

DACS-SF

30 June 2000

Expires 30 June 2002

**SUBJECT: Explosives Safety Policy for Real Property Containing Conventional Ordnance and Explosives**

SEE DISTRIBUTION

**1. Purpose.** This letter prescribes policies and procedures for DA explosives safety controls on real property containing ordnance and explosives (OE).

**2. Applicability.** This letter applies to the Army installations of the U.S. Army, the Army National Guard of the U.S. and the U.S. Army Reserve agencies located in the U.S. and its territories. For Army installations in locations other than the U.S. and its territories, this letter may be used as general guidance for ordnance and explosives safety controls so long as consistent with applicable international agreement.

**3. Proponent and exception authority.** The proponent of this memorandum is the Chief of Staff, Army. The Chief of Staff, Army, has the authority to approve exceptions to this memorandum that are consistent with controlling law and regulation. The Chief of Staff, Army, may delegate the approval authority, in writing, to a division chief within the proponent agency in the grade of colonel or a civilian equivalent.

**4. References.**

- a. DOD 6055.9-STD, DOD Ammunition and Explosives Safety Standards.
- b. AR 385-64, U.S. Army Explosives Safety Program. (Authenticated and to be published.)

**5. Explanation of abbreviations and terms.** Abbreviations and special terms used in this letter are explained in the glossary.

**6. General.**

- a. Real property may contain OE as the result of Research, Development, Test and Evaluation (RDTE); manufacturing; storage; weapons firing; training; open burning/open

detonation (OB/OD) operations; disposal; loss; or waste collection. Examples of such property include pads, pits, basins, ponds, streams, impact areas, maneuver areas, training areas, burial sites, and buildings used for ordnance or explosives activities.

b. Explosives safety is paramount in the management of real property containing OE.

c. All OE planning and response actions must include participation of explosives safety technical personnel.

## **7. Scope.**

a. This policy applies to the following:

(1) Army real property potentially containing OE.

(2) Formerly Used Defense Sites (FUDS) that contain OE, regardless of which Service used the site. The Army, as the Executive Agent for the Department of Defense (DOD), is the lead authority for OE at all FUDS.

b. This policy does not apply to the following:

(1) Biological warfare materiel and chemical warfare materiel response activities, which are addressed in the DASA (ESOH) memorandum dated 5 September 1997 (subject: Interim Guidance for Biological Warfare Materiel and Non-Stockpile Chemical Warfare Materiel Response Activities).

(2) Ordnance and explosives emergencies. Included are military explosives ordnance disposal (EOD) emergency responses, Technical Escort Unit (TEU) emergency responses, and emergency responses performed by U.S. Army Corps of Engineers (USACE) unexploded ordnance (UXO) contractors. For example: an area that contains hazardous unexploded ordnance on the ground surface is discovered next to a playground. Immediate action must be taken to deny access and/or clear the OE. Active installations have the authority to initiate emergency responses on their property. For FUDS, USACE has authority to act where permission to enter the property is first obtained from the current landowner.

(3) Range clearance operations conducted on active and inactive ranges.

(4) Ordnance and explosives response actions conducted by an Army agency for Navy, Air Force, or Marine Corps customers. For these actions, the customer's explosives safety policies apply, provided they are at least as protective as Army policy.

(5) Response actions for other types of materials such as radioactive materiel that require special consideration beyond the scope of this guidance. Specific guidance can be obtained from the Army Safety Office.

## **8. Risk assessment and prioritization of OE projects.**

a. Sites for which the Archives Search Report (ASR) or similar historic background study confirms the potential for OE will have a risk assessment performed in accordance with AR 385-10. Risk assessments must be performed by personnel experienced in evaluating explosive safety risks.

b. Projects to be included in work plans will be prioritized based on protection of human health and the environment as the primary consideration and, then, secondary factors such as stakeholder concerns (property owners, regulators, and cultural/social issues), program execution considerations (technology feasibility, project continuity, impact of delayed action, consistency with program goals), and economic considerations (property values, economic development, reuse, geographic equity/balance, potential for cost recovery, and competition for resources). For FUDS, the USACE is responsible for considering all these factors, as appropriate, in setting project priorities. For active installation land transfers (such as Base

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Realignment and Closure (BRAC)), the major Army command (MACOM) is responsible but will consider advice from USACE and the U.S. Army Environmental Center (USAEC).

**9. Identification, control, OE response actions, buildings containing explosives residues, and deed restrictions regarding OE at active and BRAC installations.**

*a. Identification of property containing OE at active and BRAC installations.* Army installations (that is, facilities engineers, Director of Public Works) will maintain permanent records identifying all areas known or suspected to contain OE. For BRAC projects, the required records will be a part of the Administrative Record.

(1) For Resource Conservation and Recovery Act (RCRA) permitted sites, such as OB/OD grounds, installations will keep records in accordance with RCRA requirements.

(2) At sites that do not require a RCRA permit, the installation will permanently maintain all records of activities at the site that could lead to the discovery of OE. Examples of such records include range firing records, training records, and demolition ground shot records.

(3) At many installations, older OE sites exist for which records are either nonexistent or scant. The boundaries, past uses, and general types of OE used in these areas will be determined to the maximum extent possible using available information.

(4) Installations will permanently maintain records of all site characterizations (such as historical records searches, interviews with current or former employees, geophysical surveys, and so forth).

(5) Installations (for example, facilities engineers, Department of Public Works) will permanently maintain records of all OE response actions.

(6) Installations (for example, facilities engineers, Department of Public Works) will permanently maintain records of all emergency EOD actions taken at their installation.

(7) Installations (for example, facilities engineers, Department of Public Works) will show all known or suspected OE areas on their master planning maps.

(8) Installations slated to become inactive or closed will ensure records related to OE are maintained and transferred to appropriate records repositories. Installations will request guidance from their MACOM headquarters installation management staff element on disposition of OE records.

(9) Although permits are not required for on-site treatment under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), installations should consider if it is cost-effective to maintain a current OB/OD permit in order to avoid immediate RCRA closure requirements. (Expiration of the permit would trigger RCRA closure and cleanup of the OB/OD site. This would conflict with the need for continued use of the OB/OD site in support of base closure OE cleanup operations.)

*b. Control of property containing OE at active and BRAC installations.*

(1) Real property containing OE will be marked with signs warning of the OE hazards and prohibiting the entry of unauthorized personnel. Signs will be placed at 500 ft intervals or less and will be visible at any point along the perimeter. Signs will be placed in a manner that maximizes their visibility to individuals attempting to enter the property at any point around its perimeter. Signs will be multilingual, when appropriate, and will be

supplemented by pictograms to warn children of the OE hazards. Signs will be maintained in a legible condition. (See Information Guide titled Safety Color Code Markings, Signs, and Tags? available from the U.S. Army Safety Center, Building 4905, 5th Avenue, Fort Rucker, AL 36362-5363.)

(2) Access to property containing OE will be determined by the installation after consideration of the type, amount, and depth of OE present and the activities for which entry personnel will be authorized.

(3) When accountability and control of Army real property containing OE is transferred to another DOD component or Federal agency, the action will be accompanied by a transfer of the OE records to be maintained permanently by the receiving agency. See paragraphs 9e and 9f regarding entries in land transfer or lease documents and Memorandums of Agreement.

*c. OE response actions at active installations.* Determination of response action depends upon whether the land is to be kept under DOD control or released outside DOD control.

(1) If the property is to be kept under DOD control (for example: installation restoration projects), response action shall be determined by the installation and approved by the MACOM.

(2) If the property is to be released outside DOD control, OE response action must be based upon site-specific information contained in preliminary assessments, archives searches, site visits, risk assessments, installation documents, and the reasonably anticipated reuse of the property. The reasonably anticipated reuse must be consistent, from risk management and monetary perspectives, with the prior existence of OE on the property.

(a) When the response action is an OE clearance, the preferred method to establish a clearance depth is first to estimate the OE depth using site-specific information, particularly data from surface and intrusive sampling. For impact areas, an alternate method to estimate OE depth in the absence of site-specific information is to use a maximum penetration source document. This method can also be used if site characterization information is deemed inadequate. One such source document is the Conventional Weapons Effects Program (CONWEP), a computer program to model penetration depths. It is available to U.S. Government agencies from the U.S. Army Waterways Experiment Station, 3909 Halls Ferry Road, Vicksburg, MS 39180-6199.

(b) The response action is approved via the OE safety submission (see paragraph 11). However, the response action may be modified based on actual conditions encountered. A modification that changes approved site activities (including clearance depth or OE work areas), risk assessments, the planned reuse, land use restrictions, or hazard controls requires an amendment to the OE safety submission. Amendments shall be routed through command channels in the same manner as the initial OE safety submission to the U.S. Army Technical Center for Explosives Safety (USATCES) for approval (see para 11c(6)(e)). USATCES will coordinate the amendment with the Department of Defense Explosives Safety Board (DDESB) as appropriate. Modification of an OE safety submission that does not change approved site activities, risk assessments, or hazard controls (for example, a change in personnel or contractor working at the site) requires a correction to the OE safety submission. Corrections require MACOM-level approval and notification of USATCES.

(c) A phenomenon known as frost heave can move objects to the surface during the freeze and thaw cycles. Frost line depths can be obtained from the local Corps of Engineers Geographic District. At some sites, OE can be located down to or below the frost line. In these situations, clearance depth to the frost line shall be considered. In determining the clearance depth, the risk assessment must consider the area frost line. In cases where OE is not cleared to at least the depth of the frost line, the safety

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submission must address the plan and procedures for performing geophysical surveys and maintenance for the life cycle of the site.

(d) When site-specific information is not sufficient to determine clearance depths, the default clearance depths in table 1 may be used for interim planning purposes. Note that these clearance planning depths are default depths established by the Department of Defense Explosives Safety Board and may be used only when site-specific information is not available to make a more precise determination of clearance depths.

(e) Lesser depths than the defaults required in table 1 are permissible under either of the following conditions:

1. Site-specific information indicates that OE is confined to depths less than the default depths; or

2. Site-specific information indicates that OE is at least as deep as the default depth, but the DDESB-approved safety submission justifies a lesser depth. The justification in the submission can be based on factors such as risk assessment, cost-benefit tradeoff analysis, technical feasibility, the need to minimize soil disturbance to lessen environmental impact, deed restrictions, and concurrence in the removal depth by stakeholders, regulators, and the intended property recipients.

**Table 1**  
**Default Clearance Depths**

| Planned future use  | Removal depth   |
|---|---|
| Unrestricted (e.g., commercial residential, recreational, or utility construction activity)   | 10 ft or excavation depth plus 4 ft, whichever is greater |
| Public access (e.g., farming, surface recreation, vehicle parking, or surface supply storage) | 4 ft  |
| Limited public access (e.g., livestock grazing or wildlife preserve)                          | 1 ft  |

*d. Buildings containing explosives residues.*

(1) Property-excessing actions may result in the need to dispose of buildings that were used for explosives operations. Such buildings may have been used for production, shipping, storage, maintenance, or demilitarization of ordnance or explosives. Guidance on the clean-up and transfer from DOD control of such buildings is available from the U.S. Army Technical Center for Explosives Safety.

(2) This policy does not require that the Army clean-up Army-owned industrial facilities to be used by commercial firms. Determination of cleanup of these types of facilities is the responsibility of the MACOM or its designee.

*e. Restrictions to be placed in land transfer or lease documents. Transfer or lease*

documents will give notice of the prior use or prior or current presence of OE and will specify restriction on the use of the property. Regardless of which method (para c(2)(a) or para c(2)(d) above) is used to determine OE clearance depth, land transfer and lease documents will prohibit soil disturbance below the clearance depth in cases where OE is known or suspected to remain below the clearance depth.

(1) Land transfer or lease documents will state that any future use of the property that is inconsistent with the use restrictions will present explosives safety hazards.

(2) Land transfer or lease documents will set forth the past amounts and types of known or suspected OE, describe the OE response actions taken, and, if applicable, provide an estimate of the type and amount of OE remaining on the site.

(3) When OE is above the frost line, but located below the removal depth, land transfer or lease documents will provide the Army the right of access to the property in order to conduct periodic surveys. The length of time this right of access will be granted shall be determined by USACE using site-specific information.

(4) To ensure entry in the permanent land records of the civil jurisdiction in which the property is located, the information in paragraphs e and (1)-(3) above will be attached to the AR 405-80 report of availability for leases and the AR 405-90 report of excess for disposals (these are annually filed reports (requirement control symbol DD-MIL(A)1275)). For Army base closure properties, the report of excess will be the General Services Administration Standard Form 118 (Report of Excess Real Property). The supporting U.S. Army Engineer District prepares the SF 118 based on information obtained from the closing or realigning installation.

(5) For property transferring to another Federal agency, the Army and the receiving Federal agency will execute, prior to the initiation of the OE response action, a Memorandum of Agreement (MOA) defining the areal extent of OE, land use restrictions, controls established on the property, and responsibilities of the parties.

*f. Transfer or lease of OE-containing property.* Property that contains OE will not be transferred or leased to non-DOD entities without first performing an OE response action. The DDESB may approve exceptions to this policy. Requests for exception to this policy must be accompanied by a safety submission that includes extracts from the administrative record, risk assessments, investigations, and other site-specific documentation. Requests for exception to this policy will be approved by USATCES prior to forwarding to the DDESB for final approval. The parties to the transfer or lease will enter into a MOA detailing the restrictions on land use and responsibilities of the parties.

## **10. OE at FUDS.**

*a. Record keeping of response actions.* The USACE is responsible for OE response actions at FUDS. The USACE will maintain permanent records of OE response actions for each site. The Administrative Record is the best document to record the rationale for the selected response, stakeholder coordination, and all decisions and approvals.

*b. Applicable OE response actions.* Response actions will be in accordance with the following.

(1) Since FUDS are no longer under DOD control, current property owners and other stakeholders must be consulted in determining the appropriate response action.

(2) For FUDS, each OE site will undergo a site-specific evaluation of the explosives safety hazards posed by OE when determining the appropriate response action. Stakeholder input will be solicited and considered when selecting response alternatives. For FUDS, the aforementioned evaluation and decision-making process will be documented in the Administrative Record. The Administrative Record or written agreements will also apprise the owner(s) of the risks posed by residual OE and will provide recommendations

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on uses of the property commensurate with the extent of OE response action. These documents will inform the property owner(s) of the hazards that may result from future activities that are not commensurate with the OE removal depth; USACE will negotiate these documents prior to the initiation of OE response actions.

(3) If residual OE remains or is suspected above the frost line after the response action, owners will be apprised, through the Administrative Record or written agreements, of the potential migration of OE, and all documentation will be annotated accordingly.

**11. Explosives safety submissions.**

*a. General requirements.*

(1) An explosives safety submission is required for the following OE response action projects:

(a) FUDS.

(b) BRAC.

(c) Property exceeding other than BRAC.

(d) Installation Restoration (IR) projects (this does not include range clearance operations conducted on active and inactive ranges).

(e) Off-post areas near active installations, for example, areas that contain munitions unintentionally fired off post.

(2) The submission must be approved prior to beginning the OE response action. However, site investigative activities, such as site visits, surface and intrusive sampling, and engineering studies, are permitted prior to approval as necessary, to generate site characterization data for the submission. Site investigative activities do not require an explosives safety submission but do require a work plan and a site-specific safety plan for the investigative activities.

*b. Contents of explosives safety submissions for OE response actions.* Preliminary studies, OE sampling reports, and the work plan for the response action provide much of the required information. The safety submission should be submitted at least 60 days prior to a planned response action. At the minimum, explosive safety submissions will address the following.

(1) Provide a brief description of the use(s) of the site(s) that led to the presence of OE. This description can consist of extracts from Inventory Project Reports, Preliminary Assessments (PAs), Historical Records Searches (HRSs), ASRs, Site Inspections, Safety Surveys, Engineering Evaluations/Cost Analyses (EE/CA), or any other source.

(2) Furnish the following maps:

(a) A map showing the regional location of the site.

(b) A map—

1. Showing boundaries of the area(s) to undergo OE removal. If there are OE areas that are not covered by the submission, annotate the reason these areas are not covered.

2. Showing, for Army controlled property to be released outside DOD (such as

BRAC), boundaries of the parcels to be released and listing the anticipated reuse of each parcel.

3. Listing, for property not under DOD control (such as FUDS), the current use (and, if known, the anticipated reuse) of each OE response action site and any existing land use restrictions applicable to the property.

4. Listing the planned OE clearance depth(s).

5. Showing the location of any planned or established demolition areas to be used to destroy recovered OE and the location of any magazines to be used to store demolition explosives and/or recovered OE.

(c) For areas involving explosive soil, provide a map outlining the area of explosive soil and depicting the location of sampling points. Identify field screening methods used and concentrations of explosives for each sampling point. In addition, address the methods to be used to reduce the explosives hazards to below 10 percent by weight (for example, blending) or methods that will be used to reduce the explosives hazards.

(d) Quantity-distance (Q-D) maps for the following areas. (Scaled maps of 1 inch equals not more than 400 feet are preferred: a larger scale is acceptable if distances can be shown with accuracy. If unscaled maps are used, then the maps must label distances).

1. Each OE area to be cleared under the submission.

2. The location of magazines for the storage of demolition explosives and/or recovered OE.

3. Areas planned or established for intentional detonation of OE. Show each area and the exclusion zone around it. Identify every inhabited building, occupied area, and public traffic route inside the exclusion zone. Describe measures to be taken to eliminate/minimize risk for exposures within the exclusion zone.

(3) List the expected amount(s) and type(s) of OE, based on either historical research or data generated from surface or intrusive sampling (sampling is the better source).

(a) Establish a "most probable munition" (for explosive rounds) or "maximum credible event" (for explosive soil or explosives contaminated building) for each OE area (for Q-D purposes). The "most probable munition" is the round with the greatest fragment distance that can reasonably be expected to exist in any particular OE area. For soil, the "maximum credible event" is the concentration of explosives times the weight of the mix: when concentration varies within an area, weighted averages or any other valid mathematical technique can be used as long as the technique is explained and technically supported in the safety submission. For explosives contaminated buildings the maximum credible event must be estimated on a case-by-case basis and the rationale for the estimation included in the safety submission.

(b) If, during the course of OE removal, a round with a greater fragment distance is encountered, then Q-D arcs must be adjusted and an amendment to the safety submission approved.

(4) Indicate when the OE response action (surface or intrusive removal operations, not site preparation activities such as surveying, flagging anomalies, or intrusive sampling) is anticipated to begin.

(5) State the depth of the frost line for the area (see paragraph 9c(2)(c)). Where OE is above the frost line yet located below the clearance depth, describe what provisions will be made for continued surveillance of the area.

(6) Describe the techniques to be used to detect, recover, and destroy OE. These techniques can be (but are not required to be) described using excerpts from the contractor's work plan for the response action.

(a) When describing the method of detection, include the capabilities and limitations



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(including those imposed by terrain and soil type) of the method and provide a statement specifying the smallest item the equipment is capable of detecting at the detection depth. Describe the criteria for selection (based on the local geology and topography) of explosives remediation technology.

(b) Describe quality assurance/quality control procedures, standards, and pass/fail criteria.

(c) Describe the process that will be used to determine that OE scrap does not present an explosion hazard.

(7) If the on-site method to destroy OE is something other than detonation (for example, bioremediation and incineration), provide a brief description of the method.

(8) Various activities at an OE removal site require Q-D siting in the OE safety submission. If the locations of such activities are known in advance they will be shown on the Q-D maps referenced in para (2)(d) above. When the location of activities are not known in advance (such as blow-in-place) and cannot be shown on Q-D maps, the submission will state the size of the exclusion zone for these activities, establishing, in effect, a Q-D “footprint” for the activity wherever it may occur. There are three activities where locations are known in advance and can be shown on Q-D maps and three activities for which locations aren’t known in advance and must employ the “footprint” concept. All six activities are discussed below.

(a) *OE areas.* OE areas must be sited and shown on the submission’s Q-D maps.

1. During surface or intrusive removals, OE areas shall be separated by Inhabited Building Distance (IBD) from areas where non-project personnel, with the exception of authorized visitors, are located. (Non-project personnel includes anyone other than contractor and DOD employees who are on-site to conduct the OE removal.) Use the default IBDs for fragment protection given in DOD 6055.9 STD unless lesser distances are supported by analysis or test data.

2. The IBD establishes the size of the exclusion zone around the OE site. On the Q-D map referenced in para (2)(d) above, draw the IBD arc around the entire OE area. Only project personnel and authorized visitors are permitted inside the exclusion zone when removal operations are taking place. (It is recognized that in day-to-day operations the exclusion zone doesn’t extend from the boundaries of the entire OE area but instead extends from the specific grid or grids being worked.)

3. Preliminary site work, such as surveying, marking search lanes, and detecting anomalies, do not require an exclusion zone for Q-D purposes.

(b) *Magazines.* Magazines used to store demolition explosives and recovered OE must be sited and their location shown on the Q-D map.

1. Magazines shall be separated by Inhabited Building Distance (IBD) from areas where non-project personnel are located. Use the default IBDs for fragment protection given in DOD 6055.9 STD unless lesser distances are supported by analysis or test data.

2. Describe the type of magazine used (for example, commercial portable, shed, aboveground, earth-covered, etc.).

3. State the NEW limit and hazard class to be stored in each magazine (for

example, "100 lb NEW of hazard class 1.1"). Recovered OE is considered 1.1 unless historical or site data indicates otherwise.

(c) *Planned or established demolition areas.* These areas must be sited and shown on the Q-D maps.

1. A planned or established demolition area is an area that is used repetitively to destroy OE during the removal project. It may be the installation detonation ground (an established area) or a new area planned for intentional detonation of recovered OE. Blow-in-place and consolidated shots within a grid are not considered planned or established demolition areas.

2. An exclusion zone must be provided around each planned or established demolition area. The size of the exclusion zone may be based on default distances in DOD 6055.9-STD (2,500 ft for up to 5 inch caliber and 4,000 ft for 5 inch caliber or larger) or on distances other than these defaults, if the technically supportable rationale for the distance is included in the safety submission. Such a rationale must address primary fragments, blast, and crater ejecta. Earth cover or sandbags are often used to reduce the exclusion zone to the desired size. (The Huntsville Center of the Army Corps of Engineers has further information on exclusion zone reduction using earth cover and sandbags.)

(d) *Footprint areas.* There are three types of footprint areas: blow-in-place areas, OE collection points, and in-grid consolidated shots.

1. The exclusion zone for blow-in-place areas is determined using the rules for established demolition areas (see para (c) above).

2. OE collection points are areas where recovered OE that is safe to move is temporarily accumulated within a search grid pending transport to another area for storage or destruction. The exclusion zone for OE collection points is defined by the IBD for the most probable munition in the area being worked. For this reason, Q-D arcs from OE collection points are never any larger than those already in the submission as drawn around the OE area containing the collection point. However, since on a given day only a portion of the overall OE area is worked, Q-D arcs from collection points will be used to establish daily exclusion zones.

3. In-grid consolidation shots occur when recovered OE that is safe to move is collected and destroyed within a search grid. In contrast to an established demolition ground, in-grid consolidated shots occur within a search grid rather than at a separate area. The exclusion zone for in-grid consolidated shots is determined using the rules for established demolition areas (see para (c) above).

(9) If recovered OE cannot be destroyed on site and must be transported off site, indicate the transportation, storage, and disposition plans.

(10) Summarize EOD, TEU, or contractor support. If available, furnish resumes of the contractor's project manager and key supervisory personnel.

(11) For Army controlled property to be released outside DOD, summarize any land use restrictions to be placed on the property.

(12) Provide details of the public planning document(s) that ensure involvement of public and local officials where there is a risk to the public as a result of the response action.

(13) At the conclusion of the project, the installation or agency performing the cleanup will furnish an after action report to each office that reviewed the safety submission. This report will list the OE found by type, location, and depth.

c. *Routing and approval of explosives safety submissions for OE response actions.*

(1) *FUDS projects.*

(a) The USACE geographic district prepares the submission.

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(b) The USACE geographic district forwards four copies of the submission to the U.S. Army Engineering and Support Center (Huntsville) for review.

(c) The U.S. Army Engineering and Support Center (Huntsville) reviews the submission and forwards three copies to the Headquarters, USACE Safety and Occupational Health Office.

(d) The Headquarters, USACE Safety and Occupational Health Office endorses the submission and forwards two copies to USATCES for review and final Army approval. The USATCES will forward one copy to DDESB for coordination.

(2) *BRAC projects.*

(a) The installation prepares the submission.

(b) The installation forwards three copies of the submission to its MACOM safety office for endorsement.

(c) The installation provides two copies to the USACE geographic district and one copy to the U.S. Army Engineering and Support Center (Huntsville) for review.

(d) The USACE geographic district and the U.S. Army Engineering and Support Center (Huntsville) provide comments and concurrence to the MACOM safety office.

(e) The MACOM safety office reviews the submission and forwards two copies to the USATCES with MACOM recommendations.

(f) The USATCES approves the submission and forwards one copy to the DDESB for final approval.

(g) The DDESB reviews and gives approval.

(3) *Property excessing other than BRAC.* Submissions have the same routing and approval as BRAC submissions.

(4) *Installation restoration projects.*

(a) The installation prepares the submission.

(b) The installation provides one copy of the submission to its MACOM safety office.

(c) The MACOM provides final approval.

(5) *Ordnance and explosives response action projects (for off-post areas near active installations).* Submissions for these projects have the same routing and approval as FUDS projects.

(6) *Addresses of offices in the above routing and approval.*

(a) DDESB: Chairman, Department of Defense Explosives Safety Board (DDESB-KO), 2461 Eisenhower Avenue, Alexandria, VA 22331-0600.

(b) Army Safety Office: Chief of Staff (DACS-SF), 200 Army Pentagon, Washington, DC 20310-0200.

(c) Headquarters, USACE Safety and Occupational Health Office: Commander, U.S. Army Corps of Engineers (CESO), 20 Massachusetts Avenue, NW, Washington, DC 20314-1000.

(d) U.S. Army Engineering and Support Center (Huntsville): Commander, U.S. Army

Engineering and Support Center (CEHNC-OE-MC), P.O. Box 1600, Huntsville, AL 35807-4301.

(e) USATCES: Director, U.S. Army Technical Center for Explosives Safety (SIOAC-ESL), Savanna, IL 61074-9639.

## **Glossary**

### **Section I Abbreviations**

**AR**  
Army regulation

**ARB**  
anomaly review board

**ASR**  
archives search report

**BRAC**  
Base Realignment and Closure

**CERCLA**  
Comprehensive Environmental Response, Compensation, and Liability Act

**CONWEP**  
Conventional Weapons Effects Program

**DA**  
Department of the Army

**DASA(ESOH)**  
Deputy Assistant Secretary of the Army (Environment, Safety and Occupational Health)

**DDESB**  
Department of Defense Explosives Safety Board

**DOD**  
Department of Defense

**EE/CA**  
engineering evaluation/cost analysis

**EOD**  
Explosives Ordnance Detachment

**FUDS**  
Formerly Used Defense Sites

**HQDA**  
Headquarters, Department of the Army

**HRS**

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historical record searches

**IBD**  
inhabited building distance

**IR**  
installation restoration

**MACOM**  
major Army command

**MOA**  
memorandum of agreement

**NEW**  
net explosive wet

**OB/OD**  
open burning/open detonation

**OE**  
ordnance and explosives

**OECERT**  
Ordnance and Explosives Cost Estimating and Risk Tool

**PA**  
preliminary assessment

**Q-D**  
quantity-distance

**RCRA**  
Resource Conservation and Recovery Act

**RDTE**  
research, development, testing, and evaluation

**TEU**  
Technical Escort Unit

**USACE**  
U.S. Army Corps of Engineers

**USAEC**

U.S. Army Environmental Center

**USATCES**

U.S. Army Technical Center for Explosives Safety

**UXO**

unexploded ordnance

**Section II  
Terms****Active installations**

Active installations are defined as installations under the custody and control of the Department of Defense. They include operating installations, installations in a standby or layaway status, and installations awaiting closure under the BRAC legislation. Examples include but are not limited to posts, camps (including National Guard camps), forts, depots, activities, ports, ammunition supply points, basic load ammunition storage areas, and ammunition plants.

**Anomaly review board**

A technical group established to provide technical guidance and quality assurance oversight of the review and resolution of geophysical information related to unresolved anomalies at a site.

**Biological warfare materiel**

An item configured as a munition containing an etiologic agent that is intended to kill, seriously injure, or incapacitate a person through its physiological effects; includes biological agent identification sets. BWM can also include etiologic agents that are designed to damage or destroy crops that are intended for human consumption.

**Chemical warfare materiel**

An item configured as a munition containing a chemical substance that is intended to kill, seriously injure, or incapacitate a person through its physiological effects. Also includes V- and G-series nerve agent, H-series blister agent, and lewisite in other than munition configurations. Due to their hazards, prevalence, and military-unique application, chemical agent identification sets (CAIS) are also considered chemical warfare materiel (CWM); CWM does not include riot control agents; chemical herbicides; smoke and flame producing items; or soil, water, debris, or other media contaminated with chemical agent.

**Exclusion zone**

A safety zone established around an OE work area. Only project personnel and authorized escorted visitors are allowed within the exclusion zone.

**Formerly Used Defense Sites**

Those properties previously owned, leased, or otherwise possessed by the United States and under the jurisdiction of the Secretary of Defense; or manufacturing facilities for which real property accountability rested with DOD but operation was performed by contractors (Government owned - contractor operated) and later the facilities were legally disposed of.

**Institutional controls**

Methods of controlling OE hazards without physically removing the OE. Includes, without being limited to, security fencing or other measures to limit access, provision of alternate

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water supplies, temporary evacuation and housing of threatened individuals not otherwise provided for, post-removal site control, land repurchase, deed restrictions, and any emergency assistance that may be provided under the Disaster Relief Act of 1974.

**Most probable munition**

The round with the greatest hazardous fragment range that can reasonably be expected to exist in any particular OE area.

**OE removal**

A type of response action where the material causing the hazard is physically removed.

**OE scrap**

Inert munitions-related material recovered during the course of an OE removal. Examples are fragments empty cartridge cases, expended smoke grenades, and so forth.

**On-site**

The area containing OE and all areas in proximity to the OE that are necessary to implement the response action.

**Ordnance and explosives**

Consists of either paragraph a or b below:

*a. Ammunition, ammunition components, chemical or biological warfare materiel, or explosives that have been abandoned, expelled from demolition pits or burning pads, lost, discarded, buried, or fired.* Such ammunition, ammunition components, and explosives are no longer under accountable record control of any DOD organization or activity. (Note. This policy does not apply to chemical or biological warfare materiel.)

*b. Explosive soil.* Explosive soil refers to mixtures of explosives in soil, sand, clay, or other solid media at concentrations such that the mixture itself is explosive.

(1) The concentration of a particular explosive in soil necessary to present an explosion hazard depends on whether the particular explosive is classified as "primary" or "secondary." Guidance on whether a particular explosive is classified as primary or secondary is available from the USATCES or the USAEC.

(2) Primary explosives are those extremely sensitive explosives (or mixtures thereof) that are used in primers, detonators, and blasting caps. The USAEC is currently conducting studies to determine what concentration of primary explosives in soil renders the mixture explosive. Until these studies are completed, soils with primary explosives must be sampled and tested to determine if they present explosion hazards. Guidance on sampling and testing is available from the USAEC.

(3) Secondary explosives are bursting and boosting explosives (that is, they are used as the main bursting charge or as the booster that sets off the main bursting charge). Secondary explosives are much less sensitive than primary explosives. They are less likely to react if struck or when exposed to friction or to electrical sparks.

(4) Soil containing 10 percent or more by weight of any secondary explosive or mixture of secondary explosives is considered "explosive soil." This determination was

based on information provided by the USAEC as a result of studies conducted and reported in USAEC Report AMXTH-TE-CR 86096.

(5) Soil containing propellants (as opposed to primary or secondary high explosives) may also present explosion hazards. Guidance on sampling and testing is available from the USAEC.

### **Ordnance and explosives emergency**

A situation involving the suspected or detected presence of unexploded ordnance, damaged or deteriorated explosives or munitions, an improvised explosive device, or other potentially explosive material or device that creates an actual or potential imminent threat to human health, including safety, or the environment, including property, as determined by an explosives or munitions emergency response specialist. Such situations may require immediate and expeditious action by an explosives or munitions emergency response specialist to control, or eliminate the threat.

### **Real property**

Consists of land, improvements, structures, and fixtures, and includes bodies of water.

### **Response action**

The process of reducing the risk of exposure resulting from military ordnance and explosives. Actions may include detection; render safe or elimination of explosive properties on- or off-site; transportation off-site to a storage or treatment facility or other location suitable for detonation; institutional controls; or other action necessary to protect the public.

### **Site-specific safety plan**

A plan that defines work activities, the hazards associated with those activities, and the means for controlling those hazards. The elements of a site-specific safety plan include:

- a. A background statement, describing the uses of the site that lead to the presence of OE;
- b. A map delineating site boundaries, details of structures, transportation routes, utilities, pertinent topographic features, and locations of OE sampling, recovery, storage and treatment;
- c. A listing of types and quantities of OE anticipated on site;
- d. A description of site activities, hazards, and the means of hazard control;
- e. A description of site security.

### **Stakeholders**

Federal, state and local officials, community organizations, property owners, and others having an interest or involvement, or having a monetary or commercial involvement in the real property that is to undergo an OE response action.

### **Work plan**

A site-specific plan that defines work activities and specifies the procedures to be employed in executing work activities.



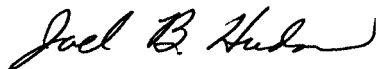
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By Order of the Secretary of the Army:

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*Chief of Staff*

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