of cultural resources during the clearance. This list should include procedures for inadvertent discoveries of human remains. The NN's and the POZ's cultural experts have access to Tribal databases of known cultural resources at FWDA. These known sites will be marked where the JV will conduct work first. The Tribal experts will then mark other known sites within the remaining work areas to ensure the UXO teams always mobilize to pre-marked areas. In the event additional sites are discovered and new information becomes available, the Tribal experts will document these findings, update the Tribal databases, and provide this information to the JV SM.

6.1.7.2.3 Cultural Survey Site Control

A grid system has been developed for the systematic division of the KOA for UXO clearance and is provided in the KOA Work Plan. Map B-7 (Appendix B) is an example of gridding the KOA. Once the cultural experts have conducted a survey of each grid area(s), the grid number will be listed on the NN's and the POZ's daily reports form and given to the JV SM at the end of each day.

6.1.7.2.4 Surface And Subsurface MEC/ Munitions Debris Clearance Specifications and Methodology

In areas not previously surveyed, before any UXO team enters the field to begin clearance actions, the Tribal cultural resources expert will conduct a cultural survey of the planned clearance area. The Tribal cultural resources expert will be escorted by UXO personnel at all times. During this pre-clearance survey, in the event cultural resources are identified, the cultural expert and JV staff will mark the area, document the findings and location, and notify the JV SM, who will in turn instruct the field teams.

6.1.7.2.5 Documentation

The Tribal cultural expert(s) will complete a Cultural Daily Field Activity Report to document completed grids and all significant findings. The report will include GPS data and information for each significant finding. An example of the Cultural Daily Field Activity Report is included in Attachment E-2 of Appendix E. These daily reports will be completed at the end of each work day and submitted to the JV SM. The cultural expert will update the Tribal data bases to reflect the finding(s).

6.1.8 Site Resources Protection Procedures

Environmental protection measures will be implemented during field activities to minimize or mitigate any adverse impact to site resources. Areas that contain cultural resources, archeological resources, or water resources will be identified and protected during the entire duration of this project. A presence/ absence survey will be conducted at all sites to identify any T&E species, their habitat, or other natural resources requiring avoidance during the implementation of environmental remediation efforts at all sites. This survey is tentatively scheduled for May/June 2015 to coincide with the flowering period of the Zuni fleabane.

6.1.8.1 *Land Resources*

The Army will implement removal of debris and contaminated soil with concentrations above the site screening levels within the arroyo adjacent to SWMUs 14, 15, and 33. The east end of this arroyo is determined by its confluence with the north/south arroyo originating from the HWMU (east of the concrete low water crossing). The west end splits into two upstream arroyos. The extent of the areas within the arroyo where the Army will conduct RAs will be established and Map B-8: Limits of Arroyo Removal Actions will be added as an amendment to the Final Kickout Area MEC Removal and Surface Clearance Work Plan.

6.1.8.2 *Threatened and Endangered Species*

A presence/absence survey will be conducted at all work sites to identify potential T&E species, their habitat, or other natural resources requiring avoidance during the implementation of environmental remediation efforts at all sites. This survey is tentatively scheduled for May/June 2015 to coincide with the flowering period of the Zuni Fleabane. This Plan will be amended, if necessary, depending upon the results of that survey.

If endangered or threatened species or suitable habitats are encountered during site activities, the JV will flag the areas and immediately notify and obtain guidance from USACE before continuing operations therein. Flagged areas will be logged with a GPS, and coordinates will be provided to USACE. All JV site personnel will adhere to the specific guidance received from USACE. The following local NMDGF and USFWS offices will also be contacted:

USFWS - New Mexico Division of Biological Services
(505) 248-6817
500 Gold Avenue SW
Albuquerque, NM 87102
Mailing: P.O. Box 1306,
Albuquerque, NM 87103

NMDGF - Northwest Area Office
(505) 222-4700
3841 Midway Place NE
Albuquerque, NM 87109

6.1.8.3 *Wetlands*

No wetlands have been previously identified within the sites, and wetlands are not common within the area. If wetlands are encountered, USACE will be notified prior to removal of debris and debris removal within wetlands will be limited to surface removal only. However, several drainage systems, i.e. arroyos are noted as part of Milk Ranch Canyon, Fenced-Up Horse Canyon and Bread Springs Wash. Disturbance, digging, or excavation is likely to occur within an area identified as Waters of the U.S. (wetland or arroyo). If such disturbances are deemed necessary, USACE will be notified so appropriate actions can be taken with respect to state and federal laws governing the protection of wetlands.

6.1.8.4 *Vegetation*

Ground disturbance will be limited to that necessary to complete the scope of work. The area will be revegetated following site activities as detailed in the WP for that site. The Zuni fleabane is listed as a threatened plant species by the USFWS and is potentially present within all sites. A presence/absence survey is tentatively scheduled for May/June 2015 to coincide with the flowering period of the Zuni Fleabane. If this species is identified during this survey in the area(s) surrounding the proposed excavation, the JV will perform all site activities in such a manner as to avoid or minimize adverse effects to the species.

The JV will flag the areas where the species has been identified and immediately notify and obtain guidance from USACE before continuing operations within the flagged area. Flagged areas will be logged

with a GPS, and coordinates will be provided to USACE. All JV site personnel will adhere to the specific guidance received from USACE.

6.1.8.5 *Water Resources*

The JV SXUOS will keep site activities under surveillance, management, and control to avoid pollution of surface and ground waters. Two major drainage systems are located within FWDA: Milk Ranch Canyon and Fenced-Up Horse Canyon. Bread Springs Wash is a minor drainage system. All drainages in this area are intermittent with flow occurring only during, and after, heavy rainfall events or during snowmelt.

A Storm Water Pollution Prevention Plan (SWPPP) will be prepared for this project in accordance with the applicable permit process. This plan will identify the pollution prevention controls and procedures to be implemented during the environmental remediation efforts as well as the inspection and maintenance required to ensure that the measures remain protective of water resources. This may include the use of silt fencing or other best management practices as appropriate. The SWPPP will detail the best management practices to be implemented during activities at all sites as applicable.

The JV does not anticipate any contact with or disturbance of groundwater. If, however, groundwater is encountered during excavation procedures, the JV will immediately notify USACE personnel for a determination on how to proceed.

6.1.8.6 *Cultural, Archeological, and Native American Resources*

The JV's Cultural Resource Specialist, Dr. Adam Graves (PhD, RPA), will assist the JV PM and the team in overall compliance with the cultural resource matters involving the NN and the POZ. Site personnel will be briefed on tribal concerns and potential cultural resources that may be encountered. If culturally sensitive issues arise or suspect items are encountered, they will be addressed, on-site Army personnel will be notified immediately, and the Army will act in accordance with the Programmatic Agreement.

6.2 Waste Management Plan

6.2.1 Purpose and Scope

This Waste Management Plan is intended to satisfy the requirements for activities at these sites in support of FWDA's RCRA Permit. This plan addresses the non-hazardous wastes anticipated during the MEC removal and investigations being conducted under this WP.

6.2.2 Responsible Personnel

The Army's primary objective will be to minimize the amount of waste generated, thus eliminating the need to manage larger quantities of waste that would subsequently require disposal. The responsibility to minimize waste generation will be assigned to the JV SM. The SM will be assisted by the SUXOS in ensuring all personnel (to include subcontractor personnel) contribute towards the reduction of waste generated on site.

Disposal of any materials, waste, effluents, trash, garbage, unsatisfactorily decontaminated materials, oil, grease, chemicals, and the like, in areas not authorized for waste disposal will not be permitted. If any waste material is dumped in unauthorized areas, the Army will remove the material and restore the area to the condition of the adjacent undisturbed area. Table 2.1 provides contact information for the JV SM and SUXOS.

Table 6-2: Contact Information for Responsible Personnel

Contact	Phone Number
SM, Dewey Thedford	281-914-2927 (mobile)
SUXOS, Scott Wardle	713-299-2918 (mobile)

6.2.3 Types of Waste(s)

This waste anticipated to be generated during these environmental remediation and investigation efforts include WMM, MEC, recycling waste, investigation-derived waste (IDW), and general solid waste trash.

6.2.3.1 *Waste Military Munitions and Munitions (WMM) and Munitions and Explosives of Concern*

The anticipated WMM may include the following:

- WMM that are UXO, abandoned or discarded;
- WMM scrap will be managed under RCRA scrap metal exclusion (40 CFR 261.6) ;
- Discolored or stained soil; or
- Equipment or other materials associated with WMM.

The Army will manage WMM, MEC, UXO, and WMM scrap per the procedures outlined in Section 3.0 of the Final Kickout Area MEC Removal and Surface Clearance Work Plan.

6.2.3.2 *Recycling Waste*

When feasible, the Army will endeavor to recycle solid waste (paper, plastic) and utilize available recycling facilities or centers to ensure recyclable items are not disposed of as trash.

6.2.3.3 *Solid Waste Disposal*

Solid waste that cannot be recycled will be placed in appropriate containers, which will be emptied regularly. All handling and disposal will be conducted to prevent further contamination and/or contaminant migration. The Army will dispose of all solid waste in compliance with federal, state, and local requirements for solid waste disposal.

6.2.3.4 *Investigation-Derived Waste Disposal*

Liquid waste generated during soil investigation activities will consist of decontamination fluids. The liquid waste will be collected and allowed to evaporate. In the unlikely event liquid wastes need to be disposed off-site, the liquid will be sampled and characterized and disposed at a licensed disposal facility based on the disposal facility waste characterization analytical requirements. Liquid wastes will be generated and handled in accordance with local, state, and federal rules, laws and regulations

6.2.3.5 *Hazardous Waste Disposal*

No hazardous waste is expected to be generated for offsite disposal and inert scrap will be managed under RCRA scrap metal exclusion (40 CFR 261.6).

6.3 Hazardous Waste Contingency Plan

6.3.1 Purpose and Scope

This plan is intended to satisfy the requirements for a Hazardous Waste Contingency Plan (HWCP) for operations at these sites in support of FWDA's RCRA Permit. The Permit (NM 6213820974) became effective on 01 December 2005 and the latest modification was approved on 04 April 2014. This HWCP is a revised version of the plan submitted as Attachment 15 of the *Final Permit Modification to the Hazardous Waste Facility Permit for FWDA*, dated 27 June 2011.

Name, Address, and Telephone Number of the Owner/Operator

Owner/Operator: The United States, Department of the Army, (Permittee) is the owner and operator

Facility Address:	Fort Wingate Depot Activity (FWDA), seven miles East of Gallup, New Mexico 8730.
Points of Contact:	Mr. Mark Patterson, FWDA BRAC Environmental Coordinator (BEC). Office: 303-358-7312
	Steve Smith, USACE FWDA Program Manager. Office: 817-886-1879
	Richard Cruz, FWDA, BRAC Site Manager. Office: 505-905-6109.

6.3.2 Location and Types of Waste and Waste-Generating Processes

Investigation and removal of MEC removal activities will be performed at the following areas:

- KOA: The KOA encompasses approximately 3,252 acres comprising all of Parcel 3; portions of Parcels 1, 2, and 20; and parts of the Navajo Trust Land. The KOA consists of an outer area (between the site boundary and the inner fence) and an inner area (between the inner fence and the HWMU boundary). The JV will perform MEC investigation and removal and environmental (soil) investigation activities for AOCs and SWMUs located in the KOA, including: AOCs 89-92, and SWMUs 14, 15, 33, and 74 which will be work conducted under a separate plan to be submitted for review at a later date.
- Parcel 11: The JV will investigate and remove the MEC contamination in SWMUs 10 and 40, which are located in Parcel 11 at FWDA. These SWMUs are located in and just northwest of the Administration Area at FWDA.
- Parcel 22: The JV will investigate and remove the MEC in SWMUs 12, 27, and 70 and AOCs 88A and B in Parcel 22 at FWDA. Parcel 22 is located in the Work Shop area and is the site of former munitions maintenance buildings.
- Parcel 20: The JV will perform a RCRA Facility Investigation for SWMU 38, Functional Test Range 1 (FTR 1), which is the only SWMU in Parcel 20. SWMU 38 (FTR 1) is located in the central part of the current FWDA property.

The locations of the above parcels within the FWDA are shown in Maps B-2 and B-3 (Appendix B). Waste anticipated to be generated during the environmental remediation and investigation efforts includes WMM, MEC, and IDW. MEC includes the following:

- Military munitions that are UXO, abandoned, or discarded;
- Soil with a high enough concentration of explosives to present an explosive hazard; or
- Equipment or other materials contaminated with a high enough concentration of explosives they present an explosive hazard.

IDW may include personal protective equipment (PPE) and decontamination water

6.3.3 Permit Requirements For The Hazardous Waste Contingency Plan

The HWCP addresses the potential emergencies involving reactive (explosive) hazardous wastes during the environmental remediation and investigation efforts at all sites. This plan incorporates the applicable requirements of New Mexico Administrative Code 20.4.1.500, which encompasses 40 CFR 264.

6.3.4 General Purpose (40 CFR 264.52(A))

The purpose of this document is to prescribe the basic procedures to be used in the event of fires, explosions, or any unplanned release of chemicals or hazardous waste or their constituents to air, soil, or surface water. Although the potential for the release of hazardous wastes at FWDA is low, the primary concern this HWCP addresses is the potential for initiation of fire or explosion resulting from the remediation and destruction of MEC discovered during the environmental remediation efforts at the sites.

6.3.5 Arrangements Agreed To By Local Agencies (40 CFR 264.52 (C))

FWDA has entered into mutual assistance agreements with McKinley County for fire and emergency services protection. Copies of the agreements are included in Attachment E-3 of Appendix E. The names and phone numbers of the local agencies are provided in Attachment E-4 of Appendix E.

6.3.6 Installation On-Scene Coordinator (40 CFR 264.52(D))

The Installation On-Scene Coordinator (IOSC) has been designated by the White Sands Missile Range (WSMR) command group to be the BEC at FWDA (40 CFR 264.55). The IOSC will function as the facility emergency coordinator. In accordance with 40 CFR 264.56, the responsibilities of the IOSC include assessing the emergency; determining the need for agency notification; requesting additional manpower and resources if required; and coordinating mitigation, cleanup, and reporting. The Advisory/Support Group (Section 6.3.7) will support the IOSC as necessary. Names, addresses, and phone numbers of the IOSC and alternates are provided in Attachment C of Appendix F of this WP.

During environmental restoration activities, the IOSC will be supported by a JV on-SUXOS. The JV may change the on-site JV Remediation Supervisor at any given time depending upon activities and the sites where the work is being performed. The Army will prepare site-specific plans (e.g., WP, APP, SSHP) and will amend this HWCP, if necessary, to address any changes to the specific sites where remediation efforts are being conducted.

6.3.7 Advisory/Support Group

Members of this group, stationed at WSMR assist the IOSC as outlined below:

- Environmental Office: Helps determine environmental threats, proper disposal and management of wastes, recordkeeping, technical guidance, and reporting to outside agencies as required by regulations.
- Safety Office: Provides site-specific information on explosives hazards and quantity distance requirements.
- Public Affairs Officer: Responds to calls by the IOSC to interface with the news media.
- Contracting Officer: Initiates a contract for incident cleanup if directed by the IOSC. Contractors will be used when cleanup operations exceed the capabilities of the installation.
- Directorate for Public Works and Logistics: Provides heavy equipment support if needed and instructed by the IOSC.

Phone numbers for the Advisory/Support Group are listed in Attachment E-3 of Appendix E.

6.3.8 Response During Off-Duty Hours

Duty hours for the caretakers are 6:30 am to 5:00 pm Monday through Friday. The emergency response procedure for off-duty hours is the same as for duty hours, with the following differences: during off-duty hours, the IOSC and Advisory/Support Group are not present; individual group members or alternates may have to be called and report to the incident site, if conditions require their presence. The primary contact for the Advisory/Support Group during off-duty hours is the BEC (Attachment E-3 of Appendix E).

6.3.9 Emergency Equipment (40 CFR 264.52(E))

The JV will provide heavy equipment (excavator, loader, dump truck) as needed. Attachment E-5 of Appendix E lists JV maintained supplies and equipment. This list may be updated as changes to JV equipment and supplies inventory occurs.

6.3.10 Evacuation Plan (40 CFR 264.52(F))

Project sites may be evacuated in the event a safety or life-threatening hazard exists where the JV will conduct work. The evacuation route(s) for all sites are shown in Map B-2 (Appendix B). The evacuation plan is presented below:

- A steady continuous alarm with an air horn, siren, or vehicle horn will indicate the site is

being evacuated, or

- If two-way radios are used to contact JV personnel, the signal call will be "**Break, break, I have an emergency**."
- All other JV personnel will cease radio communications to allow the JV personnel calling in the emergency to exclusively use the frequency.
- If the emergency requires evacuation, all JV personnel doing work within the sites will rally at their vehicle(s).The Remediation Supervisor or his/her designee will account for all JV personnel.
- Once all JV personnel are accounted for, they will evacuate north, through the primary route, to the main cantonment area.
- If the primary evacuation route is blocked because of fire or release of hazardous waste, JV personnel will follow the secondary route south, through Parcel 1 to Highway 400, as shown on Map B-2 (Appendix B).

6.3.11 Copies of Contingency Plan (40 CFR 264.53)

A copy of this contingency plan and all revisions to the plan will be maintained in the Administrative Records Room in Building 1 at FWDA. The Administrative Records Manager is Ms. Jessica Pigg. A copy of this contingency plan and all revisions will be submitted to all local police departments, fire departments, hospitals, and state and local emergency response teams that may be called upon to provide emergency services.

6.3.12 Amendment of Contingency Plan (40 CFR 264.54)

The HWCP will be reviewed and amended if necessary when any of the following conditions exist:

- The facility RCRA permit is revised;
- This HWCP fails in actual use during an emergency;
- The design, operation, or construction of the facility change in such a way as to cause an increased potential for fires, explosions, or releases of hazardous waste or hazardous waste constituents or otherwise changes the response necessary in an emergency; and,
- The list of emergency coordinators or emergency equipment changes.

6.3.13 Emergency Coordinator (40 CFR 264.55)

It is presumed in this requirement there will be at least one employee either on the facility premises or on call of 24 x7 availability and will be satisfied by either the USACE or the Site Caretaker.

6.3.14 Emergency Procedures

Should this HWCP require implementation to comply with this section, NMED will be notified in accordance with the procedures outlined in Attachment E-6 of Appendix E.

6.3.15 Implementation (40 CFR 264.56 (A))

The IOSC will implement this HWCP in the event of an incident involving wastes at any of the sites. These include those incidents that result in or could result in uncontrolled burning or detonation, which could release hazardous constituents into the environment or endanger human health. The IOSC will assess any situation and determine whether the HWCP should be implemented, based on the IOSC's evaluation of these factors:

- The type and quantity of wastes and other materials involved;
- The potential for the spread of fire or the unintentional initiation of an explosion; and
- The available capability to respond to and control the situation.

In the event there is an imminent or actual emergency, the ISOC will notify all facility personnel with support from the Advisory/Support Group and SUXOS utilizing two-way radios with the following procedure:

- The signal call will be "**Break, break, I have an emergency**."
- All other Army personnel will cease radio communications to allow the personnel calling in the emergency to have the frequency.
- The ISOC will describe the emergency situation to all facility personnel.

The ISOC will notify the appropriate state or local agencies with the designated response roles, if their help is necessary.

6.3.16 Identification of Hazardous Materials Released at the Sites (40 CFR 264.56 (B))

The IOSC will identify the chemical and physical characteristics, exact source, quantity, and areal extent of the release and hazards associated with the incident. Potential sources of this information may include:

- The Remediation Supervisor and JV personnel present at the incident;
- Project records (daily reports, shipping manifests, field logs); and,
- Chemical/analytical data (if appropriate and available).

A summary of MEC items recovered and treated onsite during historical site characterization activities is provided in Attachment E-7 of Appendix E. In general, similar types of MEC items are expected to be encountered during this effort.

6.3.17 Assessment (40 CFR 264.56(C))

The IOSC will assess the nature of the emergency incident. Because little or no quantitative information (for example, exposure levels) initially may be available, the criteria for evaluating the hazards, risks, and vulnerabilities at the sites are qualitative. The following criteria will be considered in assessment of the emergency:

- The need to protect JV and other personnel present at the scene and those in the process of responding;
- The nature and size of the incident;
- Specific information available on the wastes and other materials involved;
- Weather (e.g., wind speed and direction), topography, and other conditions such as time of day;
- Need to establish safety zones;
- Factors affecting spread, ignition, or reactivity of the product;
- The probability the incident could spread beyond the incident scene; and,
- The need to deny access to unauthorized personnel.

To assist in the assessment of this situation, the IOSC may find it appropriate to confer with on-site JV personnel, the Advisory/Support Group, or explosives experts from other DoD installations. Under reasonably foreseeable conditions, the types and quantities of materials present at the sites will not produce any significant releases that could spread beyond the FWDA boundary.

6.3.18 Uncontrolled Fires

Uncontrolled fires, while unlikely, may occur during remediation and investigation efforts at the sites. If an uncontrolled fire occurs, it will not be fought unless necessary to provide assistance to injured JV personnel. During uncontrolled fires, the IOSC typically performs the following functions:

- Assesses the situation using all available knowledge to determine whether to implement the HWCP;
- Upon implementation of the HWCP, restricts all non-essential JV personnel from the area and evacuates all JV personnel if necessary;

- Notifies all appropriate military authorities and emergency response units immediately;
- Eliminates all possible sources of ignition in the immediate area, including ignited tobacco products and unauthorized vehicle traffic;
- Coordinates all response efforts without exposing JV personnel to undue risk;
- With assistance from the WSMR Environmental Office, assumes responsibility for directing follow-up activities, if required; and,
- With assistance from the WSMR Environmental Office, prepares and submits all necessary reports on the incident.

The IOSC takes the following actions upon implementation of the HWCP:

- Stops all routine work in the affected area;
- Stops all non-essential activities;
- Evacuates all non-essential personnel;
- Coordinates removal of any injured persons from the site and medical treatment of those persons;
- Gives "all-clear" notification by radio or portable telephone when all danger has ended; and,
- Arranges for cleaning and inspecting all emergency equipment before resuming normal closure/post-closure operations.

6.3.19 Emergency Notifications for Off-Site Impacts (40 CFR 264.56(D))

If the IOSC determines the facility has had an incident that could threaten human health or the environment outside of the facility, the following notification reports will be made:

- If the IOSC's assessment indicates that evacuation of local areas may be advisable, the ISOC will immediately notify the appropriate local authorities and be available to assist the local authorities in making the decision to evacuate.
- Immediately notify the NMED and the Local Community Emergency Coordinator or the National Response Center. The notification report will include:
    - Name and telephone number of the reporter;
    - Name and address of the facility;
    - Time and type of incident;
    - Name and quantity of material(s) involved;
    - Extent of any injuries; and,
    - Possible hazards to human health or the environment outside the facility.

Phone numbers for reporting emergency notifications of off-site impacts are provided in Attachment E-4 of Appendix E. Fires resulting from remediation/investigation operations and unplanned burning or detonations resulting in personnel injury are the types of incidents that may require emergency response. Incidents that are immediately corrected, without requiring additional assistance, will not constitute an emergency

6.3.20 Control of Fires and Prevention of Recurrence or Spread of Fires, Explosions or Releases (40 CFR 264.56(E))

Local fire departments will respond to any reported emergency involving fire. Actions appropriate to controlling and preventing the spread of fires will be selected and implemented by these trained fire fighters. FWDA will rely upon their professional, on-scene judgment in selecting a course of action that is most protective of human health and the environment. Similarly, the knowledge and training of on-scene Army and remediation contractor ordnance experts will be used in determining the most appropriate response to actual or potential releases of hazardous wastes.

As noted in the emergency response agreements (Attachment E-3 of Appendix E), under no circumstances will local fire departments be expected or permitted to enter an area or fight a fire potentially containing MEC.

Should any event occur requiring implementation of this HWCP, FWDA will follow up with actions to prevent recurrences. At a minimum, closure operations would be suspended and an investigation of the incident would be conducted to determine the reasons for the occurrence. Based on the results of the investigation, any appropriate changes would be instituted before operations resume.

6.3.21 Storage, Treatment, and Disposal of Released Material (40 CFR 264.56(G))

Immediately after an incident, the IOSC will arrange for the treatment, storage, or transportation and disposal of recovered waste and waste residues, contaminated soil, or other contaminated materials. Detonation and burning are the methods by which the items will treated at the CAMU; therefore, an unintentional fire or explosion may result in partial or complete treatment of WMM. The cleanup residue will be collected by JV personnel. Depending on the nature of the residue, the appropriate equipment will be used. It is anticipated most of the residue can be cleaned up by shovel. The material will be collected and treated at the CAMU, if appropriate. If analysis of the waste is required, the waste will containerized until the testing is complete. If appropriate, the less-than-90-day storage facility,

located in Storage Block B, will be used for the storage of containerized hazardous wastes until off-site disposal arrangements are made.

The IOSC will authorize all facility personnel and equipment or contractor services as necessary to complete this task. Should the services of a cleanup contractor be required, the IOSC will request such support from the WSMR Director of Contracting. Reactive wastes or reactive waste residues recovered after an incident will be treated onsite by the JV personnel in the CAMU, if authorized by the USACE PM in consultation with FWDA personnel.

6.3.22 Post-Emergency Compatibility of Wastes (40 CFR 264.56(H)(1)

The ISOC will determine and verify wastes that may be incompatible with the released material are not treated, stored, or disposed of until the cleanup procedures are complete.

6.3.23 Post-Emergency Equipment Maintenance (40 CFR 264.56(H)(2))

Onsite emergency equipment or responder equipment (e.g., fire department) will be cleaned and made fit for its intended use prior to returning to service. As appropriate, soiled equipment will be decontaminated by removing bulk soils and washing with an appropriate cleaning solution. Bulk soils and wash/rinse solution will be containerized. Remedial activities and closure operations will resume only when all emergency equipment is determined to be clean and ready for service. Notification will be provided to the NMED that the facility is in compliance with paragraph 40 CFR 264.56(h) before investigation and environmental remediation activities at the sites are resumed.

6.3.24 Reporting Requirements (40 CFR 264.56(I))

The IOSC will notify the WSMR Environmental Office and BRACD immediately of any incident that requires implementing the HWCP. The WSMR Environmental Office is responsible for making the required written notifications to the Regional Administrator within 15 calendar days following the incident.

A copy of the FWDA Notification of Reportable Quantity Pollution Event form and related instructions used to record information necessary for the telephone report are included in Attachment E-6 of Appendix E. A copy of this form will be completed by the WSMR Environmental Office or the IOSC and inserted into the facility copy of the HWCP to satisfy the requirement for entry of the incident into the Facility Operating Record.

Within 15 calendar days of implementing this HWCP, the ISOC, will prepare and submit a written report to the NMED. The information required in the written report is outlined in Attachment E-6 of Appendix E.

6.4 Air Pollution Control Plan

It is anticipated that certain planned activities, to be conducted under a separate effort and WP (the *Kickout Area Investigation and MEC Clearance Parcel 3 AOCs and SWMUs Work Plan* which will be submitted at a later date), will generate fugitive dust emissions as well as vehicle emissions associated with equipment during the mechanical sifting operations. All excavations and traffic areas will be watered non-potable throughout the duration of the project to minimize dust generation. A water truck will be used to control dust during the excavation and loading activities. Wetting operations will be monitored to limit ponding or runoff.

6.5 Spill Control Plan

A Spill Prevention Control and Countermeasures Plan is included as Appendix F.

6.6 Storage Areas And Laydown Facilities

Whenever possible, the JV will locate on-site storage and laydown facilities in a manner as to minimally affect site resources. Site storage requirements may include the use of storage trailers or sheds for equipment. If practical, storage facilities will be located within the Administration Area to avoid ground disturbance. All storage locations will be approved by USACE before their use and will be removed and restored once field activities have been completed. Planned grading and laydown area locations for SWMUs 14, 15 and 33 will be established and Map B-9: Extent of Excavation Activities will be added as an amendment to this plan.

6.7 Access Routes

During site activities, the Army will, to the greatest extent possible, use existing roadways to minimize the impact of site operations. In some cases, existing roads will require some improvements for site access. Any required road improvement will be coordinated with USACE. If new site access routes are absolutely required, the JV with USACE concurrence, will establish them to minimize their impact on surrounding resources and will return the disturbed areas to their previous condition at project completion.

6.8 Post-Project Cleanup

At the conclusion of this project, the JV will remove all temporary facilities such as work areas, fencing, stakes, or any other signs of removal activities within the project, storage, and access areas. The areas will be restored to as near natural conditions as possible. Any damage to roads, bridges, gates, and the like will be restored to pre-project conditions.

6.9 Personnel

The JV PM, Mr. Shahrukh Kanga, PMP, or his designee, is responsible for ensuring adherence to this EPP. Mr. Kanga holds the requisite qualifications necessary to implement this EPP, and he or an appointed designee will be responsible for training environmental protection personnel and coordinating activities with USACE personnel.

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7.0 PROPERTY MANAGEMENT PLAN

A property management plan is not required for this site or this project.

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8.0 INTERIM HOLDING FACILITY SITING PLAN FOR CHEMICAL WARFARE MATERIEL PROJECTS

An Interim Holding Facility Siting Plan for Chemical Warfare Material is not required for this site or this project.

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9.0 PHYSICAL SECURITY PLAN FOR RECOVERED CHEMICAL WARFARE MATERIEL PROJECT SITES

A physical security plan for recovered chemical warfare materiel is not required for this site or this project.

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10.0 REFERENCES

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APPENDIX A
CORRESPONDENCE

February 11, 2013

Mark Patterson, BRAC Environmental Coordinator
DEPARTMENT OF THE ARMY
Ravenna AAP
Building 1037 State Route 5
Ravenna, OH 44266

RE: Fort Wingate Field Investigation

This letter will serve as permission to access the Navajo Nation Trust Land along the Fort Wingate Depot Activity (FWDA) west boundary in the area of OB/OD tract 3 to complete work on the Kick-Out Area as required by the December 2005 RCRA permit. The work area is within Township 14 North, Range 17 West, Sections 10, 15, 22, and 27 and access will expire December 31, 2023. The permission to investigate; field clearance and removal of any military munitions existence is hereby granted, subject to the following terms and conditions:

1. The rights of local Navajo people will be respected and protected.

2. Personnel with the Division of Natural Resources (DNR) will retain the right to monitor the field activities.

3. The field construction access will be conducted at your own risk. The Navajo Nation will not be held liable for any personal injury or property damage that might occur during the courses of the construction activities.

4. Vehicles will be kept on existing roads and trails. Surface disturbance will be kept to an absolute minimum while field clearance activities.

5. The Permittees or Contractors will comply with all applicable Tribal and Federal laws and regulations.

Respectfully,

W. Mike Halona, Department Manager III
NAVAJO NATION LAND DEPARTMENT
DIVISION OR NATURAL RESOURCES

xc: Sharon Pinto, Regional Director /Navajo Region
Sharlene Begay-Platero, Project Development Dept./ DED
Frederick H. White, Executive Director/DNR
Chrono File

Appendix A
Correspondence – Work Plan Change Log

Change Number	Date	Changes Made	Reason for Change	Actions Taken
1	3/11/15	• Amend section 3.2.5.2 as requested by NMED. • Delete text stating "NMED approval" of MEC clean-up criteria in the following pages of the Work Plan (3-3, 1-4, 1-6, 3-1, 3-2, and 3-14). • Delete copy of email communication between between NMED and the Army regarding the approval of the cleanup criteria from Appendix A. • Add the attached Work Plan Change Log	Email from NMED to Army with comments to Final WP	Replacement pages sent to NMED and other Stakeholders to amend the paper copies distributed on February 6, 2015.

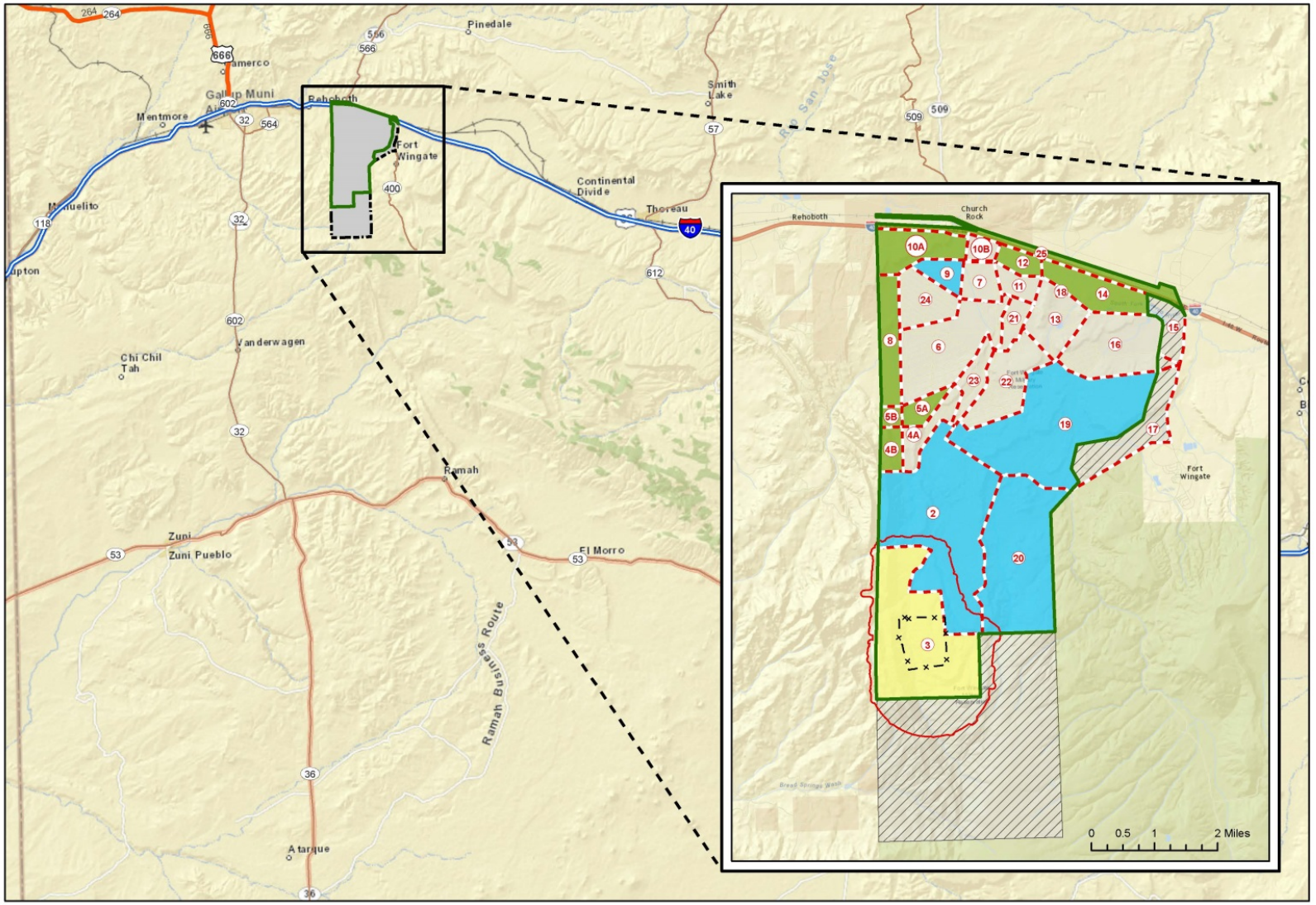
APPENDIX B
SITE MAPS

Fort Wingate Depot Activity

McKinley County, New Mexico

Map B-1

Regional Area Map



Legend

- FWDA Boundary 1993
- FWDA Installation Boundary
- Army Parcel Boundary
- Kickout Area (KOA)
- Inner Fence
- 3 Parcel Number

Parcel Status

- Parcel 3, Army Retained
- Army, Leased to MDA
- Army, Pending Transfer
- Removed from Permit

N

0 3 6 12 Miles

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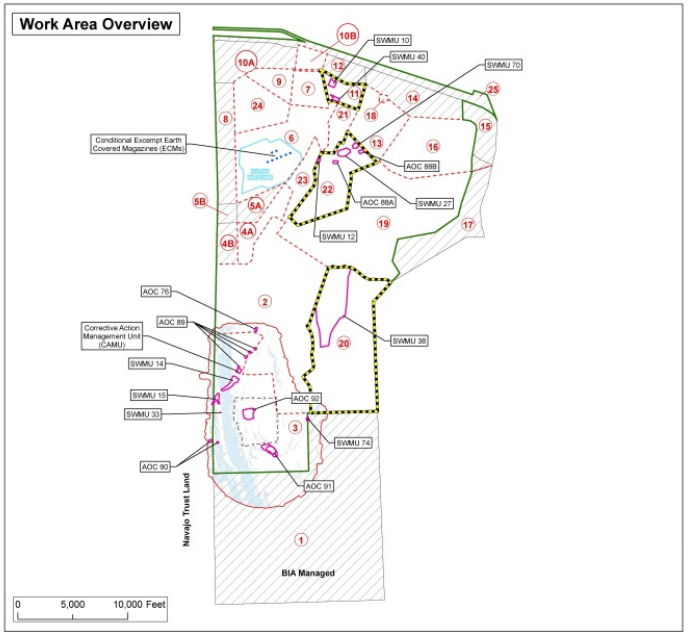
PIKA ARCADIS MALCOLM PIRNIE A JOINT VENTURE

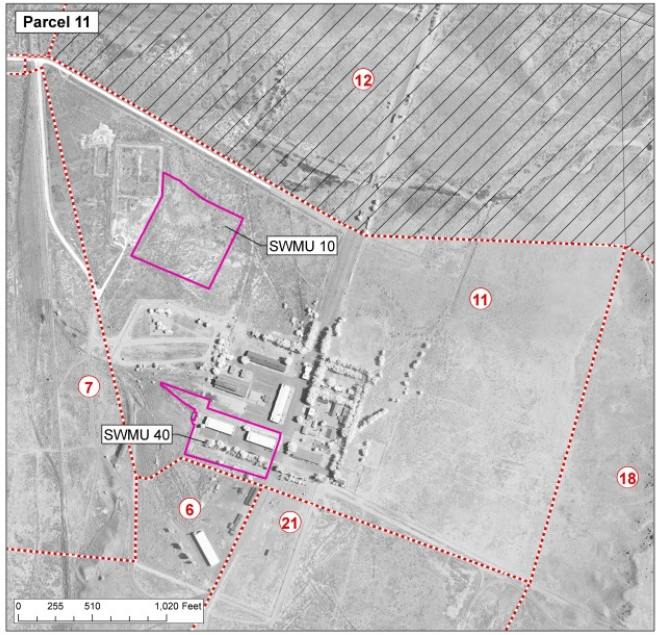
Fort Wingate Depot Activity

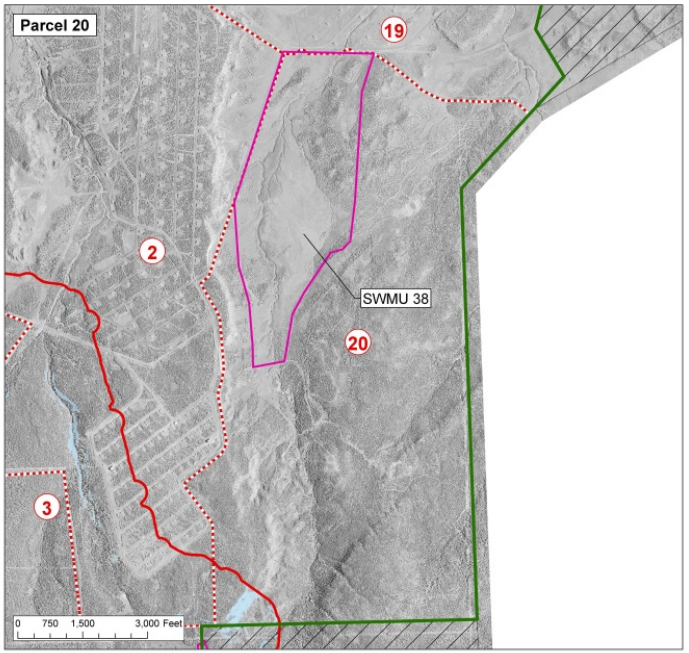
McKinley County, New Mexico

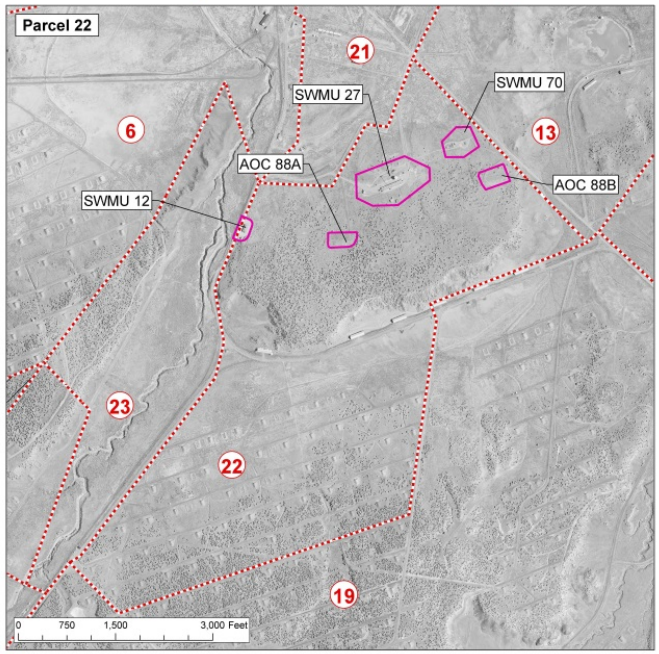
Map B-2

Parcels 11, 20, and 22









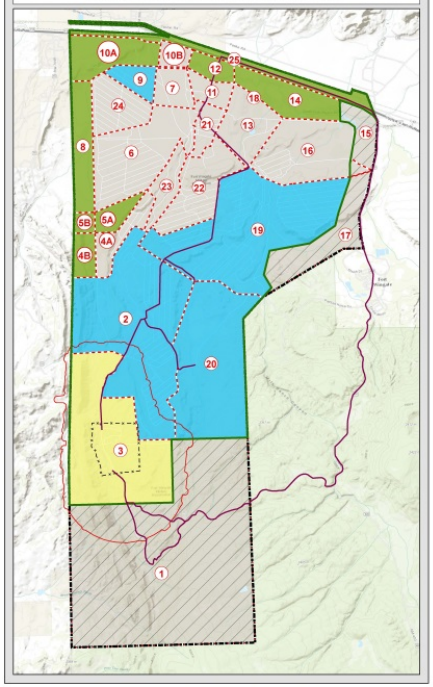
Legend

- FWDA Installation Boundary
- Investigation Areas
- AOCs and SWMUs
- HWMU (Out of Scope)
- Inaccessable Area
- Inner Fence
- Parcel Number
- Evacuation Route
- Igloo Block
- Conditional Exemption Earth Covered Magazine (ECM)

Parcel Status

- Army Parcel Boundary
- Parcel 3, Army Retained
- Army, Leased to MDA
- Army, Pending Transfer
- Removed from Permit

Fort Wingate Depot Activity Parcel Overview



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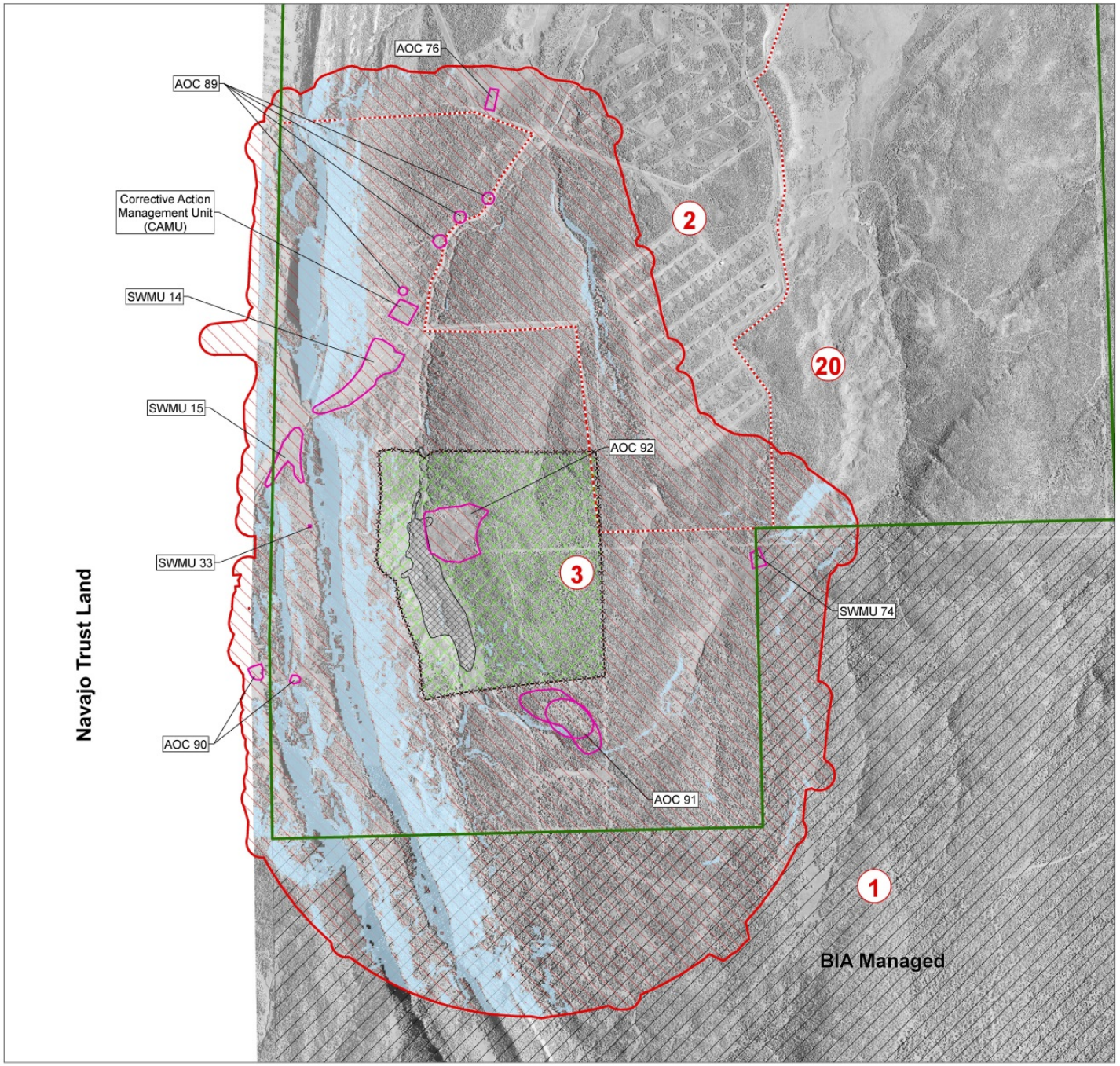


Fort Wingate Depot Activity

McKinley County, New Mexico

Map B-3

Kickout Area (KOA) Clearance Area

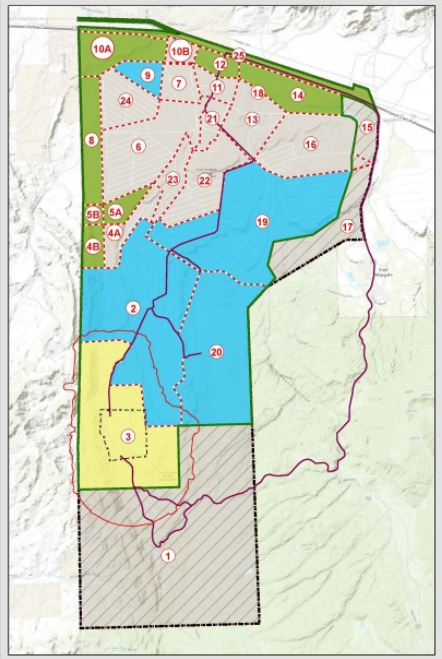
Legend

- FWDA Installation Boundary
- Kickout Area (KOA) (Subsurface Clearance to Detectable Depth)
- Surface Clearance Only
- AOCs and SWMUs
- HWMU (Out of Scope)
- Inaccessable Area
- Inner Fence
- (3) Parcel Number

Parcel Status

- Army Parcel Boundary
- Parcel 3, Army Retained
- Army, Leased to MDA
- Army, Pending Transfer
- Removed from Permit
- Evacuation Route

Fort Wingate Depot Activity Parcel Overview



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0 950 1,900 3,800 Feet

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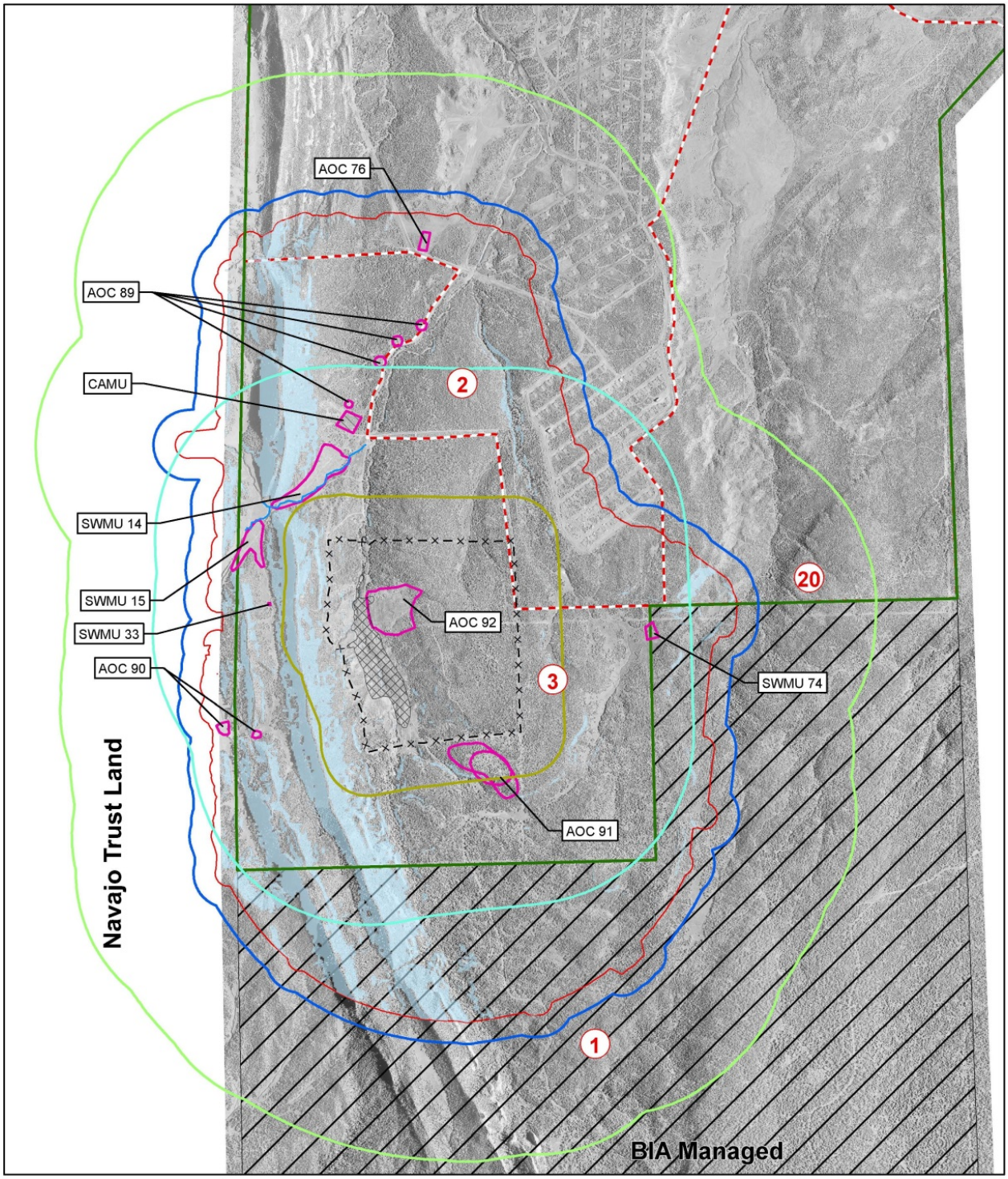
ARCADIS MALCOLM PIRNIE

A JOINT VENTURE

Fort Wingate Depot Activity

McKinley County, New Mexico

PIKA — ARCADIS MALCOLM PIRNIE A JOINT VENTURE



Map B-4

Explosive Safety Quantity Distance (ESQD) Map for KOA

Imagery: 2009 Color Infrared
CS: UTM 12N
Datum: WGS 84
Date: 1/28/2015

Drawn By: NW
Job Code: 14-41-137

Legend

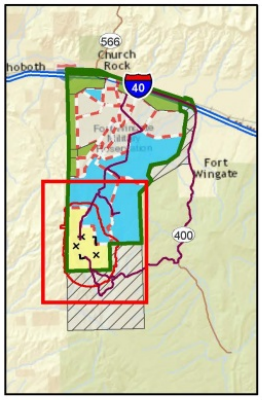
- FWDA Boundary
- Kickout Area (KOA) (Subsurface clearance defined in previous work plan)
- AOCs & SWMUs
- Corrective Action ManagementUnit (CAMU)
- KOA Inner Fence Area
- HWMU (Out of Scope)
- Inaccessable Area

Explosive Safety Quantity Distance (ESQD)

- Hazardous Fragment Distance (HFD) 450 feet based on the 155mm M107 (Comp B filled) projectile
- Maximum Fragment Distance-Horizontal (MFD-H), 2894 feet based on the 155mm M107 (TNT filled) projectile
- Hazardous Fragment Distance (HFD) 910 feet based on the AN-M66A2, 2000-lb HE Bomb (Inner Fence Only)
- Maximum Fragment Distance - Horizontal (MFD-H), 3593 feet based on the AN-M66A2, 2000-lb HE Bomb (Inner Fence Only)

Parcel Status

- Army Parcel Boundary
- Parcel 3 Army Retained
- Removed from Permit
- Army, Leased to MDA
- Evacuation Route
- ③ Parcel Number



N 0 1,500 3,000 ft

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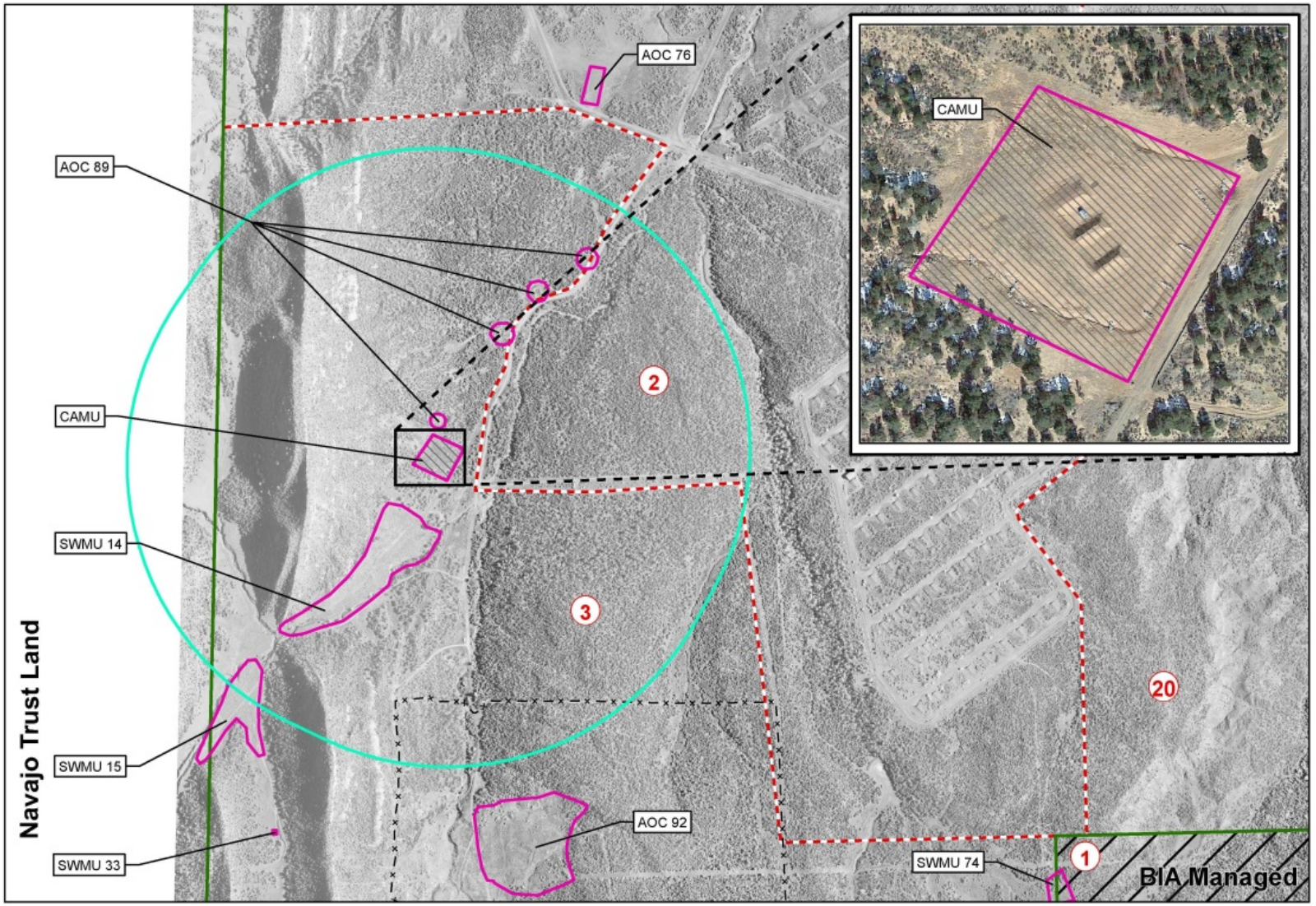


Fort Wingate Depot Activity

McKinley County, New Mexico

Map B-5

Explosive Safety Quantity Distance (ESQD) for the Corrective Action Management Unit (CAMU)

Legend

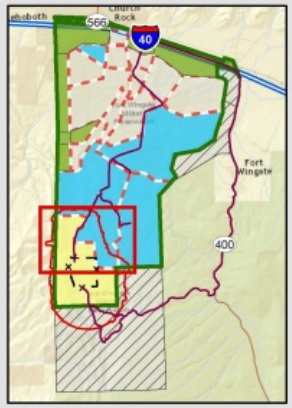
- FWDA Installation Boundary
- AOCs and SWMUs
- Corrective Action Management Unit (CAMU)
- Inner Fence

Explosive Safety Quantity Distance (ESQD)

- Maximum Fragment Distance Horizontal (MFD-H) 2894 Feet based on the 155mm, M107 (TNT Filled) HE Projectile

Parcel Status

- Army Parcel Boundary
- Parcel 3, Army Retained
- Army, Leased to MDA
- Army, Pending Transfer
- Removed from Permit
- Evacuation Route



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0 420 840 1,680 Feet

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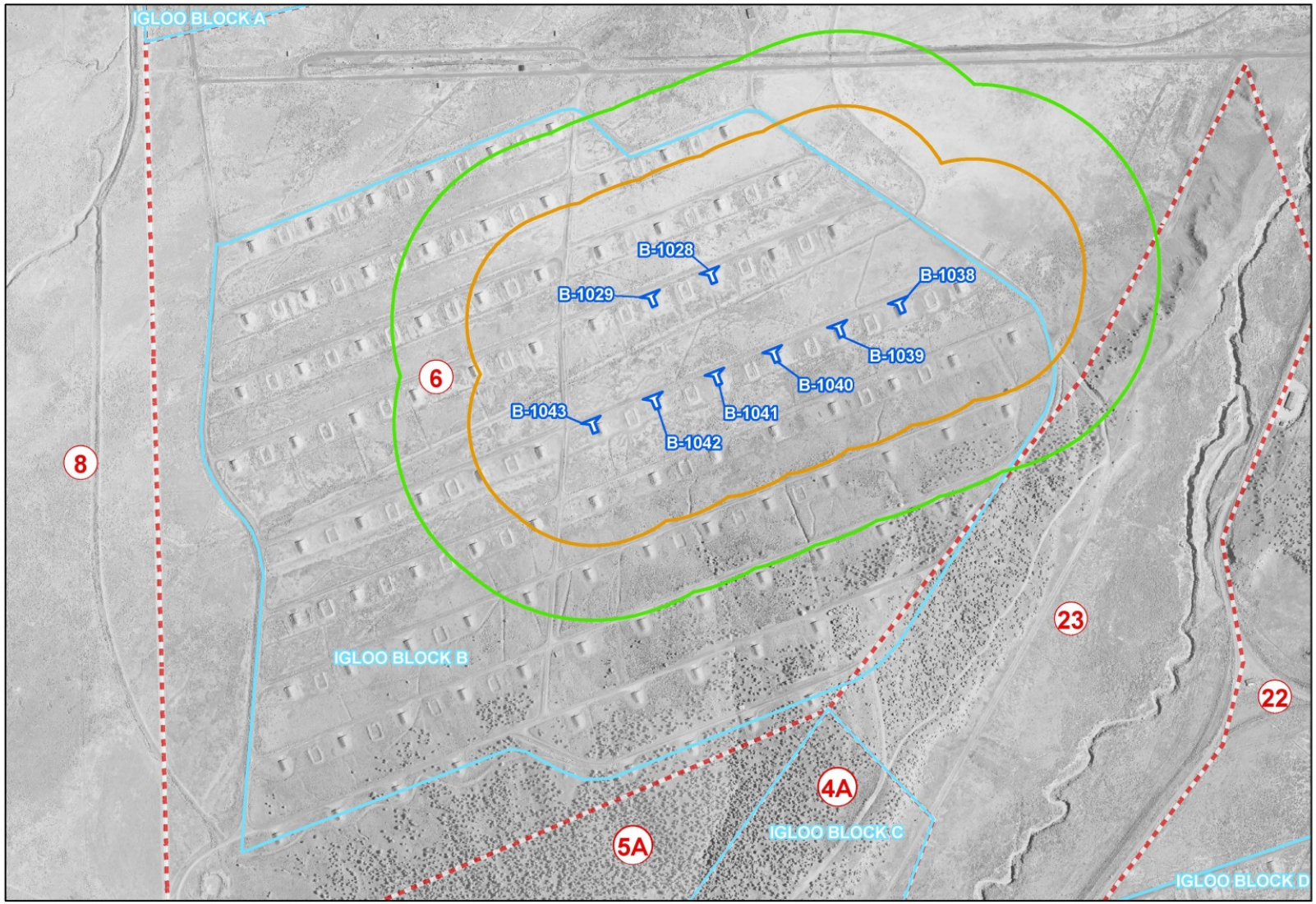


Fort Wingate Depot Activity
McKinley County, New Mexico
Map B-6
Explosive Safety Quantity Distance (ESQD) for Conditional Exempt Earth Covered Magazines (ECMs)

Legend

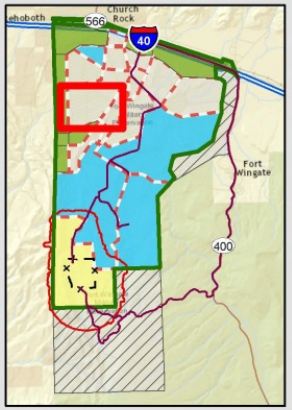
- FWDA Installation Boundary
- Igloo Block
- Conditional Exemption ECM

Explosive Safety Quantity Distance (ESQD)

- Inhabited Building Distance - 1250 feet
- Public Traffic Route Distance - 750 feet

Parcel Status

- Army Parcel Boundary
- Parcel 3, Army Retained
- Army, Leased to MDA
- Army, Pending Transfer
- Removed from Permit
- Evacuation Route



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0 250 500 1,000 Feet

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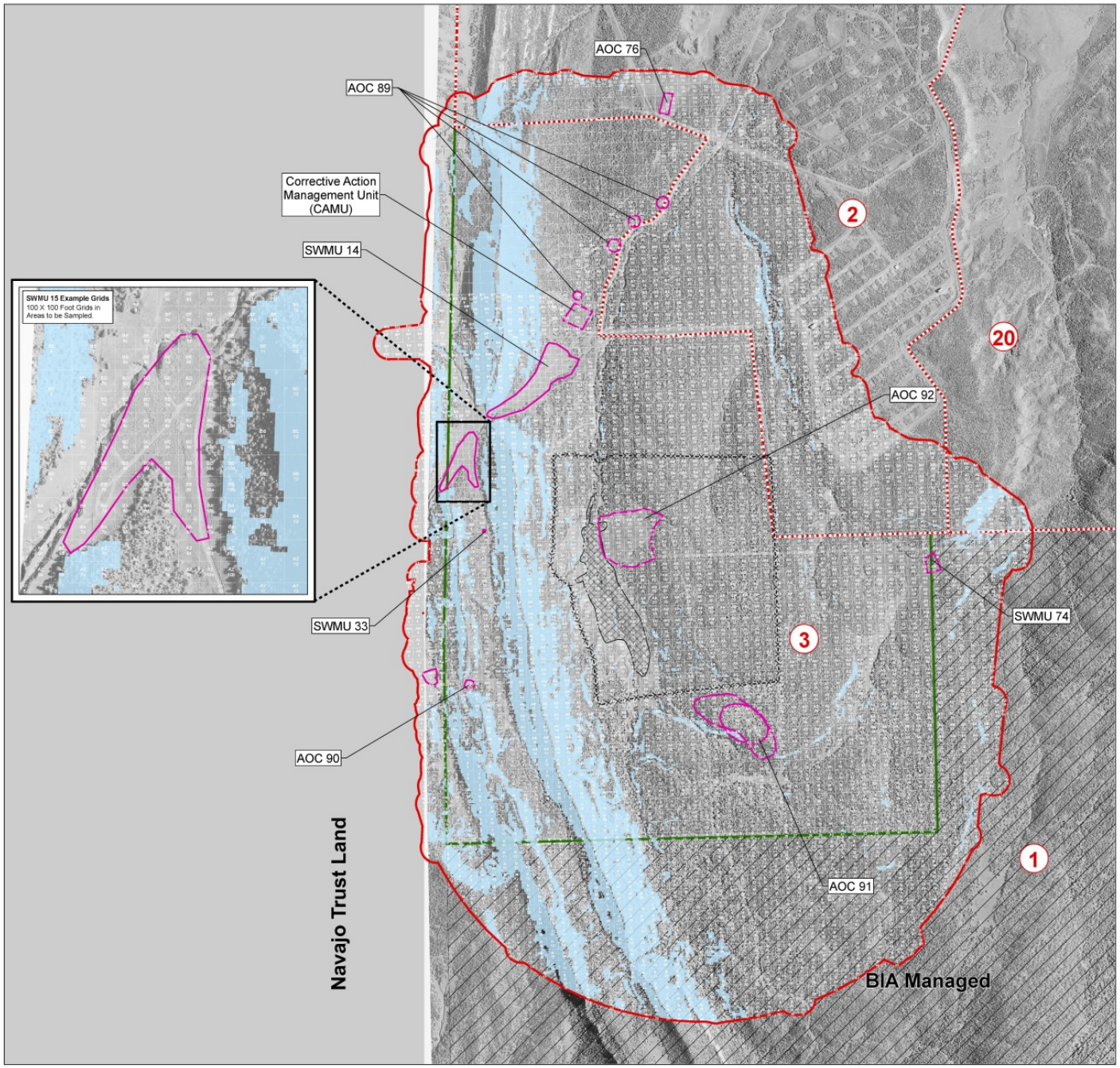
ARCADIS MALCOLM PIRNIE
A JOINT VENTURE



Fort Wingate Depot Activity

McKinley County, New Mexico

Map B-7

Example Grid Map

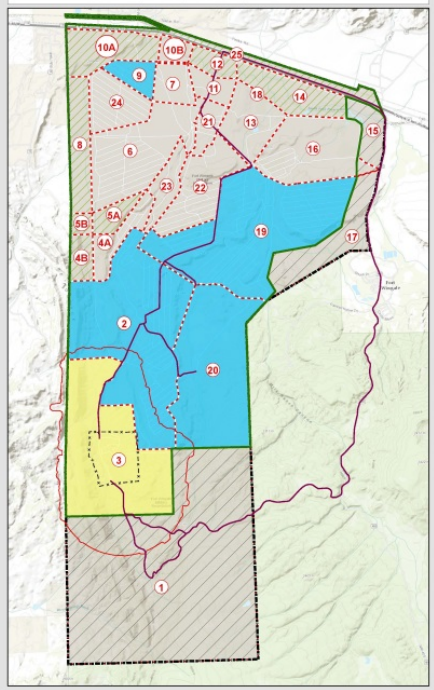
Legend

- FWDA Installation Boundary
- Kickout Area (KOA)
- Grids (combination of 200ft x 200ft and 100ft x 100ft grids)
- AOCs and SWMUs
- HWMU (Out of Scope)
- Inner Fence
- Inaccessable Area
- (3) Parcel Number

Parcel Status

- Army Parcel Boundary
- Parcel 3, Army Retained
- Army, Leased to MDA
- Army, Pending Transfer
- Removed from Permit
- Evacuation Route

Fort Wingate Depot Activity Parcel Overview



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0 950 1,900 3,800 Feet

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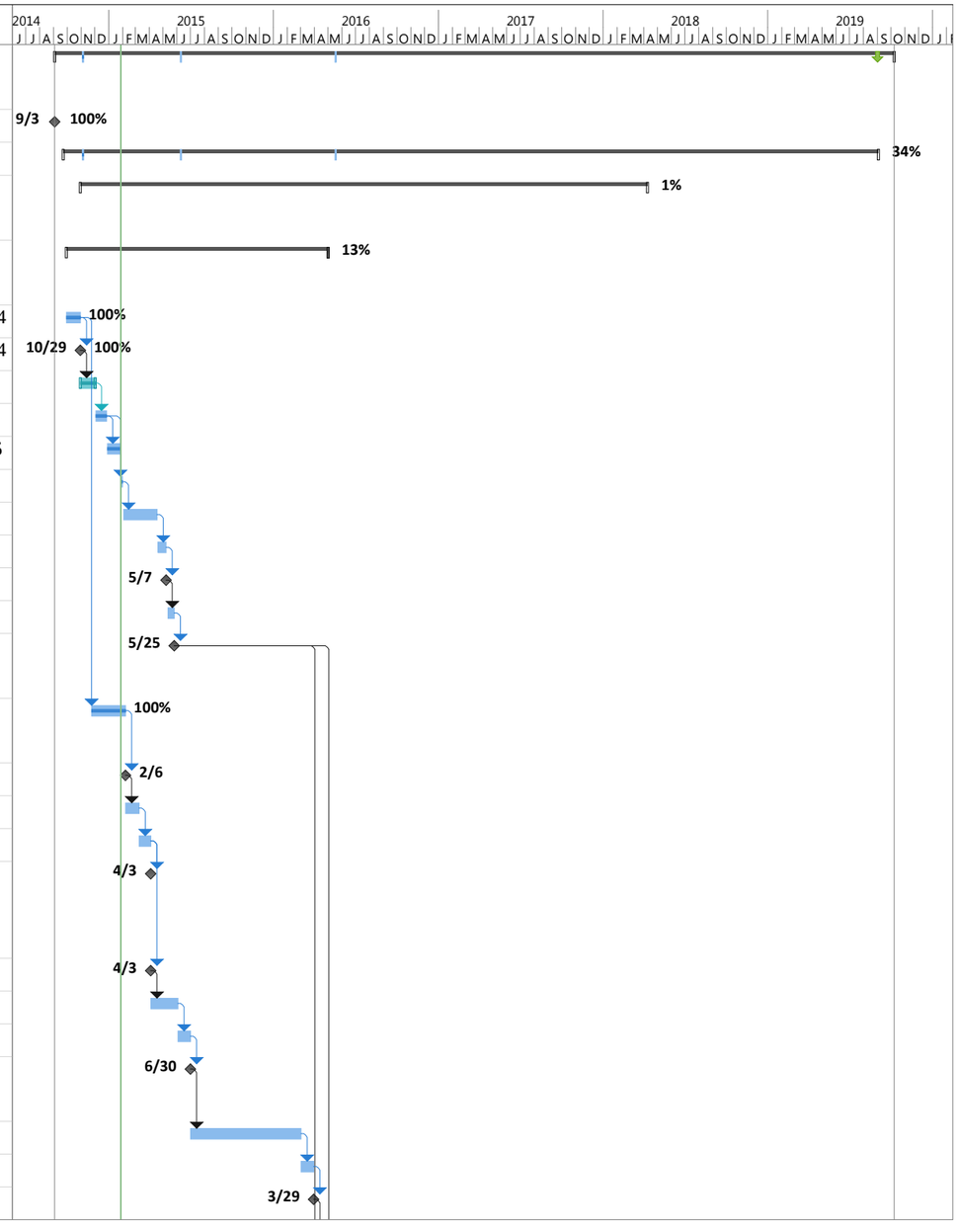
PIKA

ARCADIS MALCOLM PIRNIE A JOINT VENTURE

APPENDIX C
SCHEDULE

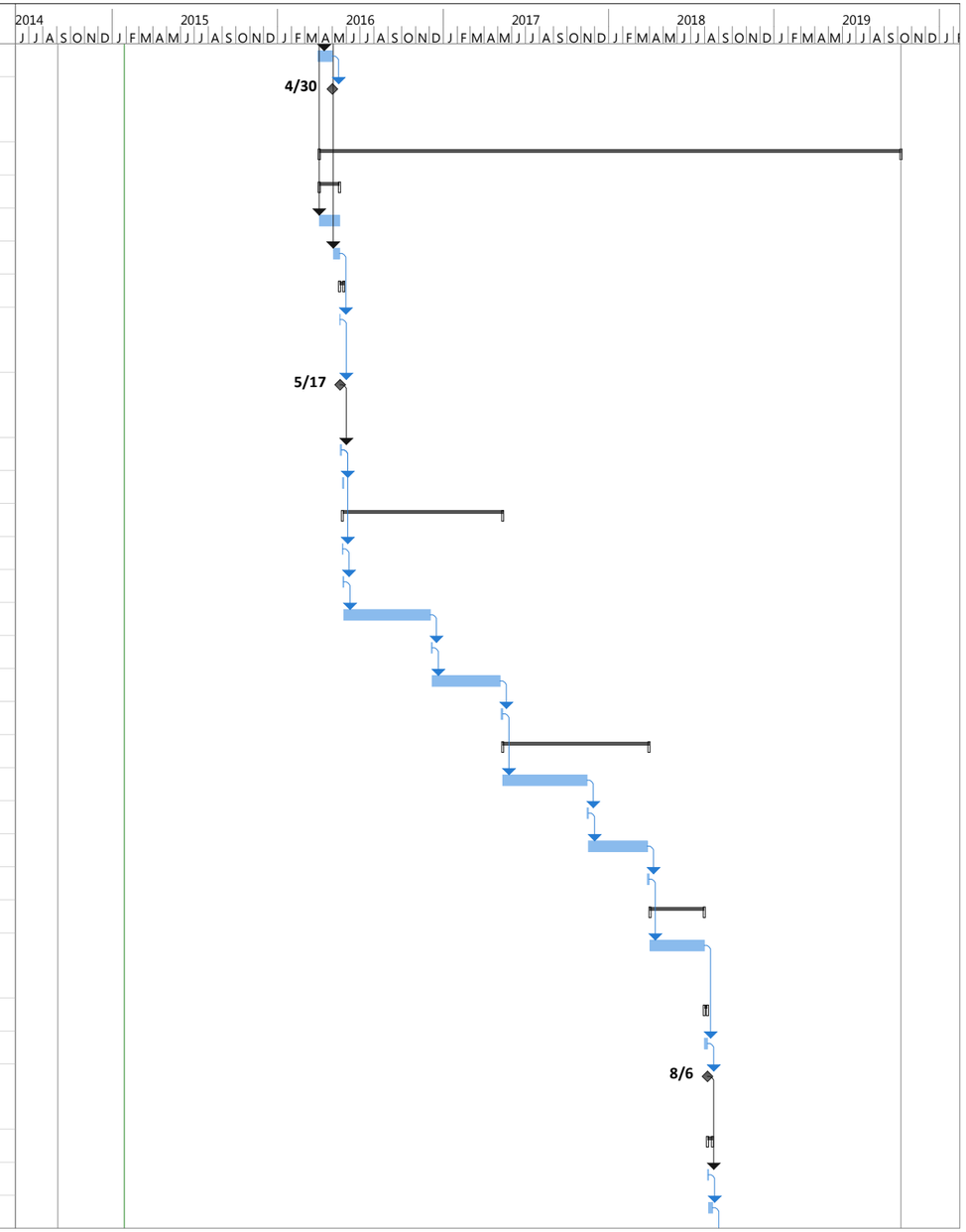
ID	WBS	Task Name	% Complete	Duration	Baseline Start	Baseline Finish	Actual Start	Actual Finish
1	**WA**	**Environmental Remediation Activities at Fort Wingate Depot Activity (FWDA) Parcel 3 & Kick-out Area**	**4%**	**1297 days**	**Wed 9/3/14**	**Mon 9/2/19**	**Wed 9/3/14**	**NA**
2	WA.1	Award	100%	0 days	Wed 9/3/14	Wed 9/3/14	Wed 9/3/14	Wed 9/3/14
3	**WA.2**	**CLIN 0001 - Task 1 PROJECT MANAGEMENT**	**34%**	**1259 days**	**Mon 9/22/14**	**Mon 9/2/19**	**Mon 9/22/14**	**NA**
152	**WA.3**	**CLIN 0002 - Task 2 - SWMU 38, Parcel 20 RCRA Facility Investigation (RFI)**	**1%**	**873 days**	**Thu 10/30/14**	**Sun 4/8/18**	**Thu 10/30/14**	**NA**
214	**WA.4**	**CLIN 0003 - Task 3 Parcel 3 Kick-out Area (KOA) MEC Work Plan**	**13%**	**400 days**	**Mon 9/29/14**	**Fri 3/18/16**	**Mon 9/29/14**	**NA**
215	WA.4.1	Prepare Draft Kick Out Area MEC Removal Work Plan	100%	23 days	Mon 9/29/14	Wed 10/29/14	Mon 9/29/14	Wed 10/29/14
216	WA.4.2	Submit Draft Work Plan to USACE for Review	100%	0 days	Wed 10/29/14	Wed 10/29/14	Wed 10/29/14	Wed 10/29/14
217	WA.4.3	USACE Review of Work Plan	100%	33 edays	Wed 10/29/14	Wed 11/26/14	Thu 10/30/14	Tue 12/2/14
218	WA.4.4	Respond to USACE comments	100%	16 days	Mon 12/1/14	Fri 12/26/14	Wed 12/3/14	Fri 12/26/14
219	**WA.4.5**	**CLIN 0003AA - USACE approves Draft Work Plan**	**100%**	**20 days**	**Fri 12/26/14**	**Fri 12/26/14**	**Mon 12/29/14**	**Mon 1/26/15**
220	WA.4.6	Submit Plans for Tribal and NMED Review	100%	4 days	Fri 12/26/14	Fri 12/26/14	Tue 1/27/15	Fri 1/30/15
221	WA.4.7	Concurrent Tribal & NMED Review	0%	75 edays	Mon 12/29/14	Sat 3/14/15	Mon 2/2/15	NA
222	WA.4.8	Respond to Stakeholders comments	0%	14 days	Mon 3/16/15	Thu 4/2/15	NA	NA
223	WA.4.9	Submit Final KOA MEC Removal Work Plan	0%	0 days	Thu 4/2/15	Thu 4/2/15	NA	NA
224	WA.4.10	USACE Review	0%	14 edays	Mon 4/6/15	Mon 4/20/15	NA	NA
225	**WA.4.11**	**CLIN 000AB - USACE Acceptance of Final KOA MEC Removal Work Plan**	**0%**	**0 days**	**Mon 4/20/15**	**Mon 4/20/15**	**NA**	**NA**
226	WA.4.12	Prepare Draft Amendment #1 - KOA Investigation & MEC Removal for AOCs and SWMUs Work Plan	100%	50 days	Mon 11/24/14	Fri 1/23/15	Mon 11/24/14	Fri 2/6/15
227	WA.4.13	Submit Draft Work Plan to USACE for Review	0%	0 days	Fri 1/23/15	Fri 1/23/15	NA	NA
228	WA.4.14	USACE Review of Work Plan	0%	30 edays	Mon 1/26/15	Tue 2/24/15	NA	NA
229	WA.4.15	Respond to USACE comments	0%	20 days	Wed 2/25/15	Tue 3/24/15	NA	NA
230	**WA.4.16**	**CLIN 0003AA - USACE approves Draft Amendment #1 Work Plan (Kickout Area Investigation and MEC Clearance Parcel 3 AOCs and SWMUs Work Plan)**	**0%**	**0 days**	**Wed 3/25/15**	**Thu 4/2/15**	**NA**	**NA**
231	WA.4.17	Submit Amendment #1 for Tribal Review	0%	0 days	Fri 4/3/15	Fri 4/3/15	NA	NA
232	WA.4.18	Tribal Review	0%	60 edays	Mon 4/6/15	Fri 6/5/15	NA	NA
233	WA.4.19	Respond to Tribal comments	0%	20 days	Mon 6/8/15	Fri 6/26/15	NA	NA
234	WA.4.20	Submit Amendment #1 for NMED review and USACE concurrence	0%	0 days	Mon 6/29/15	Tue 6/30/15	NA	NA
235	WA.4.21	NMED Review	0%	245 edays	Wed 7/1/15	Wed 3/2/16	NA	NA
236	WA.4.22	Respond to NMED comments	0%	20 days	Thu 3/3/16	Wed 3/30/16	NA	NA
237	WA.4.23	Submit Final Amendment #1	0%	0 days	Thu 3/31/16	Thu 3/31/16	NA	NA



Date: January 2015

Task — Project Summary — Manual Task — Start-only — Deadline
Split — Inactive Task — Duration-only — Finish-only — Progress
Milestone — Inactive Milestone — Manual Summary Rollup — External Tasks — Manual Progress
Summary — Inactive Summary — Manual Summary — External Milestone

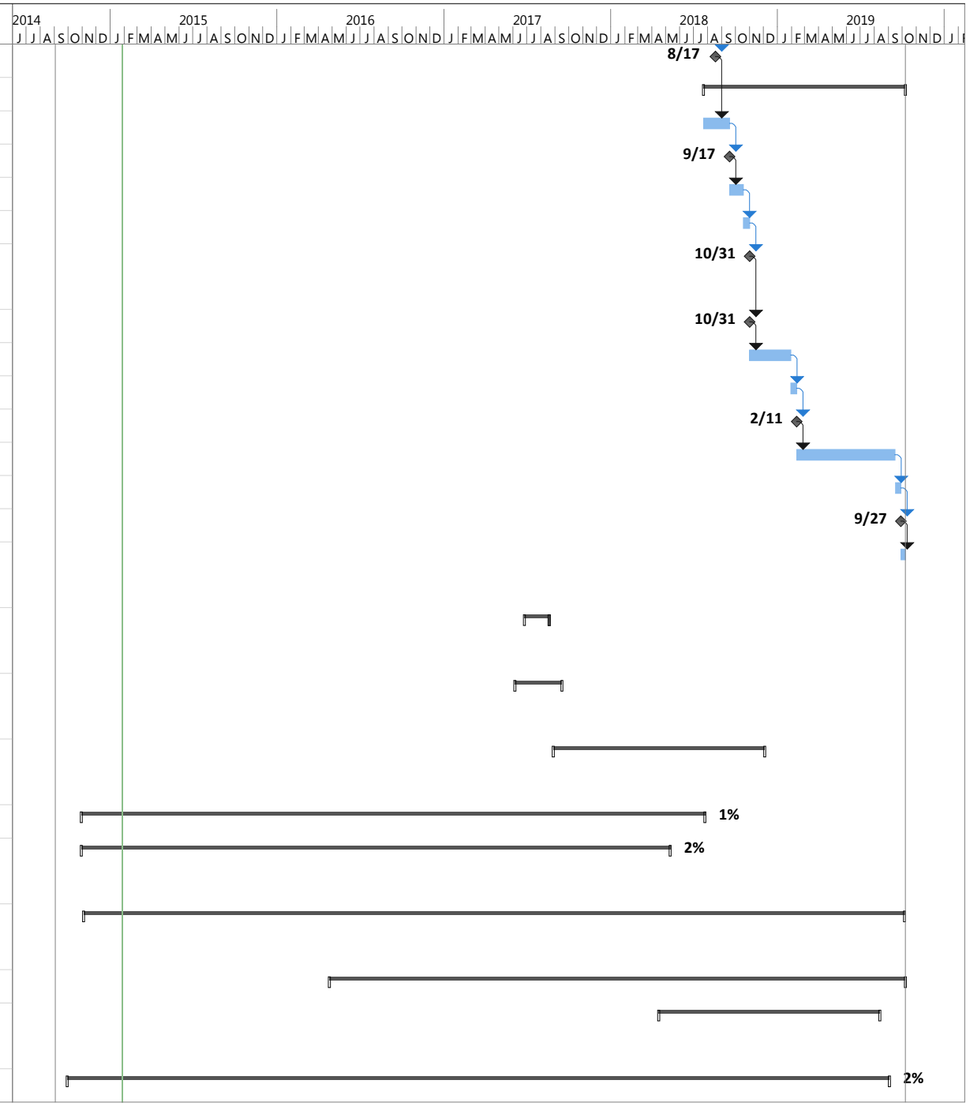
ID	WBS	Task Name	% Complete	Duration	Baseline Start	Baseline Finish	Actual Start	Actual Finish
238	WA.4.24	USACE Review	0%	32 edays	Fri 4/1/16	Fri 4/29/16	NA	NA
239	**WA.4.25**	**CLIN 000AB - USACE Acceptance of Final Amendment #1**	**0%**	**0 days**	**Fri 4/29/16**	**Fri 4/29/16**	**NA**	**NA**
240	**WA.5**	**CLIN 0004 - Task 4 KOA Area MEC Removal Field Work**	**0%**	**899 days**	**Mon 2/29/16**	**Mon 9/2/19**	**NA**	**NA**
241	**WA.5.1**	**Notices**	**0%**	**31 days**	**Mon 2/29/16**	**Thu 4/14/16**	**NA**	**NA**
242	WA.5.1.1	USACE COR Field Mobilization Notice	0%	45 edays	Mon 2/29/16	Thu 4/14/16	NA	NA
243	WA.5.1.2	Field Mobilization Notice to BRAC and FWDA	0%	10 days	Wed 3/30/16	Tue 4/12/16	NA	NA
244	**WA.5.2**	**Mob and Site Set-up, Advance team**	**0%**	**7 days**	**Wed 4/13/16**	**Thu 4/21/16**	**NA**	**NA**
245	**WA.5.2.1**	**CLIN 0016AC - Field Kick Off Meeting (within 30 days of Plan approval)**	**0%**	**1 day**	**Wed 4/13/16**	**Wed 4/13/16**	**NA**	**NA**
246	**WA.5.2.2**	**CLIN 0015AC - Mob advance site Mgt team, SSHP, Work Plan review, and site orientation**	**0%**	**0 days**	**Wed 4/13/16**	**Wed 4/13/16**	**NA**	**NA**
247	WA.5.2.3	Team training, Cultural resources, WP, SSHP	0%	3 days	Thu 4/14/16	Mon 4/18/16	NA	NA
248	WA.5.2.4	Delivery and set-up project support equipment	0%	3 days	Tue 4/19/16	Thu 4/21/16	NA	NA
249	**WA.5.3**	**MEC Removal within KOA (Year 1)**	**0%**	**250 days**	**Tue 4/19/16**	**Wed 4/5/17**	**NA**	**NA**
250	WA.5.3.1	Mobilize UXO clearance teams	0%	1 day	Tue 4/19/16	Tue 4/19/16	NA	NA
251	WA.5.3.2	Mob UXO teams, SSHP, Work Plan review, and site orientati	0%	2 days	Wed 4/20/16	Thu 4/21/16	NA	NA
252	WA.5.3.3	KOA Clearance	0%	133 days	Fri 4/22/16	Thu 10/27/16	NA	NA
253	**WA.5.3.4**	**CLIN0015A Demob (Year 1)**	**0%**	**2 days**	**Fri 10/28/16**	**Mon 10/31/16**	**NA**	**NA**
254	WA.5.3.12	Winter Closeout	0%	150 edays	Mon 10/31/16	Thu 3/30/17	NA	NA
255	**WA.5.3.13**	**Mob and Site Set-up (Year 2)**	**0%**	**4 days**	**Fri 3/31/17**	**Wed 4/5/17**	**NA**	**NA**
256	**WA.5.4**	**KOA Clearance (Year 2)**	**0%**	**226 days**	**Thu 4/6/17**	**Thu 2/22/18**	**NA**	**NA**
257	WA.5.4.15	KOA Clearance	0%	130 days	Thu 4/6/17	Fri 10/6/17	NA	NA
258	**WA.5.4.19**	**CLIN0015A Demob (Year 2)**	**0%**	**3 days**	**Mon 10/9/17**	**Wed 10/11/17**	**NA**	**NA**
259	WA.5.4.20	Winter Closeout	0%	130 edays	Wed 10/11/17	Sun 2/18/18	NA	NA
260	**WA.5.4.21**	**Mob and Site Set-up (Year 3)**	**0%**	**4 days**	**Mon 2/19/18**	**Thu 2/22/18**	**NA**	**NA**
261	**WA.5.10**	**KOA Clearance (Year 3)**	**0%**	**85 days**	**Fri 2/23/18**	**Fri 6/22/18**	**NA**	**NA**
262	WA.5.10.3	CLIN 008 - Option 1 - MEC Interim Removal SWMU 14, 15, & 33 & Arroyo	0%	85 days	Fri 2/23/18	Fri 6/22/18	NA	NA
263	**WA.5.17**	**CLIN 0013 - Task 9, Arroyo Sweep North of Parcel 3**	**0%**	**5 days**	**Mon 6/25/18**	**Fri 6/29/18**	**NA**	**NA**
264	WA.5.17.13	MEC clearance	0%	5 days	Mon 6/25/18	Fri 6/29/18	NA	NA
265	**WA.5.17.14**	**CLIN 0013 - North Arroyo Clearance 100% (948 & Letter)**	**0%**	**0 days**	**Fri 6/29/18**	**Fri 6/29/18**	**NA**	**NA**
266	**WA.5.18**	**Site Closeout**	**0%**	**9 days**	**Mon 7/2/18**	**Thu 7/12/18**	**NA**	**NA**
267	WA.5.18.11	Turn Over CAMU & CE	0%	2 days	Mon 7/2/18	Tue 7/3/18	NA	NA
268	WA.5.18.12	Equipment shipping & return	0%	7 days	Wed 7/4/18	Thu 7/12/18	NA	NA



Date: January 2015

Task — Project Summary — Manual Task — Start-only — Deadline
Split — Inactive Task — Duration-only — Finish-only — Progress
Milestone — Inactive Milestone — Manual Summary Rollup — External Tasks — Manual Progress
Summary — Inactive Summary — Manual Summary — External Milestone

ID	WBS	Task Name	% Complete	Duration	Baseline Start	Baseline Finish	Actual Start	Actual Finish
269	**WA.5.18.13**	**CLIN0015A Demob (Year 3)**	**0%**	**0 days**	**Thu 7/12/18**	**Thu 7/12/18**	**NA**	**NA**
270	**WA.5.19**	**CLIN 0003BF, CLIN 0003BG - Task 5 KOA Report**	**0%**	**309 days**	**Fri 6/15/18**	**Mon 9/2/19**	**NA**	**NA**
271	WA.5.19.27	Prepare Draft Removal Report	0%	40 days	Fri 6/15/18	Thu 8/9/18	NA	NA
272	WA.5.19.28	Submit Draft Removal Report to USACE for Review	0%	0 days	Thu 8/9/18	Thu 8/9/18	NA	NA
273	WA.5.19.29	USACE Review of Removal Report	0%	30 edays	Thu 8/9/18	Sat 9/8/18	NA	NA
274	WA.5.19.30	Respond to USACE comments	0%	10 days	Mon 9/10/18	Fri 9/21/18	NA	NA
275	**WA.5.19.31**	**CLIN 0003BF - USACE accepts Draft KOA Report MILESTONE PAYMENT**	**0%**	**0 days**	**Fri 9/21/18**	**Fri 9/21/18**	**NA**	**NA**
276	WA.5.19.32	Submit Tribal Draft Removal Report	0%	0 days	Fri 9/21/18	Fri 9/21/18	NA	NA
277	WA.5.19.33	Tribal Review	0%	90 edays	Fri 9/21/18	Thu 12/20/18	NA	NA
278	WA.5.19.34	Respond to Tribal comments	0%	9 days	Fri 12/21/18	Mon 1/7/19	NA	NA
279	WA.5.19.35	Submit for NMED Review and USACE concurrence	0%	0 days	Mon 1/7/19	Mon 1/7/19	NA	NA
280	WA.5.19.36	NMED Review Final Removal Report	0%	215 edays	Mon 1/7/19	Sat 8/10/19	NA	NA
281	WA.5.19.37	Respond to NMED comments	0%	10 days	Mon 8/12/19	Fri 8/23/19	NA	NA
282	WA.5.19.38	Submit Final Report	0%	0 days	Fri 8/23/19	Fri 8/23/19	NA	NA
283	**WA.5.19.39**	**CLIN 0003BG - USACE Acceptance of Final KOA Removal Report**	**0%**	**10 edays**	**Fri 8/23/19**	**Mon 9/2/19**	**NA**	**NA**
284	**WA.14**	**CLIN 0003AC - Subtask 3.1, Soil Investigation in SWMU 14, SWMU 15, SWMU 74, AOC 89, AOC 90 and AOC 91**	**0%**	**40 days**	**Thu 5/18/17**	**Thu 7/13/17**	**NA**	**NA**
288	**WA.15**	**CLIN 0005 and CLIN 0006 - OPTION 2 & OPTION 3, AOC 92**	**0%**	**74 days**	**Thu 4/27/17**	**Wed 8/9/17**	**NA**	**NA**
293	**WA.19**	**CLIN 0003BH, CLIN 0003BI - Subtask 3.2 - Soils Investigation Report**	**0%**	**323 days**	**Fri 7/21/17**	**Mon 10/22/18**	**NA**	**NA**
306	**WA.7**	**CLIN 0010 - Task 6, Parcel 11, SWMUs 10 & 40**	**1%**	**950 days**	**Thu 10/30/14**	**Wed 7/18/18**	**Thu 10/30/14**	**NA**
357	**WA.8**	**CLIN 0011 - Task 7, Parcel 22, SWMUs 10, 27, and 70 and AOC 88A & 88B**	**2%**	**897 days**	**Wed 9/3/14**	**Sun 5/6/18**	**Thu 10/30/14**	**NA**
400	**WA.9**	**CLIN 0012 - Task 8, Operations Corrective Action Measures Unit (CAMU)**	**0%**	**1252 days**	**Tue 11/4/14**	**Sun 9/1/19**	**Tue 11/4/14**	**NA**
407	**WA.10**	**CLIN 0014 - Task 10, Maintenance**	**0%**	**884 days**	**Wed 4/13/16**	**Mon 9/2/19**	**NA**	**NA**
440	**WA.12**	**CLIN 0007 - OPTION 4 - Soil Removal, backfill and Report**	**0%**	**338 days**	**Fri 3/9/18**	**Fri 7/5/19**	**NA**	**NA**
445	**WA.13**	**CLIN 0009 - OPTION 5 - SharePoint Site**	**2%**	**1254 days**	**Mon 9/29/14**	**Mon 9/2/19**	**Mon 9/29/14**	**NA**



Date: January 2015

Task	Project Summary	Manual Task	Start-only	Deadline			
Split	Inactive Task	Duration-only	Finish-only	Progress			
Milestone	Inactive Milestone	Manual Summary Rollup	External Tasks	Manual Progress			
Summary	Inactive Summary	Manual Summary	External Milestone				

APPENDIX D

ACCIDENT PREVENTION PLAN

(Not included with this submittal)

APPENDIX E

ENVIRONMENTAL PROTECTION PLAN ATTACHMENTS

ATTACHMENT E-1: Presence/Absence Survey Memorandum (*To Be Provided As an Amendment***)**

ATTACHMENT E-2: Cultural Daily Field Activity Report

HAZARDOUS WASTE CONTINGENCY PLAN RELATED ATTACHMENTS

ATTACHMENT E-3: Emergency Response Agreements

ATTACHMENT E-4: Contact List

ATTACHMENT E-5: Emergency Equipment and Materials

ATTACHMENT E-6: Incident Reporting Guidance

ATTACHMENT E-7: Summary of MEC Items Recovered at the Sites

PIKA
ARCADIS MALCOLM PIRNIE JOINT VENTURE

Attachment E-2 of Appendix E
Cultural Daily Field Activity Report

Project Name: Kickout Area MEC Removal and Surface Clearance Work
JV/Tribe Subcontract Number:

Project Location: Ft Wingate, New Mexico
JV Project Number: 14-41-137

PIKA Project Manager: Shahrukh Kanga	Date:
SUXOS: Scott Wardle	**PIKA Site Manager**: Dewey Thedford
Cultural Team Leader:	
WEATHER:	**TEMPERATURE:**
SITE CONDITIONS:	**Health & Safety:**

GENERAL REMARKS – Plan of the Day (POD):

This section is

PERSONNEL ON-SITE

Number	Name	Position	Hours	Tribe	DATE
1	TBD	Cultural Expert			
2					
3					
7					

Total work hours on this job this date		Were there any loss time accidents this date?
Cumulative total of work hours from previous report	0	☐ Yes ☒ No
Total work hours from start of project	70	If yes, attach summary of incident or OSHA report

HEAVY EQUIPMENT ON-SITE: (type, model, source [rental/own], subcontractor owned/operated)

WORK PERFORMED TODAY

Summary of sites surveyed or work (using grid map)
Findings summary, if in another report provide citation

Attachment E-2 of Appendix E
Cultural Daily Field Activity Report

Project Name: Kickout Area MEC Removal and Surface Clearance Work
JV/Tribe Subcontract Number:

Project Location: Ft Wingate, New Mexico
JV Project Number: 14-41-137

Summary of Findings	
VERIFICATION BY FIELD SUPERINTENDENT: The above report is, to the best of my knowledge, complete and correct.	
SIGNATURE:	DATE:
Remarks or comments:	

Attachment E-2 of Appendix E
Cultural Daily Field Activity Report

Project Name: Kickout Area MEC Removal and Surface Clearance Work
JV/Tribe Subcontract Number:

Project Location: Ft Wingate, New Mexico
JV Project Number: 14-41-137

Summary of sites surveyed or work (using grid map)
Findings summary, if in another report provide citation

Attachment E-2 of Appendix E
Cultural Daily Field Activity Report

Project Name: Kickout Area MEC Removal and Surface Clearance Work
JV/Tribe Subcontract Number:

Project Location: Ft Wingate, New Mexico
JV Project Number: 14-41-137

Summary of Findings	
VERIFICATION BY FIELD SUPERINTENDENT: The above report is, to the best of my knowledge, complete and correct.	
SIGNATURE:	DATE:
Remarks or comments:	

DEPARTMENT OF THE ARMY
TOOELE ARMY DEPOT
TOOELE, UTAH 84074-5000

REPLY TO
ATTENTION OF

May 19, 2003

Environmental Office

Gallup Fire Department
Chief Louie Chavez
1800 S 2nd Street
Gallup, NM 87301

Dear Chief Chavez:

Fort Wingate Army Depot is requesting the Gallup Fire Department enter into an agreement to provide Emergency Fire Protection services to support any potential emergency situation that may occur within Fort Wingate Army Depot.

Mr. Nestor Talamante, Tooele Army Depot Fire Chief, will be in Gallup the week of June 9, 2002, to discuss the requirements, and the agreement.

The agreement would be drafted to meet the requirements of the Code of Federal Regulations 264.37.

The point of contact is Larry Fisher, Environmental Engineer, Tooele Army Depot, Tooele, UT 84074, (435) 833-3257.

Sincerely,

Arnold P. Montgomery
Lieutenant Colonel, U.S. Army
Commanding

DEPARTMENT OF THE ARMY
TOOELE ARMY DEPOT
TOOELE, UTAH 84074-5000

REPLY TO
ATTENTION OF

May 19, 2003

Environmental Office

State Police
Capt. Baughman
4200 East Hwy 66
Gallup, NM 87301

Dear Capt. Baughman:

Fort Wingate Army Depot is requesting the New Mexico State Police enter into an agreement to provide Law Enforcement, and or Hazmat emergency services to support any potential emergency situation that may occur within Fort Wingate Army Depot.

Mr. Nestor Talamante, Tooele Army Depot Fire Chief, will be in Gallup the week of June 9, 2002, to discuss the requirements, and the agreement.

The agreement would be drafted to meet the requirements of the Code of Federal Regulations 264.37.

The point of contact is Larry Fisher, Environmental Engineer, Tooele Army Depot, Tooele, UT 84074, (435) 833-3257.

Sincerely,

Arnold P. Montgomery
Lieutenant Colonel, U.S. Army
Commanding

DEPARTMENT OF THE ARMY
TOOELE ARMY DEPOT
TOOELE, UTAH 84074-5000

REPLY TO
ATTENTION OF

May 19, 2003

Environmental Office

Rehoboth McKinley Christian Health Care Services
Health and Safety
1901 Red Rock Drive
Gallup, NM 87301

Dear Madam:

Fort Wingate Army Depot is requesting the Rehoboth McKinley Christian Health Care Services enter into an agreement to provide Emergency Health Care Services to support any potential emergency situation that may occur within Fort Wingate Army Depot.

Mr. Nestor Talamante, Tooele Army Depot Fire Chief, and Mr. Jess Barrett, Safety Office will be in Gallup the week of June 9, 2002, to discuss the requirements, and the agreement.

The agreement would be drafted to meet the requirements of the Code of Federal Regulations 264.37.

The point of contact is Larry Fisher, Environmental Engineer, Tooele Army Depot, Tooele, UT 84074, (435) 833-3257.

Sincerely,

Arnold P. Montgomery
Lieutenant Colonel, U.S. Army
Commanding

DEPARTMENT OF THE ARMY
TOOELE ARMY DEPOT
TOOELE, UTAH 84074-5000

REPLY TO
ATTENTION OF

May 19, 2003

Environmental Offcie

Gallup Police Department
Chief Daniel Kneale
451 Boardman
Gallup, NM 87301

Dear Chief Daniel Kneale:

Fort Wingate Army Depot is requesting the Gallup Police Department enter into an agreement to provide Law Enforcement, and or Hazmat emergency services to support any potential emergency situation that may occur within Fort Wingate Army Depot.

Mr. Nestor Talamante, Tooele Army Depot Fire Chief, will be in Gallup the week of June 9, 2002, to discuss the requirements, and the agreement.

The agreement would be drafted to meet the requirements of the Code of Federal Regulations 264.37.

The point of contact is Larry Fisher, Environmental Engineer, Tooele Army Depot, Tooele, UT 84074, (435) 833-3257.

Sincerely,

Arnold P. Montgomery
Lieutenant Colonel, U.S. Army
Commanding

County of McKinley

P.O. Box 70 • 201 West Hill Avenue
Gallup, New Mexico 87305 - 0070
505-722-3868
fax 505-863-6362

February 28, 2001

Mr. Malcolm Walden
Chief, Business Development
And Transition Office
Department of the Army
Tooele Army Depot
Tooele, Utah 84074-5000

Dear Mr. Walden:

Enclosed are two copies of the Reciprocal Fire Protection Agreement for the Ft. Wingate Activity Depot as approved by the Board of Commissioners.

Thank you for your cooperation in this matter.

Sincerely yours,

Irvin Harrison,
County Manager

Enclosures

Cc: Tom Trujillo, Director
Fire and Safety Department
File

Sandra
Unsure if this
should go to
Founds or Nestor.

Rehoboth McKinley
Christian Health Care Services

July 9, 2003

Larry Fisher, Environmental Engineer
Department of the Army - Environmental Office
Tooele Army Depot
Tooele, UT 84074-5000

Dear Mr. Fisher:

Rehoboth McKinley Christian Health Care Services will provide Emergency Health Care Services to the Fort Wingate Army Depot.

The participants insurance card will expedite treatment at the time of service.

Please call my assistant, Andrea Jolly at 863-7129, or myself at 863-7130 if you have any questions.

Sincerely,

Bernice Brewer
VP/Patient Care Services

BB/amj

RECIPROCAL FIRE PROTECTION AGREEMENT

This Reciprocal Fire and Emergency Services Protection Agreement is entered into this 27th day of February 2001, by and between the Secretary of the Army, (hereinafter "the Army"), acting pursuant to the authority of 42 U. S. C. (1856(A), and the government of McKinley County, New Mexico. Hereinafter the Secretary of the Army, United States of America, who will be represented by the Commanding Officer of the Tooele Army Depot, will be referred to as the Government.

WITNESS THAT:

WHEREAS:

The Army owns the Fort Wingate Depot Activity, hereinafter referred to as Fort Wingate, a facility of the Department of the Army.

The McKinley County Government maintains a Fire Department, which includes volunteer personnel, fire trucks, and fire fighting equipment.

The Army does not maintain a Fire Department at Fort Wingate.

It is to the best interest of the parties here to cooperate in fire fighting and other emergencies that may occur within the Fort Wingate.

NOW THEREFORE, the parties hereto do hereby agree to render mutual assistance, one to the other, on the terms, conditions, and provisions hereinafter set forth:

(1) McKinley County will, at the request of the Commanding Officer of Fort Wingate or his properly authorized designee, in the time of emergency or necessity, furnish aid in the nature of apparatus, equipment, and personnel to combat fires or assist in time of disaster at Fort Wingate.

(2) The Army, acting through the caretaker or Commanding Officer of Fort Wingate will, at the request of the McKinley County Fire Chief or his properly authorized designee, in the time of emergency or necessity, furnish aid to McKinley County in the nature of equipment, and personnel to combat fires or assist in time of disaster in the proximity of Fort Wingate.

(3) When the McKinley County or Gallup City Fire Departments or parts thereof are engaged in fire fighting at Fort Wingate, they shall be subject to the authority and direction of the Caretaker of Fort Wingate and the Commanding Officer thereof. When the combined forces or parts thereof are engaged in fire fighting in McKinley County, they shall

be under the authority and direction of the Fire Chief of McKinley County departments.

(4) Army personnel, acting pursuant to this agreement, shall be considered to be acting pursuant to lawful orders of the Commanding Officer and Caretaker of Fort Wingate, and therefore, acting within the scope of their employment and not as employees of McKinley County.

(5) It is understood and agreed that McKinley County will be under no obligation to furnish aid to Fort Wingate if, under the circumstances, furnishing of such aid will endanger or jeopardize the fire protection of the County. It is likewise understood and agreed that Fort Wingate shall be under no obligation to furnish aid to the County, if the furnishing of such aid, under the circumstances, will have an unacceptable impact on operations or fire protection at Fort Wingate. The County Commissioners or Fire Chief of the County departments or their properly authorized designee will be the sole judge as to when conditions permit assistance and the extent of such assistance to Fort Wingate. The Commanding Officer or Caretaker of Fort Wingate shall be the sole judge as to when conditions permit assistance and the extent of such assistance to the County by the Government.

(6) It is hereby agreed that cooperating fire departments will become familiar with the special fire fighting problems common to their territory.

(7) Under no circumstances will mutual aid fire fighters be expected to or permitted to enter the area or attack fires involving high explosives.

(8) In the event the combined departments or parts thereof are engaged in fighting a fire, a department lending assistance may, in order to attend any alarm at its regular station, withdraw on notice to the Fire Chief/personnel in charge.

(9) It is expressly hereby mutually agreed between the parties hereto that any claim against either party by the other party for compensation for any loss, damage, personal injury or death occurring in consequence of the performance of this agreement is hereby waived, except those claims authorized under 15 U.S.C. section 2210.

(10) This Agreement may be terminated at any time by either party, provided that such termination shall not be effective until 30 calendar days after the terminating party gives written notice of its intention to terminate and such notice is received by the other party. Until such termination is effected, the terms, provisions, and conditions of this agreement shall remain in full force and effect.

For McKinley County, New Mexico

EARNEST C. BECENTI SR.
Chairperson
McKinley County Commission

For the Secretary of the Army

Gary B. Carney
Lieutenant Colonel, U. S. Army
Commander, Tooele Army Depot

GALLUP POLICE DEPARTMENT
PUBLIC SAFETY BUILDING

451 STATE ROAD 564
GALLUP, NEW MEXICO 87301
(505) 863-9365
(505) 863-1319
(505) 722-2113 - FAX Number
911 - Emergency

Commander
Tooele Army Depot
ATTN: Environmental Office Bldg 8 (Larry Fisher)
Tooele, Utah 84074

Larry Fisher,

This correspondence is in reference to our conversation of 7-7-03 reference support services for FWDA from the Gallup Police Department. The Gallup Police Department agrees to assist and support FWDA in any normal emergency situation that may occur at FWDA.

Of course this would be dependent upon GPD being able to provide service to the constituents of the City of Gallup while still being able to provide support and service to FWDA.

Sincerely,

Daniel L. Kneale
Chief of Police

McKinley County Sheriff's Office

2105 EAST AZTEC • GALLUP, NEW MEXICO 87301
(505) 722 7205 • (505) 863-1410

Felix T. Begay
Sheriff

Bill Kellogg
Chief Deputy

July 7, 2003

Larry Fisher, Environmental Engineer
Toole Army Depot
Toole, Utah 84074

Dear Mr. Fisher,

This is to acknowledge your letter of request of July 7, 2003 concerning Fort Wingate Army Depot.

The McKinley Sheriff's Department will provide Student Law Enforcement Services, the same service as provided all citizens and entities, too the Fort Wingate Depot.

We will also be the notifying agency for any HazMat Emergencies. You may know that specialist HazMat Teams from the State and Gallup are used in these types of situations.

Please feel free to call if you would like further information.

Sincerely.

Bill Kellogg, J Chief Deputy

Bill Richardson
Governor

John Denko Jr.
Cabinet Secretary

DEPARTMENT OF PUBLIC SAFETY

NEW MEXICO STATE POLICE

Carlos R. Maldonado
Chief / Deputy Secretary
Operations

Marie "Sisi" Saenz
Deputy Secretary
Administration

July 24, 2003

Arnold P. Montgomery, Commander
Tooele Army Deport
Tooele, Utah 84074
Attn: Environmental Office (Larry Fisher)

RE: Emergency Services Agreement

Dear Sir:

Regarding your letter dated May 13, 2003, and my subsequent conversations with Mr. Talamante, and Mr. Fisher, the New Mexico State Police, District Six-Gallup, will respond to incidents of an emergency nature at your facility at Fort Wingate when requested.

If you should have any questions, please do not hesitate to contact me at (505)863-9353.

Captain Timothy R. Baughman
District Commander
District Six, Gallup
4200 E. Historic Hwy. 66
Gallup, N.M. 87301

DEPARTMENT OF THE ARMY
U.S. ARMY WHITE SANDS MISSILE RANGE
100 Headquarters Avenue
WHITE SANDS MISSILE RANGE, NEW MEXICO 88002-5000

08-MAR-2083

REPLY TO
ATTENTION OF

RECIPROCAL FIRE PROTECTION AGREEMENT BETWEEN GARRISON COMMANDER, U.S. ARMY, WHITE SANDS MISSILE RANGE, NEW MEXICO AND MCKINLEY COUNTY, NEW MEXICO

This Reciprocal Fire and Emergency Services Protection Agreement is entered into this 18th day of March 2008, by and between the Secretary of the Army (hereinafter "the Army"), acting pursuant to the authority of 42 U.S.C. 1856(A), and the government of McKinley County, New Mexico. Hereinafter the Secretary of the Army, United States of America, who will be represented by the Garrison Commander of White Sands Missile Range (WSMR), will be referred to as the Government.

WITNESS THAT:

WHEREAS:

The Army owns the Fort Wingate Depot Activity, hereinafter referred to as Fort Wingate, a facility of the Department of the Army.

The McKinley County Government maintains a Fire Department, which includes volunteer personnel, fire trucks, and fire fighting equipment.

The Army does not maintain a Fire Department at Fort Wingate. The Fort Wingate caretakers are the designated facility Fire Wardens.

It is to the best interest of the parties here to cooperate in fire fighting and other emergencies that may occur within the Fort Wingate.

NOW THEREFORE, the parties hereto do hereby agree to render mutual assistance, one to the other, on the terms, conditions, and provisions hereinafter set forth:

(1) McKinley County will, at the request of the Garrison Commander WSMR or his properly authorized designee, in the time of emergency or necessity, furnish aid in the nature of apparatus, equipment, and personnel to combat fires or assist in time of disaster at Fort Wingate.

(2) The Army, acting through the caretaker or Garrison Commander WSMR will, at the request of the McKinley County Fire Chief or his properly authorized designee, in the time of

emergency or necessity, furnish aid to McKinley County in the nature of equipment, and personnel to combat fires or assist in time of disaster in the proximity of Fort Wingate.

(3) When the McKinley County or Gallup City Fire Department or parts thereof are engaged in fire fighting at Fort Wingate, they shall be subject to the authority and direction of the Caretaker of Fort Wingate and the Garrison Commander WSMR thereof. When the combined forces or parts thereof are engaged in fire fighting in McKinley County, they shall be under the authority and direction of the Fire Chief of McKinley County departments.

(4) Army personnel, acting pursuant to this agreement, shall be considered to be acting pursuant to lawful orders to the Garrison Commander WSMR and Caretaker of Fort Wingate, and therefore, acting within the scope of their employment and not as employees of McKinley County.

(5) It is understood and agreed that McKinley County will be under no obligation to furnish aid to Fort Wingate if, under the circumstances, furnishing of such aid will endanger or jeopardize the fire protection of the County. It is likewise understood and agreed that Fort Wingate shall be under no obligation to furnish aid to the County, if the furnishing of such aid, under the circumstances, will have an unacceptable impact on operations or fire protection at Fort Wingate. The County Commissioners or Fire Chief of the County departments or their properly authorized designee will be the sole judge as to when conditions permit assistance and the extent of such assistance to Fort Wingate. The Garrison Commander WSMR or Caretaker of Fort Wingate shall be the sole judge as to when conditions permit assistance and the extent of such assistance to the County by the Government.

(6) It is hereby agreed that cooperating fire departments will become familiar with the special fire fighting problems common to their territory.

(7) Under no circumstances will mutual aid fire fighters be expected to or permitted to enter the area or attach fires involving high explosives.

(8) In the event the combined departments or parts thereof are engaged in fighting a fire, a department lending assistance may, in order to attend any alarm at its regular station, withdraw on notice to the Fire Chief/personnel in charge.

(9) It is expressly hereby mutually agreed between the parties hereto that any claim against either party by the other party for compensation for any loss, damage, personal injury or death occurring in consequence of the performance of this agreement is hereby waived, except those claims authorized under 15 U.S.C. section 2210.

(10) This Agreement may be terminated at any time by either party, provided that such termination shall not be effective until 30 calendar days after the terminating party gives written notice of its intention to terminate and such notice is received by the other party. Until such termination is effected, the terms, provisions, and conditions of this agreement shall remain in full force and effect.

FOR MCKINLEY COUNTY, NEW MEXICO:

TOM TRUJILLO
County Manager

DATE: 3-18-08

FOR THE SECRETARY OF THE ARMY:

GARY D. GIEBEL
Colonel, U.S. Army
Garrison Commander

DATE: 3 Apr 08

Attachment E-4 of Appendix E of the Final Work Plan

Contact List

1. PIKA-Pirnie Joint Venture Project Team:

Shahrukh Kanga Project Manager	Office: 281-325-6830 Cell: 281-734-2923
Paul Hanneman Technical Lead	Office: 303-770-1501 Cell: 303-748-7881
Mike Madl Technical Lead	Office: 817-877-9978 x 102 Cell: 281-827-1754
Dewey Thedford Site Manager	Cell: 281-914-2927
Scott Wardle Senior Unexploded Ordnance Supervisor	Cell: 713-299-2918

2. Name/Address/Telephone of Owner/Operator Contacts:

Fort Wingate Caretaker Staff
P.O. Box 268
Fort Wingate, NM 87316
Phone: 505-488-5411

U.S. Army Garrison, White Sands Missile Range
Attn: IMWE-WSM-PL (S. Mills)
Building 1417, WSMR, NM 88002
Phone: 575-678-3674

Department of the Army's Chief of Staff for Installation Management (DAIM-ODB)
William O'Donnell
Taylor Building, Room 5064A
2530 Crystal Drive, Arlington, VA 2202
Phone: 703-545-2494; Cell: 703-593-2620

Life, Health, or Safety Actions/Incidents
Col. C. Pullar
Phone: 575-678-2220

3. Local Emergency Response Organizations:

Metro Dispatch:	505-722-2002
McKinley County Fire Department:	505-863-3839
New Mexico State Police:	505-863-9353
Gallup Police:	505-863-9365
Rehoboth McKinley Christian Health Care Services:	505-863-7000

4. Installations On-Scene Coordinators:

Primary:	**Richard Cruz**	Office: 505-905-6109 Home: 505-726-0899 Cell: 505-862-2416
	Office Address	Ft. Wingate Army Depot 7 Miles East of Gallup, Bldg. 1 Ft. Wingate, NM 87316
Alternates:	**Shannon Jackson**	Office: 505-905-6109 Cell: 505-862-2416
	Office Address	Ft. Wingate Army Depot 7 Miles East of Gallup, Bldg. 1 Ft. Wingate, NM 87316

5. Advisory/ Support Group:

Mark Patterson, RVAAP/FWDA BEC	Office: 303-358-7312
Steven Smith, USACE, Program Manager	Office: 817-886-1879
WSMR Environmental Office	Duty hours: 575-678-8966
WSMR Safety Office	Duty hours: 575-678-1211
WSMR Human Resources	Duty hours: 575-678-4196
WSMR Public Affairs	Duty hours: 575-678-1134
WSMR Budget and Accounting	Duty hours: 575-678-0699
WSMR Contracting Office	Duty hours: 575-678-7098
WSMR Directorate of Public Works	Duty hours: 575-678-1131
WSMR DPW Operations and Maintenance	Duty hours: 575-678-8274

6. Emergency Notification of Off-Site Impacts:

New Mexico Hazardous Waste Bureau	505-827-9329
Metro Dispatch	505-722-2002
National Response Center	800-424-8802

7. Immediate Telephone Notifications of Contingency Plan Implementation:

NMED Hazardous Waste Bureau (emergency)		505-827-9329
NMED Hazardous Waste Bureau (non-emergency)		505-476-6000
NMED General Phone (non-emergencies)		800-219-6157
National Response Center		800-424-8802
WSMR Environmental Office		575-678-8966
DAIM-OBD		703-602-2899
Fort Wingate Launch Complex (FWDA Tenant)		
Primary POC:	Martin Eastridge	Office: 505-488-6065
		Home: 505-733-2173
		Cell: 505-649-0352
Alternate POC:	TBD	Office: TBD
		Cell: TBD

Attachment E-5 - Emergency Equipment and Materials

E-5: Contractor Maintained Emergency Equipment and Materials

Description	Location	Capabilities
Personal Protective Equipment	Work Station	Rubber gloves, eye protection, apron (if necessary)
Eye Wash	Each Vehicle	Flush eyes
First Aid Kit	Each Vehicle	Respond to minor injuries
Fire Blanket	Each Vehicle	Extinguish fire
Spill Kits	Refueling areas/station Work Stations (when applicable)	Contain/Clean up spills
Fire Extinguishers	Each Vehicle Work Stations (when applicable)	Control/Extinguish small fires
Two-way Radios	Each Vehicle	Communication between personnel
Cell Phone	Each Vehicle	Communication between personnel

Attachment E-6 – Incident Reporting Guidance

1. NMED HWB Requirements:

A. The IOSC will immediately notify the NMED HWB within 24 hours of learning about any event requiring the implementation of this HWCP, at the following telephone numbers:

1. Emergencies: (505) 827-9329 (an emergency is defined as a catastrophic type release;
2. Non-emergencies during business hours: (505) 476-6000; or
3. Non-emergencies during non-business hours: (800) 219-6157.

The following information will be provided when making the verbal report:

1. Information concerning any release of any hazardous waste that may endanger public drinking water supplies; and
2. Any information of a release or discharge of hazardous waste, or of a fire or explosion from the facility, that could threaten the environment or human health outside of the facility.

The description of the occurrence and its cause will include:

1. Name, address, and phone number of the owner or operator;
2. Name, title, and telephone number of the facility;
3. Time and date and type of incident;
4. Name and quantity of material involved;
5. Extent of injuries if any;
6. An assessment of actual or potential hazards to the environment and human health outside the facility, where applicable; and
7. Estimated quantity and disposition of recovered material that resulted from the incident.

B. Within 5 days after learning of any event requiring the implementation of this HWCP, the IOSC will submit a written report to the NMED HWB containing the following information:

1. A description of the incident and its cause.
2. The period of the incident, including exact date and time and, if the incident has not been corrected, the anticipated time it is expected to continue; and
3. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the incident.

C. If a release of a hazardous substance or an acutely hazardous substance, as defined in

40CFR 302.6 or 40CFR 355 Appendix A, has the potential to expose persons offsite, the IOSC will report the incident to the NMED HWB by calling (505) 827-9329.

2. Local Community Emergency Coordinator:

If a release of a hazardous substance or an acutely hazardous substance, as defined in 40 CFR 302.6 or 40 CFR 355 Appendix A, has the potential to expose persons offsite, the IOSC will report the incident to Metro Dispatch at (505) 722-2002.

3. National Response Center:

Spills exceeding the reportable quantity of a hazardous substance or incidents causing contingency plan implementation will be reported by the IOSC immediately to the National Response Center in accordance with 40 CFR 302.6. Table 302.4, which contains a listing of hazardous substances and their reportable quantities. The National Response Center requirement applies to both fixed facility and transportation incidents. The National Response Center's phone number is 800-424-8802 or 202-267-2180.

4. Army Internal Reporting Requirements:

Any incident requiring immediate notification to any DOD or external agency will be reported by the IOSC as a Critical Information Requirement (CIR) in accordance with the guidance included in this Appendix. Telephone notifications will be made any hour, day, night, or weekend to the following:

WSMR Environmental Office	Duty hours: 575-678-8966
Marc Patterson, RVAAP/FWDA BEC	Office: 330-358-7312
	Cell: 505-721-9770
BRACD	703-545-2494

Follow-up notification will be accomplished within 24 hours of the incident by completing the FWDA Notification of Reportable Quantity Pollution Event form included with this Appendix and forwarding to the WSMR Environmental Office and BRACD.

Within 5 working days from the initial notification, forward any information that was unknown at the time of the initial report to the above addresses, e.g., remedial action planned, total cost of cleanup activities, and steps being taken to prevent future occurrences of this type.

5. NMED HWB Notification(s):

Notification must be provided to the NMED HWB by the IOSC that the facility is in

compliance with paragraph 40 CFR 264.56(h) before operations are resumed at the CAMU or OB/OD area following contingency plan implementation.

FWDA
NOTIFICATION OF REPORTABLE QUANTITY POLLUTION EVENT

1. Installation:	2. Commander:	3. Discovery Date & Time:
4. Person Reporting (Name/Phone):	5. Severity: ( ) Minor ( ) Medium ( ) Major	
6. Type & Amount of Material Spilled:		
7. Location of Spill (Facility/Equipment Involved):		
8. Cause:		
9. Personnel Injuries/Property Loss:		
10. Duration/Magnitude of Pollution Produced/Released: a. Source of Release been Stopped? ( ) Yes ( ) No b. Released Material been Retained? ( ) Yes ( ) No c. Reach Environment (Check all that apply)? ( ) Navigable Waters ( ) Surface Water ( ) Ground Water ( ) Drinking Water Supply ( ) Land Surface (soil) ( ) Ambient Air d. Name of Receiving Waters: e. Pass Installation Boundary? ( ) Yes ( ) No f. NPDES Permits Involved? ( ) Yes ( ) No g. Samples being taken for Legal Records? ( ) Yes ( ) No		
11. Damage/Impact on Surroundings (Groundwater, Wildlife, Etc.):		
12. Remedial Action Taken:		
13. Remedial Action Planned	14. Date of Remedial Action Completion:	
15. Notifications: a. NRC ( ) Yes ( ) No Date/Time: POC Name: b. NWRO Staff ( ) Yes ( ) No Date/Time: POC Name: c. State: ( ) Yes ( ) No Date/Time: POC Name: d. LEPC ( ) Yes ( ) No Date/Time: POC Name: e. EPA ( ) Yes ( ) No Date/Time: POC Name:		
16. NRC Incident Numbers:	17. Reaction by News Media/Public:	
18. Dollar Value of Material Spilled:	19. Total Cost of Cleanup Activities (Est/Actual):	
20. What steps are being taken to prevent future occurrences of this type and date formal report is due (to what agency)?		
21 Forward Report to: (1) coffmanj@ria.army.mil or voract@ria.army.mil (2) badtramg@ria.army.mil (3) WSMR Commander		

Attachment E-7 – Summary of MEC Items Recovered at the Sites

Parcel 3, which is part of the Kickout Area (KOA), is confirmed to contain improved conventional munitions (ICM). MEC items identified at the Parcel 3 project site include a wide range of MEC and MPPEH to include various ICMs (e.g., Bomb Live Unit (BLU)-3 and BLU-4 bomblets). Other munitions found at the KOA include M83(s), projectiles ranging from 20 to 240 mm; bombs ranging from 3 to 10,000 pounds; and assorted rockets, mortars, missiles, land mines, grenades, flares, and bulk explosives. A summary of ICM and submunitions recovered in Parcel 3 through June 2013 is provided in the table below:

Table E-1: Summary of ICM and Submunitions Recovered in Parcel 3

Ordnance Type	UXB Survey (UXB, 1993)	Adjacent Property Surface Clearance (UXB, 1995)	Support for Environmental Investigations (UXB, 1995-1996)	Proposed Fence Line, Buffer Zone, Seismic Survey Lines, and Stockpiled Items Clearance (CMS, 1996-1998)	Proposed Fence Line and Other Area Clearance (EHSI, 1999)	Total Quantity to Date [1]
Consolidated and Disposed [2]						
BLU-3/BLU-4 bomblets	225	0	2	1	0	228
M83 bomblets	247	0	5	1	0	253
Total Consolidated & Disposed	**472**	**0**	**7**	**2**	**0**	**481**
Detonated in Place [3]						
BLU-3 bomblets	96	0	4	3	0	103
BLU-4 bomblets	259	0	9	1	0	269
M83 bomblets	547	5	10	0	2	564
Total Detonated in Place	**902**	**5**	**23**	**4**	**2**	**936**

Notes:

1. The JV will maintain an inventory of all MEC items recovered during its remediation efforts within the sites and will update this inventory annually.
2. Items that were determined to be acceptable to move by the SUXOS and UXOSO were consolidated for disposal at a later date.
3. Items that were determined to be unacceptable to move by the SUXOS and UXOSO were detonated in place.

APPENDIX F

SPILL PREVENTION CONTROL AND COUNTERMEASURES PLAN

FINAL

SPILL PREVENTION, CONTROL, AND COUNTERMEASURES PLAN KICKOUT AREA AND PARCELS 11, 20, AND 22

Fort Wingate Depot Activity
McKinley County, New Mexico

January 2015

Contract No. W912DY-10-D-0025
Task Order No. DS02

Prepared for:

United States Army Corps of Engineers
CESWF-PEC-TM
819 Taylor St.
Room 3A12
Ft. Worth, TX 76102

Prepared by:

PIKA
ARCADIS MALCOLM PIRNIE
A JOINT VENTURE

12723 Capricorn Drive, Suite 500
Stafford, TX 77477

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ATTACHMENTS

LIST OF ACRONYMS

AOC	Area of Concern
BRAC	Base Realignment and Closure
BRACD	BRAC Division
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
CFR	Code of Federal Regulation
DOI	Department of the Interior
FWDA	Fort Wingate Depot Activity
GPS	Global Positioning System
HWB	Hazardous Waste Bureau
IDW	Investigation derived waste
KOA	Kickout Area
NM	New Mexico
NMED	New Mexico Environment Department
PPE	Personal Protective Equipment
RCRA	Resource Conservation and Recovery Act
SPCC	Spill Prevention Control and Countermeasures
SWMU	Solid Waste Management Unit
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
UXO	Unexploded Ordnance
WMP	Waste Management Plan
WP	Work Plan

SPCC Plan Five-Year Review Summary

Reviewer (Name)	Reviewer (Signature)	Date	Comments	P.E Seal Required? (Y/N)

The SPCC will be reviewed once every five years in accordance with 40 CFR § 112.5(b).

1.0 INTRODUCTION

This Spill Prevention Control and Countermeasure (SPCC) Plan was prepared to comply with the general requirements of Title 40 of the Code of Federal Regulations (CFR) Part 112, Section 7 and the specific elements of 40 CFR § 112.8. FWDA is subject to the regulations of 40 CFR Part 112 because it has a total aboveground oil storage capacity greater than 1,320 gallons. The JV's estimates its oil storage volume to be approximately 1,813 gallons. Table 1-1 summarizes the oil storage containers with capacities of 55 gallons or greater.

Table 1-1. Storage Container Information

Container Description	Location	Volume* (gallons)	Quantity	Contents	Container Construction
Fuel Tank #1	Bldg. 403	1,000	1	Gasoline Fuel	Double-walled steel tank
Fuel Tank #2	Sifting Plant	500	1	Diesel Fuel	Single-walled steel tank
Generator #1	Bldg. 403	63	1	Diesel Fuel	Double-walled steel tank
Generator #2	Sifting Plant	250	1	Diesel Fuel	Double-walled steel tank

* Volumes are estimates and may be modified. The SPCC will be updated accordingly.

A copy of this plan will be kept onsite and, upon request, made available for review by the United States Environmental Protection Agency (USEPA) Regional Administrator (RA) during normal working hours. If requested by the USEPA Region 6 or the New Mexico Environment Department (NMED), the plan may be submitted if either of the following occurs:

- The facility discharges more than 1,000 gallons of oil into or upon the navigable waters of the United States or
- The facility discharges oil in quantities greater than 42 gallons in each of two spill events within any 12-month period.

Again if requested, along with this plan, if either of the above thresholds are reached, the following information may also be provided to the USEPA Region 6 RA within 60 days:

- Facility name;
- Name of individual submitting the information;
- Facility location;
- Maximum storage capacity of the facility;
- Corrective action(s) and countermeasures taken, including equipment repairs and replacements;
- Description of the facility, including site map, topographical map, and flow diagram;

- Cause of the spill;
- Additional measures taken to minimize the potential for recurrence; and
- Any other information the RA may reasonably request that is pertinent to the plan or spill.

This plan will be reviewed at least once every 5 years and amended within 6 months of the review to include any changes in SPCC policy or technology. This plan will also be updated and amended within 6 months of a significant change in facility design, construction, operation, or maintenance that materially affects the facility's potential for a discharge of oil into or near waterways or their tributaries. The amendments will be certified and stamped by a Professional Engineer, registered in the State of New Mexico, and approved by USACE for implementation. Amendments will be fully implemented as soon as possible, but not later than 6 months after such change occurs. A certification of the applicability of the substantial harm criterial checklist has been completed and is included as Attachment A to this plan.

2.0 GENERAL CONFORMANCE REQUIREMENTS 40 CFR § 112.7 (A)

2.1 § 112.7 (a)

FWDA is in conformance with the requirements listed in 40 CFR 112.7.

2.2 § 112.7(a)(2)

FWDA complies with all applicable requirements listed in 40 CFR 112.7 and does not deviate from paragraphs 112.7(g), 112.7(i), or the applicable requirements of 112.8.

2.3 § 112.7(a)(3)

The KOA encompasses approximately 3,252 acres including of all of Parcel 3, portions of Parcel 1, 2 and 20, and parts of the Navajo Trust Land. The KOA consists of an outer area (between the site boundary and the inner fence) and an inner area (between the inner fence and the HWMU boundary). The JV will prepare the Parcel 11 Work Plan (WP) to investigate and remove the MEC contamination in SWMUs 10 and 40, which are located in Parcel 11, located in and just northwest of the Administration Area at FWDA. The work at Parcel 20 will involve a RCRA Facility Investigation (RFI) of SWMU 38, Functional Test Range 1 (FTR 1), which is the only SWMU in Parcel 20. SWMU 38, FTR 1 is located in the central part of the current FWDA property.

The JV will prepare the Parcel 22 WP to investigate and remove the MEC in SWMUs 12, 27, and 70 and AOCs 88A and B located in Parcel 22. Parcel 22 is located in the Work Shop Area and is the site of former munitions maintenance buildings. Figures A2-1 and A2-2 show the location of all proposed fixed oil storage containers with capacities of 55 gallons or greater. A schedule for the construction phase(s) of this project is currently being negotiated with the United States Army Corps of Engineers (USACE) and will be included as an amendment to this plan.

2.4 § 112.7(a)(3)(i)

Table 2-1 lists the type of oil in each fixed storage container and its capacity.

2.5 § 112.7(a)(3)(ii)

Outside contractors fill the aboveground storage tanks (ASTs). JV personnel will be present to monitor the filling, emptying, and delivery operations. Specific information regarding containment systems, drainage controls, management, and communications is provided in the following sections.

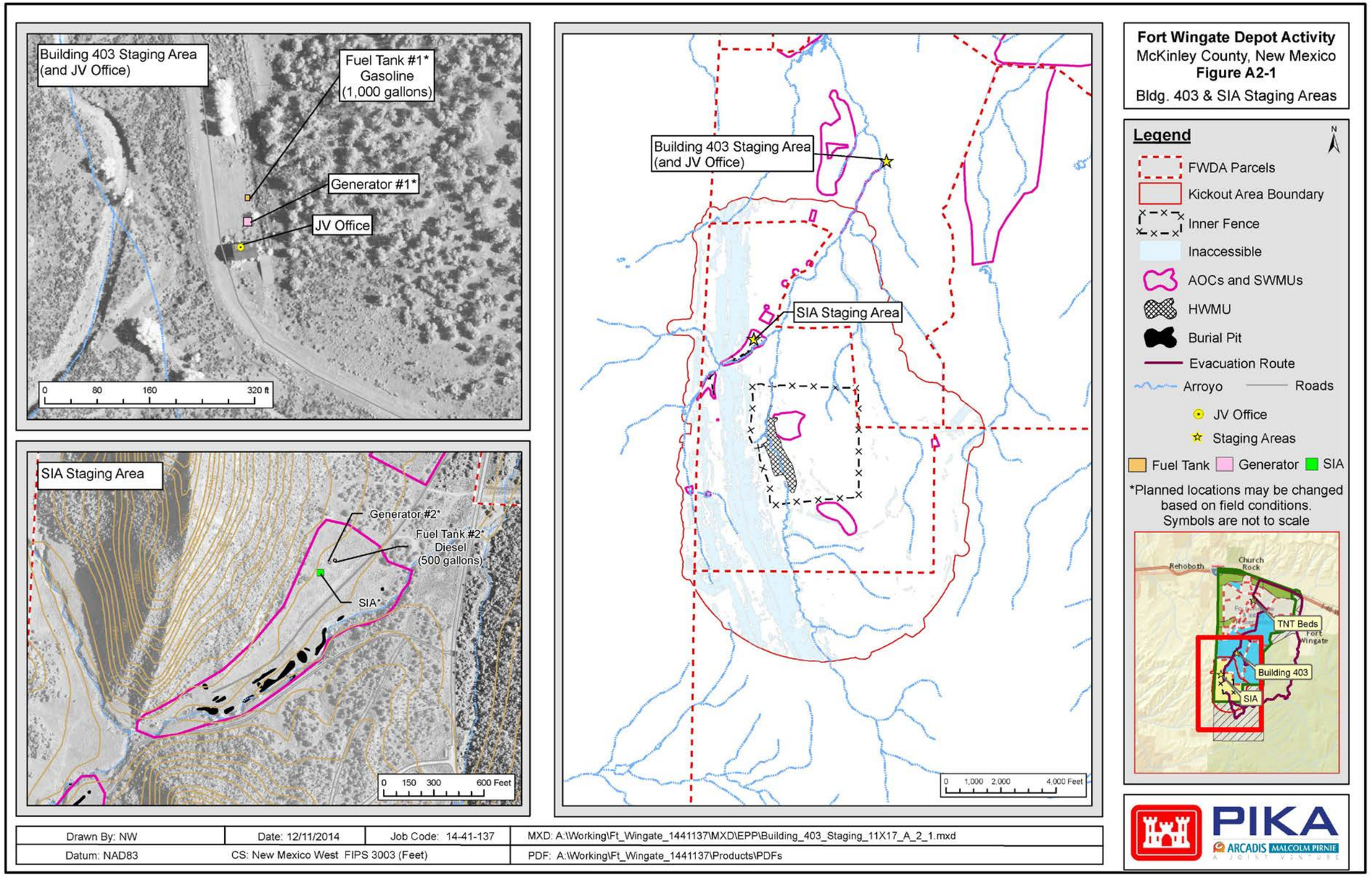
2.6 § 112.7(a)(3)(iii)

Table 2-1 summarizes the containment system(s) and/or drainage controls associated with each container.

Table 2-1. Oil Storage Container Containment/Drainage Systems

Container Description	Type of Oil	Volume (gallons)	Containment and/or Drainage System
Fuel Tank #1	Diesel Fuel	1,000	Double-walled steel tank; berm area with impervious barrier; portable pump for rainwater removal; spill kit
Fuel Tank #2	Diesel Fuel	500	Single-walled steel tank; Plastic catch basin; portable pump for rainwater removal; spill kit
Generator #1	Diesel Fuel	63	In-line double-walled tank; Plastic catch basin; portable pump for rainwater removal; spill kit
Generator #2	Diesel Fuel	250	

Figure A2-1. Building 403 and SIA Staging Areas



2.7 § 112.7(a)(3)(iv)

Discovery: The individual who discovers a release will immediately notify a member of the Pollution Prevention Team via radio communication or telephone (Attachment B). The Pollution Prevention Team will contact emergency services and a cleanup contractor, if required (Attachment C). The spill will be stopped and contained by the appropriately trained personnel.

Response: The Pollution Prevention Team is responsible for oversight of spill response, cleanup, and waste disposal. The source of the spill will be stopped, if possible, by closing valves, turning off pumps, and similar measures. The spill will be contained by using sorbent materials in spill kits prepositioned throughout the facility.

Cleanup: Smaller spills (5 gallons or less) will be cleaned up by JV personnel trained to complete the task. Larger spills (greater than 5 gallons) may also be cleaned up by JV personnel trained to complete the task or local spill response contractors. Sorbents, solids, and recovered material will be containerized in drums and labeled with appropriate waste labels for disposal. Spill response and cleanup procedures are included in Attachment D.

2.8 § 112.7(a)(3)(v)

Recovered materials (both discharged oil and wastes generated during cleanup) will be placed into steel drums and sealed. The drums will be labeled with contents and a licensed waste disposal contractor, capable of handling oil wastes, will be contacted to dispose of the recovered materials.

2.9 § 112.7(a)(3)(vi)

Contacts for the On-Scene Incident Commander, the National Response Center, emergency response contractors, appropriate agencies, and other emergency services are provided in Attachments B and C.

2.10 § 112.7(a)(4)

The Spill Incident Form, included as Attachment E to this plan, will be completed as soon as possible after the discovery of and response to a spill. The form will be used to convey the necessary information to USEPA Region 6 RA and other agencies and includes address and phone of the facility, date and time of discharge, type of material discharged, estimates of the quantity discharged, source, affected media,

cause of discharge, injuries, mitigation activities, need for evacuation, and list of individuals/organizations that have been contacted.

2.11 § 112.7(a)(5)

General operating and response procedures are included in this plan. Attachments A and D include emergency contacts and spill response protocol.

3.0 POTENTIAL FOR EQUIPMENT FAILURE 40 CFR § 112.7 (B)

Table 3-1 summarizes the sources of a potential discharge and predicts the direction, flow rate, and quantity that could be discharged as a result of equipment failure.

Table 3-1. Oil Storage Container Potential Spill Sources

Container Description	Type of Failure	Volume (gallons)	Rate of Release (gallons/minute)	Direction of Spill	Capacity of Secondary Containment (gallons)
Fuel Tank #1	Partial or complete rupture	Up to 1,000	Up to 100	In berm	NA
	Tank spill or overfill	Up to 100	Up to 45	In berm	
	Leak from tank truck	Up to 100	Up to 5	In berm	
Fuel Tank #2	Partial or complete rupture	Up to 500	Up to 500	In catch basin	605
	Tank spill or overfill	Up to 10	Up to 45	In catch basin	
	Leak from tank truck	Up to 10	Up to 5	In catch basin	
Generator #1	Partial or complete rupture	Up to 63	Up to 10	In catch basin	NA
	Tank spill or overfill	Up to 5	Up to 1	In catch basin	
	Leak from tank truck	Up to 5	Up to 1	In catch basin	
Generator #2	Partial or complete rupture	Up to 250	Up to 250	In catch basin	
	Tank spill or overfill	Up to 10	Up to 10	In catch basin	
	Leak from tank truck	Up to 10	Up to 10	In catch basin	

4.0 APPROPRIATE CONTAINMENT AND/OR DIVERSIONARY STRUCTURES OR EQUIPMENT 40 CFR § 112.7 (C)

4.1 § 112.7(c)(1)(i)

Fuel oil ASTs 1 and 2 are single-walled steel tanks. The in-line fuel tanks of Generators 1 and 2 are double-walled tanks. Each AST and generator filling area is contained by a berm and an impervious barrier or a catch basin, which will contain a spill from the tank or during loading operations. A portable pump will be used to remove any rainwater contained within the berm or spill basin.

4.2 § 112.7(c)(1)(ii)

The JV does not anticipate any 55-gallon drums of hydraulic fluid and waste oil. If any are staged on site, they will be equipped with metal containment basins/drip pans adequate for containing potential discharges.

4.3 § 112.7(c)(1)(iii)

Culverts, gutters, and other drainage systems are not used at the sites within FWDA.

4.4 § 112.7(c)(1)(iv)

Booms and other sorbent materials are standard elements of all spill kits. During tank filling and emptying operations diversionary booms will be used to prevent oil from migrating outside containment areas.

4.5 § 112.7(c)(1)(v)

Diversion ponds are not present at FWDA.

4.6 § 112.7(c)(1)(vi)

Retention ponds are not present at FWDA.

4.7 § 112.7(c)(1)(vii)

Sorbent materials are standard elements of all spill kits used by the JV.

4.8 § 112.7(c)(2)

FWDA is classified as an onshore facility.

5.0 NON-PRACTICABLE REQUIREMENTS; INTEGRITY AND LEAK TESTING 40 CFR § 112.7 (D)

Periodic non-destructive integrity tests will be done on bulk storage containers.

6.0 INSPECTIONS AND RECORDS 40 CFR § 112.7 (E)

Formal inspections of all ASTs will be completed monthly by members of the SPCC Team. In accordance with Steel Tank Institute Standard SP001, a formal external inspection, including integrity testing, of the ASTs will be completed every 20 years. Findings of the inspections will be documented and signed by the inspector. During the inspection all tanks, containment systems, valves, pipelines, and other devices are inspected.

The monthly inspection Standard Operating Procedure and Monthly Preventative Maintenance Inspection report form provided in Attachment F will be filled out during each formal inspection, signed by the inspector and the original copy kept on file with this plan for a period of 3 years. In addition to the formal inspections, contractor personnel will informally inspect oil containers, piping, containment systems, and other related equipment on a daily basis. If any leaks, spills, or other problems are ever discovered, appropriate contractor personnel will be notified and the problem will be corrected in a timely manner. Record of integrity tests of tanks will be kept on file for a period of 3 years.

7.0 TRAINING AND SPILL PREVENTION PROCEDURES 40 CFR § 112.7 (F)

7.1 § 112.7(f)(1)

The JV provides spill prevention and response and safety training to contractor personnel. The training program has been designed to improve safety awareness and to minimize the potential for oil spills by instructing personnel in the proper operation and maintenance of the equipment necessary to prevent the discharge of oil, discharge procedure protocols, and the contents of this plan. Training includes the following topics:

- Spill Prevention;
- Recognizing and Identifying a Spill;
- Containment of Spilled Materials and Facility Drainage;
- Stopping or Diverting Flow of Spilled Materials from Source; and
- Cleanup and Neutralization.

Annual refresher training for spill response procedures is also conducted for appropriate personnel. New employees are informed of spill prevention and response procedures during their initial safety training. Any outside contractor involved in oil handling operations will also be made familiar with the specific discharge protection procedures used at the facility. At a minimum, these procedures include:

- Knowledge of the location and use of the spill kits;
- Proper location to park the refueling or vacuum truck, as determined by JV; and
- Location of the contacts' phone numbers in case of an emergency.

7.2 § 112.7(f)(2)

The Pollution Prevention Team is responsible for oil spill prevention at the facility and for coordinating spill response and prevention programs and activities. The Pollution Prevention Team is named in Attachment B.

7.3 § 112.7(f)(3)

Spill prevention briefings will be completed at least once a year. The briefings will be delivered to personnel who are required to have an understanding of this plan. Each briefing will include, at a minimum, the following:

- A review of this SPCC Plan and any addenda to the plan along with a review of applicable pollution control laws and regulations;
- Discussions of any spill event, any oil storage equipment or component malfunction, and any new prevention measures implemented since the last spill prevention briefing;
- Discussion of the location and use of all spill prevention equipment (spill kits, etc.);
- Discussion of the response procedures and contact list in case of an emergency; and
- Exercises in the use of any new spill prevention equipment.

A record of each annual briefing/training will be kept in the form of an attendance list (a blank list is included as Attachment G). The record will be kept on file at the facility for a period of 3 years. New employees who are assigned spill prevention responsibilities will receive facility-specific SPCC training during their initial safety training.

8.0 SECURITY 40 CFR § 112.7 (G)

Chain-link fencing encloses FWDA to prevent unauthorized entry. All gates are locked when the areas are unattended. All flow valves are located within the facility and are accessible only to contract personnel. These flow valves are kept in the closed position when in non-operating or non-standby mode. The loading and unloading connections of all oil tanks are securely capped or blank-flanged when not in use or when in standby mode for an extended period of time.

9.0 TANK, TRUCK, AND RACK LOADING/UNLOADING 40 CFR § 112.7 (H)

This section does not apply to the facility because there are no bulk oil loading/unloading racks on site.

10.0 FIELD CONSTRUCTED ASTs 40 CFR § 112.7 (I)

This section does not apply to the facility because there are no field constructed aboveground oil containers present on site.

11.0 ADDITIONAL STANDARDS 40 CFR § 112.7(J)

Additional prevention standards are not applicable to the JV sites at FWDA. There are no more stringent requirements in New Mexico.

12.0 QUALIFIED OIL FILLED OPERATIONAL EQUIPMENT 40 CFR § 112.7(K)

12.1 2§ 112.7(k)(1)

The JV sites at FWDA do not have qualified oil-filled operational equipment on site. If any qualified oil-filled operational equipment is mobilized at a later date, this plan will be amended.

12.2 § 112.7(k)(2)

This section is not applicable because the JV sites at FWDA do not have qualified oil-filled operational equipment on site.

12.3 § 112.7(k)(2)(i)

This section is not applicable because the JV sites at FWDA do not have qualified oil-filled operational equipment on site.

12.4 § 112.7(k)(2)(ii)(A)

This section is not applicable because the JV sites at FWDA do not have qualified oil-filled operational equipment on site.

12.5 § 112.7(k)(2)(i)

FWDA and the JV will commit the necessary manpower, equipment, and materials required to expeditiously control any quantity of oil discharged that may be harmful.

13.0 GENERAL CONFORMANCE REQUIREMENTS40 CFR § 112.8 (A)

The general requirements listed in 40 CFR § 112.7 have been as described in Section 2.0 of this plan.

14.0 FACILITY DRAINAGE 40 CFR § 112.8 (B)

14.1 § 112.8(b)(1)

Diked storage areas at the facility that require draining include the bermed area around the 3,000- gallon double-walled AST. Catch basins will be used for the single-walled 500-gallon fuel tanks and each generator with in-line fuel tanks. Drainage of accumulated rainwater or oil from the diked areas and the catch basins will be completed with a portable pump. Prior to discharge of accumulated precipitation, the water will be inspected for sheen or other signs of contamination. Contaminated fluids will be containerized, characterized, and properly shipped to a treatment facility.

14.2 § 112.8(b)(2)

All retained rainwater will be inspected for sheen or other signs of contamination prior to discharge to the facility drainage system.

14.3 § 112.8(b)(3)

Because there is no potential for spills outside of the containment walls of the storage areas, special drainage systems are not required within the JV sites of FWDA.

14.4 3.2.4 § 112.8(b)(4)

In accordance with the approved Storm Water Pollution Prevention Plan (to be submitted at a later date under a separate cover), silt fence or straw bales will be placed at the top of arroyo banks within the disturbed areas of any applicable sites until permanent stabilization can be established.

14.5 § 112.8(b)(5)

Drainage waters are not treated at the JV sites of FWDA.

15.0 BULK STORAGE TANKS 40 CFR § 112.8 (C)

15.1 § 112.8(c)(1)

All oil storage containers associated with the JV sites of FWDA are constructed of either steel or plastic. Both materials are compatible with the associated storage container contents at the temperature and pressure conditions of storage.

15.2 § 112.8(c)(2)

The 3,000-gallon AST is a double-walled tank, and the 500-gallon ASTs are single-walled steel tanks. Each AST, generator, and filling area is contained by a berm with an impervious barrier or catch basin, which will contain a spill from the tank or during loading operations. A portable pump is used for the removal of rainwater located within each berm.

The JV does not intend to store any 55-gallon drums of hydraulic fluid or waste oil. If 55-gallon drums are staged on site at a later date, these will be equipped with metal or plastic containment basins/drip pans of adequate volume for containing potential discharges. In addition, sorbent materials and booms are standard elements of all JV spill kits.

15.3 §112.8(c)(3)(i)

Drainage valves from all secondary containment exposed to precipitation are normally kept closed at all times that drainage of containment area is not needed. Portable pumps may be used to drain secondary containment.

15.4 §112.8(c)(3)(ii)

Storm water retained within secondary containment will be inspected for sheen or other evidence of contamination prior to discharge.

15.5 §112.8(c)(3)(iii)

Secondary containment must be drained of precipitation. Drain valves (if used) will be opened to drain containment area and immediately closed when draining is complete. Portable pumps may be used to drain secondary containment of precipitation if drain valves are not present. JV personnel will supervise the operation.

15.6 §112.8(c)(3)(iv)

Whenever a containment berm or catch basin is emptied, the following information will be recorded in a field logbook: date, time, and duration of drainage; gallons transported; and personnel supervising drainage.

15.7 § 112.8(c)(4)

This section does not apply to the JV sites because buried metallic storage tanks are not present.

15.8 § 112.8(c)(5)

This section does not apply to the JV sites because partially buried storage tanks are not present.

15.9 § 112.8(c)(6)

All ASTs and in-line generator tanks will be visually inspected monthly for signs of deterioration, discharges, or accumulation of oil inside diked areas. The ASTs will undergo a formal exterior inspection by a Certified Tank Inspector at least once every 20 years. As part of the formal inspection, non-destructive integrity testing such as hydrostatic or ultrasonic testing will be completed. The tanks are not insulated and the outside of the shells can be observed on an ongoing basis. The tanks all have secondary containment, which serves as a release prevention barrier.

The secondary containments are properly sized to contain a release. Under STI SP-001, the 3,000-gallon steel tank would qualify as a Category 1 tank (i.e., double-walled tank with containment berm and spill control), requiring periodic inspections. The personnel completing the inspections are familiar with the storage operations, characteristics of the liquids stored, types of ASTs, and their associated components. The scope of the inspections is presented in Section 6.0 and focuses on detecting any change in AST conditions and signs of leakage. If signs of leakage or deterioration are observed, the tank will either be replaced or inspected by a Certified Tank Inspector to assess its suitability for continued service.

The ASTs' typical configuration, combined with monthly inspections, ensure that any small leak that could develop in the tank shell will be detected before it can become significant, escape the secondary containment, and reach the environment. This approach provides environmental protection equivalent to the non-destructive shell evaluation component of integrity testing required under § 112.8(c)(6) as it

provides an appropriate and effective means of assessing the conditions of the tanks and their suitability for continued service. The test and inspection forms will be kept on file for 3 years.

15.10§ 112.8(c)(7)

Internal heating coils are not used in the bulk oil storage tanks.

15.11§ 112.8(c)(8)(i-v)

A direct audible or code signal communication between the container gauge and filler is employed while filling the ASTs. The ASTs are filled via fueling truck and also employ a level gauge and high-level indicator. Although not planned, hydraulic oil may be manually pumped from 55-gallon drums to the equipment and waste oil may be dumped into the 55-gallon waste oil drums. JV personnel will observe all oil transfer operations. The following filling procedures will be used for all tanks:

- Verify sorbent materials are near the container area;
- Visually verify the container will receive product and that there is sufficient free capacity;
- Visually monitor the filling operation and utilize a direct audible or code signal communication between the container gauge and filler.

For any ASTs that have a level gauge with a high level indicator, the level gauge will be tested to verify proper function at least every 5 years.

15.12§ 112.8(c)(9)

Effluent treatment facilities are not used at FWDA.

15.13§ 112.8(c)(10)

Visually detected discharges from oil containers will be corrected promptly following detection. Discharges may include, but are not limited to, leaks from seals, gaskets, seams, rivets, welds, piping, pumps and bolts. Any spilled or leaked oil will be promptly cleaned up.

15.14§ 112.8(c)(11)

Secondary containment basins are located under every oil storage container. The capacity of secondary containment basins are listed in Table 3-1. In addition, spill kits are located near all oil storage containers.

16.0 TRANSFER OPERATIONS 40 CFR § 112.8 (D)

16.1 § 112.8(d)(1)

This section does not apply to the JV sites of FWDA because buried oil transfer piping is not present at the facility.

16.2 § 112.8(d)(2)

Terminal connections will be blank-flanged or capped when not in service.

16.3 § 112.8(d)(3)

This section does not apply to the JV sites because pipe supports are not used.

16.4 § 112.8(d)(4)

Aboveground valves and related appurtenances are subjected to regular examinations by operating personnel at which time the general condition of items such as flange joints, expansion joints, valve glands and bodies, catch pans, pipeline supports, locking of valves, and metal surfaces is assessed.

16.5 § 112.8(d)(5)

The operator of any vehicle entering the facility will be notified of the location of any aboveground piping or other oil transfer operations.

ATTACHMENT A

CERTIFICATION OF THE APPLICABILITY OF SUBSTANTIAL HARM CRITERIA

ATTACHMENT A

CERTIFICATION OF THE APPLICABILITY OF THE SUBSTANTIAL HARM CRITERIA CHECKLIST

Facility: Fort Wingate Depot Activity - Kickout Area and Parcels 11, 20, and 22
Fort Wingate, New Mexico

1. Does the facility transfer oil over water to or from vessels and does the facility have a total storage capacity greater than or equal to 42,000 gallons?

   YES _____ NO X

2. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and does the facility lack secondary containment that is sufficiently large to contain the capacity of the largest aboveground oil storage tank plus sufficient freeboard to allow for precipitation within any aboveground oil storage area?

   YES _____ NO X

3. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and is the facility located at a distance (as calculated using the formula in Attachment C-III, Appendix C, 40 CFR 112 or a comparable formula) such that a discharge from the facility could cause injury to fish and wildlife sensitive environments? For further description of fish and wildlife sensitive environments, see Appendices I, II, and III to DOC/NOAA's "Guidance for Facility and Vessel Response Environments" (Section 10, Appendix E, 40 CFR 112 for availability) and the applicable Area Contingency Plan.

   YES _____ NO X

4. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and is the facility located at a distance (as calculated using the appropriate formula in Attachment C-III, Appendix C, 40 CFR 112 or a comparable formula) such that the discharge would shut down a public drinking water intake?

   YES _____ NO X

5. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and has the facility experienced a reportable oil spill in an amount than or equal to 10,000 gallons within the last 5 years?

   YES _____ NO X

CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document, and that based on my inquiry of those individuals responsible for obtaining this information, I believe that the submitted information is true, accurate, and complete.

_____

Name (type or print) Signature

_____

Title Date

ATTACHMENT B

POLLUTION PREVENTION TEAM

ATTACHMENT B – JV Pollution Prevention Team

Name	**Shahrukh Kanga**	**Dewey Thedford**	**Scott Wardle**	**Dan Hains**
Title	**JV Project Manager**	**JV Site Manager**	**JV SUXOS**	**JV SSHO**
Cell:	**281.734.2923**	**281.914.2927**	**713.299.2918**	**813.810.3600**
Email:	skanga@pikainc.com	dthedford@pikainc.com	swardle@pikainc.com	Dan.Hains@arcadis-us.com
RESPONSIBILITIES				
Team Leader	X	X	X	X
Signatory Authority	X	X	X	X
Conduct Employee Training	X	X	X	X
Record Keeping	X	X		
Submit Reports	X	X	X	X
Implement BMPs	X	X	X	X
Routine Visual Inspection	X	X	X	X
Annual Inspection	X	X		
Revise SPCC	X			
Storm Water Monitoring	X	X	X	X
Implementation Guidance	X	X	X	X
Annual Review	X			

ATTACHMENT C
CONTACT INFORMATION

ATTACHMENT C – CONTACT LIST

Service/ Name of Contact	Organization	Role	Phone	Email
LOCAL EMERGENCY RESPONDERS				
Dispatch	Metro Dispatch	Emergency Response	505-722-2002	NA
Fire Department	McKinley County	Emergency Response	505-863-3839	NA
Police Department	New Mexico State	Emergency Response	505-863-9353	NA
Police Department	City of Gallup	Emergency Response	505-863-9365	NA
Hospital	Rehoboth McKinley Christian Health Care Services	Emergency Response	505-863-7000	NA
USACE and FWDA Contacts				
Dennis "DJ" Myers	USACE SWF	Project Manager	Cell:817-609-5014	Dennis.J.Myers@usace.army.mil
Steven Smith	USACE SWF	Program Manager	Office: 817-886-1879	steve.w.smith@usace.army.mil
Mike Scoville	USACE SWF	QA Representative	Office: 817-886-1875; Cell:817-403-4931	michael.g.scoville@usace.army.mil
Jackie Smith	USACE SWF	OESS	Office: 817-886-1916; Cell:817-821-2118	
Mark Patterson	FWDA BEC	BEC Coordinator	Office: 303-358-7312; Cell: 505-721-9770	mark.c.patterson@us.army.mil
Richard Cruz	FWDA	Facility Manager	Office: 505-905-6109; Home: 505-726-0899; Cell: 505-862-2416	richard.cruz2@us.army.mil
Jessica Pigg	FWDA	Admin Record	Office: 505-905-6108	jessica.pigg.ctr@us.army.mil
Martin Eastridge	FWDA	MDA Caretaker	Cell: 575-649-0352; Home: 505-735-2168	
US EPA Region 6				
Chuck Hendrickson	EPA 6	Regulatory Review	Office: 214- 665-2196	
New Mexico Environment Department				
John Kieling	NMED	RCRA Permits Management Program	Office: 505- 476-6016	
Dave Cobrain	NMED	Hazardous Waste Bureau	Office: 505- 476-6055	dave.cobrain@state.nm.us
PIKA-Pirnie JV				
Shahrukh Kanga	PIKA-Pirnie JV	Project Manager	Office: 281.325.6830; Cell: 281.734.2923	skanga@pikainc.com
Paul Hanneman	PIKA-Pirnie JV	Technical Lead	Office: 303.770.1501; Cell: 303.748.7881	phanneman@pikainc.com
Mike Madl	PIKA-Pirnie JV	Technical Lead	Office: 817.877.9978; Cell: 281.827.1754	Mike.Madl@arcadis-us.com

ATTACHMENT D

SPILL RESPONSE PROCEDURES

ATTACHMENT D – SPILL RESPONSE PROCEDURES

Initial Actions:

1. Determine whether any JV personnel have been injured. If so, seek medical attention for injured personnel.
2. Put on the appropriate personal protective equipment for oil spills including:

    - Gloves;
    - Eye goggles; and
    - Apron (if necessary).

If the Spill is Small (5 gallons or less):

1. Apply absorbent around and across the spill;
2. Remove the absorbent and the spill with broom and dustpan or shovel;
3. Place the spilled material and absorbent into an approved container; and
4. Report the incident to the individuals listed on the Contact List (see Appendix A).

If the Spill is Large (greater than 5 gallons):

1. Apply absorbent around the released material;
2. Initiate cleanup using available heavy equipment (excavator, loader, and dump trucks); and
3. Contact the FWDA contact/caretaker (Mr. Rich Cruz) (See Appendix A)

    - SPCC JV Team members;
    - JV will contact the primary FWDA contact/caretaker (Mr. Rich Cruz).
    - FWDA will contact appropriate emergency agencies/ personnel (e.g., fire and police);
    - FWDA will contact local and state agencies; and
    - FWDA will contact EPA Region 6 Office (if spill qualifies according to Section 1 of this plan).

SPILL KITS:

Description	Location	Contents
Spill Kit #1	1,000-gallon AST (Bldg. 403)	55 gallon poly drum; Absorbent pads, socks & pillows; Disposal Bags w/ Ties; 1 Pair Goggles; 1 Pair Nitrile Gloves; 1 Emergency Response Guidebook
Spill Kit #2	500-gallon AST (Sifting Plant)	

ATTACHMENT E
SPILL INCIDENT FORM

ATTACHMENT E – SPILL INCIDENT FORM

Date, time, and duration of the release:				
Source//location of the release:				
Person or persons causing and responsible for the release:				
Type and amount of oil released:				
Cause of the release:				
Environmental damage caused by the release:				
Actions taken to respond, contain, and cleanup the release:				
Actions being taken to prevent a reoccurrence of the release:				
Describe known or anticipated acute or chronic health risks associated with the release:				
Describe any injuries or need for evacuation:				
Is the release of this material a "reportable" quantity by statutory requirements?		Yes		No
Determined by:			Date	

Notifications

	Contact Person	Date	Time
1.	_____	_____	_____
2.	_____	_____	_____
3.	_____	_____	_____
4.	Government Agencies		
	i. Local:_____	_____	_____
	ii. State:_____	_____	_____
	Federal:_____	_____	_____

Additional comments on the back of his form

ATTACHMENT F

MONTHLY INSPECTIONS AND REPORTS

ATTACHMENT F - MONTHLY INSPECTIONS AND REPORTS

F.1: STANDARD OPERATING PROCEDURE

PURPOSE

The purpose of this standard operating procedure for routine inspection of ASTs is to ensure that facility ASTs are inspected in a timely and consistent manner.

RESPONSIBILITY

It is the responsibility of ALL management personnel to publish and distribute this standard operating procedure and to insure the proper training of personnel. It is the responsibility of the SPCC Team to ensure this SOP is adhered to at all times.

INSPECTION PROCEDURES FOR STEEL ASTs

Visually inspect all sides of the tank exterior and check for the following:

- Signs of leaking, contamination, or visible product;
- Rust, corrosion, pin holes, or other signs of deterioration;
- Integrity of welds;
- Signs of damage such as dents;
- Drainage valves on secondary containment are closed, if applicable;
- Secondary containment does not have any cracks or damage;
- Structural soundness of any tank supports or foundation;
- Test level gauge for function, if applicable (i.e., observe during filling operation); and
- Ensure that spill kits are available.

F.2: MONTHLY PREVENTATIVE MAINTENANCE INSPECTION REPORT

NOTE: This report must be completed each month by a member of the SPCC Team. A copy of this report will be maintained in the JV field office and in the Administrative Record at Building 1 at FWDA.

Person performing inspection: _____

Date of inspection: _____

Instructions: After inspection of each item, signify in each column by a check mark if the inspected area is in good condition and functioning. If not, complete the Inspection Results section below and specifically note any areas where potential spill or contamination risks are observed.

STORAGE TANKS

Tank # (See Facility Diagram)	**Tank Contents**	**Visual tank inspection (i.e., evidence of leaks, corrosion or structural weakness)**	**Tank foundation and Support**	**Spill containment area**	**Tank level gauge (is it functioning properly)**
Fuel Tank #1	Gasoline Fuel			Yes (berm)	
Fuel Tank #2	Diesel Fuel			Yes (catch basin)	
Generator #1	Diesel Fuel			Yes (catch basin)	
Generator #2	Diesel Fuel			Yes (catch basin)	

INSPECTION RESULTS

Problem Area	**Nature of Problem**	**Recommendation for Correction**	**Corrective Action Taken (should be initialed and dated by inspector listed above upon completion of work)**

NOTE: This report must be maintained for 3 years from the above date.

Keep on file until _____ **Inspector's Initials** _____ **Date** _____

SPILL KITS

Description	Location	Contents	Comments
Spill Kit # 1	1,000-gallon AST (Bldg. 403)	55 gallon poly drum; Absorbent pads, socks & pillows; Disposal Bags w/ Ties; 1 Pair Goggles; 1 Pair Nitrile Gloves; 1 Emergency Response Guidebook	
Spill Kit #2	500-gallon AST (Sifting Plant)		

INSPECTION RESULTS

Problem Area	Nature of Problem	Recommendation for Correction	Corrective Action Taken (should be initialed and dated by inspector listed above upon completion of work)

NOTE: This report must be maintained for 3 years from the above date.

Keep on file until _____ Inspector's Initials _____ Date _____

ATTACHMENT G
SPILL CONTROL TRAINING

ATTACHMENT G - SPILL CONTROL TRAINING

Instructions: This training session shall be given to site workers on an annual basis. The site workers must initial each blank to signify receipt of training in applicable area.

1. Spill Prevention

_____ Material handling procedures

_____ Preventative maintenance practices

_____ Housekeeping practices

2. Recognizing and Identifying a Spill

_____ Indications of spills (odors, fumes, vegetation damage)

_____ Identifying spilled materials (e.g., fuel oil, hydraulic fluid, waste oil)

_____ Safety procedures when exposed to spilled materials

3. Containment of Spilled Materials in Plant Drainage System

_____ Safety issues in containing spills

_____ Manner and technique of spill containment

4. Stopping or Diverting Flow of Spilled Materials from Spill Source

_____ Location and operation of shutoff and drain valves on tanks and other containment devices

_____ Location and operation of breaker switches for power source

_____ Location of spill kits

- Spill Kit #1 @ 1,000-gallon AST located near Bldg. 403.
- Spill Kit #2 @ 500-gallon AST located near Sifting Plant

5. Cleanup and Neutralization

_____ Safety concerns in cleanup and neutralization

_____ Use of absorbent materials (e.g., for petroleum spills)

6. Employee responsibilities in the event of a spill. As soon as an employee has reason to believe that a spill has occurred, the employee should:

a) Determine whether there is the possibility of a health or safety threat. The employee should know the location of the safety data sheets for commonly used materials so that these may be referred to in case there is a question as to the potential risks posed by the material. If there is a potential risk, then the first thing which must be done is to evacuate the area.

b) Notify supervisor of the following
   (1) location of possible spill
   (2) identity of spilled material
   (3) estimated quantity (if possible)

c) Stop or divert flow of spilled materials (as safety concerns permit).

d) Institute measures to contain the spilled material in the area of the spill (as safety concerns permit).

e) Institute cleanup or neutralization procedures as directed by the Plant Manager or his designated representative.

f) Provide information as requested for completion of Spill Report.

I certify that I have received training in the above noted areas on the date written below. I understand these procedures and agree to abide by them.

_____ _____

Employee Name Date

ANNUAL SPCC TRAINING RECORD

Name (Print)	Date	Time	Signature

Topics covered include: SPCC Contents, site storage, monthly inspections, and spill response procedures

Instructor (Print):_____ Signature: _____

Time: _____ Date: _____

APPENDIX G

MSD CALCULATION SHEETS

Fragmentation Data Review Form

Database Revision Date 8/21/2014

Category:	Surface-Launched HE Rounds
Munition:	155 mm M107 (Composition B filled)
Case Material:	Steel, Mild
Fragmentation Method:	Naturally Fragmenting
Secondary Database Category:	Projectile
Munition Case Classification:	Robust

DODIC:	D571
Date Record Created:	9/21/2004
Record Created By:	MC
Last Date Record Updated:	
Individual Last Updated Record:	SDH
Date Record Retired:	

Munition Information and Fragmentation Characteristics

Explosive Type:	Composition B
Explosive Weight (lb):	15.448
Diameter (in):	6.1024
Cylindrical Case Weight (lb):	73.50184
Maximum Fragment Weight (Intentional) (lb):	0.6641
Design Fragment Weight (95%) (Unintentional) (lb):	0.1372
Critical Fragment Velocity (fps):	3584

Sandbag and Water Mitigation Options

TNT Equivalent (Impulse):	1.14
TNT Equivalent Weight - Impulse (lbs):	17.611
Kinetic Energy 10^6 (lb-ft²/s²):	5.4935

Single Sandbag Mitigation

Required Wall & Roof Thickness (in)	36
Expected Max. Throw Distance (ft):	220
Minimum Separation Distance (ft):	220

Double Sandbag Mitigation

Required Wall & Roof Thickness (in)	Not Permitted
Expected Max. Throw Distance (ft):	Not Permitted
Minimum Separation Distance (ft):	Not Permitted

Water Mitigation

Minimum Separation Distance (ft):	275
Water Containment System:	1100 gal tank

Note: Use Sandbag and Water Mitigation in accordance with all applicable documents and guidance. If a donor charge larger than 32 grams is utilized, the above mitigation options are no longer applicable. Subject matter experts may be contacted to develop site specific mitigation options.

Theoretical Calculated Fragment Distances

HFD [Hazardous Fragment Distance: distance to no more than 1 hazardous fragment per 600 square feet] (ft):	450
MFD-H [Maximum Fragment Distance, Horizontal] (ft):	2630
MFD-V [Maximum Fragment Distance, Vertical] (ft):	2022

Overpressure Distances

TNT Equivalent (Pressure):	1.16
TNT Equivalent Weight - Pressure (lbs):	17.920
Unbarricaded Intraline Distance (3.5 psi), K18 Distance:	47
Public Traffic Route Distance (2.3 psi); K24 Distance:	63
Inhabited Building Distance (1.2 psi), K40 Distance:	105
Intentional MSD (0.0655 psi), K328 Distance:	858

Note: Per V5.E3.2.2.1 of DoD 6055.09-M the minimum sited K328 distance may be no smaller than 200 ft.

Minimum Thickness to Prevent Perforation

	Intentional	Unintentional
4000 psi Concrete (Prevent Spall):	14.45	6.68
Mild Steel:	2.74	1.29
Hard Steel:	2.25	1.06
Aluminum:	5.30	2.61
LEXAN:	10.69	6.73
Plexi-glass:	9.43	5.10
Bullet Resist Glass:	8.58	4.39

Item Notes

Fragmentation Data Review Form

Database Revision Date 8/21/2014

Category:	Surface-Launched HE Rounds
Munition:	155 mm M107 (TNT filled)
Case Material:	Steel, Mild
Fragmentation Method:	Naturally Fragmenting
Secondary Database Category:	Projectile
Munition Case Classification:	Robust

DODIC:	D571
Date Record Created:	2/4/2010
Record Created By:	SDH
Last Date Record Updated:	
Individual Last Updated Record:	
Date Record Retired:	

Munition Information and Fragmentation Characteristics

Explosive Type:	TNT
Explosive Weight (lb):	14.6
Diameter (in):	6.1024
Cylindrical Case Weight (lb):	73.50184
Maximum Fragment Weight (Intentional) (lb):	1.0548
Design Fragment Weight (95%) (Unintentional) (lb):	0.2710
Critical Fragment Velocity (fps):	4035

Sandbag and Water Mitigation Options

TNT Equivalent (Impulse):	1
TNT Equivalent Weight - Impulse (lbs):	14.600
Kinetic Energy 10^6 (lb-ft²/s²):	6.6543

Single Sandbag Mitigation

Required Wall & Roof Thickness (in)	Not Permitted
Expected Max. Throw Distance (ft):	Not Permitted
Minimum Separation Distance (ft):	Not Permitted

Double Sandbag Mitigation

Required Wall & Roof Thickness (in)	Not Permitted
Expected Max. Throw Distance (ft):	Not Permitted
Minimum Separation Distance (ft):	Not Permitted

Water Mitigation

Minimum Separation Distance (ft):	Not Permitted
Water Containment System:	Not Permitted

Note: Use Sandbag and Water Mitigation in accordance with all applicable documents and guidance. If a donor charge larger than 32 grams is utilized, the above mitigation options are no longer applicable. Subject matter experts may be contacted to develop site specific mitigation options.

Theoretical Calculated Fragment Distances

HFD [Hazardous Fragment Distance: distance to no more than 1 hazardous fragment per 600 square feet] (ft):	389
MFD-H [Maximum Fragment Distance, Horizontal] (ft):	2894
MFD-V [Maximum Fragment Distance, Vertical] (ft):	2208

Overpressure Distances

TNT Equivalent (Pressure):	1
TNT Equivalent Weight - Pressure (lbs):	14.600
Unbarricaded Intraline Distance (3.5 psi), K18 Distance:	44
Public Traffic Route Distance (2.3 psi); K24 Distance:	59
Inhabited Building Distance (1.2 psi), K40 Distance:	98
Intentional MSD (0.0655 psi), K328 Distance:	802

Note: Per V5.E3.2.2.1 of DoD 6055.09-M the minimum sited K328 distance may be no smaller than 200 ft.

Minimum Thickness to Prevent Perforation

	Intentional	Unintentional
4000 psi Concrete (Prevent Spall):	14.62	7.33
Mild Steel:	2.82	1.43
Hard Steel:	2.31	1.17
Aluminum:	5.39	2.85
LEXAN:	11.10	7.30
Plexi-glass:	9.91	5.69
Bullet Resist Glass:	9.14	4.99

Item Notes

Fragmentation Data Review Form

Database Revision Date 8/21/2014

Category:	Surface-Launched HE Rounds
Munition:	155 mm M795
Case Material:	Steel, Mild
Fragmentation Method:	Naturally Fragmenting
Secondary Database Category:	Projectile
Munition Case Classification:	Robust

DODIC:	D529
Date Record Created:	9/21/2004
Record Created By:	MC
Last Date Record Updated:	2/4/2010
Individual Last Updated Record:	SDH
Date Record Retired:	

Munition Information and Fragmentation Characteristics

Explosive Type:	TNT
Explosive Weight (lb):	28.814
Diameter (in):	6.0430
Cylindrical Case Weight (lb):	61.96831
Maximum Fragment Weight (Intentional) (lb):	0.6139
Design Fragment Weight (95%) (Unintentional) (lb):	0.1116
Critical Fragment Velocity (fps):	4434

Sandbag and Water Mitigation Options

TNT Equivalent (Impulse):	1
TNT Equivalent Weight - Impulse (lbs):	28.814
Kinetic Energy 10^6 (lb-ft²/s²):	6.0352

Single Sandbag Mitigation

Required Wall & Roof Thickness (in)	Not Permitted
Expected Max. Throw Distance (ft):	Not Permitted
Minimum Separation Distance (ft):	Not Permitted

Double Sandbag Mitigation

Required Wall & Roof Thickness (in)	Not Permitted
Expected Max. Throw Distance (ft):	Not Permitted
Minimum Separation Distance (ft):	Not Permitted

Water Mitigation

Minimum Separation Distance (ft):	Not Permitted
Water Containment System:	Not Permitted

Note: Use Sandbag and Water Mitigation in accordance with all applicable documents and guidance. If a donor charge larger than 32 grams is utilized, the above mitigation options are no longer applicable. Subject matter experts may be contacted to develop site specific mitigation options.

Theoretical Calculated Fragment Distances

HFD [Hazardous Fragment Distance: distance to no more than 1 hazardous fragment per 600 square feet] (ft):	443
MFD-H [Maximum Fragment Distance, Horizontal] (ft):	2739
MFD-V [Maximum Fragment Distance, Vertical] (ft):	2111

Overpressure Distances

TNT Equivalent (Pressure):	1
TNT Equivalent Weight - Pressure (lbs):	28.814
Unbarricaded Intraline Distance (3.5 psi), K18 Distance:	55
Public Traffic Route Distance (2.3 psi); K24 Distance:	74
Inhabited Building Distance (1.2 psi), K40 Distance:	123
Intentional MSD (0.0655 psi), K328 Distance:	1006

Note: Per V5.E3.2.2.1 of DoD 6055.09-M the minimum sited K328 distance may be no smaller than 200 ft.

Minimum Thickness to Prevent Perforation

	Intentional	Unintentional
4000 psi Concrete (Prevent Spall):	15.11	7.34
Mild Steel:	2.79	1.42
Hard Steel:	2.29	1.16
Aluminum:	5.44	2.85
LEXAN:	10.90	7.19
Plexi-glass:	9.67	5.57
Bullet Resist Glass:	8.86	4.79

Item Notes

APPENDIX H

RESPONSES TO COMMENTS