FIELD VARIANCE FORM

DATE:	27-SEPT-2012	**PROJECT NAME:**	Future East Garrison Munitions Response Area	**PROJECT LOCATION:**	Future East Garrison
APPLICABLE DOCUMENT / SECTION:	Final Group 4 Remedial Investigation/Feasibility Study Work Plan, Volume 2 – Sampling and Analysis Plan, Section 12.3.1Pre-field Work Monitoring				
SUBJECT:	Appendix C; Addition of Standard Operating Procedures for Soils and Vegetation Handling in Aquatic Features				

FIELD CHANGE CONDITION:

The Remedial Investigation at Future East Garrison Munitions Response Area (MRA) is being executed in accordance with the Final Group 4 Remedial Investigation/Feasibility Study Work Plan for the Future East Garrison MRA dated October 8, 2010 ("the Group 4 RI/FS Work Plan"), FVF No. G4WP-001, FVF No. G4WP-003, and FVF No. G4WP-004.

Soil screening operations for munitions and explosives of concern (MEC) are anticipated to occur in the southern portion of Parcel E11b.7.1.1. Three aquatic features have been identified within this area. The aquatic features are surrounded by un-vegetated exposed sandstone and limited maritime chaparral, which appears to have been mechanically scraped at one time. The aquatic features have been previously disturbed and appear to be unsuitable habitat for California tiger salamander populations. No California tiger salamanders were observed during protocol surveys during the 2010 and 2011 wet seasons.

A test pit was excavated in the vicinity of the three aquatic features on September 6, 2012 in order to assess the general soil conditions and soil types that may be encountered beneath the aquatic features. The test pit was excavated to an approximate depth of 80 centimeters (cm [32 inches]) below the ground surface. At this test pit location, a sand interval was encountered to the total depth of the pit. At an approximate depth of 70 cm (28 inches), the sand interval was observed to be moist and to contain some fine-grained material. Soil/sediment of the aquatic features located in the soil screening operations area appear to be primarily mineral-rich soils with little organic material. The Group 4 RI/FS Work Plan allows for subsurface investigations and remedial activities; however, Section 12.3.1 Pre-Field Work Monitoring states "Although aquatic features occur within certain habitat reserve parcels, no fieldwork is planned to be conducted in those locations". Based on field investigation in the vicinity of the aquatic features, there is a need to perform subsurface MEC investigation and remedial activities in the aquatic features area. A standard operating procedure for such activity in aquatic features is not included in Appendix C, Standard Operating Procedures, of the work plan.

RECOMMENDED APPROACH / CHANGE:

It is recommended that an amendment be made to Volume 2 of the Group 4 RI/FS Work Plan for the addition of a SOP for Soil and Vegetation Handling in Aquatic Features (attached) to Appendix C. The SOP for Soils and Vegetation Handling in Aquatic Features addresses the following:

- Soil handling and stockpiling operations during soil excavation and screening operations
- Collection and preservation of aquatic feature materials such as duff, seed, and plants
- Observation of the excavation activities by a geologist for soil identification
- Soil replacement after screening operations
- Re-vegetation of aquatic features upon completion of soil replacement
- Documentation and reporting procedures

IMPACT ON PRESENT AND COMPLETED WORK:

No impact to present or completed work.

REQUESTED BY: Kristie Reimer, ESCA Remediation Program Manager (ARCADIS)

	CLARIFICATION/FOR INFORMATION ONLY	X	**MINOR CHANGE**		**MAJOR CHANGE**

ESCA RP TEAM APPROVALS: D. KEAN, G. CLARK, L. TEMPLE, M. CARROLL, C. PARDINI, K. REIMER

COMMENTS

ARCADIS WESTON

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FORA APPROVAL:

COMMENTS

☑ APPROVED ☐ REJECTED for STAN COOK — FORA ESCA PROGRAM MANAGER — SIGNATURE — DATE 9-27-12

ATTACHMENTS:

Standard Operating Procedures for Soils and Vegetation Handling in Aquatic Features

STANDARD OPERATING PROCEDURE FOR SOIL AND VEGETATION HANDLING IN AQUATIC FEATURES

1.0 PURPOSE

The purpose of this standard operating procedure (SOP) is to describe the procedure that will be protective of the biotic constituents of aquatic features affected by manual and mechanical soil screening activities in support of Munitions and Explosives of Concern (MEC) remedial investigations located in the Future East Garrison Munitions Response Area (MRA) in accordance with the Final Group 4 Remedial Investigation/Feasibility Study (RI/FS) Work Plan (Group 4 RI/FS Work Plan [ESCA 2010]); and Field Variance Form (FVF) No. G4WP-001, FVF No.G4WP-003, and No.G4WP-004 (ESCA RP 2010, 2012a, and 2012b). Handling of soil and vegetation in aquatic features should be conducted under the guidance of the Wetland Monitoring and Restoration Plan for Munitions and Contaminated Soil Remedial Activities at Former Fort Ord (Burleson Consulting 2006); and in accordance with the Installation-Wide Multispecies Habitat Management Plan (HMP; USACE 1997). The work falls under the Biological Opinions (BOs; USFWS 1999, 2002, 2005) issued to the United States Department of the Army to enable compliance with the federal Endangered Species Act and to avoid or minimize, to the extent feasible, take of listed species as well as protecting other species of concern.

ARCADIS U.S., Inc. (ARCADIS) has prepared this document on behalf of the Fort Ord Reuse Authority (FORA) in accordance with industry standards and consistent with the requirements of the Remediation Services Agreement dated March 30, 2007 by and between ARCADIS and FORA including any applicable governing documents and applicable laws and regulations.

2.0 SCOPE

Personnel handling soil and vegetation in an aquatic feature shall conform to this SOP. This SOP is not a stand-alone document and personnel shall become familiar with associated work plans and documents and/or manuals related to this operation, associated field activities, and health and safety requirements.

3.0 REGULATORY REFERENCES

- Occupational Safety and Health Administration (OSHA) General Industry Standards, 29 CFR 1910
- OSHA Construction Standards, 29 CFR 1926
- Unites States Army Corps of Engineers Engineering Manual 385-1-1, Safety and Health Requirements Manual

4.0 RESPONSIBILITIES

4.1 Program Manager

The Program Manager (PM) is responsible for oversight and ensuring availability of resources to safely and effectively implement this SOP.

4.2 Senior Qualified Biologist

The Senior Qualified Biologist (SQB) is responsible for incorporating this SOP in plans, procedures, and training, and ensuring compliance during field operations.

4.3 Biological Monitor

An ESCA RP Qualified Biologist will monitor field activities to ensure that aquatic feature soil and vegetation handling operations are conducted and documented in accordance with the Group 4 RI/FS Work Plan, this SOP, and applicable regulatory guidance.

4.4 Project Geologist

An ESCA RP Project Geologist will monitor field activities to ensure that aquatic feature soil handling operations are conducted and documented in accordance with the Group 4 RI/FS Work Plan and this SOP.

4.5 Remediation Project Manager

The Remediation Project Manager (RPM) is responsible for ensuring availability of resources to safely and effectively implement this SOP.

4.6 Senior UXO Supervisor

The Senior Unexploded Ordnance Supervisor (SUXOS) is responsible for incorporating this SOP in plans, procedures, and training, and ensuring compliance during field operations.

4.7 UXO Safety Officer

The Unexploded Ordnance Safety Officer (UXOSO) ensures that field operations are conducted in a safe manner, in accordance with the Group 4 RI/FS Work Plan, this SOP, and applicable regulatory guidance.

4.8 UXO QUALITY CONTROL SPECIALIST

The Unexploded Ordnance Quality Control Specialist (UXOQCS) ensures that quality control (QC) inspections are performed and documented in accordance with the Group 4 RI/FS Work Plan. Deficiencies will be reported to the PM, SUXOS, and UXOSO. The

UXOQCS will verify that appropriate corrective measures are taken and documented. The UXOQCS will inspect munitions debris (MD) and non-munitions and explosives of concern scrap prior to disposal or recycling, and will sign off on Daily Quality Control Inspection Reports.

The UXOQCS is jointly responsible for verifying that material is free from explosives (FFE) with the SUXOS.

4.9 UXO Technician

The UXO Technician provides munitions and explosives of concern (MEC) support and is familiar with the equipment being utilized. The UXO Technician shall perform tasks to include a visual search/survey of the area(s) of operation

5.0 PROCEDURE

As stated, MEC remedial investigation activities in identified aquatic features is required, which will include subsurface soil disturbances and soil sifting activities. The monitoring biologist will conduct an overall visual survey of the area prior to starting operations. Photopoints will be established around each aquatic feature to show general shape, contours, and zonal boundaries of vegetation types. Each aquatic feature will be mapped using a handheld global positioning system unit. Soil profiles shall also be photographed and measured by layer during sifting activities.

For each aquatic feature soil will be stockpiled separately to allow for replacement after operations are complete that mirror preexisting conditions to the extent feasible. Soil disturbance activities will be conducted when the aquatic feature is dry.

The soil and vegetation handling process will be conducted as follows:

1. Prior to initiation of project activities, the biological monitor will collect seed of existing native vegetation using a combination of above-ground stem cutting and fruit and seed harvesting. Each species or vegetation zone will be collected separately, with propagules placed in paper bags, and labeled with aquatic feature number, scientific name(s) of propagule or vegetation zone, date, and collector. Materials will be appropriately stored and monitored.
2. The biological monitor will collect duff from the bottom of aquatic features that may contain additional seeds. This duff may be collected by sweeping of aquatic feature crusts and soils with a broom and placing gathered materials into paper bags. Duff from each vegetation zone will be collected separately, where relevant, with propagules placed in paper bags and labeled with aquatic feature number, scientific name or vegetation zone, date, and collector. Materials will be appropriately stored and monitored.
3. During soil removal activities the top approximately 6 inches of sediment will not be sifted. The sediment will be excavated with heavy equipment according to the aquatic feature and vegetation zone, and placed nearby on a clean soil surface to allow for inspection of the material using instrument-aided visual inspection. As part of the QC

process, the UXOQC personnel will conduct an inspection of the excavated top 6 inches of sediment at a minimum of once per day as it is excavated as indicated in the Group 4 RI/FS Work Plan. Once the soil has been declared FFE, the excavated soil and vegetative materials will be appropriated stored and monitored. Vegetation zones will be indicated or marked in the field to guide field crews. Such sediments will be segregated by aquatic feature and by vegetation zone so they can be replaced in the same location.

4. For soils excavated below approximately 6 inches, sift operations will be employed to address residual MEC in excavated soils. During sifting operations portions of perennial aquatic feature plants will be salvaged and stored appropriately until replacement into the recontoured aquatic feature.
5. Sediments excavated between approximately 6 and 25 inches below the ground surface will be kept separate from the topsoil and stockpiled according to the aquatic feature they came from.
6. Subsoils excavated deeper than approximately 25 inches below ground surface will be separated from other sediment intervals and stored separately by aquatic feature.
7. After project activities are complete, the general shape and topography of each aquatic feature will be restored.
8. Sediment replacement in each aquatic feature should result in restoration of an impermeable interval, if an impermeable interval is encountered, at the same approximate depth as that observed during removal. This impermeable interval should be subject to testing to ensure water retention and ponding similar to pre-disturbance conditions. If necessary, bentonite or other materials approved by the Project Geologist and Senior Qualified Biologist, will be used to enhance the impermeability of the interval layer.
9. Each sediment interval should be replaced to reflect presence and depth of pre-disturbance conditions.
10. Salvaged plant materials, seeds, and duff will be replaced in each aquatic feature in designated areas reflecting pre-disturbance vegetation zones, as overseen by the biological monitor.

6.0 DOCUMENTATION AND REPORTING

A summary of soil and vegetation handling activities will be reported in the 2012 FORA ESCA Remediation Program Annual Natural Resource Monitoring, Mitigation, and Management Report. In addition, documentation of species composition, and richness, potential presence of special status species, and other pertinent variables will be summarized in annual reports as appropriate. Such documentation may include comparisons with other similar aquatic features nearby.

7.0 SUMMARY

This SOP will be used to ensure that the requirements for soil and vegetation handling in aquatic features are conducted to ensure the long-term viability of biotic constituents of aquatic features affected by manual and mechanical soil screening activities in support of

MEC investigations in a safe, efficient, and productive manner. The Senior Qualified Biologist will make changes to this SOP as operational necessity dictates. Changes to this SOP will be made in coordination with the Army and documented in revisions to NRIM Checklist No. 5 Rev. 2.

8.0 REFERENCES

Burleson Consulting Inc. (Burleson). 2006. Wetland Monitoring and Restoration Plan for Munitions and Contaminated Soil Remedial Activities at Former Fort Ord. Folsom, California. (Fort Ord Administrative Record No. BW-2453)

Environmental Services Cooperative Agreement Remediation Program Team (ESCA RP Team). 2010. Final Group 4 Remedial Investigation/Feasibility Study Work Plan, Volume 2 Sampling and Analysis Plan, Future East Garrison Munitions Response Area, Former Fort Ord, Monterey County, California. October 8. (Fort Ord Administrative Record No. ESCA-0233C)

¾¾¾. 2010. Field Variance Form (FVF) No. G4WP-001. Expanded Investigation Acreage in Habitat Reserve Area Parcel E11b.7.1.1. December 13. (Fort Ord Administrative Record No. ESCA-0233C.2)

¾¾¾. 2012a. Field Variance Form (FVF) No. G4WP-003. Expanded Investigation Acreage in Habitat Reserve Area Parcel E11b.6. May 16. (Fort Ord Administrative Record No. ESCA-0233C.4)

¾¾¾. 2012b. Field Variance Form (FVF) No. G4WP-004. Addition of Soil Screening Standard Operation Procedure and Increased Minimum Separation Distances (pending submission)

U.S. Army Corps of Engineers (USACE). 1997. Installation-Wide Multispecies Habitat Monitoring Plan for Former Fort Ord, California. April. Sacramento, California. April 1. (Fort Ord Administrative Record No. BW-1787)

U.S. Fish and Wildlife Service (USFWS). 1999. Biological and Conference Opinion on the Closure and Reuse of Fort Ord, Monterey County, California (1-8-99-F/C-39R). March 30. (Fort Ord Administrative Record No. BW-2232A)

¾¾¾. 2002. Biological Opinion on the Closure and Reuse of Fort Ord, Monterey County, California, as it affects Monterey Spineflower Critical Habitat (1-8-01-F-70R). October 22. (Fort Ord Administrative Record No. BW-2233)

¾¾¾. 2005. Cleanup and Reuse of Former Fort Ord, Monterey County, California as it affects California Tiger Salamander and Critical Habitat for Costa Contra Goldfields (1-8-04-F-25R). March 14. (Fort Ord Administrative Record No. BW-2334)