

Westcliffe
Engineers, Inc.**FIELD VARIANCE FORM**

DATE: 7-07-2008	PROJECT NAME: FORA ESCA RP	PROJECT LOCATION: Former Fort Ord, CA
APPLICABLE DOCUMENT / SECTION:	Final Addendum to Final OE-15SEA.1-4 Site-Specific Work Plan, Phase II Seaside Munitions Response Area (MRA) Removal Action, Former Fort Ord, dated January 24, 2008 ("the SSWP Addendum")/ Sections 2.3.4, 2.3.5, 5.24, 5.25 and 5.26	
SUBJECT:	Redefine approach to reacquisition and excavation of anomalies	

FIELD CHANGE CONDITION:

The work plan currently indicates that for digital geophysical mapping (DGM) surveys, the location of anomalies selected for investigation are flagged using Real Time Kinematic (RTK) Global Positioning System (GPS). After flagging the anomaly location, the anomaly location is refined using the same instrument used to conduct the digital geophysical survey (e.g. EM61-MK2 or G-858). This refinement requires the movement of the flag or the placement of a secondary flag to indicate the offset of the real-time peak response from the original DGM survey flag. This approach of refining the anomaly location with an EM-61 or G-858 relates to controlling navigation errors more typically associated with less accurate forms of navigation, such as line and fiducial navigation or "dead reckoning". Due to the high accuracy of target positioning using RTK GPS, used for this project, refinement of anomaly location is not necessary.

RECOMMENDED APPROACH / CHANGE:

Consistent with the current approach, DGM anomalies selected for investigation are located and flagged in the field using RTK GPS. RTK GPS is used to maintain the navigation accuracy required (± 0.1 foot).

For the secondary step of refining the anomaly selected for excavation, *FORA requests a variance to modify the reacquisition and excavation procedures. Specifically, instead of refining the location of the anomaly using the same instrument used to conduct the digital geophysical survey (e.g. EM61-MK2 or G-858), FORA will investigate all anomalies found within the area 3 feet around the DGM anomaly location flagged with RTK GPS.* The UXO Dig Team will use hand held instruments, appropriate to the type of instrument used for the DGM survey (all Metals for TDEM61-MK2 data and/or, Schonstedt or Ferrex for the Magnetometer G-858 data). The UXO Dig Team will note any offset from the flag to the excavated anomaly or anomalies and log accordingly.

The QC-1 process remains intact and requires checking 100% of the anomaly excavations with the same digital instrument (i.e. TDEM61-MK2 and/or G-858 Magnetometer) used in the original DGM survey. All "failures" identified during the QC-1 process will be fully documented in order to track any deficiencies in the initial reacquisition or intrusive investigation of the selected geophysical targets. All "failures" identified during the QC-1 procedure will be reinvestigated by the intrusive team prior to performance of the QC-2 resurvey procedure.

Attached is the revised standard operating procedure *Anomaly Reacquisition and Excavation Procedure* (Op.001.reacrev3) to be incorporated as part of this work plan.

IMPACT ON PRESENT AND COMPLETED WORK:



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There will be no impacts to completed work. Since this is a full coverage removal action using RTK GPS positioning, and 100% of the excavations are checked using the same instrument during the QC-1 step, the reacquisition operation as defined in the work plan is not necessary to this removal action. In the event that line and fiducial is used, the reacquisition refinement approach as currently defined in the work plan will be used.

REQUESTED BY: Mark Saunders, Project Geophysicist and Bruce Moe, Senior UXO Supervisor

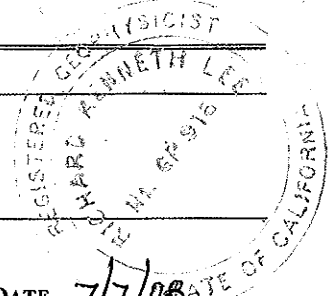
CLARIFICATION/FOR INFORMATION ONLY

MINOR CHANGE

MAJOR CHANGE

ESCA RP TEAM APPROVALS:

COMMENTS



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COMMENTS

APPROVED

REJECTED

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7/7/08

<i>WSI</i> POLICY AND PROCEDURE MANUAL	
SUBJECT: Anomaly Reacquisition and Excavation Procedure	No. Op.001.reacrev3
EFFECTIVE DATE: May 21, 2008	SUPERSEDES: Op.001.reacrev2
SECTION: Geophysics Group	DEPARTMENT: OU 1494
NAME/TITLE: J. Williams/Sr. Technical Manager	
SIGNATURE:	DATE APPROVED: May 21, 2008

1. PURPOSE

This procedure outlines the technical requirements and procedures for performing anomaly reacquisition and excavation of selected geophysical targets.

2. APPLICABILITY AND SCOPE

The requirements of this procedure are applicable to all project activities which include the excavation and investigation of selected geophysical targets.

3. REFERENCES

3.1. None

4. PROCEDURES

4.1. *Target Anomaly Flagging*

- 4.1.1. Upload of selected targets into navigational data logger as provided by the Geophysicist.
- 4.1.2. Set up the Real Time Kinematic (RTK) - Global Positioning System (GPS) in accordance with Weston Op.001.nav.rtk rev 1.
- 4.1.3. Perform instrument checkout in accordance with Weston Op.001.Analog Operator Checkout.su
- 4.1.4. Proceed to Control Point (ie. Fort Ord 36) and verify the accuracy (offset less than 0.1 ft).
- 4.1.5. Using the dig sheet information proceed to reacquire the anomaly targets identified marking each location with a non-metallic flag bearing the unique target ID. (ie. SCA W130 - 12). Place the flag within 0.1 feet of the target coordinates as determined on the RTK..
- 4.1.6. The Unexploded Ordnance (UXO) Dig Team will use the appropriate hand held instrument, depending on the type of instrument used for the

digital geophysical mapping survey (EM61-MK2 data – All Metals, G-858 data – Schonstedt to investigate an area 3 feet around each flag to confirm the anomaly response. The UXO Team will note any offset from the flag to the excavated anomaly or anomalies and log accordingly.

4.2. Excavation of Target Anomalies

- 4.2.1. Once the target anomalies are flagged as described in Section 4.1, the Dig Team will begin anomaly excavation activities.
- 4.2.2. The Dig Team will upload the selected target anomalies onto the Personal Digital Assistant (PDA) (UXOFast program).
- 4.2.3. The Dig Team will proceed to each flagged anomaly. One of the team members will bring up the Target ID on the UXOFast program to begin data collection.
- 4.2.4. The Dig team will excavate each anomaly location flag or the spray painted location.
- 4.2.5. Hand held instruments such as a Schonstedt or White will be used to assist the excavation work. The handheld instruments will be tested in the Geophysical Test Plot.
- 4.2.6. The excavation team will investigate all anomalies within 3 feet of the flag or spray painted location. Do not move the flag location in the event that multiple items are recovered from this area. Off-sets shall be measured from the original flagged location.
- 4.2.7. All anomalies will be identified and logged into the PDA running the UXOFast software.
 - 4.2.7.1. Target characteristics logged include but are not limited to; Item type (Munitions and Explosives of Concern (MEC), Munitions Debris (MD), cultural debris, QC item), item description (concrete, practice grenade), offset from flagged location, weight of item, depth, hole cleared, comments, etc. Once the data is entered, SAVE the entry.
 - 4.2.7.2. If the target anomaly is a MEC item, the Dig Team will notify the Senior UXO Supervisor who will then determine the course of action.
- 4.2.8. After logging an excavated item, the UXO techs will continue to sweep the anomaly location for additional items and arrive at two possible situations:
 - 4.2.8.1. If no further items are found within the radius of the flagged location, the hole is considered completed (cleared).
 - 4.2.8.2. If different, additional items are found they are logged under the same target but given a different suffix (-1, -2, -3, etc) and logged as

described above.

4.2.8.2.1. The Dig Team will proceed with excavation and removal of buried debris to the depth required in order to clear the hole.

4.2.8.2.2. The Dig Team will remove all items from the excavation hole. Items will not be placed back into the hole even if they are not MEC-related.

4.2.8.2.3. If the hole cannot be cleared due to extensive debris or the presence of an in-place object (e.g., a pipeline), the hole will be logged as "Not Cleared" and the Dig Team will inform the Senior UXO Supervisor of this finding. The hole may be investigated at a later time using heavy equipment (such as a backhoe or dozer).

4.2.9. The Dig Team shall handle all items recovered based on the type as specified in the work plan and explosive safety submission (ESS).

4.2.10. The Dig Team will then spread the spoils/excavated dirt into a thin lift and check the material for the presence of metal debris using a Schonstedt and/or White handheld instruments. The excavation will not be backfilled until the spoils have been checked and verified not to contain MEC or other metal debris.

4.2.11. Once the spoils have been checked, the Dig Team will backfill the hole.

4.2.12. If no anomalies are found the Dig Team the flag will be left at the original location and note the anomaly location as a "No Contact". No Contacts will be reviewed by the Geophysicist and checked as part of the QC-1 process.

4.3. Common Questions Encountered During Digging Procedures

4.3.1. What if the UXO Techs come to a flag and their instrument response is outside the sweep radius?

4.3.1.1. The UXO tech will check to see if any additional flags are near the response they are detecting. If there is, that response is due to that other flagged location. If there are no additional flags then the Dig Team will log that item under the flag location in which they started and mark the offsets accordingly. The offset failure will be identified by the QC geophysicist and an examination of the geophysical data will be performed to identify the reason for the failure. The offset failure distance is anything outside 2 feet of the original flagged location. Note the target is only considered a failure if there are no items dug within two feet of the flagged location. If additional items are found outside the two foot radius they are not failures.

4.4. Download and review of Dig Data

- 4.4.1. Upon returning from the field the UXO techs will turn in all PDA's and the site geophysicist (or designated person) will "Send" all the logged data onto the SQL UXOFast server.
- 4.4.2. The Site Geophysicist will review all the data for consistency and check the agreement with geophysical data (does the logged item "make sense" with the amplitude of the target).
- 4.4.3. The UXO QC Specialist and Senior UXO Supervisor will review any targets identified to be MEC or MD and review the entry information for consistency and accuracy.
- 4.4.4. Upon completing the QC procedures the targets will be made viewable to all parties via Teamlink.
- 4.4.5. The following morning and prior to using the PDA's, the Geophysicist (or designated person) will "Get" all the tables for the PDA's in order to "Sync" all the units with the same information.

Review/Revision Date:	J. Williams – 6/23/08
Original Prepared By/Date:	M. Saunders – 3/14/08
Revision #3	