Pueblo of Laguna

FINAL

JATO-1 SURFACE CLEARANCE REPORT

Native American Lands Environmental Mitigation Program

Pueblo of Laguna
P.O. Box 194
Laguna, New Mexico 87026

November 2017

POL Independent Services Agreement

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Arcadis U.S., Inc. prepared this Surface Clearance on JATO-1 Surface Clearance Report at the direction of the Pueblo of Laguna (POL). This report should be used only with the approval of the POL. This report is based, in part, on information provided in other documents and is subject to the limitations and qualifications presented in the referenced documents.

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Prepared for:

Pueblo of Laguna

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CONTENTS

Acronyms and Abbreviations iii
1 INTRODUCTION 1
1.1 Authorization 1
1.2 Objective 1
1.3 Background 2
1.3.1 Location 2
1.3.2 Topography 2
1.3.3 Climate 2
1.3.4 Vegetation 2
1.3.5 Geology 2
1.3.6 Hydrology 3
1.3.7 Wildlife 3
1.4 General History 3
1.4.1 Site Inspection / Archaeological Survey 4
1.5 Technical Approach 4
1.6 Final Report Organization 5
2 DISCUSSION 7
2.1 Site Preparation Activities 7
2.2 Surface Clearance Operations 7
2.3 MD Removal Operations 9
2.4 Results of the Removal Action 9
2.5 Tracking and Disposition of Ordnance Found 10
2.6 Demobilization 10
3 DOCUMENTATION 11
3.1 Maps 11
3.2 Daily Site Activity Reports 11
3.3 Site Quality Documentation 11
3.4 Site Safety Documentation 12
3.5 Ordnance Disposal 12

3.6 Photographs 12
4 Tests 13
4.1 Quality Control / Quality Assurance 13
4.2 Quality Control 13
4.2.1 Process Quality Control 13
4.2.2 Preparatory Phase Inspection 13
4.2.3 Initial Phase Inspections 14
4.2.4 Follow-Up Phase Inspections 14
4.2.5 Search Effectiveness Procedure 15
4.2.6 Demolition Quality Control 15
4.2.7 Product Quality Control 15
4.2.8 Quality Control Acceptance Criteria 15
4.2.9 Results of Quality Control 15
5 SUMMARY 17
6 REFERENCES 18

FIGURES

Figure 1-1. JATO #1 Site Location Map
Figure 1-2. JATO #1 Site Layout Map

APPENDICES

Appendix A Scope of Work
Appendix B Explosive Safety Submission
Appendix C Quality Documentation and Letter of Completion
Appendix D Disposal Documentation
Appendix E Daily Site Activities Report / Photographs
Appendix F Ordnance Technical Data

ACRONYMS AND ABBREVIATIONS

APP	Accident Prevention Plan
Arcadis	Arcadis U.S., Inc.
ARPA	Archaeological Resources Protection Act
ATF	Bureau of Alcohol, Tobacco, Firearms, and Explosives
ATV	All-terrain Vehicle
BIP	Blown in Place
CD-ROM	Compact Disk – Read only Memory
CEHNC	Corps of Engineers – Huntsville Center
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CPR	Cardiopulmonary Resuscitation
DDESB	Department of Defense Explosives Safety Board
DID	Data Item Description
DoD	Department of Defense
DOT	Department of Transportation
EM	Engineer Manual
EMI	Ecosystems Management Incorporated
EMP	Explosives Management Plan
EOD	Explosive Ordnance Disposal
EPP	Environmental Protection Plan
ESS	Explosives Safety Submission
EZ	Exclusion Zone
°F	Degrees Fahrenheit
GIS	Geographic Information System
GNSS	Global Navigation Satellite System
GPS	Global Positioning System
HAZWOPER	Hazardous Waste Operations and Emergency Response
H&S	Health and Safety
H&S Manager	Corporate Health and Safety Manager
HMX	Cyclotetramethylenetetranitramine

HTRW	Hazardous, Toxic, and Radioactive Waste
IF	Investigation Finding
JATO	Jet-assisted Take Off
KAFB	Kirtland Air Force Base
LA	Laboratory of Anthropology
lb(s)	Pound(s)
Maxim	Maxim Technologies
MD	Munitions Debris
MDAS	Material Documented as Safe
MDEH	Material Documented as an Explosive Hazard
MEC	Munitions and Explosives of Concern
MPPEH	Material Potentially Presenting an Explosive Hazard
MSD	Minimum Separation Distance
MSR	Monthly Status Report
NAGPRA	North American Graves Protection and Repatriation Act
NALEMP	Native American Land Environmental Mitigation Program
NAVSCOLEOD	Naval School Explosive Ordnance Disposal
NEW	Net Explosive Weight
NMSHPO	New Mexico State Historic Preservation Office
NRHP	National Register of Historic Places
OESS	Ordnance and Explosive Safety Specialist
PBR	Precision Bombing Range
PETN	Pentaerythritol Tetranitrate
PM	Project Manager
POC	Point of Contact
POL	Pueblo of Laguna
PPE	Personal Protective Equipment
QA	Quality Assurance
QC	Quality Control
QCSR	Quality Control Summary Report
RI	Remedial Investigation

RDX	Cyclotrimethylenetrinitramine
RFP	Request for Proposal
SI	Site Investigation
Site	Approximately 732-acre JATO-1 site, located in the territory of the Pueblo of Laguna, Laguna, New Mexico
SOP	Standard Operating Procedure
SOW	Statement of Work
SSHP	Site Safety and Health Plan
SUXOS	Senior Unexploded Ordnance Supervisor
TNT	2,4,6-trinitrotoluene
USACE	U.S. Army Corps of Engineers
USEPA	United States Environmental Protection Agency
USFWS	U.S. Fish & Wildlife Service
UTM	Universal Transverse Mercator
UXO	Unexploded Ordnance
UXOQCS	Unexploded Ordnance Quality Control Specialist
UXOSO	Unexploded Ordnance Safety Officer
UXOSP	Unexploded Ordnance Sweep Personnel

1 INTRODUCTION

Arcadis U.S., Inc. (Arcadis) prepared this Munitions and Explosives of Concern (MEC) and Munition Debris (MD) Surface Clearance Report for the removal and disposal of MEC and MD and surface clearance of 732 acres at JATO Site #1 (JATO-1), under the Native American Land Environmental Mitigation Program (NALEMP). The approximately 732-acre JATO-1is located in the territory of the Pueblo of Laguna (POL), Laguna, New Mexico (site). The POL, a federally recognized Indian tribe, currently owns the site. The site is located approximately 29 miles southwest of Albuquerque in Valencia County, New Mexico (Arcadis, 2013).

This removal action was performed consistent with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended by the Superfund Amendments and Reauthorization Act of 1986, and follows the overall Military Munitions Response Program (MMPR) removal action process. The surface clearances are being conducted to address hazards from potential exposure to munitions and MEC on site.

1.1 Authorization

Arcadis was directed by the POL, under an Independent Services Agreement, to perform a removal action at the JATO-1 Site.

1.2 Objective

The purpose of this report is to provide a detailed description of the surface clearance removal action conducted at JATO-1.All activities involving work in areas potentially containing military munitions including: MEC, Material Potentially Possessing an Explosive Hazard (MPPEH), Material Documented as an Explosive Hazard (MDEH), MD, and Range Related Debris (RRD) were conducted in full compliance with the POL; the United States Army Corps of Engineers, Albuquerque District (USACE); the United States Environmental Protection Agency (USEPA); the Department of Defense (DoD) Explosives Safety Board (DDESB) compliant Explosives Safety Submission (ESS); and DoD requirements regarding personnel, equipment, and procedures. The POL-approved project ESS is included as Appendix B.

Activities performed as part of this removal action included safely locating, identifying and removing MD, MPPEH, and potential MEC from the ground surface of a 732-acre parcel within the JATO-1area, as well as securing MD. Once MD was verified as free of explosives (i.e., Material Documented as Safe or MDAS), it was containerized for transportation to ACE Metals recycling facility in Albuquerque, New Mexico.

1.3 Background

1.3.1 Location

The Site is in Valencia County, New Mexico approximately 29 miles southwest of Albuquerque (Figure 1-1). The approximately 732-acre site is located in the territory of POL (Arcadis 2013). The Site layout is shown in Figure 1-2.

1.3.2 Topography

The regional terrain of the area is made up of flat-topped mesas, steep rugged sandstone cliffs, and narrow rocky canyons. The site is located at approximately 5,000 to 6,000 feet above mean sea level (Keres Consulting, Inc. [Keres], 2012).

1.3.3 Climate

The climate is warm and dry, with summer temperatures averaging 91 degrees Fahrenheit (°F) and winter temperatures averaging 20 °F. The area experiences a multitude of sunny days throughout the year; most precipitation falls as rain from July through October and averages nine inches per year. Most rainfall takes place during brief, intense thunderstorms from July through October (Maxim Technologies [Maxim], 2005). The area is occasionally covered with a few inches of snow during winter storms (Keres, 2012). Winds generally predominate from the southeast in summer and from the west in winter, but local surface wind directions will vary greatly because of local topography. Significant soil erosion may take place as a result of wind in the area (Maxim, 2005).

1.3.4 Vegetation

Vegetation in the surrounding area is sparse and includes desert scrubland (sparse Juniper, Blue Grama Grass, Dropseed, other bunch grasses, Snakeweed, Cane Cholla, Prickly Pear, and sparse Sagebrush) and lowland desert vegetation (prairie grass and sparsely populated cedar trees) (Keres, 2012).

1.3.5 Geology

The uppermost geologic unit is the Quaternary alluvium, which is composed of silt, clay, sand, and gravel deposited along the Rio Grande and Tijeras Arroyo, and is up to 115 feet thick. The Quaternary and Tertiary Santa Fe Group underlies the floodplain alluvium and forms terraces and erosional surfaces west and east of the floodplain.

The Santa Fe Group is primarily composed of silt, clay, and sand with gravel lenses. In the central Rio Grande Valley, the Santa Fe Group was deposited by streams flowing into the valley from the east, west, and north. The Santa Fe Group is at least 9,000 feet thick; in an area to the south of Albuquerque, the group extends to a depth of 20,000 feet. The dominant rock types that may be exposed on and around the site may be sediment of late Jurassic, late Cretaceous, and late Tertiary age. It is assumed the site is mostly underlain by the Dakota Sandstone, Mancos Shale, and Gallup Sandstone (Upper Cretaceous). Site-specific information was obtained from the U.S. Geological Survey National Geologic Map Database (ngmdb.usgs.gov).

1.3.6 Hydrology

The Rio Puerco and the Rio San Jose are the major surface-water bodies near the site. The Rio Puerco is a southward-flowing river forming the boundary between the POL and the Pueblo of Isleta near the site. The Rio San Jose flows in a southeasterly direction, parallels State Highway 6 near JATO-1, and bends around the western and southern boundaries of the site. Both rivers are ephemeral, which means they are void of water at least one time throughout the year (Arcadis, 2017).

1.3.7 Wildlife

A variety of wildlife has been observed at the site, including antelope, elk, deer, rabbits, ravens, robins, red tail hawks, rodents, and a variety of reptiles. There is no available list of threatened or endangered species on POL land. However, federal and state government agencies have identified a number of threatened and endangered species within the counties where the site is located, and some of these species may occur on or near the site. More information regarding these species may be found in the Munitions and Explosives of Concern and Munitions Debris Clearance on JATO No. 1 Work Plan (Arcadis, 2017).

1.4 General History

The site is located approximately 8 miles south of Interstate 40 and west of the Rio Puerco. Based on the findings of the Step I and Step III Site Assessment Reports (Keres, 2012), the site contains known and potential areas impacted by JATO motors. The site consists of undeveloped open ranch land in which multiple JATO motors have been observed. The area comprising JATO-1has never been owned or leased by the DoD. The site is located approximately 2 miles northwest of the Los Lunas Air Force Range.

Kirtland Air Force Base (KAFB), previously known as the Kirtland Army Airfield, established Precision Bombing Range (PBR) S-1 on land owned by the Pueblo of Isleta, east of the current POL JATO sites. KAFB used PBR S-1 for bombardier training from 1942 (exact date unknown) until World War II ended in 1945. In December 1945, the Z Division at Los Alamos National Laboratory set up equipment on the PBR and established the Los Lunas Test Range, which would later become known as the Los Lunas Air Force Range. During this time, Sandia Base, a former DoD nuclear weapons installation, also dropped steel, nonexplosive penetrators on the site until 1946 (exact date unknown). Sandia Base retained control of the Los Lunas Air Force Range from 1946 until July 19, 1948, when it transferred the site back to KAFB. Activities on the Los Lunas Air Force Range between July 1948 and August 1956 are unknown. From February 1, 1957 to December 22, 1961, KAFB may have used the entire Los Lunas Air Force Range for practice bombing runs to study aircraft performance but other sources indicate that ordnance was not dropped past 1957 (Keres, 2012).

Prior to 1956, the PBR S-1 and Los Lunas Air Force Range boundaries were located completely within the Pueblo of Isleta boundaries. In 1956, the POL approved the use of 1,661 acres of its land to be used by the U.S. Air Force to expand the Los Lunas Air Force Range boundaries. The U.S. Air Force established observation/instrumentation points on the POL land; in addition, archival documents indicate that the aircraft flight path extended southwest to northeast over the 1,661-acre tract on approach to the bombing target site on the Pueblo of Isleta property. The land was returned to the POL at the expiration of

the agreement on June 30, 1960 (Keres, 2012). The U.S. Air Force conducted a clearance of the Los Lunas Air Force Range and issued a Certificate of Clearance on October 24, 1961. The POL has designated this area as the S-1 Spotting Area Site (as documented in the Native American Management System for Environmental Impacts).

The type of JATO motors located at the Los Lunas Air Force Range match some of the motors identified at the POL JATO sites. A JATO motor is an auxiliary jet or rocket system that provides additional thrust to aid aircraft takeoff. After World War II, JATO motors were in common use on military aircraft, including jets and cargo planes. JATO motors have also been observed at PBR S-12, located approximately 5 miles to the southwest of the site. The motors may be present on POL land due to the training activities associated with the Los Lunas Air Force Range, or may have been dropped at these sites as a result of aircraft transitioning into and out of KAFB. The other munitions items noted at PBR S-1/Los Lunas Air Force Range have not been observed at the site to date.

1.4.1 Site Inspection / Archaeological Survey

In June 2013, ARCADIS conducted a site inspection at the site, including a visual survey of 86.26 total acres (approximately 12 percent [%] of the accessible site acreage) and the collection of seven discrete surficial (0 to 0.5 foot) soil samples, two deeper (1.5 to 2 feet) discrete soil samples, and two duplicate soil samples.

The visual survey identified seven JATO motors, which corresponded to similar findings from the Step Site Assessment Reports for the site. Four additional MPPEH items were observed during the visual survey, including an M1A1 fuse from an M38A2 practice bomb, an AN-M26 aircraft parachute flare, and two unidentified items. The M1A1 fuse and AN-M26 flare are World War II-era munitions items and may be associated with the use of PBR S-1, located approximately two miles to the east on the Pueblo of Isleta (ARCADIS, 2013).

Inspection of the JATO motors indicated they were not breached by the impact with the ground and the interiors could not be visually inspected. As such, they are considered MPPEH due to the potential for residual propellant within the motor. Analytical results indicated no concentrations of munitions constituents above screening criteria.

Ecosystems Management Inc. completed an archaeological survey of the JATO-1 in February and March 2013, locating seven archaeological sites (Figure 1-2). These sites were uploaded to GPS and were avoided by project teams during the removal field work at JATO-1.

1.5 Technical Approach

The scope for this effort is defined in the Independent Services Agreement issued by the POL and described in the Munitions and Explosives of Concern and Munitions Debris Clearance on JATO No. 1 Work Plan (Arcadis, 2017). The objective of the surface clearance removal action at this site was to locate and remove potential MEC, MPPEH, MDEH, MD, and RRD on the ground surface from a selected area of the JATO-1site as well as remove previously identified MPPEH.

The following tasks were previously conducted during surface clearances at other Kirtland Army Airfield PBRs, and information obtained were utilized during this effort:

- Prepare ESS – The Final ESS for previous surface clearances at PBRs N-9, N-10, and N-11 were prepared in accordance with DDESB requirements and submitted and approved by the POL March 19, 2009. Based on discussions with the POL during the kickoff meeting, the ESS for these sites is applicable to the work at JATO-1, given the similarities in munitions type and planned removal actions (surface clearances). As such, the ESS was adapted for use on JATO-1, with site-specific changes made to account for the physical site conditions. The adapted ESS was provided in the Final Removal Action Work Plan and approved by the POL. Note DDESB approval of the ESS was considered optional since the project is managed by the POL.
- Archaeological and Cultural Survey, Mapping and Recordation– Ecosystems Management Incorporated completed an archaeological survey of portions of the JATO-1subject to this removal action. An archaeological survey had not been conducted in planned surface clearance area (Task 4) to the east and up to the Rio Puerco. The NALEMP Specialist on-site during surface clearance activities monitored the area for cultural resources during field activities.

The following major tasks were conducted as part of this effort:

- Prepare Planning Documents (Work Plan) – As part of the MD / MEC Surface Clearance Work Plan tasks listed in the October 2016 Statement of Work, ARCADIS developed a Munitions and Explosive of Concern and Munitions Debris Surface Clearance Work Plan detailing the specific surface clearance activities to be conducted at the site. In accordance with USACE requirements, the work plan also included corresponding component plans, including a technical management plan, field investigation plan, quality control plan, explosives management plan, and health and safety (H&S) plans (Accident Prevention Plan and Site Safety and Health Plan). The work plan was approved March 2017.
- MEC Surface Clearance/ MD Removal – ARCADIS conducted surface clearance activities on 732-acres. The surface clearance action conducted on July 24-28 and July 31-August 4, 2017. MPPEH and RRD consolidation was conducted on August 4, 2017. Work included MD inspection, sorting, and certification. All work was completed as of August 11, 2017, and is detailed in this Removal Action Report.

1.6 Final Report Organization

This Removal Action Report generally follows the requirements of USACE Data Item Description MR-030, Site Specific Final Report. The report consists of the following six chapters and seven appendices:

Chapter 1: Introduction

Chapter 2: Discussion

Chapter 3: Documentation

Chapter 4: Tests

Chapter 5: Summary

Chapter 6: References

The removal action report also contains eight appendices:

Appendix A: Scope of Work

Appendix B: ESS

Appendix C: Quality Documentation and Letter of Completion

Appendix D: Disposal Documentation

Appendix E: Daily Site Activity Reports / Photographs

Appendix F: Ordnance Technical Data Sheets

Appendix G: Demolition Shot Records

Appendix H: Munitions Response Site Prioritization Protocol

2 DISCUSSION

2.1 Site Preparation Activities

The Arcadis field teams mobilized to the site on July 24, 2017. Site boundaries for the 732-acre surface clearance area were previously determined using the project Geographic Information Systems (GIS) data and documented in the JATO #1 Munitions and Explosive of Concern and Munitions Debris Surface Clearance Work Plan (Arcadis 2017). The surface clearance boundary was placed over the portion of JATO-1believed to have the greatest probability of containing higher concentration of MD.

The extent of the clearance areas were uploaded into a handheld Global Positioning System (GPS) unit (Trimble Geo7X), used by Arcadis site personnel to navigate to the planned grid corner locations. The GPS was used throughout the clearance to ensure the sweep team covered the prescribed area.

One lockable Conex container was delivered to an area on POL land. The Conex container was used for storage of equipment and for processing, inspecting, certifying, and storing MDAS recovered during the removal action. This area (the site storage area) was used for daily safety meetings and to discuss the operations to be conducted each day.

Port-a-johns were also set up at the site storage area for use during field activities. Equipment including a Utility vehicle (UTV), White's All Metals detectors, buckets, radios, and shovels were placed in the lockable roll-off container. The site layout is depicted in Figure 1-2.

2.2 Surface Clearance Operations

Surface clearance operations were initiated at JATO-1on July 24, 2017. Site-specific training and operational briefs were provided to all field personnel in accordance with the work plan, Accident Prevention Plan, Site Safety and Health Plan, and ESS to provide an initial review of the project scope, reporting procedures, and H&S requirements. All personnel designated as unexploded ordnance (UXO) sweep personnel (UXOSP) were also provided UXOSP training in accordance with the requirements of DDESB Technical Paper 18 which is further described below. Daily safety tailgate meetings were held at the site storage area prior to each day's clearance activities to discuss various site hazards including explosives, slip/trip/fall situations, weather, hydration, heat-related illnesses, and biological hazards.

The sweep team consisted of a Senior UXO Supervisor (SUXOS), UXO Safety Officer/Quality Control Specialist (UXOSO/QCS), UXO Technician III (UXO III), two UXO Technician II (UXO II) and eight UXOSP. The POL NALEMP Specialist (and qualified UXO I), Mr. Sabin Chavez, was onsite and conducted daily quality assurance (QA) oversight of the project for assessment of POL contractual requirements.

UXO technicians provided training to the UXOSP on the first day of the surface clearance operations at JATO-1. Under the direction of the SUXOS, the surface clearance crews were trained to use visual search methods. Practice surface clearances were conducted outside the range area to train the team in the level of concentration required to visually recognize potential hazards and the practical aspects of how to operate as members of a sweep team. Verbal and practical UTV safety training was also conducted.

The UXO personnel began surface clearance operations at the southern boundary of the project site, moving westward from the fence that bisects the clearance area. At the west end of the site, the team reversed direction and cleared back to the fence. On each pass, the clearance team would pick up MD and place it in buckets carried throughout the pass. The MD was then transferred to the UTV or buckets for inspection before storage of the MD. This method continued until all required clearance was complete on the west side of the fence. The team then moved to the east side of the fence and cleared the area between the fence and the Rio Puerco. A safety standoff of 30 feet from vertical walls was maintained at all times by all team members whenever the team approached the Rio Puerco.

The surface clearance teams systematically cleared the area using a minimum of a 5-foot (maximum of 15-foot) separation distance between each individual, visually inspecting the ground surface. The clearance line would expand and contract as required to meet visibility and terrain/vegetation requirements. In order to systematically clear the range, the outside UXO technician placed a white pin flag every 200-feet at the outside edge of the clearance lane to mark the end of the lane.

Once the clearance team completed the first lane, the team would shift over to line up with the previously placed white pin flags and the inside personnel would remove the white pin flags as the team progressed along the line. The outside UXO technician marked the outer edge of the new clearance lane. This process was repeated until the range area had been completely covered by clearance line personnel.

Figure 1-2 details the route taken during the entire clearance as recorded via hand carried Trimble Geo7X. The route depicted on Figure 1-2 is an approximate path because the UXO personnel carrying the Geo7X were required to move from one end of the clearance line to the other while crossing the clearance area.

A UTV or buckets were used to consolidate MD and RRD recovered from the clearance lane and transport it to the site storage area. MD and RRD were picked up by the field personnel as they were encountered. Any metallic object encountered was inspected by qualified UXO personnel to ensure the item was free from explosive material before it was loaded into the UTV or buckets. If multiple UXO personnel were engaged prosecuting suspect items, the clearance team was stopped; clearance operations were not restarted until investigation of the suspect items was complete. MD and RRD items were collected to the size specifications required by the POL NALEMP Specialist. Items small enough to require a rake for effective removal were not included in the clearance.

All munitions inspections were conducted by two qualified UXO personnel. The first inspection occurred when the item was located and before being placed in the UTV or bucket. If, after picking up the item, an additional item was located beneath the first item and it was below the ground surface, it was marked with a red pin flag and was further investigated by qualified UXO personnel.

Inspection of a minimum of 10% of the recovered MD and RDD was performed by the UXOSO/QCS to verify the inspection and verification processes were being conducted as required. At the completion of each day's surface clearance activities, recovered MD and RRD (which had received the initial inspections) was placed in the UTV or buckets and transported to the lockable Conex storage container.

The second inspection was conducted at the sorting and inspection area at the Conex storage container by two qualified UXO personnel and certified by the SUXOS. When the inspection process was completed for the day, the Conex storage container was locked and sealed. The key was maintained by the SUXOS.

Each day, the UXOSO/QCS conducted a minimum 10% Quality Control (QC) check of the lanes swept by UXO personnel that day. The UXOSO/QCS performed this QC measure by ensuring all MEC, MPPEH, MDEH, MD, and RRD items were identified and collected from sweep lanes previously searched. QA of the surface clearance sweep lanes was conducted by the NALEMP Specialist.

Removal of debris from the subsurface was not conducted; activities were limited to surface clearance only for this effort. If, however, part of an item was located on the surface but partially or mostly covered by soil, the item was flagged and a qualified UXO technician conducted limited excavation as necessary to inspect and remove the partially covered item.

A 1,352-foot exclusion zone was maintained around site operations at all times which included the temporary sorting and inspection area when MD and RRD sorting and inspection operations were underway. Two qualified UXO technicians inspected and certified all MD and RRD as MDAS using visual inspection procedures in compliance with USACE Engineer Manual (EM) 385-1-97. MD and RRD was only transported from the surface sweep area to the sorting and inspection area after it was inspected by qualified UXO personnel and identified as acceptable to move and free from explosives. Each item was re-inspected at the sorting and inspection area by qualified UXO personnel.

MD and RRD was segregated from other metallic debris. MD and RRD that was 100% visually inspected by two qualified UXO personnel and determined to be MDAS was locked and sealed in a Conex storage container within the temporary sorting and inspection area at the end of each day. All MD and RRD was inspected, certified, and disposed of in accordance with USACE EM 200-1-15 and 385-1-97. This inspection was certified on disposal documentation with the following statement: “This certifies and verifies that the MD and RRD listed has been 100 percent properly inspected and to the best of our knowledge and belief, is free of explosive hazards.”

2.3 MD Removal Operations

MD consolidation was accomplished on August 4, 2015. A 6-inch end section of a fin or wing was found that could be a military item could possibly be from a missile, drone, or aircraft. (Figure 1-2). All surficial items were recovered during the 732-acre surface clearance. The investigation resulted in removal or recovery of half a pound of MEC/MPPEH/MDEH. Chemical Warfare Materiel is not suspected to be present on JATO-1.

The demolition area was selected based on its lack of vegetation and the ability to secure the area from all approaches during demolition operations. The practice bomb was placed in a hole designed to hold it at a depth such that the top of the practice bomb was even with the ground surface. Eight-three quarter pound cast boosters placed longitudinally along the weakest axis of the practice bomb were detonated to affect the venting operations. The practice bomb was then covered with sandbags to mitigate the effects of possible fragmentation.

2.4 Results of the Removal Action

The surface clearance action for the 732-acre area was conducted on July 24-28 and July 31 - August 4, 2017. MD consolidation was conducted on August 4, 2017. No MEC, MPPEH or MDEH were encountered during the course of the surface clearance. The possible single MD item located during the clearance was associated with possibly a missile, drone, or aircraft.

All MDAS collected on-site was transported to a qualified recycling facility, ACE Metals Recycling, for disposal. The material was transferred to the recycler on August 11, 2017 and shredded while the SUXOS was at the facility. The MDAS transfer was documented on DoD Form 1348-1A (Appendix D).

The POL NALEMP Specialist issued a letter to ARCADIS confirming the surface clearance was conducted and completed in accordance with the ESS and work plan. The completion letter is provided in Appendix C.

2.5 Tracking and Disposition of Ordnance Found

All MD removed during surface clearance operations was given a weight estimate on-site, inspected, and containerized in the lockable Conex storage container as MDAS. The field team estimated approximately 1 lb. of MD were recovered from JATO-1during the surface sweep, as shown in the Daily Activity Reports provided in Appendix E. The RRD consisted of barb wire, baling wire, soup cans, and other assorted metal trash. After all site activities were completed, the MDAS was taken to ACE Metals Recycling to be recycled as scrap metal. The disposal ticket and chain-of-custody form in Appendix D indicate 30 lbs. of MDAS was collected in total from JATO-1(1lb) and Target S-1 (29 lbs.) and turned in for recycling.

2.6 Demobilization

Surface clearance operations on JATO-1were completed on August 4, 2017. All equipment was removed from the site at this time with the exception of the empty Conex. This item remained on site until it was retrieved by the rental agency on August 11, 2017. The NALEMP Specialist indicated this short delay in removal was acceptable as long as a POL representative was present during the removal of the Conex box from POL land. Five ARCADIS UXO technicians demobilized on August 4, 2017 followed by the SUXOS, UXOSO/QCS and UXO III on August 11, 2017 once demolition and MDAS delivery was completed.

3 DOCUMENTATION

3.1 Maps

Project maps were developed in GIS format utilizing spatial data previously generated for the POL, using aerial photography and GPS data obtained in the field. GPS units were used in the field to track progress of the surface clearance activities. Data obtained from the GPS units was processed and converted to GIS-compatible formats to be used in the project maps. Project maps are included as attachments to this document.

3.2 Daily Site Activity Reports

The SUXOS completed Daily Activity Reports each day of the surface clearance activities that included the following information:

- Weather
- Personnel on-site
- Visitors
- Daily activities
- Progress of Operations
- QA/QC areas completed
- Summary of material recovered in pounds
- Daily H&A Briefing
- Inspections
- Miscellaneous notes

The Daily Activity Reports are included in Appendix E.

3.3 Site Quality Documentation

The UXOQCS developed a Weekly Quality Control Report (Appendix C), which included the following information:

- Date and recorder of field information
- Work accomplished
- QC sweep results
- Relevant events
- Signature of the UXOQCS

3.4 Site Safety Documentation

Safety documentation included:

- Date and recorder of log
- Tailgate safety briefing
- Weather conditions, significant site events relating to safety, accidents, stopping work due to safety issues, and safety audits
- Signature of UXOSO/QCS

No injuries or H&S incidents occurred during the performance of the clearance operation.

3.5 Ordnance Disposal

MEC, MPPEH or MDEH were not found during the surface clearance at JATO-1.

The MD and RRD collected during daily field operations was managed as described in Sections 2.2, 2.3, and 2.4. At the completion of the clearance action, the POL NALEMP Specialist conducted a QA of the sorted material prior to transport to ensure POL required contractual quality standards were met. The MDAS was transported to ACE Metals for shredding (under the supervision of the SUXOS) and recycling as scrap metal. Refer to Appendix D for MDAS disposal documentation, including DoD Form 1348-1A.

3.6 Photographs

Site photographs are included in a photographic log after the Daily Activity Reports in Appendix E.

4 TESTS

4.1 Quality Control / Quality Assurance

QC procedures were developed for this project - driven by contractual, safety requirements, and standards - accepted in the past as industry standards. QC checks were performed internally by the project UXOSO/QCS to control and monitor work processes for the purposes of validating quality standards, as specified in the contract. QC procedures utilized in the effort are described in Section 4 of the JATO #1 Munitions and Explosive of Concern and Munitions Debris Surface Clearance Work Plan (Arcadis, 2017). QA initiatives were performed by the POL to assure quality standards are in strict compliance with the contractual specifications.

4.2 Quality Control

The QC conducted for the project included process and product QC.

4.2.1 Process Quality Control

Process QC includes improving efficiency and effectiveness of the processes. Process QC is a preventative approach intended to identify inconsistencies and problems early, and, if necessary, make adjustments to the processes before submittal of the final product. The process QC for this surface clearance action included Preparatory Phase Inspections, Initial Phase Inspections, and Follow-Up Phase Inspections on the key processes.

4.2.2 Preparatory Phase Inspection

Preparatory phase inspections were performed before beginning each key process. The purpose of these inspections was to review applicable specifications and verify the necessary resources, conditions, and controls were in place and compliant before the start of the work. The following QC actions were performed by the UXOSO/QCS for the preparatory phase inspection:

- Verified the appropriate plans (e.g., work plan, H&S plan, ESS) and procedures had been developed, approved, and made available to the field team,
- Verified the field personnel met the requirements and qualifications for the work to be performed,
- Verified the appropriate training had been conducted prior to initiating the work,
- Verified the necessary field equipment was functional and proper for the work,
- Verified the preliminary work (e.g., establishment of MD sorting area, staking site boundaries) had been completed,
- Verified the JATO #1 Munitions and Explosive of Concern and Munitions Debris Surface Clearance Work Plan had been reviewed and understood by the field team.

The UXOSO/QCS discussed the hazards associated with the work performed with the field personnel and verified the necessary safety measures were in place for the work to be performed at the site. Field

equipment checks were conducted on the GPS unit and the hand-held magnetometers. Before each day of use, the functionality of GPS equipment, relative to a known control point, was established (vertical control or topography was not confirmed).

4.2.3 Initial Phase Inspections

An initial phase inspection was performed the first time any technique was implemented at the site. These inspections were conducted to check preliminary work for compliance with procedures detailed in the JATO #1 Munitions and Explosive of Concern and Munitions Debris Surface Clearance Work Plan and the associated Accident Prevention Plan and Site Safety and Health Plan. Initial phase inspections were also conducted to establish the acceptable level of performance and confirm safety compliance. The following were performed for each technique used during the field activities:

- Correction of any deficiencies or discrepancies identified during the preparatory phase,
- Establishment of the acceptable level of performance,
- Completion of any equipment training,
- Completion of any safety training or briefing,
- Review of the JATO #1 Munitions and Explosive of Concern and Munitions Debris Surface Clearance Work Plan and confirmation all requirements were met,
- Observation of the performance of work, and confirmation the quality of work was at the established acceptable level.

The acceptable level of performance is defined as:

- Recovery of all encountered MEC/MPPEH/MDEH and all MD/RRD (greater than two inches) from the ground surface within the 732-acre clearance area,
- Recovery of all MEC/MPPEH/MDEH from the outer clearance areas as directed by the POL NALEMP Specialist,
- Pass a 10% QC check of all clearance lanes (no MEC/MPPEH/MDEH or MD/RRD within a cleared lane),
- Inspection of 100% of recovered MD/RRD and certification as MDAS.

4.2.4 Follow-Up Phase Inspections

Follow-up phase inspections ensured compliance with the established acceptable level of performance for work performed at the site for the surface clearance field activities.

The UXOSO/QCS and any designees were responsible for monitoring the performance of surface clearance operations that took place. They also performed the verification of continued compliance with any specifications and requirements in the Removal Action Work Plan and applicable safety documents.

During the surface clearance activities, the UXOSO/QCS performed, at a minimum, a 10% visual surface sweep of all areas surface swept each day. The UXOSO/QCS would walk behind the surface sweep teams in a zigzag pattern, ensuring the appropriate MD and RRD had been removed from the surface,

and the field activities were being performed to specifications outlined in the JATO #1 Munitions and Explosive of Concern and Munitions Debris Surface Clearance Work Plan. The UXOSO/QCS, field team leader, and SUXOS would also re-inspect any collected MD and scrap at the end of each day to ensure it was all of appropriate size and did not contain an explosive hazard.

4.2.5 Search Effectiveness Procedure

QC procedures were incorporated into this surface clearance action to ensure effectiveness. The GPS unit and analog detection instruments were tested for viability daily and the field team received training on the proper use of the equipment. Each day's progress was checked against GPS measurements, staked site boundaries and known physical landmarks to ensure 100% coverage of the clearance area. Also, the UXOSO/QCS and designees searched the area swept by the field team to ensure an acceptable level of removal was maintained.

4.2.6 Demolition Quality Control

No demolition operations related to the surface clearance at JATO-1 were conducted.

4.2.7 Product Quality Control

Product QC involves an inspection on the final product as a result of the surface clearance removal. The UXOSO/QCS performed surveillance and evaluation of equipment checks, clearance procedures, tailgate briefings, and daily reporting, in accordance with the Removal Action Work Plan. This documentation was submitted daily to the Project Manager, and verbally discussed with the POL NALEMP Specialist, to ensure the appropriate level of communications on project status. Product QC also consisted of the MD inspection and certification process, conducted in accordance with USACE EM 385-1-97 and USACE EM 200-1-15, as described in Section 2.2.

4.2.8 Quality Control Acceptance Criteria

The surface clearance operations performed at JATO-1followed the protocols contained within the Quality Control Plan section of the Removal Action Work Plan. The 734-acre boundary was divided into sweep lanes, and the lanes were swept by the field team. The acceptance criteria included that all lanes swept by the teams pass the QC check; in the event of a QC failure, search lanes were completely re-cleared until they passed. The acceptance criteria also included the completion of clearing the entire 732-acre area, which was verified in the completion letter provided by the POL NALEMP Specialist.

4.2.9 Results of Quality Control

The GPS unit used on the project passed all equipment function checks each day. In the field, the UXOSO/QCS conducted a minimum 10% (and often 30%) QC check on the sweep lanes at JATO-1All search lanes passed the QC requirements following the initial sweeps.

The UXOSO/QCS and SUXOS performed a QC check on the sorting and inspection process at the lockable Conex storage container at the end of each day, to ensure MD transported to the sorting and inspection area did not possess an explosive hazard. Chain-of-custody documentation was maintained

for MDAS through transportation and transfer of the material to the metal recycler. The POL NALEMP Specialist conducted project QA of the sorted material before transportation. The POL issued a completion letter confirming all surface clearance actions were completed for JATO-1.

All QC procedures are documented in the Daily Quality Control Reports provided in Appendix C.

5 SUMMARY

The Arcadis project team performed a surface clearance removal action for MD and MEC at JATO-1 in Valencia County, New Mexico in July and August of 2017. The field activities began with a mobilization of personnel to the site on July 24, 2017. Qualified UXO personnel conducted surface sweeps across the 732-acre clearance area. The sweep teams systematically swept the area using a minimum 10-foot (maximum 15-foot) separation distance between each sweeper, visually inspecting the ground surface 5 feet on either side of each individual.

The majority of the MD recovered from the surface clearance operation consisted of debris such as barbed wire and bailing wire. All munitions recovered from JATO-1were classified as MDAS; no MEC, MPPEH, or MDEH was found during the surface clearance.

MD was segregated from other metallic debris. MD was only transported from the surface sweep area to the sorting and inspection area after it was inspected by qualified UXO personnel and identified as acceptable to move and free from explosives. MD was re-inspected at the sorting and inspection area by qualified UXO personnel. MD that was 100% visually inspected by two qualified UXO personnel and determined to be free of explosives was classified as MDAS. Then it was separated from other metallic debris and locked in a Conex container within the temporary sorting and inspection area at the end of each day. All MDAS was inspected, certified, and disposed of in accordance with USACE EM 200-1-15.

Upon completion of this work the MDAS collected at JATO-1was transported to a qualified recycling facility, ACE Metals Recycling in Albuquerque, New Mexico, on August 11, 2017. A total of 1 lbs. of MDAS recovered during the surface clearance and removal actions was turned over to the recycling facility (delivered with Target S-1 findings (29 lbs.) for a total of 30 lbs.). Field operations at JATO-1were completed on August 11, 2017. The work was performed in accordance with the approved JATO #1 Munitions and Explosive of Concern and Munitions Debris Surface Clearance Work Plan prepared by Arcadis and under the POL-approved ESS for the site, adapted from the previously prepared ESS for PBRs N-9, N-10 and N-11. Site operations met all QA/QC requirements during the surface clearance. A letter of completion was issued by the POL NALEMP Specialist and project QA verifying the surface clearance operations on JATO-1were satisfactorily completed.

6 REFERENCES

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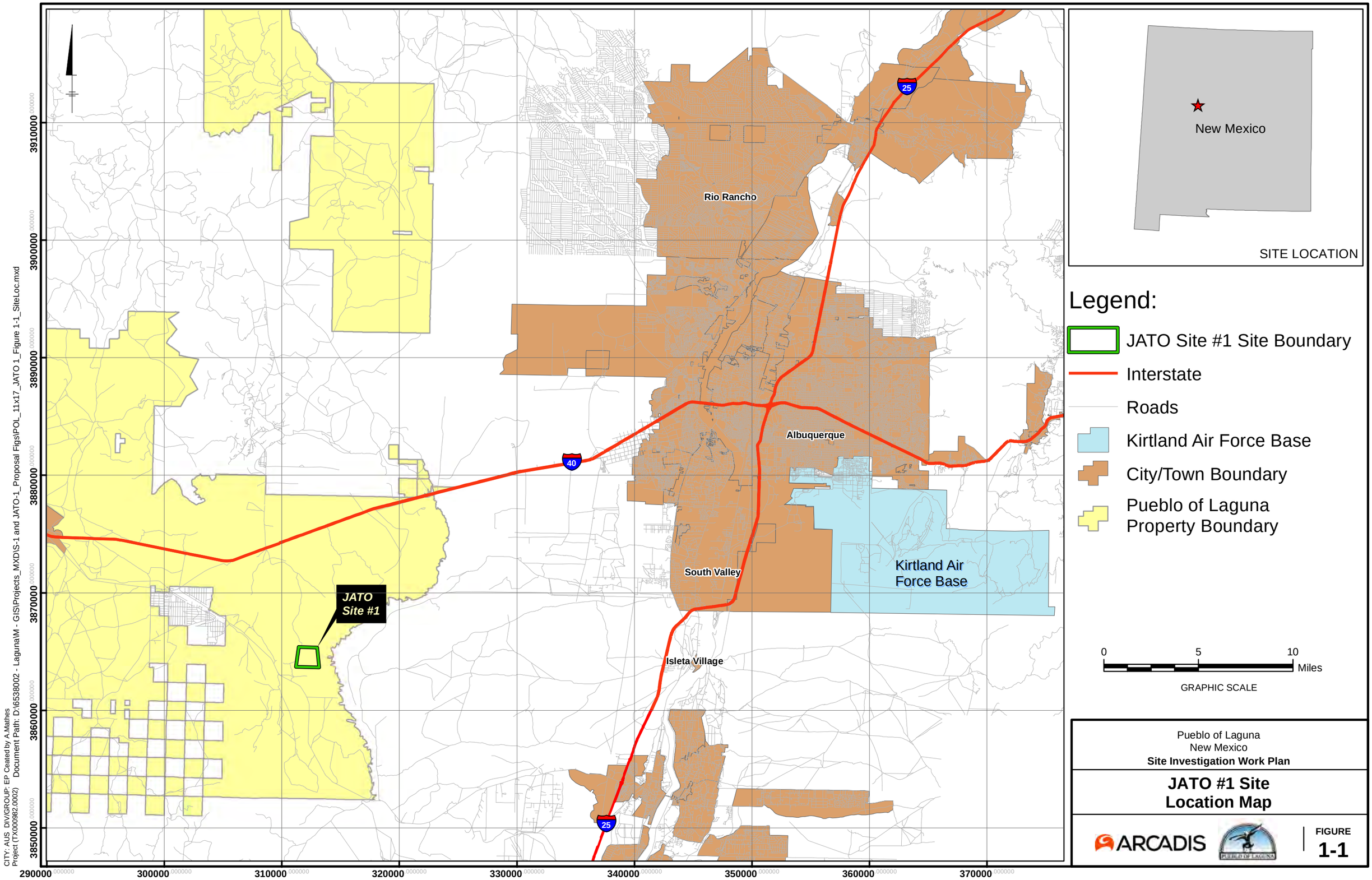
FIGURES

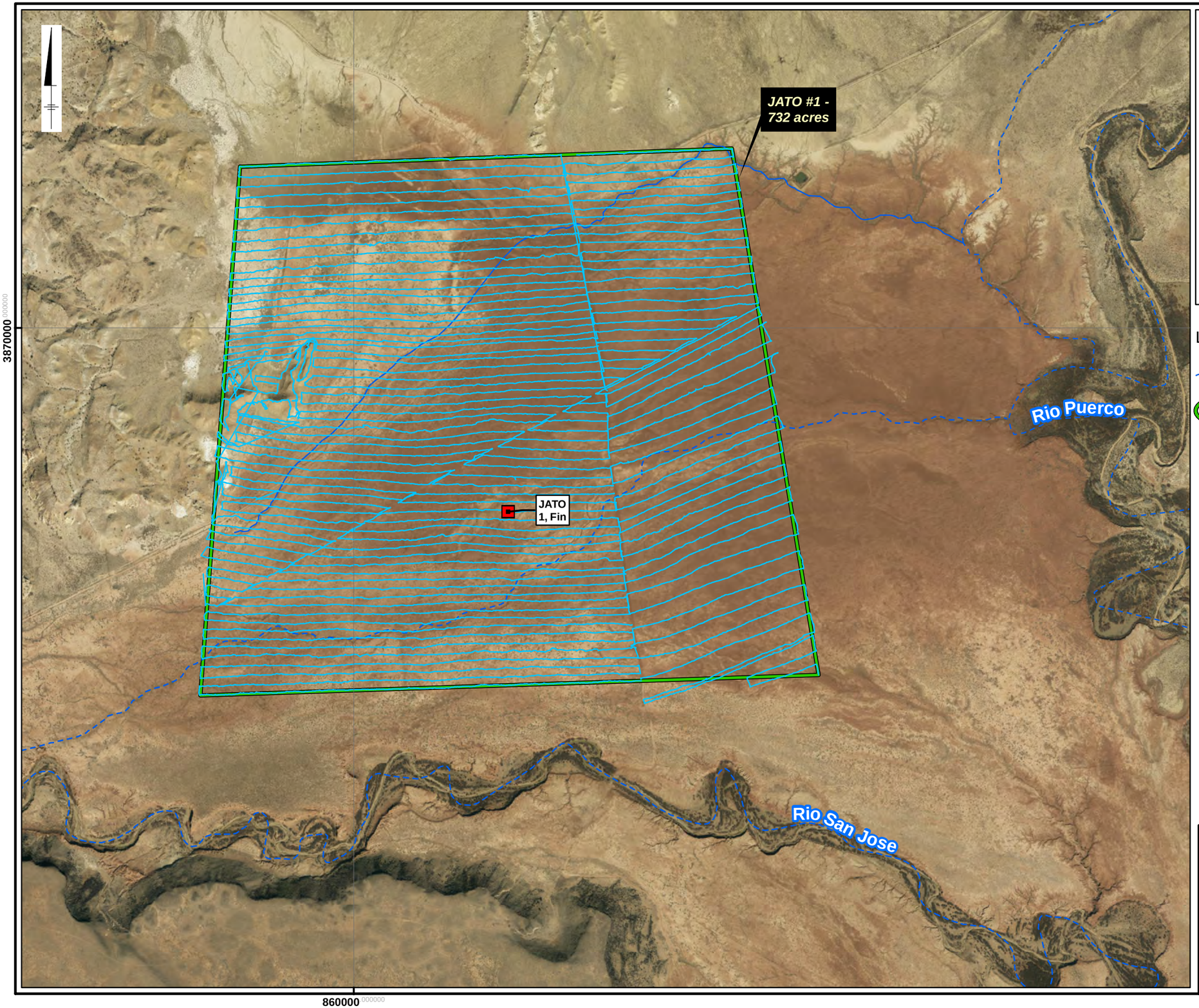


Pueblo of Laguna
New Mexico
Site Investigation Work Plan

JATO #1 Site Location Map

ARCADIS

FIGURE
1-1



Legend:

- Stream
- JATO Site #1 Site Boundary - 732 acres
- MD Location
- Survey Transect

0 1,000 2,000 Feet

0 0.25 0.5 Miles

GRAPHIC SCALE

Pueblo of Laguna
New Mexico
Site Investigation Work Plan

JATO #1 Site Layout Map

ARCADIS

FIGURE
1-2

CITY: AUS DIV/GROUP: EP Created by A.Mathes
Project (TX000982.0002) Document Path: D:\6538002 - Laguna\M - GIS\Projects_MXD\S-1 and JATO-1_Proposal Figs\JATO_Figure 1-2_rev2.mxd

APPENDIX A

Scope of Work

PUEBLO OF LAGUNA

NOTICE TO PROCEED

Arcadis U.S., Inc.
630 Plaza Drive, Suite 200
Highlands Ranch, CO 80129

PROJECT
Pueblo of Laguna NALEMP

MEC and MD Surface Clearance of JATO Site No. 1 and Kirtland Air Force Base, Precision Bombing Range 14, Target S-1

ISA / $416,407.98

Pursuant to the terms of the Independent Service Agreement Contract, dated January 5, 2017 for the *JATO Site 1 and KAFB PBR 14, Target S-1*, you are hereby notified to commence the process and procedures for the mitigation projects listed above and there under at the start of business on **January 17, 2017**. The timeframe for completion of the all **Final** reports is 16 months which establishes May 31, 2018 as the completion date.

Please acknowledge receipt of this Notice to Proceed by signing and dating and returning this notice to the Pueblo of Laguna, NALEMP Office.

Sincerely,

PUEBLO OF LAGUNA

Jim Hooper, Jr.
Chief of Operations

ACCEPTED:

Arcadis U.S., Inc.

By: _____
John P. Sparks, Vice-President

16-JAN-17
Date

APPENDIX B

Explosive Safety Submission

EXPLOSIVES SAFETY SUBMISSION

MILITARY MUNITIONS RESPONSE PROGRAM
MUNITIONS AND EXPLOSIVES OF CONCERN (MEC) AND MUNITIONS DEBRIS (MD) SURFACE CLEARANCE

JATO Site #1
PUEBLO OF LAGUNA

April 2017

Pueblo of Laguna Tribe

EXPLOSIVES SAFETY SUBMISSION

PUEBLO OF LAGUNA
NATIVE AMERICAN LANDS ENVIRONMENTAL MITIGATION PROGRAM
MEC AND MD SURFACE CLEARANCE
JATO SITE #1

POL Independent Services Agreement

Reviewed and Approved by:

Sabin Chavez
Pueblo of Laguna
NALEMP Specialist

Wayne Patterson, PG
Project Manager
Arcadis U.S., Inc.

Arcadis, U.S. Inc. prepared this document at the direction of the Pueblo of Laguna NALEMP Specialist, following requirements of the United States Army Corps of Engineers (USACE).

TABLE OF CONTENTS

ACRONYMS ..... **II**
BACKGROUND **1**
1.1 SITE LOCATION 1
1.2 SELECTED MUNITIONS RESPONSE ACTIONS 1
1.3 SIGNIFICANT DIFFERENCES IN MUNITIONS RESPONSE ACTIONS 1
1.4 MAPS 1
1.5 EXPLOSIVE SAFETY QUANTITY-DISTANCE 2
1.6 LOCATIONS OF OPERATIONS 2
1.7 MUNITIONS WITH THE GREATEST FRAGMENTATION DISTANCE 3
1.8 MAGAZINE STORAGE 3
1.9 PLANNED OR ESTABLISHED DEMOLITION AREAS 3
TYPES OF MEC **3**
START DATE **3**
MIGRATION OF MEC **3**
DETECTION EQUIPMENT AND REPSONSE TECHNIQUES **3**
1.10 DETECTION EQUIPMENT 3
1.11 MUNITIONS DEBRIS PROCESSING 3
1.12 REMOVAL DEPTH 4
LIMITATIONS **4**
1.13 Terrain and Soil Limitations 4
1.14 Demolition Area 4
1.15 Footprint Areas 4
DISPOSITION TECHNIQUES **4**
1.16 DEMOLITION OPERATIONS 4
1.17 Transportation 5
1.18 Alternative Disposal Techniques 5
TECHNICAL SUPPORT **5**
RESIDUAL RISK MANAGEMENT **5**
1.19 LAND USE RESTRICTIONS — 5
STAKEHOLDER INVOLVEMENT **6**
CONTINGENCIES **6**

LIST OF TABLES

Table 1.5-1 Minimum Separation Distances (MSDs) 2

LIST OF APPENDICES

Appendix A: Mk 83 GPLD Bomb, Minimum Separation Distance Data Sheet

ACRONYMS

amsl	above mean sea level
BIP	Blown in Place
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CWM	Chemical Warfare Material
DDESB	DoD Explosives Safety Board
DoD	Department of Defense
ESQD	Explosive Safety Quantity Distance
ESS	Explosive Safety Submission
FDRF	Fragmentation Data Review Form
ft	Feet
GPLD	General Purpose Low Drag
HFD	Hazardous Fragment Distance
IAW	In Accordance With
JATO	Jet-Assisted Take Off
JIT	Just-in-Time
lbs	Pounds
MD	Munitions Debris
MDAS	Material Documented as Safe
MDEH	Material Documented as an Explosive Hazard
MEC	Munitions and Explosives of Concern
MFD-H	Maximum Fragment Distance – Horizontal
MGFD	Munition with the Greatest Fragmentation Distance
MPPEH	Munitions Potentially Presenting an Explosive Hazard
MSD	Minimum Separation Distance
NALEMP	Native American Land Environmental Mitigation Program
NM	New Mexico
PBR	Precision Bombing Range
POL	Pueblo of Laguna
SUXOS	Senior UXO Supervisor
TP	Technical Paper
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
UXO	Unexploded Ordnance
UXOSO	UXO Safety Officer

BACKGROUND

Jet-Assisted Take Off (JATO) Site #1 is the focus of this selected munitions response Explosives Safety Submission (ESS) in support of the munitions and explosives of concern (MEC) and munitions debris (MD) surface clearance.

This ESS covers removal of remaining military munitions to include: munitions and explosives of concern (MEC), munitions potentially presenting an explosive hazard (MPPEH), and munitions debris (MD) remaining at the site. This removal effort will be conducted through the Native American Lands Environmental Mitigation Program (NALEMP).

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) compliance is not met by this action, but the framework of the process will be substantially followed throughout the project. The removal action is being conducted to address hazards from potential exposure to MEC on JATO Site #1.

The Pueblo of Laguna (POL) holds a cooperative agreement with the U.S. Department of Defense (DoD) NALEMP for the assessment and mitigation of environmental impacts to Native American Lands resulting from former activities of the DoD. The surface clearance activities described in this ESS is funded under the contract agreement between the POL and the DoD; the Albuquerque District of the U.S. Army Corps of Engineers (USACE) works on behalf of the POL to administer this agreement. The POL will oversee Arcadis on this project.

This ESS was adapted from a previous ESS for similar work conducted in 2016 for JATO #2. The same contractor team prepared the 2016 ESS and conducted the work at this similar former range.

1.1 SITE LOCATION

JATO Site #1 is located in Valencia County, New Mexico, about 29 miles southwest of Albuquerque. The site consists of approximately 732 acres, located in the territory of POL.

1.2 SELECTED MUNITIONS RESPONSE ACTIONS

The munitions response action selected for JATO Site #1 is a MEC and MD surface clearance. The objective of the surface clearance is to remove MEC, MPPEH, and MD that is currently present across the area within JATO Site #1. Site work will include surface clearance of the 732 acres that make up JATO Site #1 as indicated in the MEC and MD Surface Clearance Work Plan (Work Plan).

1.3 SIGNIFICANT DIFFERENCES IN MUNITIONS RESPONSE ACTIONS

Several previous investigations have been completed at JATO Site #1 (see Section 1.7 of the Work Plan). No significant differences in the current or reasonably anticipated future land use of different sections of the property are anticipated. As such, no significant differences in the types or conditions of MEC expected to be encountered are anticipated. Munitions previously identified at the site are detailed in Section 1.7. Items previously encountered at the site have generally been in poor condition due to exposure to elements and age.

1.4 MAPS

Figure 1-1 of the Work Plan shows the general location of JATO Site #1 and the surrounding area. Figure 1-2 of the Work Plan provides more detailed views of the site along with relevant site details.

1.5 EXPLOSIVE SAFETY QUANTITY-DISTANCE

Preliminary site work does not require the establishment of a minimum separation distance (MSD) for explosive safety quantity distance (ESQD) purposes; however, all personnel performing site work will be escorted by qualified unexploded ordnance (UXO) Technician(s). During activities where munitions may be handled, the MSD for essential and nonessential personnel will be applied. The MSDs for intentional detonations is 3,447 feet and the MSD for unintentional detonations is 816 feet. Essential personnel are defined as those on-site contractors and DoD personnel required to participate in the MEC actions of the removal action as well as authorized visitors. All other personnel are nonessential personnel. Positive control of the EZ will be maintained at all times when MEC operations are being conducted.

Table 1.5-1 Minimum Separation Distances (MSDs)

Area	MEC[2]	MSDs (feet)[1]				
		Unintentional Detonations		Intentional Detonations		
		Team Separation Distance (K40)	Hazardous Fragment Distance (HFD)	Without Engineering Controls (MFD-H)	Using Sandbag Mitigation[6]	Using Double Sandbag Mitigation
NALP JATO-1 MRS	1000 lb MK 83 GPLD Bomb	340	816	3447	Not Permitted	Not Permitted

Notes:
[1]See **Appendix A** for the Fragmentation Data Review Forms documenting the MSDs.
[2]Based on historical documents, H-6
[6]See **Appendix A** for required sandbag thickness (HNC-ED-CS-S-98-7, Amendment 2, November 2014), if applicable.

1.6 LOCATIONS OF OPERATIONS

JATO Site #1 is located in remote terrain. The surface clearance of JATO #1 will take place across the entire site within the designated boundaries indicated in Figure 1-2 of the Work Plan. MEC and MPPEH classified as Material Documented as an Explosive Hazard (MDEH) may be consolidated within the site for disposal. In the event such items are deemed unacceptable to move, they will be blown in place (BIP). MPPEH wil be inspected, processed, certified and verified in accordance with DoD 4140.62, Department of Defense Explosives Safety Board (DDESB) 6055.9-M Vol 7, and USACE EM 385-1-97, as being free of explosives, it will be controlled and containerized for transportation to a recycling facility.

1.7 MUNITIONS WITH THE GREATEST FRAGMENTATION DISTANCE

The Maximum Fragment Distance – Horizontal (MFD-H) and Hazardous Fragmentation Distance (HFD) was found using fragmentation data review forms (FDRF), updated on March 7, 2016 and listed in Appendix A for the Mk 83 general purpose low drag (GPLD) Bomb. JATO motors present at JATO Site #1 have been identified as Mk 7 MOD 1, however the fragmentation data review forms do not contain an entry for the Mk7 MOD 1 motor. The Mk 83 munition provides a conservative estimate for MSD when compared to the Mk 7 Mod 1 JATO motor.

MkMkMk

1.8 MAGAZINE STORAGE

Magazine storage will not be applicable to this project. Demolition of MEC and MDEH will be conducted using just-in-time (JIT) delivery of explosives.

1.9 PLANNED OR ESTABLISHED DEMOLITION AREAS

No dedicated demolition area is planned for this project. Acceptable to move MEC and MDEH may be moved within the site to coduct demolition operations on those items. Only items determined to be unacceptable to move by the senior UXO supervisor (SUXOS) and UXO safety officer (UXOSO) will be BIP.

TYPES OF MEC

Munitions and Explosives of Concern previously located on JATO Site #1 consists of Mk 7 MOD 1 JATO motors. As stated in paragraph 1.7, the Mk 83 GPLD bomb will be used for the purpose of establishing ESQD because information on the Mk 7 JATO motor is not available and the Mk 83 provides a conservative Munition with the Greatest Fragmentation Difference (MGFD). If the MGFD changes, the ESQDs will be adjusted, per DDESB Technical Paper 16 (TP16), activities will continue, and an amendment submitted to this ESS.

START DATE

The projected start date for the surface clearance fieldwork is June 12, 2017. This is based on the final approval of this ESS.

MIGRATION OF MEC

Munitions and Explosives of Concern may be potentially transported through erosive forces, primarily surface water runoff generated by precipitation. Average annual snowfall is 11.0 inches, while average annual rainfall is 9.81 inches; much of that rainfall occurs during brief, intense thunderstorms. These storms are capable of causing flash floods and severe soil erosion; there are arroyos within the vicinity of the sites. However, the POL NALEMP Specialist has indicated that little MEC has been observed in arroyos adjacent to the site.

DETECTION EQUIPMENT AND REPSONSE TECHNIQUES

1.10 DETECTION EQUIPMENT

Traditional detection equipment (Schonstedt GA-52CX or similar) will be used to locate MEC/MPPEH/MD on the surface.

1.11 MUNITIONS DEBRIS PROCESSING

After demilitarization operations are complete, two UXO Technicians will inspect and certify all MD as MDAS using a visual inspection procedure in compliance with USACE EM 1110-1-4009.

Demilitarization will be accomplished in accordance with DoD Demilitarization Manual DoD 4160.21-M-1.

MD that has been independently 100% inspected by two UXO personnel and determined to be Material Documented as Safe (MDAS) will be secured in a sealed, labeled and locked container staged for transportation to a qualified recycler.

1.12 REMOVAL DEPTH

There is no target removal depth for the activities that will be conducted at the site. This ESS only covers activities associated with the MEC/MPPEH and MD surface clearance.

LIMITATIONS

1.13 TERRAIN AND SOIL LIMITATIONS

The regional terrain of JATO Site #1 is made up of flat-topped mesas, steep rugged sandstone cliffs, and narrow rocky canyons. Typical altitude at the site is between 5,000 and 6,000 feet (ft) above mean sea level (amsl). JATO Site #1 slopes mildly downward toward the Rio Puerco to the east and significantly more abruptly rises to the northwest. The removal team will not approach within 30 feet of any vertical or nearly vertical geologic formation that could endanger personal health due to a fall. There are no terrain or soil limitations expected to impede this project.

1.14 DEMOLITION AREA

No dedicated demolition areas are anticipated for this project. Demolition/disposal of MEC/MPPEH will be conducted within the site but may be relocated to a central location for ease of the operation. To limit the impact to the sites, MEC/MPPEH will be disposed of using boosters or perforators as donor charges.At the completion of demolition operations the demolition area will be restored to their natural state. The MFD-H distance for all personnel during demolition operations will be established as discussed in Section 3.2.

1.15 FOOTPRINT AREAS

As previously indicated, demolition activities will all be conducted within the boundary of JATO Site #1.

DISPOSITION TECHNIQUES

1.16 DEMOLITION OPERATIONS

If disposal activities are required, they will be performed by TP-18 qualified UXO personnel with in the JATO-1 site where the item was found. The MSD for the intentional detonation for the 1000 lb MK 83 GPLD Bomb is included in **Table 1.5-1**.

Sandbags (HNC-ED-CS-S-98-7, Amendment 2, November 2014) or water mitigation (HNC-ED-CS-S-00-3) may be used to reduce the intentional detonation MSD. Tamping (single or multiple items) may be used in accordance with DDESB TP 16 and the Buried Explosion Module, Version 6.3.3 or later version if released by DDESB. These reports will be available on site for all mitigation methods used. In addition to single sandbag mitigation, double sandbag mitigation may be used. Note that, while sandbags are not applicable for the 1000 lb. MK 83 1000 lb GPLD bomb listed in **Table 1.5-1**, they may be applicable should other smaller munition items be identified at the Projects at the project site. As such, sandbag information was retained by reference in this ESS.

All MPPEH will be handled in accordance with DoD Instruction 4140.62 and Engineer Manual 200-1-15. All MPPEH will be assessed and its explosives safety status determined and documented prior to

transfer within the DoD or release from DoD control. Prior to release to the public, MPPEH will be documented by authorized and technically-qualified personnel as material documented as safe after a 100% inspection and independent 100% re-inspection to determine that it is safe from an explosives safety perspective.

The MGFD for the JATO-1 site is indicated in **Table 1.5-1**. items with smaller mentation distances may be found. Demolition of these items may be done using the item-specific MSDs and engineering controls in accordance with DDESB TP-16 Fragmentation Database. For items not in the DDESB TP-16 Fragmentation Database, the maximum fragment distance (MFD) may be calculated in accordance with the generic equations in DDESB TP-16. (Note: the Generic Equation Calculator is available on DDESB's secure website at http://www.ddesb.pentagon.mil/)

No collection point or dedicated demolition area will be established for the RI activities. MEC identified will be BIP using engineering controls (*i.e.*, Buried Explosion Module, Version 6.3.3 or later version if released by DDESB) to mitigate the hazard posed by fragments produced by the detonations. Recovered MEC will be BIP on the transect or grid where found, unless the presence of threatened and endangered species, sensitive habitat, or the proximity to buildings or structures require that the item be moved, if deemed acceptable to do so by the SUXOS and UXOSO, to another location within the MRS. If an anomaly is verified as UXO, the Project Delivery Team will be notified and the item will be secured until the disposition location is determined.

The SUXOS and the UXOSO have the authority to determine if MEC is acceptable to move.

All explosive operations will follow the procedures outlined in the site work plans, standard operating porcedures ad Enee Manual 385-1-97, Explosive Safety and Health Requirements Manual. Demolition operations will be performed daily o the items properly secured until operations can be conducted.

No explosives storage is anticipated. Rather, JIT explosives delivery will be used for disposal of any MEC items recoverd during operations. Explosives will be provided by a local vendor on an as needed basis.

1.17 TRANSPORTATION

No off-site transportation of explosives, MEC, or MPPEH will be conducted.

1.18 ALTERNATIVE DISPOSAL TECHNIQUES

No alternative disposal techniques are planned for this munitions response.

TECHNICAL SUPPORT

POL/Arcadis qualified UXO personnel will be responsible for recovering and disposing of any MEC and MPPEH found within JATO Site #1 during the MEC and MD surface clearance. All personnel assigned to each phase of the project will meet applicable DoD, DDESB, and USACE training and experience requirements for their assigned positions.

RESIDUAL RISK MANAGEMENT

1.19 LAND USE RESTRICTIONS —

Access to JATO Site #1 by land is controlled by the POL. JATO Site #1 is located in a remote area which can be accessed by traveling several miles of dirt roads. Access is limited to POL tribal members and guests who have received specific permission to be on tribal land. POL tribal members

have been notified of the past use of JATO Site #1 and the types of hazards associated with residual MEC at these sites.

POL controls access to the lands where JATO Site #1 is located. Given the remote nature of the area, it is sparingly used, and only for recreational activities, hunting, and subsistence and commercial livestock purposes by tribal enterprises and independent tribal members. Hunters are required to attend a safety awareness course.

STAKEHOLDER INVOLVEMENT

This project will be conducted under NALEMP for the POL; funding is established under a cooperative agreement between the POL and U.S. DoD. The POL will oversee the project, which will be executed by Arcadis. The USACE and the U.S. Environmental Protection Agency (USEPA) have been involved with previous efforts related to this former Precision Bombing Range (PBR). Given JATO Site #1 is in a relatively remote location controlled by the POL, a public involvement initiative should not be necessary. While not anticipated, if during the course of the munitions response actions it is deemed necessary for a public involvement initiative, an appropriate campaign will be initiated. All stakeholders will be kept informed and will be involved in the review of draft deliverables.

CONTINGENCIES

No chemical warfare material (CWM) is suspected at these site. However, if suspect CWM is found, or if a MEC item cannot be positively identified, or a munition with an unknown filler is located, project personnel shall immediately withdraw upwind from the work area, secure the area in accordance with (IAW) USACE guidance (Interim Guidance Document 23 April 2004 *Notification Procedures for Discovery of CWM on USACE Projects*, EP 1110-1-18, and [Army Regulation] AR 360-1) and contact the on-site USACE OE Safety Specialist. The POL NALEMP Manager will also be notified.

Appendix A:

Mk 83 GPLD Bomb,
Minimum Separation Distance Data Sheet

Fragmentation Data Review Form

Database Revision Date 3/7/2016

Category:	Air-Launched HE Rounds
Munition:	1000 lb Mk 83 Bomb
Case Material:	Steel, Mild
Fragmentation Method:	Naturally Fragmenting
Secondary Database Category:	Bomb
Munition Case Classification:	Robust

DODIC:	E506
Date Record Created:	10/5/2009
Record Created By:	SDH
Last Date Record Updated:	9/14/2011
Individual Last Updated Record:	SDH
Date Record Retired:	

Munition Information and Fragmentation Characteristics

Explosive Type:	H-6
Explosive Weight (lb):	445
Diameter (in):	13.9400
Cylindrical Case Weight (lb):	390.13511
Maximum Fragment Weight (Intentional) (lb):	0.9877
Design Fragment Weight (95%) (Unintentional) (lb):	0.1375
Critical Fragment Velocity (fps):	8129

Theoretical Calculated Fragment Distances

HFD [Hazardous Fragment Distance: distance to no more than 1 hazardous fragment per 600 square feet] (ft):	816
MFD-H [Maximum Fragment Distance, Horizontal] (ft):	3447
MFD-V [Maximum Fragment Distance, Vertical] (ft):	2727

Overpressure Distances

TNT Equivalent (Pressure):	1.38
TNT Equivalent Weight - Pressure (lbs):	614.100
Unbarricaded Intraline Distance (3.5 psi), K18 Distance:	153
Public Traffic Route Distance (2.3 psi); K24 Distance:	204
Inhabited Building Distance (1.2 psi), K40 Distance:	340
Intentional MSD (0.0655 psi), K328 Distance:	2788

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

Sandbag and Water Mitigation Options

TNT Equivalent (Impulse):	1.15
TNT Equivalent Weight - Impulse (lbs):	511.750
Kinetic Energy 10^6 (lb-ft²/s²):	27.9983

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.

Minimum Thickness to Prevent Perforation

	Intentional	Unintentional
4000 psi Concrete (Prevent Spall):	39.86	14.81
Mild Steel:	6.19	2.44
Hard Steel:	5.08	2.00
Aluminum:	11.84	4.94
LEXAN:	16.47	9.28
Plexi-glass:	16.67	7.79
Bullet Resist Glass:	15.76	6.76

Item Notes

Distribution authorized to the Department of Defense and U.S. DoD contractors only for Administrative-Operational Use (17 October 2002). Other requests shall be referred to the Chairman, Department of Defense Explosives Safety Board, Room 856C, Hoffman Building I, 2461 Eisenhower Avenue, Alexandria, VA 22331-0600.

APPENDIX C

Quality Documentation and Letter of Completion

Weekly Quality Control Report

24 July – 28 July
2017

Name and Location of Project: NALEMP, Pueblo of Laguna, NM. Site S-1 and JATO Site 1, Surface Clearance.

CONTRACTOR/SUBCONTRACTORS	AREAS OF RESPONSIBILITY
ARCADIS	Prime Contractor/UXO Management/SUXOS, UXOSOQCS, UXO III, 2 UXO II Personnel and 8 UXOSP on site 10 July.
Work performed This Week	
07/24/2017 Sweep Team performed surface clearance on JATO Site-1. I conducted at least 30% QC of all area covered by UXO Team today. QC was performed real time as sweeps were being done.	
07/25/2017 Sweep Team performed surface clearance on JATO Site-1. I conducted at least 30% QC of all area covered by UXO Team today. QC was performed real time as sweeps were being done.	
07/26/2017 Sweep Team performed surface clearance on JATO Site-1. I conducted at least 30% QC of all area covered by UXO Team today. QC was performed real time as sweeps were being done.	
07/27/2017 Sweep Team performed surface clearance on JATO Site-1. I conducted at least 30% QC of all area covered by UXO Team today. QC was performed real time as sweeps were being done. Lightning hold until 0800. 1000 work called off for the rest of the day due to weather concerns.	
07/28/2017 Two-hour rain delay due to impassable roads. Sweep Team performed surface clearance on JATO Site-1. I conducted at least 30% QC of all area covered by UXO Team today. QC was performed real time as sweeps were being done.	
Follow-up inspection (Assure control testing performed as required and all work performed continues to be in compliance with plans and specifications).	
None Required. All site work is being conducted IAW the requirements of the project Work Plan.	
Verbal instructions by Client.	
None. The client was involved with the QC audits and did not have any concerns with the quality of the work being performed.	
Equipment Data: (List items other than hand tool being used at the project site).	
2 4x4 Pickups, 1 AWD SUV and 1 4X4 UTV.	
Results of safety inspection (Note safety violations and corrective action taken. Indicate phase of work where violations occurred).	
No Safety Violations Observed.	
ARCADIS verification: The above report is complete ~~and correct and all material and equipment used and~~ work performed during this reporting period are in compliance with the contract plans and specifications except as noted above. **Date:** 28 JUL 2017 **Jeffrey Holm**, UXOSO/QC _____	

Weekly Quality Control Report

31 July – 4 August
2017

Name and Location of Project: NALEMP, Pueblo of Laguna, NM. Site S-1 and JATO Site 1, Surface Clearance.

CONTRACTOR/SUBCONTRACTORS	AREAS OF RESPONSIBILITY
ARCADIS	Prime Contractor/UXO Management/SUXOS, UXOSOQCS, UXO III, 2 UXO II Personnel and 8 UXOSP on site 10 July.
Work performed This Week	
07/31/2017 Sweep Team performed surface clearance on JATO Site-1. I conducted at least 30% QC of all area covered by UXO Team today. QC was performed real time as sweeps were being done. 1415, 30-minute lightning hold.	
08/01/2017 Sweep Team performed surface clearance on JATO Site-1. I conducted at least 30% QC of all area covered by UXO Team today. QC was performed real time as sweeps were being done.	
08/02/2017 Sweep Team performed surface clearance on JATO Site-1. I conducted at least 30% QC of all area covered by UXO Team today. QC was performed real time as sweeps were being done.	
08/03/2017 Sweep Team performed surface clearance on JATO Site-1. I conducted at least 30% QC of all area covered by UXO Team today. QC was performed real time as sweeps were being done.	
08/04/2017 Sweep Team performed surface clearance on JATO Site-1. I conducted at least 30% QC of all area covered by UXO Team today. QC was performed real time as sweeps were being done. JATO Site-1 is now complete.	
Follow-up inspection (Assure control testing performed as required and all work performed continues to be in compliance with plans and specifications).	
None Required. All site work is being conducted IAW the requirements of the project Work Plan.	
Verbal instructions by Client.	
None. The client was involved with the QC audits and did not have any concerns with the quality of the work being performed.	
Equipment Data: (List items other than hand tool being used at the project site).	
2 4x4 Pickups, 1 AWD SUV and 1 4X4 UTV.	
Results of safety inspection (Note safety violations and corrective action taken. Indicate phase of work where violations occurred).	
No Safety Violations Observed.	
ARCADIS verification: The above report is complete and correct and all material and equipment used and work performed during this reporting period are in ~~compliance with the contract plans and specifications~~ except as noted above. **Date:** 4 AUG 2017 **Jeffrey Holm**, UXOSO/QC _____	

PUEBLO OF LAGUNA

September 26, 2017

Mr. Wayne Patterson
Program Manager
Arcadis U.S. Inc.
10205 Westheimer Rd., Suite 800
Houston, TX 77042

RE: **Completion of Munitions and Explosives (MEC) and Munitions Debris (MD) Surface Clearance on JATO No. 1 Site**

Dear Mr. Patterson,

This letter serves as official notice to Arcadis U.S. Inc., MEC and MD Surface Clearance of Jet Assisted TakeOff (JATO) No. 1 Site, tasked in accordance with Request for Proposal provided by the Pueblo of Laguna NALEMP Program has been completed. Removal and disposal of Material Documented as Safe (MDAS) has been performed in a safe manner acceptable to Pueblo of Laguna. Quality Control (QC) performed by Pueblo of Laguna NALEMP Specialist and Arcadis U.S. Inc., Senior Unexploded Ordnance Supervisor (SUXOS) personnel verified project has been completed as tasked. On behalf of the Pueblo of Laguna, I would like to commend Arcadis U.S. Inc., team for a job well done.

Sincerely,

Sabin Chavez
Pueblo of Laguna, NALEMP Specialist

x/c: File

PO BOX 194 • LAGUNA • NEW MEXICO • 87026
PH: 505.552.6654 • FX: 505.552.6941

APPENDIX D

Disposal Documentation

DD FORM 1348-1A, JUL 91 (EG) ISSUE RELEASE/RECEIPT DOCUMENT

1. TOTAL PRICE		2. SHIP FROM	3. SHIP TO
		ARCADIS, Pueblo of Laguna S-1 and JATO 1 / Laguna, NM	ACE Metals 5711 Broadway, Alb. NM 87105
		4. MARK FOR	

DOC	IDENT	RI FROM	M&S	UNIT	ISS	QUANTITY	SER	SUPPLEMENTARY ADDRESS	SIG	FUND	DISTRIBUTION	PROJECT	PRI	REQD	DEL	DATE	ADV	RI	O/P	COND	MGT	UNIT PRICE DOLLARS	UNIT PRICE CTS	DOLLARS	CTS

5. DOC DATE	6. NMFC	7. FRT RATE	8. TYPE CARGO	9. PS
2170810				

10. QTY. REC'D	11.UP	12. UNIT WEIGHT	13. UNIT CUBE	14. UFC	15. SL
1		30 lbs.	1 Cube Foot		

16. FREIGHT CLASSIFICATION NOMENCLATURE

17. ITEM NOMENCLATURE

Material Documented as Safe (MDAS)/Mixed Metal

18. TY CONT	19. NO CONT	20. TOTAL WEIGHT	21. TOTAL CUBE
5 Gal	1	30 lbs.	1 Cube foot

22. RECEIVED BY	23. DATE RECEIVED
	20170811

24. DOCUMENT NUMBER & SUFFIX (30-44)

Serial number: POL Laguna/ARDADIS/5 gallon drum 0001/2017/08/11. (No seals were used as the MDAS was 100% inspected by 2 UXO III technicians as it was loaded then escorted to ACE metals where it was inspected and accepted by the receiver before it was unloaded at the shredder).

Project number: 06538009.0000

25. NATIONAL STOCK NO. & ADD (8-22)

MDAS/mixed metal generated while conducting an MMRP Surface clearance at Target S-1 and JATO 1 Laguna NM from 07/10/2017 through 08/11/2017.

The MDAS is classified as: "Non-Hazardous Waste"

26. RIC (4-6) UI (23-24) QTY (25-29) CON CODE (71) DIST (55-56) UP (74-80)

One 5 gallon drum of MDAS moved from the project site to ACE metals under UXO escort and shredded.

"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 explosive or related materials".

Certified By: Greg Peterson SUXOS _____ Date: 08/11/2017 Kevin Heald UXO III _____ Date: 08/11/2017

27. ADDITIONAL DATA

Verification that the MDAS scrap process was conducted IAW EM 385-1-97 and Project Plans.

Verified By: Jeff Holm UXOSO/QC _____ Date: 08/11/2017

PREVIOUS EDITION MAY BE USED

Adobe Designer 7.0

Date: ~~10~~ 11 August 2017

To: ACE Metals, 5711 Broadway SE, Albuquerque, NM 87105

Subject: One 5 Gallon Drum with 30 lbs. of Material Documented as Safe (MDAS), Mixed Metal, Serial Number: POL Laguna/ARCADIS/5 Gallon Drum 0001/2017/08/~~10~~ 11 – (no seal): MDAS was escorted by ARCADIS to the Shredder.

On receipt and after the material has been properly recycled as listed below please sign, and date this document and provide it to the ARCADIS SUXOS escorting the material to your facility. SUXOS Greg Peterson.

To: ARCADIS – US

RE: Receipt of MDAS

I certify that the contents of the subject 5 gallon drum of 100% inspected MDAS, serial number: POL Laguna/ARCADIS/5 Gallon Drum 0001/2017/08/~~10~~ 11, was further inspected by ACE Metals to verify that the drum was under escorted to ACE Medals by Greg Peterson when it arrived and that the MDAS was further inspected by ACE Medals and no explosive hazards were detected before it's acceptance for recycling. This material will not be sold, traded or otherwise given to another party until the entire contents have been smelted or shredded and are only identifiable by their basic content.

Name of Recycler: ACE Metals

Address: ACE Metals, 5711 Broadway SE, Albuquerque, NM 87105

Phone No.: 505-234-7396

Printed Name of receiver: Louis Duran

Signature: _____

Date material was smelted or shredded: 8/11/17

Printed name: Louis Duran

Signature: _____

APPENDIX E

Daily Site Activities Report / Photographs

Daily Field Activity Report

Date: 24 July 2017

2

Project Name: Target JATO-1 POL Weather: Clear, 90 F, Winds 0 to 10 KTS

Project Number: 06538009.0000 Site Conditions: Dry

Visitors: None

Work Force		Remarks
ARCADIS	SUXOS – 1, UXOSO/QC 1 UXO III, – 1, UXO II – 2, UXO SP - 8	
Subcontractor	N/A	
Significant Equip.	Field Trucks 3, Utility Vehicles – 1, Porta Jon – 1, CONEX – 1, Hand Held Metal Detectors - 10, GPS equipment -2	

Description of site activities

24 July 2017 – 0600 Project team met at Target JATO-1 and conducted the daily site safety and operations brief. A 4 person crew was sent back to Target S-1 to remove all non-range debris collected during the surface sweeps and haul it to a local land fil, reported back to JATO-1 by 1200. The rest of the crew put in the 4 corner points at JATO-1 and started surface sweeps in sector A using a road running north and south and fence running east and west to divide the site into 4 sectors. Sector A is located in the south east corner of the site and we conducted surface sweeps starting at the north end of the sector, using the fence line as a guide, sweeping west to east and east to west working south until the entire area was covered by surface sweeps. Sector A is approximately 1/8 of the total area of the JATO-1 site. Completed 90% of sector A and did not locate any ordnance related or range related debris, located a few strands of barb wire less than 1 lb. Will complete Sector A tomorrow AM and move to Sector B. 1600 secured for the day.

Safety: None

Areas of concern: None at this time

Subcontractor work tickets reviewed: N/A Approved _____ Attached _____

Prepared by: Greg Peterson Date: 24 July 2017 Title: SUXOS *Gregory J Peterson*

Site Safety Meetings
JATO SITE #1
Tailgate Safety Briefing Sign-in Log
Date: 7/24/17 **Time:** 0600

Briefing Conducted By: Jeff Holm	Signature:	Company Name: Arcadis

This sign-in log documents the tailgate safety briefing conducted in accordance with 29 CFR 1910.120 "Hazardous Waste Operations and Emergency Response" as well as other applicable regulatory requirements. Personnel who perform work operations onsite are required to attend each safety briefing and acknowledge receipt of such briefings daily or as required.

TOPICS COVERED:

✓ General PPE usage	~ Decontamination Procedures	~ Emergency Procedures
~ Respiratory Protection	✓ Smoking Eating and Drinking	~ Existing Work Zones
~ Hearing Conservation	✓ Slips, Trips, and Falls	~ Lockout/Tagout
✓ Personal Hygiene	✓ Heat and Cold Stress	~ Excavation/Confined Spaces
~ Exposure Guidelines	~ Site Control	~ New Work Procedures

Personnel Sign-in List

Printed Name	Signature	Company Name
GREG PETERSON		ARCADIS
Larson Haskin		"
Matt Miranda		"
Don Sloan		Arcadis
Alva Peterson		"
Angel Torrens-Bonano		ARCADIS
KEN MEADOWS		ARCADIS
BILL SVOBODA	Bill Svoboda	ARCADIS
Tucker Thiesing		ARCADIS
Gabe Salvador		Arcadis
Kevin Heald		"
Andres Prieto	Andrés Prieto	Arcadis

Daily Field Activity Report

Date: 25 July 2017

2

Project Name: Target JATO-1 POL Weather: Clear, 95 F, Winds 0 to 10 KTS

Project Number: 06538009.0000 Site Conditions: Dry

Visitors: None

Work Force		Remarks
ARCADIS	SUXOS – 1, UXOSO/QC 1 UXO III, – 1, UXO II – 2, UXO SP - 8	
Subcontractor	N/A	
Significant Equip.	Field Trucks 3, Utility Vehicles – 1, Porta Jon – 1, CONEX – 1, Hand Held Metal Detectors - 10, GPS equipment -2	

Description of site activities

25 July 2017 – 0600 Project team met at Target JATO-1 and conducted the daily site safety and operations brief. Continued surface sweeps in Sector A and completed Sector A by 1000. After completing surface sweeps in Sector A the crew moved to Sector B. Sector B is located above Sector A in the north east corner of the site. Surface sweeps were conducted in Sector B starting at the north end of the sector sweeping west to east and east to west working south until the entire area was covered by surface sweeps. Sector B is approximately 1/8 of the total area of the JATO-1 site. Completed 50% of Sector B and did not locate any ordnance related or range related debris, located a few strands of barb wire less than 1.5 lbs. Will complete Sector B tomorrow and move to Sector C. 1600 secured for the day.

Safety: None

Areas of concern: None at this time

Subcontractor work tickets reviewed: N/A Approved _____ Attached _____

Prepared by: Greg Peterson Date: 25 July 2017 Title: SUXOS *Gregory J Peterson*

Site Safety Meetings
JATO SITE #1
Tailgate Safety Briefing Sign-in Log
Date: 07/25/17 **Time:** 0600

Briefing Conducted By: Jeff Holm	Signature:	Company Name: Arcadis

This sign-in log documents the tailgate safety briefing conducted in accordance with 29 CFR 1910.120 "Hazardous Waste Operations and Emergency Response" as well as other applicable regulatory requirements. Personnel who perform work operations onsite are required to attend each safety briefing and acknowledge receipt of such briefings daily or as required.

TOPICS COVERED:

- ~ General PPE usage
- ~ Respiratory Protection
- ~ Hearing Conservation
- ~ Personal Hygiene
- ~ Exposure Guidelines
- ~ Decontamination Procedures
- ~ Smoking Eating and Drinking
- ~ Slips, Trips, and Falls
- ~ Heat and Cold Stress
- ~ Site Control
- ~ Emergency Procedures
- ~ Existing Work Zones
- ~ Lockout/Tagout
- ~ Excavation/Confined Spaces
- ~ New Work Procedures

Personnel Sign-in List

Printed Name	Signature	Company Name
Kevin Heald	Kevin W Heald	Arcadis
Alva Peterson	Alva Peterson	"
BILL SVOBODA	BILL SVOBODA	ARCADIS
Andres Prieto	Andrés Prieto	Arcadis
TUCKER THIESING	[illegible]	ARCADIS
KEN MEADOWS	[illegible]	ARCADIS
Don Sion	Don [illegible]	Arcadis
Angel Torrens-Bonano	[illegible]	ARCADIS
GREG PETERSON	[illegible]	ARCADIS
Gabe Salvador	[illegible]	Arcadis
Carson Haskin	[illegible]	Arcadis
Matt Miranda	Matt Miranda	"

Daily Field Activity Report

Date: 26 July 2017

2

Project Name: Target JATO-1 POL Weather: Clear, 95 F, Winds 0 to 10 KTS

Project Number: 06538009.0000 Site Conditions: Dry

Visitors: None

Work Force		Remarks
ARCADIS	SUXOS – 1, UXOSO/QC 1 UXO III, – 1, UXO II – 2, UXO SP - 8	
Subcontractor	N/A	
Significant Equip.	Field Trucks 3, Utility Vehicles – 1, Porta Jon – 1, CONEX – 1, Hand Held Metal Detectors - 10, GPS equipment -2	

Description of site activities

26 July 2017 – 0600 Project team met at Target JATO-1 and conducted the daily site safety and operations brief. Continued surface sweeps in Sector B and completed Sector B by 1100. After completing surface sweeps in Sector B the crew moved to Sector C. Sector C is located to the West of Sector B in the north west corner of the site. Surface sweeps were conducted in Sector C starting at the north end of the sector sweeping east to west and west to east working south until the entire area was covered by surface sweeps with the exception of a small section in the hills that was left and then completed at the end of the surface sweep task conducted for the JATO-1 site. Sector B is approximately 4/8 of the total area of the JATO-1 site. Completed 25% of Sector B and did not locate any ordnance related or range related debris, located a few strands of barb wire less than 2 lbs. 1600 secured for the day.

Safety: None

Areas of concern: None at this time

Subcontractor work tickets reviewed: N/A Approved _____ Attached _____

Prepared by: Greg Peterson Date: 26 July 2017 Title: SUXOS *Gregory J Peterson*

Site Safety Meetings
JATO SITE #1
Tailgate Safety Briefing Sign-in Log

Date: 07/26/17 **Time:** 0600

Briefing Conducted By: Jeff Holm	Signature:	Company Name: Arcadis

This sign-in log documents the tailgate safety briefing conducted in accordance with 29 CFR 1910.120 "Hazardous Waste Operations and Emergency Response" as well as other applicable regulatory requirements. Personnel who perform work operations onsite are required to attend each safety briefing and acknowledge receipt of such briefings daily or as required.

TOPICS COVERED:

✓ General PPE usage	~ Decontamination Procedures	✓ Emergency Procedures
~ Respiratory Protection	✓ Smoking Eating and Drinking	~ Existing Work Zones
~ Hearing Conservation	✓ Slips, Trips, and Falls	~ Lockout/Tagout
✓ Personal Hygiene	✓ Heat and Cold Stress	~ Excavation/Confined Spaces
~ Exposure Guidelines	~ Site Control	~ New Work Procedures

Personnel Sign-in List

Printed Name	Signature	Company Name
GREG PETERSON		ARCADIS
Ángel Torrens-Borrero		ARCADIS
Alva Peterson		"
Gabe Salvador		Arcadis
Don Siow		Arcadis
Andres Prieto	Andrés Prieto	Arcadis
BILL SVOBODA	BILL SVOBODA	"
KEN MEADOWS		ARCADIS
Carson Haskin		Arcadis
Kevin Heald		"
Matt Miranda		"
Tucker Thiesing		ARCADIS

Daily Field Activity Report

Date: 27 July 2017

2

Project Name: Target JATO-1 POL Weather: Clear, 85 F, Winds 0 to 10 KTS

Project Number: 06538009.0000 Site Conditions: Rain

Visitors: None

Work Force		Remarks
ARCADIS	SUXOS – 1, UXOSO/QC 1 UXO III, – 1, UXO II – 2, UXO SP - 8	
Subcontractor	N/A	
Significant Equip.	Field Trucks 3, Utility Vehicles – 1, Porta Jon – 1, CONEX – 1, Hand Held Metal Detectors - 10, GPS equipment -2	

Description of site activities

27 July 2017 – 0600 Project team met at Target JATO-1 and conducted the daily site safety and operations brief. Lightning hold at 0630 – 0800. At 0800 cleared to start surface sweep operations by the UXOSO. Continued surface sweeps in Sector C, completed one sweep and we went back on lightning hold and it started to rain at 1000. Did not locate any ordnance related or range related debris. 1000 secured for the day due to rain and lightning.

Safety: None

Areas of concern: None at this time

Subcontractor work tickets reviewed: N/A Approved _____ Attached _____

Prepared by: Greg Peterson Date: 27 July 2017 Title: SUXOS *Gregory J Peterson*

Site Safety Meetings
JATO SITE #1
Tailgate Safety Briefing Sign-in Log
Date: 07/27/17 **Time:** 0600

Briefing Conducted By: Jeff Holm	Signature:	Company Name:

This sign-in log documents the tailgate safety briefing conducted in accordance with 29 CFR 1910.120 "Hazardous Waste Operations and Emergency Response" as well as other applicable regulatory requirements. Personnel who perform work operations onsite are required to attend each safety briefing and acknowledge receipt of such briefings daily or as required.

TOPICS COVERED:

✓ ~ General PPE usage	~ Decontamination Procedures	✓ ~ Emergency Procedures
~ Respiratory Protection	✓ ~ Smoking Eating and Drinking	~ Existing Work Zones
~ Hearing Conservation	✓ ~ Slips, Trips, and Falls	~ Lockout/Tagout
✓ ~ Personal Hygiene	✓ ~ Heat and Cold Stress	~ Excavation/Confined Spaces
~ Exposure Guidelines	~ Site Control	~ New Work Procedures

Personnel Sign-in List

Printed Name	Signature	Company Name
Don Siow	Don Siow	Arcadis
Matt Miranda	Matt Miranda	"
GREG PETERSON	[illegible]	ARCADIS
Larson Haskin	[illegible]	Arcadis
Kevin Heald	Kevin W Heald	"
Alva Peterson	[illegible]	"
BILL SVOBODA	Bill Svoboda	ARCADIS
Tucker Thiessing	[illegible]	ARCADIS
KEN MEADOWS	[illegible]	ARCADIS
Andres Prieto	Andrés Prieto	Arcadis
Angel Torrens-Bonano	[illegible]	ARCADIS
Gaba Salvador	[illegible]	Arcadis

Daily Field Activity Report

Date: 28 July 2017

2

Project Name: Target JATO-1 POL Weather: Clear, 85 F, Winds 0 to 10 KTS

Project Number: 06538009.0000 Site Conditions: Overcast

Visitors: None

Work Force		Remarks
ARCADIS	SUXOS – 1, UXOSO/QC 1 UXO III, – 1, UXO II – 2, UXO SP - 7	1 UXOSP had scheduled day off for personal business
Subcontractor	N/A	
Significant Equip.	Field Trucks 3, Utility Vehicles – 1, Porta Jon – 1, CONEX – 1, Hand Held Metal Detectors - 10, GPS equipment -2	

Description of site activities

28 July 2017 – 0700 Project team scheduled to meet at Target JATO-1 and conducted the daily site safety and operations brief. Started one hour later today due to heavy rain last night. Took the crew longer than expected to gain access to the site due to muddy roads and we heald the morning briefs at 0930 after all site personnel gained access to the site. Continued surface sweeps in Section C. Weather in the afternoon started to deteriorate and we went on lightning hold at 1415 – 1445. At 1445 cleared to start surface sweep operations by the UXOSO. Continued surface sweeps in Sector C, completing approximately 70% of the total Sector C area by the end of the day. Did not locate any ordnance related or range related debris. Recovered 2 lbs. of barb wire. 1700 secured for the day.

Safety: None

Areas of concern: None at this time

Subcontractor work tickets reviewed: N/A Approved _____ Attached _____

Prepared by: Greg Peterson Date: 28 July 2017 Title: SUXOS *Gregory J Peterson*

Site Safety Meetings
JATO SITE #1
Tailgate Safety Briefing Sign-in Log

Date: 7/28/17 **Time:** 0600

Briefing Conducted By: Jeff Holm	Signature:	Company Name: Arcadis

This sign-in log documents the tailgate safety briefing conducted in accordance with 29 CFR 1910.120 "Hazardous Waste Operations and Emergency Response" as well as other applicable regulatory requirements. Personnel who perform work operations onsite are required to attend each safety briefing and acknowledge receipt of such briefings daily or as required.

TOPICS COVERED:

✓ General PPE usage	~ Decontamination Procedures	~ Emergency Procedures
~ Respiratory Protection	✓ Smoking Eating and Drinking	~ Existing Work Zones
~ Hearing Conservation	✓ Slips, Trips, and Falls	~ Lockout/Tagout
✓ Personal Hygiene	✓ Heat and Cold Stress	~ Excavation/Confined Spaces
~ Exposure Guidelines	~ Site Control	~ New Work Procedures

Personnel Sign-in List

Printed Name	Signature	Company Name
Kevin W Heald	Kevin W Heald	Arcadis
Carson Haskins	[illegible]	Arcadis
ALVA Peterson	[illegible]	"
GORDO PETERSON	[illegible]	ARCADIS
BILL SVOBODA	BILL SVOBODA	ARCADIS
TUCKER THIESING	[illegible]	ARCADIS
Matt Miranda	Matt Miranda	"
Angel Torrens-Bonano	[illegible]	ARCADIS
SABIN CHAVEZ	[illegible]	POL NAHEMP
Andres Prieto	Andres Prieto	Arcadis
KEN MEADOWS	[illegible]	ARCADIS
Don Sion	Don Sion	Arcadis

Daily Field Activity Report

Date: 31 July 2017

2

Project Name: Target JATO-1 POL Weather: Clear, 85 F, Winds 0 to 10 KTS

Project Number: 06538009.0000 Site Conditions: Clear

Visitors: None

Work Force		Remarks
ARCADIS	SUXOS – 1, UXOSO/QC 1 UXO III, – 1, UXO II – 2, UXO SP - 8	
Subcontractor	N/A	
Significant Equip.	Field Trucks 3, Utility Vehicles – 1, Porta Jon – 1, CONEX – 1, Hand Held Metal Detectors - 10, GPS equipment -2	

Description of site activities

31 July 2017 – 0800 Project team scheduled to meet at Target JATO-1 and conducted the daily site safety and operations brief. The later start was due to a mandatory company-wide all hands safety stand down. Continued surface sweeps in Sector C, completing approximately 90% of the total Sector C area by the end of the day, will complete Sector C mid-day tomorrow. Did not locate any ordnance related or range related debris. Recovered 2 lbs. of barb wire. 1800 secured for the day.

Safety: None

Areas of concern: None at this time

Subcontractor work tickets reviewed: N/A Approved _____ Attached _____

Prepared by: Greg Peterson Date: 31 July 2017 Title: SUXOS *Gregory J Peterson*

Site Safety Meetings
JATO SITE #1
Tailgate Safety Briefing Sign-in Log
Date: 7/31/17 **Time:** 0800

Briefing Conducted By: Jeff Holm	Signature:	Company Name: Arcadis

This sign-in log documents the tailgate safety briefing conducted in accordance with 29 CFR 1910.120 "Hazardous Waste Operations and Emergency Response" as well as other applicable regulatory requirements. Personnel who perform work operations onsite are required to attend each safety briefing and acknowledge receipt of such briefings daily or as required.

TOPICS COVERED:

✓ ~ General PPE usage	~ Decontamination Procedures	~ Emergency Procedures
~ Respiratory Protection	✓ ~ Smoking Eating and Drinking	~ Existing Work Zones
~ Hearing Conservation	✓ ~ Slips, Trips, and Falls	~ Lockout/Tagout
✓ ~ Personal Hygiene	✓ ~ Heat and Cold Stress	~ Excavation/Confined Spaces
~ Exposure Guidelines	~ Site Control	~ New Work Procedures

Personnel Sign-in List

Printed Name	Signature	Company Name
Andres Prieto	Andres Prieto	Arcadis
GREG PETERSON	[illegible]	ARCADIS
Gabe Salvador	[illegible]	Arcadis
Don Siow	Don Siow	Arcadis
Larson Huslam	[illegible]	Arcadis
Kevin Heald	Kevin W Heald	"
Angel Torrens-Bohano	[illegible]	ARCADIS
Matt Miranda	Matt Miranda	"
Alva Peterson	[illegible]	"
BILL SVOBODA	Bill Svoboda	ARCADIS
KEN MEADOWS	[illegible]	ARCADIS

Daily Field Activity Report

Date: 01 August 2017

2

Project Name: Target JATO-1 POL Weather: Clear, 90 F, Winds 0 to 10 KTS

Project Number: 06538009.0000 Site Conditions: Clear

Visitors: None

Work Force		Remarks
ARCADIS	SUXOS – 1, UXOSO/QC 1 UXO III, – 1, UXO II – 2, UXO SP - 8	
Subcontractor	N/A	
Significant Equip.	Field Trucks 3, Utility Vehicles – 1, Porta Jon – 1, CONEX – 1, Hand Held Metal Detectors - 10, GPS equipment -2	

Description of site activities

01 August 2017 – 0600 Project team scheduled to meet at Target JATO-1 and conducted the daily site safety and operations brief. Continued surface sweeps in Sector C, completing Sector C at 1100 with the exception of 15 acres of steep hilly area at the west side of sector C. We left this area due to the loose rocks and steep hills so we could come back at the end of the JATO-1 site surface sweeps and do this area at one time after we held a Tailgate Safety brief to discuss how to safely conduct sweeps in this area. Did not locate any ordnance or range related debris. Recovered 1 lb. of barb wire. After Lunch started surface sweeps in Sector D, which is located directly south of Sector C. Sector D is approximately 2/8 of the entire JATO-1 site. 1200 started surface sweeps in Sector D at the south end of the Sector working north to the fence dividing Sectors D and C. Sweeps were conducted traveling east to west and west to east. Did not locate any ordnance or range related debris. 1600 secure for the day.

Safety: Sweeping Steep Hills at west side of site. Will develop a plan of attack, and sweep last all at one time.

Areas of concern: None at this time

Subcontractor work tickets reviewed: N/A Approved _____ Attached _____

Prepared by: Greg Peterson Date: 01 August 2017 Title: SUXOS *Gregory J Peterson*

Site Safety Meetings
JATO SITE #1
Tailgate Safety Briefing Sign-in Log

Date: 8/01/17 **Time:** 0600

Briefing Conducted By: Jeff Holm	Signature:	Company Name: Arcadis

This sign-in log documents the tailgate safety briefing conducted in accordance with 29 CFR 1910.120 "Hazardous Waste Operations and Emergency Response" as well as other applicable regulatory requirements. Personnel who perform work operations onsite are required to attend each safety briefing and acknowledge receipt of such briefings daily or as required.

TOPICS COVERED:

✓ General PPE usage	~ Decontamination Procedures	✓ Emergency Procedures
~ Respiratory Protection	✓ Smoking Eating and Drinking	~ Existing Work Zones
~ Hearing Conservation	✓ Slips, Trips, and Falls	~ Lockout/Tagout
✓ Personal Hygiene	✓ Heat and Cold Stress	~ Excavation/Confined Spaces
~ Exposure Guidelines	~ Site Control	~ New Work Procedures

Personnel Sign-in List

Printed Name	Signature	Company Name
BILL SVOBODA	Bill Svoboda	ARCADIS
GREG PETERSON	[illegible]	ARCADIS
Matt Miranda	[illegible]	Arcadis
Andres Prieto	Andrés Prieto	Arcadis
Gabe Salvador	[illegible]	Arcadis
Kevin Heald	[illegible]	"
Alva Peterson	[illegible]	"
Tucker Thiesing	[illegible]	ARCADIS
Angel Torres Pobrano	[illegible]	Arcadis
KEN MEADOWS	[illegible]	ARCADIS
DON SIOW	[illegible]	Arcadis
Carson Heslam	[illegible]	ARCADIS

Daily Field Activity Report

Date: 02 August 2017

Project Name: Target JATO-1 POL Weather: Clear, 93 F, Winds 0 to 10 KTS

Project Number: 06538009.0000 Site Conditions: Clear

Visitors: None

Work Force		Remarks
ARCADIS	SUXOS – 1, UXOSO/QC 1 UXO III, – 1, UXO II – 2, UXO SP - 8	
Subcontractor	N/A	
Significant Equip.	Field Trucks 3, Utility Vehicles – 1, Porta Jon – 1, CONEX – 1, Hand Held Metal Detectors - 10, GPS equipment -2	

Description of site activities

02 August 2017 – 0600 Project team scheduled to meet at Target JATO-1 and conducted the daily site safety and operations brief. Continued surface sweeps in Sector D. Located a 6 inch end section of a fin or wing that looks like a military item could be from a missile, drone or aircraft part. Took a photo and GPS location of the item and will added it to the MDAS when it is turned in for recycling, no other material was located in the area or at the JATO-1 site during sweep operations. Seventy five percent of Sector D has been completed. Located 1 lbs. of military debris and 2 lbs. of barb wire. 1600 secured for the day.

Safety: None

Areas of concern: None at this time

Subcontractor work tickets reviewed: N/A Approved _____ Attached _____

Prepared by: Greg Peterson Date: 02 August 2017 Title: SUXOS *Gregory J Peterson*

Site Safety Meetings
JATO SITE #1
Tailgate Safety Briefing Sign-in Log
Date: 02/08/17 **Time:** 0600

Briefing Conducted By: Jeff Holm	Signature:	Company Name: Arcadis

This sign-in log documents the tailgate safety briefing conducted in accordance with 29 CFR 1910.120 "Hazardous Waste Operations and Emergency Response" as well as other applicable regulatory requirements. Personnel who perform work operations onsite are required to attend each safety briefing and acknowledge receipt of such briefings daily or as required.

TOPICS COVERED:

✓ General PPE usage	~ Decontamination Procedures	~ Emergency Procedures
~ Respiratory Protection	~ Smoking Eating and Drinking	~ Existing Work Zones
~ Hearing Conservation	✓ Slips, Trips, and Falls	~ Lockout/Tagout
✓ Personal Hygiene	✓ Heat and Cold Stress	~ Excavation/Confined Spaces
~ Exposure Guidelines	~ Site Control	~ New Work Procedures

Personnel Sign-in List

Printed Name	Signature	Company Name
GREG PETERSON		ARCADIS
Kevin Heald		"
Alva Peterson		"
Carson Hudson		"
Matt Miranda		"
Tucker Thiesing		ARCADIS
Don Siow		Arcadis
Gabe Salvador		Arcadis
Andres Prieto		Arcadis
BILL SVOBODA		ARCADIS
KEN MEADOWS		ARCADIS
Angel Tomens-Bonneau		ARCADIS

Daily Field Activity Report

Date: 03 August 2017

2

Project Name: Target JATO-1 POL Weather: Clear, 93 F, Winds 0 to 10 KTS

Project Number: 06538009.0000 Site Conditions: Clear

Visitors: None

Work Force		Remarks
ARCADIS	SUXOS – 1, UXOSO/QC 1 UXO III, – 1, UXO II – 2, UXO SP - 8	
Subcontractor	N/A	
Significant Equip.	Field Trucks 3, Utility Vehicles – 1, Porta Jon – 1, CONEX – 1, Hand Held Metal Detectors - 10, GPS equipment -2	

Description of site activities

03 August 2017 – 0600 Project team scheduled to meet at Target JATO-1 and conducted the daily site safety and operations brief. Continued surface sweeps in Sector D. Surface sweeps in Sector D were completed at 1000. Located 1 lb. of barb wire. Crew moved to the hill area of Sector C and held a Tailgate Safety and Operations brief on how we would safely conduct surface sweeps in the area. We divided the crew into 2 teams and worked different areas of the site. The smaller teams were easier for the team leaders to manage and supervise in the hills keeping them all in line of site at all times. The operation worked well and we ran transects in all areas that allowed the crew to transvers safely the rest of the area was viewed from the top of the hills down to the desert floor and from the desert floor to the top of the hills. There was no ordnance or range debris in the hill area. Once we completed the surface sweep task we conducted re sweeps of the road areas to collect all recovered debris (bard wire/bottles plastic bags etc.) The only Military item located at the JATO-1 site was the 6 inch fin or wing section located on the 02 August 2017. 1600 secured for the day.

Safety: None

Areas of concern: Sweeping in the Steep Hilly Area/all went well and without incident.

Subcontractor work tickets reviewed: N/A Approved _____ Attached _____

Prepared by: Greg Peterson Date: 03 August 2017 Title: SUXOS *Gregory J Peterson*

Site Safety Meetings
JATO SITE #1
Tailgate Safety Briefing Sign-in Log
Date: 8/3/17 **Time:** 0600

Briefing Conducted By: Jeff Holm	Signature:	Company Name: Arcadis

This sign-in log documents the tailgate safety briefing conducted in accordance with 29 CFR 1910.120 "Hazardous Waste Operations and Emergency Response" as well as other applicable regulatory requirements. Personnel who perform work operations onsite are required to attend each safety briefing and acknowledge receipt of such briefings daily or as required.

TOPICS COVERED:

✓ General PPE usage	~ Decontamination Procedures	~ Emergency Procedures
~ Respiratory Protection	✓ Smoking Eating and Drinking	~ Existing Work Zones
~ Hearing Conservation	✓ Slips, Trips, and Falls	~ Lockout/Tagout
✓ Personal Hygiene	✓ Heat and Cold Stress	~ Excavation/Confined Spaces
~ Exposure Guidelines	~ Site Control	~ New Work Procedures

Personnel Sign-in List

Printed Name	Signature	Company Name
GREG PETERSON		ARCADIS
Gabe Salvador		Arcadis
Angel Torres-Bonano		ARCADIS
Don Siow		Arcadis
Carson Haslam		Arcadis
Kevin Heald		"
Matt Miranda		"
Andres Prieto		Arcadis
BILL SVOBODA		ARCADIS
Tucker Thiesing		ARCADIS
Alva Peterson		"

Daily Field Activity Report

Date: 04 August 2017

2

Project Name: Target JATO-1 POL Weather: Clear, 93 F, Winds 0 to 10 KTS

Project Number: 06538009.0000 Site Conditions: Clear

Visitors: None

Work Force		Remarks
ARCADIS	SUXOS – 1, UXOSO/QC 1 UXO III, – 1, UXO II – 2, UXO SP - 8	
Subcontractor	N/A	
Significant Equip.	Field Trucks 3, Utility Vehicles – 1, Porta Jon – 1, CONEX – 1, Hand Held Metal Detectors - 10, GPS equipment -2	

Description of site activities

04 August 2017 – 0800 Project team scheduled to meet at CONEX located between Target S-! and Target JATO-1 and conducted the daily site safety and operations brief. Conducted equipment cleanup, removed batteries from all electronic equipment, inventoried and packed equipment for transport back to Wingate. Took project vehicles off site to wash and clean the dried mud from both the interior and exterior. Stored all equipment to include the UTV inside the CONEX for the weekend. Admin – Travel was set for all personnel traveling out this weekend 7 total. 1200 secured for the day.

Note: Team to include, Sabin and his wife, were invited to the TUCANOS Brazilian Grill for an end of project Hail and Farwell. All showed up and had a great time.

Safety: None

Areas of concern: None at this time

Subcontractor work tickets reviewed: N/A Approved _____ Attached _____

Prepared by: Greg Peterson Date: 04 August 2017 Title: SUXOS *Gregory J Peterson*

Site Safety Meetings
JATO SITE #1
Tailgate Safety Briefing Sign-in Log
Date: 8/11/17 **Time:** 0800

Briefing Conducted By: Jeff Holm	Signature:	Company Name: Arcadis

This sign-in log documents the tailgate safety briefing conducted in accordance with 29 CFR 1910.120 "Hazardous Waste Operations and Emergency Response" as well as other applicable regulatory requirements. Personnel who perform work operations onsite are required to attend each safety briefing and acknowledge receipt of such briefings daily or as required.

TOPICS COVERED:

✓ General PPE usage	~ Decontamination Procedures	~ Emergency Procedures
~ Respiratory Protection	✓ Smoking Eating and Drinking	~ Existing Work Zones
~ Hearing Conservation	✓ Slips, Trips, and Falls	~ Lockout/Tagout
✓ Personal Hygiene	✓ Heat and Cold Stress	~ Excavation/Confined Spaces
~ Exposure Guidelines	~ Site Control	✓ New Work Procedures

Personnel Sign-in List

Printed Name	Signature	Company Name
Gabriel Salvador		Arcadis
GREG PETERSON		ARCADIS
Alan Peterson		"
SABIN CHAVEZ		POL NALEMP
Kevin Heald		Arcadis
Don Sion		Arcadis
ENikki Woodward		POL
Jason A. Mariano		P.O.L.

Daily Field Activity Report

Date: 11 August 2017

Project Name: Target JATO-1/S-1 DEMO Weather: Clear, 93 F,

Winds 10KTS

Project Number: 06538009.0000 Site Conditions: Clear

Visitors: POL Reps. Sabin Chavez, Enikki Woodward, Jason Marinno

Work Force		Remarks
ARCADIS	SUXOS – 1, UXOSO/QC 1 UXO III, – 1, UXO II – 2, UXO SP - 1	
Subcontractor	N/A	
Significant Equip.	Field Trucks 2, Utility Vehicles – 1, Porta Jon – 1, CONEX – 1, DEMO Kit - 1	

Description of site activities

11 August 2017 – 0800 Project team met at CONEX located between Target S-1 and Target JATO-1 and conducted the daily site safety and DEMO operations brief. (documents in project files) SUXOS and DEMO Sup met WESCO at project boundary to receive ordered explosives for days DEMO operation. (documents in project files) DEMO Team set up and fired DEMO shot at 1030. Cleaned up location of demolition shot and returned shot area to its original grade. CONEX and Porta Jon were shipped off site and MDAS drum was transported to the recycler. (documents in project files). Travel was set for DEMO Team for 12 August 2017. Project Complete.

Safety: None

Areas of concern: None at this time

Subcontractor work tickets reviewed: N/A Approved _____ Attached _____

Prepared by: Greg Peterson Date: 11 August 2017 Title: SUXOS *Gregory J Peterson*

Photograph: 1

Description: JATO-1 Sweep team

Photograph: 2

Description: Connex storage container located on JATO-1

Photograph: 3

Description:
Demo truck – right side tires wheel chocked.

APPENDIX F

Ordnance Technical Data

Fragmentation Data Review Form

Database Revision Date 3/7/2016

Category:	Air-Launched HE Rounds
Munition:	1000 lb Mk 83 Bomb
Case Material:	Steel, Mild
Fragmentation Method:	Naturally Fragmenting
Secondary Database Category:	Bomb
Munition Case Classification:	Robust

DODIC:	E506
Date Record Created:	10/5/2009
Record Created By:	SDH
Last Date Record Updated:	9/14/2011
Individual Last Updated Record:	SDH
Date Record Retired:	

Munition Information and Fragmentation Characteristics

Explosive Type:	H-6
Explosive Weight (lb):	445
Diameter (in):	13.9400
Cylindrical Case Weight (lb):	390.13511
Maximum Fragment Weight (Intentional) (lb):	0.9877
Design Fragment Weight (95%) (Unintentional) (lb):	0.1375
Critical Fragment Velocity (fps):	8129

Theoretical Calculated Fragment Distances

HFD [Hazardous Fragment Distance: distance to no more than 1 hazardous fragment per 600 square feet] (ft):	816
MFD-H [Maximum Fragment Distance, Horizontal] (ft):	3447
MFD-V [Maximum Fragment Distance, Vertical] (ft):	2727

Overpressure Distances

TNT Equivalent (Pressure):	1.38
TNT Equivalent Weight - Pressure (lbs):	614.100
Unbarricaded Intraline Distance (3.5 psi), K18 Distance:	153
Public Traffic Route Distance (2.3 psi); K24 Distance:	204
Inhabited Building Distance (1.2 psi), K40 Distance:	340
Intentional MSD (0.0655 psi), K328 Distance:	2788

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

Sandbag and Water Mitigation Options

TNT Equivalent (Impulse):	1.15
TNT Equivalent Weight - Impulse (lbs):	511.750
Kinetic Energy 10^6 (lb-ft²/s²):	27.9983

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.

Minimum Thickness to Prevent Perforation

	Intentional	Unintentional
4000 psi Concrete (Prevent Spall):	39.86	14.81
Mild Steel:	6.19	2.44
Hard Steel:	5.08	2.00
Aluminum:	11.84	4.94
LEXAN:	16.47	9.28
Plexi-glass:	16.67	7.79
Bullet Resist Glass:	15.76	6.76

Item Notes

Distribution authorized to the Department of Defense and U.S. DoD contractors only for Administrative-Operational Use (17 October 2002). Other requests shall be referred to the Chairman, Department of Defense Explosives Safety Board, Room 856C, Hoffman Building I, 2461 Eisenhower Avenue, Alexandria, VA 22331-0600.

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