INTERIM LAND USE CONTROLS IMPLEMENTATION WORK PLAN Former Sahuarita Air Force Range Range Complex No. 1 Munitions Response Site, Range Complex No. 2 Munitions Response Site, & Range Complex No. 3 Munitions Response Site Pima County, Arizona

Prepared for:

Arizona Department of Environmental Quality (ADEQ)

Prepared by:

UXO Pro, Inc. 14750 Sweitzer Lane, Suite 150 Laurel, MD 20707

FINAL

February 7, 2024

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Interim LUCs implementation Work Plan Former SAFR, MRS 1, 2, & 3 Sahuarita, AZ

Acronyms and Abbreviations

ADEQ	Arizona Department of Environmental Quality
ADOA	Arizona Department of Administration
AGGR	Air-to-Ground Gunnery Range
bgs	below ground surface
CMUA	Concentrated Munitions Use Area
DMAFB	Davis-Monthan Air Force Base
DoD	U.S. Department of Defense
EOD	Explosive Ordnance Disposal
FUDS	Formerly Used Defense Site
GP	General Purpose
GPS	global positioning system
HE	high explosive
HS	High School
IC	Institutional Control
lb.	pound
LUC	Land Use Control
MD	munitions debris
MEC	munitions and explosives of concern
mm	millimeter
MPPEH	material potentially presenting an explosive hazard
MRS	Munitions Response Site
No.	number
OQ	ground-to-air unpiloted radio-controlled flying target
RI	Remedial Investigation
USACE	U.S. Army Corps of Engineers
UXO	unexploded ordnance
UXOQP	UXO Qualified Person
ROE	Right-of-Entry
SAA	small arms ammunition
SAFR	Sahuarita Air Force Range
SI	Site Inspection
SOP	Standard Operating Procedure
WP	Work Plan

1.0 Introduction

This document presents the Implementation of Interim Land Use Controls (LUCs) and LUCs Monitoring Work Plan for the former Sahuarita Air Force Range (SAFR) Formerly Used Defense Site (FUDS), hereinafter called the LUC Work Plan (WP). The former SAFR encompasses approximately 27,000 acres and is situated south of Tucson, Arizona in Pima County (Appendix A, **Figure 1-1**). The site includes three Munitions Response Sites (MRSs) identified as Range Complex No. 1, Range Complex No. 2, and Range Complex No. 3, which make up approximately 10,567 acres. The remaining acreage of the former SAFR FUDS is outside of the MRSs and owned by state and local government agencies, private commercial and industrial businesses, and private residents (Appendix A, **Figure 1-2**). The former SAFR FUDS is bordered by the Town of Sahuarita and the Santa Cruz River to the west, the City of Tucson to the north, and the Santa Rita Mountains to the east and south.

This LUC WP was prepared under the Arizona Department of Environmental Quality (ADEQ) Purchase Order No. PO0000610457 for submittal to the Arizona Department of Administration (ADOA) and ADEQ. This LUC WP describes the implementation and monitoring of the interim LUCs.

The installation of the interim LUCs will educate and inform site users about the potential explosive hazards at the site through public outreach, explosive hazard warning signs and kiosks as an interim measure until the U.S. Army Corps of Engineers (USACE) identifies and develops final remedial actions to reduce the potential for human exposure to munitions and explosives of concern (MEC).

1.1 Work Plan Organization

This LUC Plan is organized as follows:

- Section 1 Introduction
- Section 2 Land Use Control Work Plan
- Section 3 Monitoring Plan
- Section 4 Reporting
- Section 5 Project Schedule
- Section 6 References

1.2 Site History

In April 1942, the Army Air Corps at Davis-Monthan Field announced the establishment of the SAFR. The site was initially comprised of leases from the City of Tucson, transfers from the Department of the Interior, and acquisitions of easement acres. The site included a ground-to-air unpiloted radio-controlled flying target (OQ) range, four bombing targets, and two air-to-ground targets. By January 1943, airmen from Davis-Monthan Field began conducting high altitude and night bombing training at the SAFR Air-to-Ground Gunnery Range (AGGR). The AGGR may have remained open and in use until as late as November 1958. The entire flight strip at SAFR was within the boundaries of AGGR No. 2.

The OQ Range was located just south of the northern end of the airstrip and was used to train airmen in ground-to-air firing of .50-caliber machine guns at pilotless, radio-controlled airplanes. On 18 August 1948, the U. S. Department of Defense (DoD) transferred 2,063 acres back to the

Department of the Interior. DoD terminated portions of the leases totaling 1,680 acres in 1948, with an additional 3,797 acres terminated in 1949.

In 1950, the Army Engineering Section completed a Rotary Launcher Site for the OQ Range, and in 1953 the OQ Range was recommended for rehabilitation in lieu of construction of a new range at Davis-Monthan Air Force Base (DMAFB). In October 1950, crews from Carswell Air Force Base, Texas conducted bombing missions flown on SAFR. The DoD terminated the 2,438 acres acquired through easements and additional portions of the leases totaling 14,469 acres in 1971 and 1972. The final 2,550 acres of leases were terminated on 31 March 1978.

The Range Complex No. 1 MRS consists of approximately 1,390 acres in the northern portion of the former SAFR FUDS. The MRS includes Bombing Target No. 1, Bombing Target No. 4, and AGGR No. 1. The Air Force used Bombing Target No. 1 as a practice bombing range and Bombing Target No. 4 for practice bombing with 100- and 250-pound (lb.) practice bombs. AGGR No. 1 is a gunnery range overlapping Bombing Targets No. 1 and No. 4. The Air Force used this range for strafing and other air-to-ground firing with .50-caliber small arms ammunition (SAA).

The Range Complex No. 2 MRS is approximately 7,929 acres and is in the central portion of the former SAFR FUDS. The MRS is comprised of the OQ Range and the AGGR 2.

The Range Complex No. 3 MRS consists of approximately 1,247 acres in the southeastern portion of the former SAFR FUDS. The Air Force used the MRS Bombing Target No. 2 and Bombing Target No. 3 for bombing and gunnery training, and for demolition bombing using 100-lb. high explosive (HE) bombs and practice bombs.

1.2.1 Previous Investigations

The Air Force Explosive Ordnance Disposal (EOD) Squadron cleared 2,550 acres at Range Complex No. 1 and Range Complex No. 3 in March 1978. The USACE conducted a site visit in 1996 and identified practice bombs and .50-caliber SAA at several locations throughout the former SAFR FUDS. HE bomb fragments were encountered between Bombing Targets No. 2 and No. 3 in the Range Complex No. 3 MRS.

The USACE completed a Site Inspection (SI) in September 2007. No MEC was observed during the SI, but munitions debris (MD) was noted in each MRS. MD included 100-lb. and 500-lb. practice bombs, .50-caliber projectiles, cartridges, links, two expended illumination signals, .30-caliber SAA, 20-millimeter (mm) projectiles, and tracer projectiles. White and yellow crystalline material surrounding a crater (approximately 8-feet wide by 3.5-feet deep) was also noted near Bombing Target No. 3, which indicated potential for an open burn/open detonation site.

The USACE conducted Remedial Investigation (RI) field activities in 2017-2018. The RI MEC characterization field activities at the site consisted of a land survey, geophysical investigation utilizing Digital Geophysical Mapping, avoidance of sensitive species, intrusive investigations of anomalies, removal of MD and demolition of MEC. Additional findings are described in the Conceptual Site Model in Section 1.3.

In addition to the USACE investigations, commercial UXO contractors have performed work within the FUDS boundary for private clients in the past, however, no records of findings or specific locations of the commercial UXO activities have been made available to ADEQ.

In 2011, the Pima Regional Bomb Squad, with support from DMAFB EOD, disposed of a 500-lb. practice bomb associated with the former SAFR FUDS. The munition was reported to have a live but deteriorating spotting charge.

In January 2021, a UXO item was found on a private property near the southeast boundary of the

FUDS approximately 1 mile east of Range Complex No. 3. The item, which was identified as a decades-old 100-lb. practice bomb with spotting charge, was removed from the area and disposed of by DMAFB EOD personnel.

1.3 Conceptual Site Model

The SAFR FUDS has unrestricted access due to minimal physical barriers. There are several maintained unpaved roadways that traverse the site. The site has gently sloping terrain, sparse desert vegetation, and no significant water features to limit access. Some parcels have barbed wire fencing surrounding the properties and gates that are typically unlocked. The site is not guarded to prohibit trespasser access.

Current land use within the SAFR FUDS includes ranching, residential properties, recreational, industrial, and commercial users. Walden Grove High School (HS) is located immediately adjacent to the southwest corner of Range Complex No. 2. A portion of land south of Walden Grove HS adjacent to Range Complex No. 2 is currently being developed as a residential community.

1.3.1 Range Complex No. 1

The USACE did not find MEC in Range Complex No. 1 during the SI or RI (USACE, 2020). The types of MD found included debris from 100-lb. practice bombs, 250-lb. and 500-lb. practice bombs, confirmed inert (no HE) 100-lb. and 500-lb. sand-filled General Purpose (GP) bombs and associated expended spotting charges, fuze components associated with spotting charges and metal fragments, one unfired .50-caliber projectile and spent cartridges, and two expended illumination signals. The USACE observed a visible target center within Bombing Target No. 1 covered in .50-caliber links. During the RI, the USACE recovered 2,910 MD items from the ground surface and subsurface soil. Most MD consisted of debris from 100-lb. practice bombs (2,258 MD items). Based on the types of munitions found during the RI, the metal fragments most likely indicate mechanical breakup of practice munitions impacting the ground surface.

Although no MEC was discovered within the Range Complex No. 1 MRS, the RI Report concluded that MEC may be present, most likely in the form of black powder and M1A1 spotting charges associated with practice bomb usage.

1.3.2 Range Complex No. 2

The munitions documented or reported at Range Complex No. 2 during the SI included general SAA, .50-caliber projectiles, 20mm high HE projectiles (Mk1), 20mm projectiles (M55A1-tracer and Mk1-ball) used for target practice, 40mm projectile (possible non-USAF munitions use near the Walden Grove HS), 4.2-inch White Phosphorous (WP) mortar (non-USAF munitions use near the Walden Grove HS)

During the RI, the USACE encountered 28 unexploded ordnance items consisting entirely of 20mm incendiaries (likely the M96). The USACE discovered a total of 2,954 MD items in in Range Complex No. 2 during the RI. Intrusive investigations uncovered various SAA (mostly .50 caliber), primarily within the boundaries of the OQ Range. The USACE conducted a grid-based analog geophysical and intrusive investigation (mag and dig) using handheld magnetometers on 2.3-acres at the Walden Grove HS property. The investigation resulted in approximately 14,245 subsurface anomalies, all of which were dug by hand. The majority of the anomalies were non-munition related debris and a small amount of MD was recovered and disposed of. This MD did not correlate well with

the historical record or other findings within Range Complex No. 2. For example, several unidentifiable small smoke charges and flares were discovered, possible fragments from a 20mm HE round, and several small pieces of frag and a potential fuze from what may have been a 40mm projectile.

The RI findings confirmed the presence of MEC associated with historical use within Range Complex No. 2. The USACE delineated a Concentrated Munitions Use Area within Range Complex No. 2 consisting of 20mm projectiles located approximately 2.5 miles east of Walden Grove HS.

1.3.3 Range Complex No. 3

In Range Complex No. 3, the USACE found 3,909 MD items including debris from 100-lb. and 500-lb. practice bombs and debris from an unknown projectile. The USACE also reported white and yellow crystalline material surrounding a crater in Bombing Target No. 3, approximately 1,000-feet southwest of the center of Bombing Target No. 2. The USACE tested this material for explosives using an EXPRAY Explosive Detection Kit, which returned a negative result.

During the RI, the USACE discovered 18 MEC within Bombing Target No. 2. MEC included M1A1 spotting charges associated with practice munitions and black powder spotting charges associated with inert GP practice bombs. Metal fragments consistent with high volume usage of HE-filled GP ordnance was not located, although a small quantity (approximately 50 pieces) of fragments typical of an HE munitions item (likely from a projectile) was recovered within Range Complex No. 3. Insufficient evidence was available to determine the source of the HE fragments. The USACE also confirmed the white and yellow crystalline material identified during the previous SI. The USACE tested this material for explosives and the result was negative.

1.4 Objectives

UXO Pro will implement and maintain interim LUCs to educate and inform site users about the potential explosive hazards at the site through public outreach, explosive hazard warning signs, and educational kiosks as an interim measure until the USACE identifies and develops final remedial actions to reduce the potential for human exposure to MEC.

The scope of work for the installation of interim LUCs and LUCs monitoring consists of the following major components:

1.4.1 Community Involvement/Site Access Support

- UXO Pro will assist ADEQ with Community Involvement Activities. As necessary, UXO Pro will assist the ADEQ Public Involvement Coordinator in completing public information material.
- UXO Pro will also provide support, as necessary, to ADEQ to obtain access to State Land and easements for the installation of hazard warning signs and kiosks. Signs and kiosks will only be placed on land for which ADEQ has obtained formal Right-of-Entry (ROE).

1.4.2 Site Visit

 UXO Pro's Sr. Scientist/Project Manager and will accompany the ADEQ Project Manager on a site visit to gain familiarity with the physical nature of the site and confirm the number of signs needed and optimum sign locations. Appendix A, Figure 1-3 presents the locations for the placement of signs and kiosks.

1.4.3 Field Activities

- UXO Pro and its Subcontractor will mobilize to the former SAFR FUDS to install an estimated 100 hazard warning signs and two kiosks. Signs and kiosks will be located on Arizona State Land. Warning signs will be mounted on steel T-posts at a minimum height of 60-inches above ground surface. Where existing fencing is available and in good condition, signs may be attached to the fencing. The locations of all signs will be documented using an appropriate handheld Global Positioning System device. Appendix A, **Figure 1-3** presents the sign locations.
- The perimeter sign locations have been selected based on primary site access points (i.e., where paved and unpaved roads provide access to the site); interior signs are proposed for locations near USACE documented CMUAs (USACE, 2020) with additional sign concentration near the Walden Grove HS. The signs will identify the site as a former military training area and warn against contact with potential ordnance items. The signs will also direct inquiries to 911 to report any potential ordnance findings. Appendix A, **Figure 1-4** provides an example of the hazard warning signs.
- One kiosk will be located near Walden Grove HS; the second kiosk will be located at the southwest corner of the intersection of Sahuarita Rd. and Wilmot Rd. The kiosk signs will provide warnings of the potential presence of ordnance and the risk of contact with ordnance items. The kiosks will include a history of the former SAFR FUDS, the 3Rs of Explosives Safety, instructions to not handle suspect items, and 911 to report any potential ordnance findings. Appendix A, Figure 1-5 shows an example of a kiosk from the Ft. Huachuca FUDS MRS01- 02, which will be the design and layout for the SAFR FUDS Kiosks.
- A UXO Pro UXO Qualified Person (UXOQP) will provide Anomaly Avoidance Support. The UXOQP will conduct, and all field personnel will attend, an initial and daily tailgate MEC Awareness and Safety briefing on the existing and potential MEC/munitions potentially presenting an explosives hazard (MPPEH) hazards prior to starting the day's field activities. Safety precautions outlined in the Abbreviated Accident Prevention Plan and UXO Pro Standard Operating Procedure (SOP)-1 will be observed while conducting UXO escort and anomaly avoidance procedures. The Field Team will not touch or disturb suspected MEC or MPPEH and no intrusive work will be conducted within 4feet of any identified anomaly or suspect MEC/MPPEH. A copy of UXO Pro's SOP-1 is provided in Appendix B.

1.4.4 Land Use Controls Implementation Report

 UXO Pro will prepare a LUCs Implementation Report to document the establishment of the interim LUCs. The report will discuss the objectives and purpose of the LUCs Implementation program, describe the activities undertaken to install the hazard warning signs and kiosks, and will include figures and tables documenting the final sign locations and any suspect MEC/MPPEH encountered during field activities. The report will also include a discussion of site access procedures, provide ROE documentation, and will discuss any issues encountered that may impact future inspection and maintenance activities.

1.4.5 Land Use Controls Management and Reporting

• UXO Pro has provided cost estimates for two options to conduct LUCs inspections and maintenance. Option 1 provides for one inspection to be conducted approximately 2-3 months following completion of sign/kiosk installation. Under Option 2, UXO Pro will conduct quarterly site inspections of the warning signs and kiosks for one year. Inspections will be conducted to ensure the signs/kiosks remain in place and do not show signs of damage or weathering that would affect their usefulness. Following the initial inspection, UXO Pro will consult with ADEQ to determine the frequency of subsequent inspections. At the request of ADEQ or ADOA, inspections may continue until the USACE implements a final remedy for the site. UXO Pro will photograph all signs and provide a brief report to document inspection activities and condition of the signs/kiosks. During each inspection, UXO Pro will carry up to 20 replacement signs. If any of the original signs are missing or damaged UXO Pro will replace or repair the sign, as necessary. If additional signs or kiosks are damaged or require maintenance, UXO Pro will document the damage or required maintenance and provide ADEQ with a separate Scope of Work and Cost Estimate to complete the necessary repairs/maintenance. UXO Pro will complete a brief report to document inspection and maintenance activities and provide recommendations for any follow-up activities required.

2.0 Land Use Controls Work Plan

This LUC WP is developed to describe the procedures, installation operations and maintenance of interim LUCs and the processes for educational mechanisms to be provided to site users and the local community for the former SAFR FUDS. UXO Pro will be responsible for following Local, State and Federal requirements and guidance documents for all activities described in this WP.

2.1 Land Use Controls Objective

LUCs are legal/educational mechanisms and/or physical structures/barriers that restrict the use of or limit access to an area to prevent or reduce risks to human health and/or the environment. The former SAFR FUDS interim LUCs will be implemented to guide access to areas intended for recreational use, discourage access to areas not planned for public use, and provide for explosive safety awareness, all of which will reduce the potential for human exposure to any MEC potentially remaining at the site (i.e., reduce potential explosive hazard). LUCs will be maintained at the former SAFR FUDS until the USACE identifies and implements a remedy either through the finalizing of a Record of Decision or implements its own interim LUCs for the former SAFR FUDS.

2.2 Land Use Controls Implementation

UXO Pro will install one bilingual (Spanish and English) educational kiosk immediately south of the Walden Grove HS at the north end of the former airstrip, and one similar kiosk at the southwest corner of the intersection of Sahuarita Rd. and Wilmot Rd. One hundred bilingual (Spanish and English) MEC hazard warning signs that are 24"Hx18"W will also be installed. The approximate locations are shown in Appendix A, **Figure 1-3**. UXO Pro's subcontractor Dynamic Fencing and Fabrication, LLC., will provide personnel and Utility Terrain Vehicles (UTVs) to access the proposed sign locations and install the signposts.

The educational kiosks and signs will provide explosive awareness and safety procedures should suspected MEC be encountered. Appendix A, **Figure 1-4** provides an example of the hazard warning signs to be installed. An example of the kiosk style is included in Appendix A, **Figure 1-5.** The actual kiosk and signs produced may vary slightly in terms of dimensions and format/content but will convey the information shown.

Anomaly avoidance at the kiosk and sign locations will be performed to the depth of installation following UXO Pro SOP-1 Anomaly Avoidance found in Appendix B.

- During anomaly avoidance, the UXOQP will utilize a handheld analog metal detector to assist with detecting and avoiding surface MEC/MPPEH and subsurface metallic anomalies. During anomaly avoidance intrusive activities, the UXOQP will first inspect the ground surface of the operational area to ensure the surface area is free of any suspect MEC/MPPEH before site operations can proceed. This surface inspection will include a visual metal detector assisted surface sweep over areas of ingress and egress to the work site. At the location or area where intrusive activities will occur, the UXOQP will utilize the handheld analog metal detector to check the location for subsurface metallic anomalies prior to the commencement of any intrusive work.
- If a subsurface metallic anomaly is detected at the location of the intended intrusive or ground-disturbing activity, this area will be avoided for intrusive work in favor of an alternate location adjacent to or nearby the original location (but far enough away to

ensure no contact is made with the previously detected anomaly).

- Intrusive work will not commence until the UXOQP has indicated that it is safe to do so. After confirming the work area is clear of surface MEC/MPPEH and subsurface anomalies, the intended intrusive or ground-disturbing activities may commence. For the initial intrusive activity for drilling, penetrating, driving, boring, trenching, or pit excavation, the depth of intrusive activity will be limited to an incremental depth of 6inches. Once the first incremental depth is reached, the UXOQP will check the location once again for subsurface metallic anomalies before the intrusive excavation can continue.
- As intrusive activities progress, the location or area will be checked by the UXOQP at the same depth increments in the previous bullet above until the maximum depth of digging, drilling, penetrating, driving, boring, trenching, or pit excavation is reached for the intrusive/ground disturbing activities.
- During the analog detector-aided subsurface anomaly checks, all metallic equipment will be moved far enough away from the detection location or area so as not to interfere with or mask any metallic subsurface anomalies.
- The on-site UXOQP will conduct an instrument assisted check of soil spoils as they are removed during excavation or borings while conducting anomaly avoidance field activities.
- Discovered suspected surface MEC/MPPEH must be avoided and the following recorded: identification of type without touching or moving it, location recorded with a handheld Global Positioning System (GPS) unit, description of how it was discovered, and photographs. The item will then be reported to the local authorities.
- If subsurface anomalies are detected, stop installation immediately and backfill the hole. Select a new location for the warning sign or kiosk.
- The kiosk posts will be buried down to two (2) feet below ground surface (bgs) and will include a footing of concrete to ensure the kiosks will withstand the expected windspeeds for the SAFR FUDS area.
- The hazard warning signs will be installed on existing fences or gates where appropriate or on metal T-posts buried down to 18-inches bgs. The T-posts will be secured in concrete.
- The LUCs boundary, with coordinates, encompassing the site will be documented in the LUCs Implementation Report.

2.3 MPPEH Handling

UXO Pro is not authorized or equipped on this project to perform MEC or MPPEH identification, as it requires two UXOQP to make a final determination on the identification and condition of either MEC or MPPEH. UXO Pro will report suspected MEC/MPPEH discoveries to the ADEQ Project Manager, who may then notify the local law enforcement for disposition. If suspected MEC/MPPEH is encountered, the UXOQP performs the following:

- Stops the team, draws attention to the hazard, and marks the hazard with a high visibility pin flag, paint, or surveyors' tape.
- If safe to do so and without touching or disturbing the suspect MEC/MPPEH, the UXOQP should attempt to identify the MEC or MPPEH via markings and other external

features such as shape, size, and external features.

- Records the locations of suspected MEC/MPPEH items in a GPS unit.
- Photographs the suspect MEC/MPPEH.

All discoveries of suspect MEC or MPPEH will be included in the LUCs Implementation Report.

3.0 Land Use Controls Monitoring Plan

LUCs monitoring will occur at the former SAFR FUDS to assess and document the progress of the LUCs as they pertain to this WP's objective. UXO Pro will return to the site approximately 2-3 months following completion of LUCs implementation to evaluate the conditions of signs and kiosks. UXO Pro will carry up to 20 signs to replace or repair any signs that are missing or damaged. Since anomaly avoidance will not be provided during monitoring activities, UXO Pro will not conduct any new intrusive activities if a signpost is missing or requires reinstallation. If UXO Pro cannot reinstall a signpost in the same position, field personnel will note the sign number and location and determine how to proceed in conjunction with the ADEQ Project Manager.

If any suspect MEC or MPPEH is identified during the LUCs monitoring UXO Pro will report the discoveries to ADEQ and will follow the documentation process identified in the UXO Pro SOP-1 Anomaly Avoidance.

The LUCs inspection checklist shown in Appendix C will be completed during the LUCs monitoring. Over time, based on observations made during the LUCs Monitoring program, this checklist may be modified, if warranted, to ensure applicability and increase its effectiveness. The educational kiosks and signs will be kept in operating condition. Operational defects noted during inspections will be repaired.

4.0 Reporting

Following the implementation of the LUCs, an Interim LUCs Implementation Report will be prepared to summarize the activities and results for the installation of the LUCs.

4.1 Land Use Controls Implementation Report

Following the implementation of the LUCs, an Interim LUCs Implementation Report will be prepared to summarize the activities and results for the installation of the LUCs. The report will discuss the objectives and purpose of the LUCs Implementation program, describe the activities undertaken to install the hazard warning signs and kiosks, and will include figures and tables documenting the final sign locations and any suspect MEC/MPPEH encountered during field activities. The report will also include a discussion of site access procedures, provide ROE documentation, and will discuss any issues encountered that may impact future inspection and maintenance activities.

4.2 Land Use Controls Monitoring and Reporting

Following each inspection, a summary report will be provided to ADEQ and ADOA documenting routine maintenance tasks, inspection findings, and as applicable, corrective actions taken. Inspection checklists will be completed for each inspection and included in the LUCs Monitoring Report.

5.0 Project Schedule

The project schedule is provided in Appendix D. The LUCs Monitoring is included but may be revised as needed to meet ADEQ schedules.

Interim LUCs implementation Work Plan Former SAFR, MRS 1, 2, & 3 Sahuarita, AZ

6.0 References

USACE, 2020. Preliminary Draft V4 Remedial Investigation/Feasibility Study, Former SAFR, MRS No. 1, 2, & 3., Sahuarita, Pima County, AZ. August.

Appendix A Figures



			Former Sahuarita Air Force Range Pima County, Arizona Figure 1-2 Former SAFR FUDS and Surrounding Land Use
			Legend
			Sahuarita AFR Property Boundary
			Range Complex No. 1 (1 300 Acres)
	AMELLAR (A A A A A A A A A A A A A A A A A A		Range Complex No. 1 (7,390 Acres)
			Range Complex No. 3 (1,247 Acres)
			No
			Land Ownership
			Arizona Electric Power Coop
			City of Tucson
	Selected a construction of the second se		Pima County
			Sahuarita Acres
			Sabuarita School District
	1998 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 -		State of Arizona
			Other/Private
			Note: Figure is from Remedial Investigation / Feasibility Study, Figure 3-1 (U.S. Army Corps of Engineers, September 2022)
			NN 8.5 PROJECTION: NAD 1983 UTM Zone 12N Units: Meter
		A A A A A A A A A A A A A A A A A A A	DESIGNED BY: JK
			DRAWN BY: JK SCALE: 1:80,000
			СИНСКЕВ ВҮ: ВН DATE: 0//10/2023 SUBMITTED BY: JK FILE: 31 Reflect/Priv Sales v4
Abbreviations:	Notes:	Sources: MBS boundaries: USACE (2015)	
AFR: Air Force Range		MKS boundaries: USAGE (2015)	

Figure 1-3 Sign Location Map





Working map

1 ∎ Miles

0 0.25 0.5

12/19/2023

Maxar

Ν

Legend

- Information Kiosk
- Caution Sign
- Increased Munition Areas
- SAFR Boundaries
- State Trust Land
- Observed fencing
- Dirt Road or Trail (not field verified)

Figure 1-4 Final Hazard Warning Sign Design



Figure 1-5 Kiosk Example



Appendix B SOP-1 Anomaly Avoidance

Installation of Interim Land Use Controls (LUCs) at the Former Sahuarita Air Force Range, Pima County, Arizona

Prepared for:

State of Arizona Department of Administration



Arizona Department of Environmental Quality Purchase Order No. PO0000610457

January 30, 2024

Prepared by:

UXO Pro, Inc. 14750 Sweitzer Lane, Suite 150 Laurel, Maryland 20707



APPROVALS

This Standard Operating Procedure (SOP) contains the procedures and other information needed by UXO Pro, Inc. (UXO Pro) field staff for Unexploded Ordnance (UXO) Escort and Anomaly Avoidance during the installation of Interim Land Use Controls (LUCs) at the former Sahuarita Air Force Range, Pima County, Arizona. By their signatures, the undersigned certify this SOP is approved for implementation at the project site and will be used to direct UXO Escort and Anomaly Avoidance response techniques.

Sam Boking	1/30/2024
Samuel 'Keith' Rivera Quality Manager, UXO Pro, Inc.	Date
O-e	1/30/2024
Thomas Bourque President, UXO Pro, Inc.	Date

This SOP expires at the conclusion of project activities and will require a review and approval process prior to reissue. A full review of the SOP is required annually to ensure the document remains current. Revision will be made as operational and/or guidance changes occur. The review and approval process must also be conducted prior to implementing any changes to this SOP.

14750 Sweitzer Lane, Suite 150, Laurel, MD 20707 Telephone: 301 548-0382

SUPERVISOR'S STATEMENT

I have read and understand this SOP. To the best of my knowledge, the activities described in this SOP can be done in a safe, healthful, and environmentally sound manner. I have made sure that all persons assigned to this process are qualified, have read and understand the requirements of this SOP, and have signed the worker's statement for this purpose. I will ensure the SOP contains current procedures. If a major change to the SOP is necessary, I will ensure that the process is stopped until the SOP is revised and approved. If unexpected safety, health, or environmental hazards are found, I will make sure the process is stopped until the hazards have been eliminated.

Signature

Date

WORKER'S STATEMENT

I have read this SOP and received the training necessary to perform the procedures addressed in the SOP. If I identify a hazard not addressed in this SOP or encounter an operation I cannot perform in accordance with this SOP, I will stop the process and notify my immediate supervisor.

Worker's Name	Date	Supervisor's Name	Date

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ATTACHMENT 1. QUALITY CONTROL INSPECTION CHECKLIST

LIST OF ACRONYMS

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AAPP	Abbreviated Accident Protection Plan
ADEQ	Arizona Department of Environmental Quality
GPS	Global Positioning System
IAW	In Accordance With
LUCs	Land Use Controls
MEC	Munitions and Explosives of Concern
MPPEH	Munitions Potentially Presenting an Explosives Hazard
PPE	Personal Protective Equipment
SAFR	Sahuarita Air Force Range
SOP	Standard Operating Procedure
UXO	Unexploded Ordnance
UXOQP	UXO Qualified Personnel

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Telephone: 301 548-0382



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1.0 PURPOSE

The purpose of this Standard Operating Procedure (SOP) is to provide Arizona Department of Environmental Quality (ADEQ), UXO Pro, Inc. employees, and its subcontractor's employees with the minimum procedures and safety and health requirements applicable to conduct and observe unexploded ordnance (UXO) escort and anomaly avoidance response techniques during the installation of interim land use controls (LUCs), at the former Sahuarita Air Force Range (SAFR) Formerly Used Defense Site, Pima County, Arizona.

The interim LUCs will be in the form of warning signs and information kiosks. The Arizona Department of Administration and ADEQ recommended the installation of interim LUCs and the maintenance of the installed signs and kiosks out of an abundance of caution until the former SAFR Record of Decision has been signed and the Remedial Action can be implemented.

2.0 SUMMARY OF METHOD

All UXO Pro employees and subcontractors that are tasked with performing Munitions and Explosives of Concern (MEC) related activities must qualify in accordance with (IAW) Department of Defense Explosive Safety Board Technical Paper 18. Site workers must perform all work in a manner consistent with Occupational Safety and Health Administration established standards and requirements and conduct all activities in conformance with the project specific Abbreviated Accident Prevention Plan (AAPP).

This MEC SOP discusses surface and subsurface anomaly avoidance procedures and techniques to be used while conducting the installation of interim LUCs. Anomaly avoidance techniques must be employed on properties known or suspected to contain MEC to avoid surface and subsurface explosive hazards. Anomaly avoidance techniques are implemented for activities that include the following:

- Surveying and mapping,
- Warning signs and Kiosk installation.

3.0 PERSONNEL

For anomaly avoidance or escorting on a site suspected to contain MEC, UXO Pro provides a UXO Qualified Personnel (UXOQP). The UXOQP has ultimate responsibility for ensuring that all MEC anomaly avoidance support activities are performed IAW this SOP, and/ the AAPP. The UXOQP directs all MEC anomaly avoidance support during field operations.

3.1 UXO Personnel

The UXOQP performs the following:

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- The UXOQP must have visual contact with all site field personnel, remain with personnel while the interim LUCs are being installed and anomaly avoidance procedures are required.
- Provide MEC recognition, location, and explosive safety functions.
- Conduct explosive safety briefing for all site personnel and visitors.
- Conduct surface and subsurface anomaly avoidance.
- Coordinate and report suspected MEC or Munitions Potentially Presenting an Explosive Hazard (MPPEH) discoveries to ADEQ and to local law enforcement.

3.2 Non-UXO Personnel

Non-UXO personnel perform the following:

- Obtain training in recognizing the potential hazards associated with MEC.
- Always remain with the UXOQP unless otherwise cleared to work without a UXO escort.
- Follow the instructions given by the UXOQP if an accident occurs.
- Exercise caution when walking on site and follow UXOQP directions.

4.0 EQUIPMENT AND SUPPLIES

4.1 General Equipment and Supplies

The following equipment is typically used during MEC anomaly avoidance operations:

- Hand-held analog ferrous metal detector or an all-metals detector
- Logbook and/or tablet for recording data
- Camera
- Communications equipment (checked prior to each day's use)
- Global Positioning System (GPS).

Safety equipment required includes the following:

- First-aid kit
- Level D personal protective equipment (PPE)
- Inclement weather gear as needed.

Minimum required Level D PPE will include the following:

• Work clothing will be appropriate for the conditions encountered. Long-sleeved or short-short sleeved shirt and long pants

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- Safety toe boots. UXOQP will not wear steel-toe boots when using metal detectors. (Footwear will be sturdy work boots or rubber boots as appropriate (i.e., lug sole and of sufficient height for ankle support)
- Safety eyewear (will be always worn)
- Work Gloves
- Safety vest or shirt

The following supplies are typically used during MEC anomaly avoidance operations:

- Flagging ribbon
- Pin flags
- High visibility, biodegradable spray paint

4.2 Equipment Inspections

Staff must perform the following equipment inspections:

- Perform a daily equipment function check on all geophysical instruments and GPS equipment. Describe the performance results of the equipment check in the logbook or in an instrument maintenance and calibration log following each functionality test.
- If an equipment function check indicates that any piece of equipment is not operating correctly, and it cannot be field repaired immediately, remove the equipment from service until it can be repaired.

5.0 SAFETY

All personnel will attend an initial and daily tailgate MEC Awareness and Safety briefing, given by the UXOQP, on the existing and potential MEC/MPPEH hazards within the project site and covering emergency procedures, operations, and anomaly avoidance procedures prior to commencing field activities.

Personnel will be cognizant of the surroundings at all times and remain observant of their footing as they traverse the project site or work areas. All personnel will be aware of the signs of heat stress and be able to recognize the onset of heat stress disorders in themselves and their team members.

In the event of severe weather or a natural disaster (earthquake, or very high winds, etc.), account for all team personnel, contact the Site Safety Officer or Site Manager for instructions and follow the procedures found in the AAPP.

If MEC is encountered during any phase of work, adhere to the following MEC safety

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precautions and protocols:

- <u>DO NOT</u> touch, move, or jar any ordnance items regardless of their markings or apparent condition.
- Under no circumstances handle any suspected MEC or MPPEH during avoidance activities or move suspected MEC or MPPEH in an attempt to make a positive identification.
- <u>DO NOT</u> touch, pick up, kick, or move anything that is unfamiliar or unknown.
- <u>DO NOT</u> roll the item over or scrape the item to identify markings.
- <u>DO NOT</u> approach or enter a munitions site if an electrical storm is occurring or approaching. If a storm approaches during site operations, leave the site immediately and seek shelter.
- <u>DO NOT</u> transmit radios or cellular phones in the vicinity of suspect MEC hazards.
- <u>DO NOT</u> walk across an area where the ground surface cannot be seen or that has not been cleared of explosive hazards by the UXOQP.
- <u>DO NOT</u> rely on color codes for positive identification of ordnance items nor their contents.
- <u>DO NOT</u> drive vehicles into a suspected MEC area until anomaly avoidance techniques have been implemented.
- <u>DO NOT</u> handle practice ordnance. Practice ordnance can have explosive charges used to mark and/or spot the point of impact, or the item could be marked incorrectly.
- Clearly mark the location of any ordnance item found during anomaly avoidance activities so that it can be easily located and avoided.
- Report suspected MEC/MPPEH to ADEQ and to the local police department to be disposed of.

6.0 ANOMALY AVOIDANCE PROCEDURES

Conduct anomaly avoidance procedures during field investigation activities whenever there is a potential for encountering MEC. The purpose of the procedures is to avoid any potential surface and subsurface MEC hazards during these activities. Anomaly avoidance procedures including the following are outlined in the subsections below:

• Establishing site access routes and site boundaries and conducting MEC

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UXOPno

avoidance surveys.

- Conducting land surveying and mapping.
- Conducting the installation of warning signs and kiosks.

6.1 Access Survey and MEC Avoidance Procedures

The UXO escort must conduct an access path survey for surface hazards and subsurface anomalies before any type of activities commence, including foot and vehicular traffic. The UXO escort is responsible for conducting the access survey using the following steps:

- Conduct an access survey of the footpath and/or vehicular lanes approaching and leaving work areas with known or suspected MEC.
- Conduct an access survey around the proposed work site that is large enough to support all planned operations. The size of the area will consider the maneuverability of the equipment and the space required to stage support vehicles or equipment.
- Use geophysical instrumentation capable of detecting the smallest known or anticipated MEC to locate anomalies just below the ground surface that may be encountered because of erosion from rain or because of continual foot or vehicular traffic. If the emplacement depth is greater than the detection capabilities, then the escort must complete the geophysical survey in intervals until the required depth is reached (for example, every 6 inches, 1 foot, 2 feet, and so forth).
- Clearly mark the route(s) for future entry control.
- If anomalies or surface MEC are encountered, mark the items and relocate the work area to an anomaly free area to avoid contact.
- Prohibit personnel from working outside of the surveyed areas.

6.2 Land Surveying and Mapping Procedures

The UXOQP performs the following during land surveying and mapping activities:

- Conducts an access survey of the routes to and from the proposed survey site and an area around the site.
- Visually inspects the surface of each proposed survey point for any indication of MEC or MEC related contamination.
- Uses a handheld geophysical instrument to assess the presence or absence of subsurface anomalies at the locations where survey points/stakes installation is

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planned. If responses indicate an anomaly, the UXOQP disallows survey point/stake installation at that specific location and assists in selecting an alternate location.

6.3 Warning signs and Kiosk installation

For installation of warning signs and kiosks that will require digging and subsurface activities in areas with suspected MEC, the following procedures will be observed:

- A MEC safety briefing and awareness training for all site personnel will be provided by the assigned UXOQP.
- During anomaly avoidance, the UXOQP will utilize a handheld analog metal detector to assist with detecting and avoiding surface MEC/MPPEH and subsurface metallic anomalies. During anomaly avoidance intrusive activities, the UXOQP will first inspect the ground surface of the operational area to ensure the surface area is free of any suspect MEC/MPPEH before site operations can proceed. This surface inspection will include a visual, metal detector-assisted, surface sweep over areas of ingress and egress to the work site. At the location or area where intrusive activities will occur, the UXOQP will utilize the handheld analog metal detector to check the location for subsurface metallic anomalies prior to the commencement of any intrusive work (excavations, drilling, penetrating, or trenching).
- If a subsurface metallic anomaly is detected at the location of the intended intrusive or ground-disturbing activity, this area will be avoided for intrusive work in favor of an alternate location adjacent to or nearby the original location (but far enough away to ensure no contact is made with the previously detected anomaly).
- Intrusive work will not begin until the UXOQP has indicated that it is safe to do so. After confirming the work area is clear of surface MEC/MPPEH and subsurface anomalies, the intended intrusive or ground-disturbing activities may commence. For the initial intrusive activity for drilling, penetrating, driving, boring, trenching, or pit excavation, the depth of intrusive activity will be limited to an incremental depth of 6-inches. Once the first incremental depth is reached, the UXOQP will check the location once again for subsurface metallic anomalies before the intrusive excavation can continue.
- As intrusive activities progress, the location or area will be checked by the UXOQP at the same depth increments in the previous bullet above until the

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maximum depth of digging, drilling, penetrating, driving, boring, trenching, or pit excavation is reached for the intrusive/ground disturbing activities.

- During the analog detector-aided subsurface anomaly checks, all metallic equipment will be moved far enough away from the detection location or area so as not to interfere with or mask any metallic subsurface anomalies.
- The on-site UXOQP will conduct an instrument assisted check of soil spoils as they are removed during excavation or borings while conducting anomaly avoidance field activities.
- Discovered suspected surface MEC/MPPEH must be avoided and the following recorded: identification of type without touching or moving it, location recorded with a handheld GPS, description of how it was discovered, and photographs. The item will then be reported to the local authorities.

• If subsurface anomalies are detected

- Stop installation immediately and backfill the hole.
- Select a new location for the warning sign or kiosk.

7.0 QUALITY CONTROL

Specific quality control metrics for the UXO escort and anomaly avoidance tasks are limited to performing a daily function check on the hand-held analog metal detector to ensure it is operating properly. The metal detector/gradiometer function check will be performed at the beginning of the day's activities and when the detector is powered off and powered back on throughout the day. In addition, the UXO Technician will perform a check of communication devices used on site. These checks will be documented in the logbook.

8.0 MUNITIONS AND EXPLOSIVES OF CONCERN

8.1 MEC Encountered

If MEC or MPPEH is encountered, the UXOQP performs the following:

- Stops the team, draws attention to the hazard, and marks the hazard with a highvisibility pin flag, paint, or surveyors' tape.
- If safe to do so, and without touching or disturbing the suspect MEC, the UXOQP should attempt to identify the MEC or MPPEH via markings and other external features such as shape, size, and external features.
- Records the locations of suspect MEC/MPPEH items in a GPS.

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- Photographs the suspect MEC/MPPEH.
- Makes notifications required in the project planning documents.

8.2 MEC Disposition

The UXOQP is not authorized or equipped to perform MEC disposition. MEC/MPPEH discoveries must be reported to the designated personnel/agencies identified in project planning documents.

9.0 REFERENCES

- U.S. Department of Defense Explosives Safety Board. 2015. Minimum Qualifications for Personnel Conducting Munitions and Explosives of Concern-Related Activities. Technical Paper 18. September.
- U.S. Army Corps of Engineers (USACE). 2008. Explosives Safety and Health Requirements Manual. Engineer Manual 385-1-97. September.

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SOP ATTACHMENT 1 QUALITY CONTROL INSPECTION CHECKLIST

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PREPARATORY, INITIAL, FOLLOW-UP CHECKLIST AND QC INSPECTION ANOMALY AVOIDANCE

TEAM INFORMATION						
Team:		Location:			Date:	
Team Lea	der:	·				
Personnel	Present:					
Phase of I	nspection (Cheo	ck one): Preparatory (P); Initial (I);	Folle	w-Up (F)	; 🗆 Daily	Inspection
		CHECKLIST				
ITEM	REF.	INSPECTION POINT	YES	NO	N/A	COMMENTS
1	Workers' Statement	Have all Anomaly Avoidance Team Members read this SOP?				
2	APP	Have all personnel read or were trained on the applicable portions of the APP/SSHP which they will conduct work and is it documented?				
3	APP	Have all personnel read and signed the APP/SSHP and AHAs?				
4	SOP 1, Sec. 4	Are all personnel trained on the equipment they will use during field operations and is it documented?				
5	SOP 1, Sec. 10	Is all equipment on site to conduct the DFW?				
6	SOP 1, Sec. 7	Are analog instruments checked for functionality?				
7	SOP 1, Sec. 5c and 6h	If MEC is located, are procedures outlined in the SOP followed?				
8	SOP 1, Sec. 6b and 6c	Prior to any intrusive activity (i.e., driving stakes, soil sampling, bore sampling, etc.) is the location searched with a hand-held all-metals detector and is an alternate anomaly-				

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		free location used if a subsurface anomaly located?				
9	SOP 1, Sec. 7 and 10	SOP 1, Sec. Are communications checked? 7 and 10				
		FINDINGS				
Item		Comments				

Conducted By: _____ Reviewed By: _____

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Appendix C LUCs Site Inspection Checklist

Former SAFR FUDS LUCS Monitoring Checklist

Weather:

Date:

Inspector Name:

Item	Potential Problems	Observations	Acceptable?		Recommended Corrective
			Yes	No	Action
Hazard Warning Sign	Damaged Sign (Sign #)				
	Missing Sign (Sign #)				
	Missing or Displaced Post				
Kiosk #1 (Walden Grove HS)	Damage to or deterioration of the kiosk or its informational display				
	Obstruction of kiosk by vegetation				
Kiosk #2 (Sahuarita/Wilmot Rds)	Damage to or deterioration of the kiosk or its informational display				
	Obstruction of kiosk by vegetation				
Potential MEC	Suspected MEC that inhibits access to signs or kiosks				
Other Observations	Significant vegetation growth or erosion that inhibits access to signs or kiosks; New unauthorized dumping; Changes in site use that affect signage; Other observations				

Appendix D Project Schedule

Former Sahuarita Air Force Range Project Schedule

			Planned Completion	
Defineable Feature of Work	Responsible Party	Planned Start Date	Date Date	Deliverable
Kick-Off Meeting	UXO Pro/ADEQ/ADOA/State Land			Meeting presentation; draft sign and
		11/29/23	11/29/23	kiosk displays
Pre-Mobilization Activities				
Develop Signs and Kiosk Display	UXO Pro/ADEO			
		11/01/23	02/26/24	Draft and Final signs and kiosk display
Procure Signs and Kiosks	UXO Pro			
		11/01/23	02/26/24	Final signs and kiosk display
Site Visit	UXO Pro/ADEQ			
		11/19/23	11/22/23	Summary and meeting presentation
Project Plans	UXO Pro			
		11/20/23	02/09/24	Draft and Final AAPP, SOP, and Work Plan
Sahuarita Town Council Meeting	UXO Pro/ADEQ			Meeting presentation; final sign and kiosk
		02/26/24	02/26/24	displays
Field Work				
Mobilization	UXO Pro/Dynamic Fencing			
		03/10/24		
Sign and Kiosk Installation	UXO Pro/Dynamic Fencing			
		03/11/24	03/16/24	
Demobilization	UXO Pro/Dynamic Fencing			
		03/17/24		
LUCS Implementation Report				
	UXO Pro			
Draft		03/18/24	04/05/24	Draft report
	UXO Pro			
Final		04/22/24	04/30/24	Final report