

UNEXPLODED ORDNANCE (UXO)

General:

Introduction. Most ranges are built on previously used training sites that are encroaching on current or previously used impact areas. Due to this fact, there is a high probability that the proposed site may contain Unexploded Ordnance (UXO) or ordnance related scrap. These sites may require some type of ordnance response action before any activity begins on the construction site.

Background. In May of 2002 the Assistant Chief of Staff for Installation Management (ACSIM) confirmed the clean site policy regarding responsibility for the investigation, documentation, and remediation/cleanup efforts associated with environmental contaminants on Military Construction (MILCON) sites. This policy includes MILCON sites contaminated with UXO. *Therefore, no MILCON funding will be provided for remediation of UXO for FY2004 projects or projects completed later.* The proponent of the MILCON project must provide funding for the remediation of UXO; in the case of live-fire ranges, the Department of the Army, Army G3 Training (DAMO-TR) becomes the proponent.

Purpose. This section provides guidance for managing MILCON construction of live-fire ranges. The scope of the document ranges from DD Form 1391 stage through the completion of construction. [EP 75-1-2](#) should be consulted in conjunction with the information contained in this document. Chapter 6 of EP 75-1-2 contains guidance specifically for the determination of the appropriate level of UXO support for a project.

Critical Omission. If a project located on a site that has UXO contamination is included in the project approval and funding system, but no costs for UXO remediation exist in the DD 1391, immediately contact the RTLP MCX, U.S. Army Engineering and Support Center, Huntsville, AL, by phone at: (256) 895-1535, or send e-mail to: RTLP@HND01.usace.army.mil.

Points of Contact:

The U.S. Army Engineering and Support Center, Huntsville (HNC) is the mandatory center of expertise (MCX) for the Range and Training Land Program (RTLP) and the center of expertise (CX) for Ordnance and Explosives (OE). If any questions arise, please contact one of the following centers:

RTLP MCX RTLP@HND01.usace.army.mil, (256) 895-1537

OE CX OEDirectorate@HND01.usace.army.mil, (256) 895-1563

References:

[EP 75-1-2](#), Unexploded Ordnance (UXO) Support During Hazardous, Toxic, and Radioactive Waste (HTRW) and Construction Activities

Project Planning:

Background. UXO presence on a proposed range construction site can increase the cost of a project significantly. Failure to properly identify ordnance issues and appropriate funding for ordnance support during construction could adversely affect or cause the loss of a project. The initial submittal of the DD 1391 provides the first opportunity to communicate funding requirements. As stated above, this cost is no longer part of the MILCON estimate, but must be discussed in both Tabs A, E and J of the DD 1391.

DD Form 1391, Tab A. Include a sentence in the Description of Proposed Construction stating the expectation and proposed disposition of UXO on the project site. Using one of the following statements as applicable is recommended:

“No unexploded ordnance contamination is expected on the project site.”

“Unexploded ordnance contamination is expected on the project site. The appropriate ordnance response action will be performed depending upon construction activities to be performed”.

DD Form 1391, Tab E, Furnishings and Equipment. To appropriate funding for UXO removal and support during the construction of the project, a line item with OMA as the PROC APPR must be included in Tab E. This line item must include the costs to locate and/or avoid or clear subsurface UXO, as well as the costs for onsite construction support UXO Safety personnel. The footnote for the applicable line item should provide a list of assumptions and contain either of the following standard statements:

“No unexploded ordnance contamination is expected on the project site.”

“Unexploded ordnance contamination is expected on the project site. Surface clearance will occur on ____ acres at an estimated cost of \$_____ per acre. Subsurface clearance will occur on ____ acres at an assumed cost of \$_____ per acre. Standby Unexploded Ordnance Construction support effort is estimated to cost \$ _____. Government oversight will be provided at an assumed cost of \$_____. The Total Cost of Surface and Subsurface clearance for this project is \$_____.

DD Form 1391, Tab J, Environmental Analysis. Include a statement discussing the project site investigation or characterization for UXO that has or will be performed in support of the project. Using one of the following statements as applicable is recommended:

“No unexploded ordnance contamination is expected on the project site.”

“Unexploded ordnance contamination is suspected on the project site. An initial site assessment was conducted on _____ to ascertain the presence of UXO. A full site characterization is scheduled for _____.”

Cost Estimate. The cost of UXO clearance and support during construction is a function of several factors, which include the types of UXO, density of munitions and scrap, required clearing depth, terrain, vegetation, and soil types. For the DD 1391 stage, it is recommended that the estimate be exceptionally conservative, as many unknowns exist regarding the extent of clearance required and contamination levels. Normally, a surface and subsurface clearance is only completed for areas that will be disturbed during construction (building foundations, grubbing operations, areas to be excavated, trenches, etc.). Government oversight (OE Safety Specialist), labor, and travel cost for on-site support during all intrusive UXO actions must also be included in the DD Form 1391 cost estimate (not included as part of Attachment 1 costs). Obtain assistance with the estimate guide from the RTLP MCX.

Project Design:

Background. When a project site is identified as having ordnance contamination, there are three primary options to address the ordnance concerns. (1) Military Explosive Ordnance Disposal (EOD) support can be requested for site clearance before and during construction operations. Often these military forces are not available and will in most cases, not be allowed to conduct a subsurface ordnance clearance, (2) the ordnance support action can be accomplished with an independent ordnance contractor tasked to support the construction effort. (OMA funded) or (3) Ordnance support and clearance can be a part of the construction contract (OMA-funded, not MILCON-funded). The following recommendations provide guidance for the inclusion of the OMA-funded effort as a separate contract or as a part of a construction contract.

Design Recommendations. When designing a range for a location that potentially contains UXO, it is imperative that all efforts be made to minimize disturbance of the existing grade due to the expense of subsurface UXO detection and removal. The following are recommendations for minimizing, but not eliminating, impacts on the existing grade:

- a. Whenever possible, all roads and target emplacements should be built on top of existing grade.
- b. Perform clearing at the existing grade level with a minimized amount of grubbing.
- c. Design trenching routes to minimize additional intrusion into UXO-contaminated areas beyond those already disturbed by other range features.
- d. The designer will use the ordnance assessment and/or the site characterization

study prepared for the range construction site. This documentation will be provide by the Government.

Pre-design Site Studies and Investigations. If ordnance contamination is suspected, UXO safety support becomes mandatory during topographic surveying, geotechnical investigation, and other onsite operations that require gathering design data. The safety support will be for UXO avoidance only.

Site Characterization. At the earliest time after the project planning charrette, the Government will perform a UXO site survey to determine the extent of the ordnance contamination. This information can be used to aid in the design of the range and try to minimize intrusive work in portions of the range which are highly contaminated with ordnance. The ordnance survey information can also be used to determine the correct ordnance response actions for selected portions of the range and to provide a realistic budget estimate for the ordnance response work.

If UXO contamination is not expected, the construction contractor still needs to be aware that he may find military ordnance anywhere on a military installation. The correct training and notification procedures, in case something is uncovered, needs to be in-place for the construction effort. If there is a probability of UXO contamination, only UXO-qualified personnel can conduct any type of ordnance handling or disturbance work.

Clearance Activities - Surface Contamination. In the past, a surface sweep may have been performed by the installation prior to construction. This effort does not remove any subsurface ordnance items that may be present. A surface sweep may be appropriate for construction activities that do not include any ground disturbance activities.

Clearance Activities - Subsurface Contamination. Personnel who are not UXO-qualified are prohibited from conducting clearances. The U.S. Army Corps of Engineers has established qualification requirements for UXO qualified personnel. These can be found in EP 75-1-2.

Specifications:

Ordnance Contamination on Construction Sites Without UXO Support: If encountering UXO is unexpected at a project site, add the following text to the construction contract summary of work. Note that the text will have to be revised to require the construction contractor to have a qualified UXO subcontractor available if the installation does not have access to EOD personnel.

During the range construction contract, ordnance may be found in the area. Inert practice ordnance may also be encountered. When any ordnance material is discovered, the contractor will immediately notify the Contracting Officer's Representative and the Contracting Officer and will cease work in the vicinity of the item.

Once notified of ordnance material, the Contracting Officer's Representative will notify Range Control who will then notify the Installation's Explosive Ordnance Disposal (EOD) team.

Excavation on this project will not be allowed until each field employee attends an ordnance identification course that the EOD unit will provide. Subsequent new field employees are also required to attend the safety course.

Independent Ordnance Contamination Support: If ordnance support action is accomplished with an independent ordnance contractor the specifications paragraphs above shall be included in the specifications. In addition, to avoid conflict on the project site, the construction contractor must be instructed to coordinate their operations scheduling with the ordnance contractor.

Construction Contract Ordnance Contamination Support: If UXO contamination is expected, include the specification section 01576 in the construction contract package. This specification section is provided as a guide and may be adjusted to fit the specific project and appropriate level of UXO support. The specification section is also available in SPECSINTACT Standard General Markup Language (SISGML) format and can be obtained from the RTLP MCX.

Drawings. The contract drawings must show the extent of clearance for all UXO clearances associated with a MILCON design. A special section in the drawing package specifically for UXO removal boundaries is the recommended format. The drawings in this section should delineate limits of UXO removal (similar to limits of construction, tree clearing, etc.) to indicate the type of clearance required in the marked area. The details, sections, and specifications should further describe the depth and limits of clearance required. For firm-fixed price bidding, include all information necessary for the contractors to estimate the cost of all UXO work in the bid package.

Construction:

Background. The objective of UXO support activities is to ensure the safety of construction personnel by utilizing trained UXO personnel to address UXO issues. Minimizing the risk of exposure to explosive munitions is the guiding principle of explosives safety.

Safety Oversight - Required Submittal Review. When contractor personnel conduct ordnance support, the OE CX must review and provide comments and written concurrence or non-concurrence on UXO support-related submittals. This process ensures compliance with Federal, DOD, DA, and USACE OE safety regulations. These required submittals are listed in the construction specification found in UXO Procedures.pdf file in the Appendix of this document.

Safety Oversight - On-Site. If contract personnel in support of construction activities are conducting a subsurface clearance, a Government OE Safety Specialist must be present to provide safety oversight. The OE Safety Specialist has final on-

site authority on OE safety matters. If an OE Safety Specialist is not present on-site, the Senior UXO supervisor has final on-site authority for OE matters.

The OE Safety along with the OE Design Center in Huntsville can coordinate safety specialist support on a cost reimbursable basis. This cost should be included in the budget as part of the OMA funding during the DD 1391 phase. The cost for this service includes labor, travel, and per diem.