

Portions Excised From

“Used or Fired Munitions and Unexploded Ordnance at Closed, Transferred and Transferring Military Ranges — Interim Report and Analysis of EPA Survey Results” (April 2000)

EXECUTIVE SUMMARY

Survey Overview

The completed surveys referenced in this report represent 64 facilities, with at least 206 CTT and inactive ranges. Although this is a small portion of the actual number of CTT and inactive ranges nationwide, the information pertaining to the ranges in this survey is important since these ranges represent the beginning of what will be a very large environmental assessment and cleanup effort. Also, our review of the survey responses suggests that the actual number of ranges for the reported facilities is understated. While the focus of the survey (and this report) is closed, transferred, and transferring ranges, inactive ranges are also addressed in the report because range status is not clearly defined. Many of these “inactive ranges” may have been inactive for a number of years. It is important to note that the military does not yet have a comprehensive inventory of ranges that may provide additional insight into many of the issues raised in this report. However, when DoD completes its comprehensive inventory of these ranges (currently anticipated in 2001), many of these inactive ranges may be determined to have no further military use and will be reclassified as closed. DoD has requested that EPA not regulate inactive and active ranges so the military can maintain a high state of readiness to train troops and test weapons and to retain the option of using these ranges

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promulgated rule to be sufficiently protective of human health and the environment, the requirements in the Range Rule can take the place of the Subtitle C hazardous waste management requirements. At that point, EPA will make a final determination as to whether and under what circumstances used munitions will be considered a hazardous waste, and what regulatory requirements will be applicable to management of this waste.

A draft Range Rule was proposed in the *Federal Register* on September 26, 1997. Since then, DoD has responded to over 800 individual comments and redrafted the proposed rule. A revised draft rule was expected in December 1999. The Final Range Rule is expected to be promulgated in late 2000 at the earliest. In the meantime EPA has taken the position that range cleanup is subject to CERCLA requirements consistent with the NCP.⁴ This position has met with resistance at DoD and is currently under discussion by the two agencies.

There are significant regulatory and management implications of whether military munitions left on CTT ranges are regulated under CERCLA, RCRA, or DoD. The issues at stake are not only whether the substantive requirements are protective of human health and the environment, but also the level and type of participation by non-DoD personnel in range cleanup activities (e.g., the public, or Federal or State regulatory authorities), which entities make final decisions, and how disputes are resolved. For example, in current public drafts of the Range Rule, DoD will consult with regulators (EPA and States), but will retain decision-making authority for determining if there is a risk, and the nature of the resulting cleanup.

3.4.2 Have Chemical or Biological Weapons Been Found or Suspected on Range?

Over 50 percent of respondents indicated that chemical or biological weapons were found or suspected on their ranges, as shown in Figure 16. This large number signifies the serious and far-reaching potential for chemical and biological contamination of current and former ranges. Although chemical weapons are to be addressed under the forthcoming DoD Range Rule, according to DoD, biological weapons are outside of the scope of the Range Rule. This exclusion may pose serious problems when future investigative or cleanup activities locate such weapons. At that point, DoD will need to effectively address biological weapons contamination.

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As discussed in Chapter 2.0, because many types of UXO present a substantial risk of explosion, public encounters with UXO not only could endanger public health and safety, but also may instill a sense of fear in community members living on or near a range.

3.5.2 Unused Military Munitions

In addition to the information regarding UXO explosions and encounters discussed above, survey respondents also provided information regarding explosions of military munitions that were being stored for their intended use. These incidents took place several decades ago and they reflect the inherent safety issues associated with ordnance management that resulted in the creation of the DDESB, with its mission of centralizing safety management of munitions throughout DoD. As shown in Figure 18, there were nine reported explosions of military munitions, six of which involved fatalities.

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Although the majority of ranges in this survey are involved in some kind of environmental investigation/cleanup activity, it must be remembered that the ranges represented in this survey are not only a small subset of all facilities with ranges, but they are also most representative of NPL and BRAC facilities. Therefore, they are the facilities most likely to be under regulatory and public pressure to undertake investigation and cleanup. It should also be noted that while cleanup and response is underway at a number of ranges, additional work may be required before cleanup is complete.

The nomenclature of the phases of range investigation and cleanup is directly related to the regulatory program under which the cleanup will occur. The CERCLA and RCRA programs use different terms for the same activities. DoD's latest revision to the draft Range Rule generally uses

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terms consistent with CERCLA and the NCP. For the purpose of this report, five categories of cleanup activity are described in Table 2.

designed to "see" beneath the surface is currently limited in its ability to distinguish between ordnance and nonordnance, such as UXO fragments. Although progress is being made, these limitations in technology can often lead to non-UXO items being identified by a detection instrument as UXO, referred to as a false positive. DoD is very concerned that large numbers of false positives will significantly drive up UXO assessment and cleanup costs. In addition, DoD is concerned that false negatives, UXO items falsely identified as fragments or other nonordnance items, will lead to risks remaining following cleanup activities. Statistical sampling methodologies originally designed for screening purposes and to address the high cost of investigation have been proven to have limited utility in identifying areas of concern.

DoD, through USACE, has developed statistical sampling techniques that they combine with risk estimation procedures in order to determine how much cleanup is necessary. This approach is very controversial, with EPA and the States voicing strong reservations. Currently, EPA and DoD are jointly developing a risk management framework that will be used to estimate explosives safety risks from UXO on CTT ranges and will be the basis for cleanup decisions. This collaborative effort is still under way. When completed, the new methodology is expected to gain greater acceptance among regulators and the public, particularly because representatives of both groups participated in its development. Collaborative efforts such as this provide greater opportunity for all parties to bring their issues of importance forward for resolution.

The USACE has been instrumental in the development of approaches to site characterization. In the absence of any other methods, USACE and its contractors often rely on their own statistical grid sampling methods to determine the location and density of UXO on ranges. Statistical grid sampling on ranges is highly controversial, as it employs assumptions that may not be appropriate for military ranges. For example, unlike other types of contaminants that are measured as rates of exposure relative to long-term health risks, UXO are self-contained and robust, and exposure to only one can result in immediate physical trauma. Further, statistical sampling relies on an assumption of uniform distribution of UXO over a given area, which is not the case on most, if not all, military ranges.

5.4.2 Recommendations Based on Statistical Methods

The use of statistical sampling to define UXO contamination often leads to assessments that do not accurately or thoroughly address the extent of UXO contamination, thus leading to cleanup decisions that may be inadequate in protecting human health and safety and the environment. At the ranges where statistical methods were used, 91 percent of recommendations that were generated were not acceptable to EPA (Figure 26). Because the use of statistical sampling has not sufficiently and accurately defined UXO on ranges, EPA does not accept it as an assessment technique that can be used as a basis for cleanup decisions. However, when statistical sampling is conducted as an integrated part of a larger investigative strategy that includes historical data, range use information, visual site inspections, previous detection surveys, previous Explosives and Ordnance Demolition (EOD) Unit response actions, and the resultant knowledge of impact zones and hot spots, EPA may not oppose its use in making risk management and cleanup decisions.

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Regulatory authorities

The apparent clarity suggested by Figure 30 may mask conflicts between EPA, DoD, and State and local agencies about who has the regulatory authority of ranges. For example, in response to the survey question about who regulates the range, one respondent wrote, "State [is the] lead [regulator], Army considers themselves as the only lead not requiring State approval for actions."

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EPA views the DDESB as a crucial independent authority on issues concerning explosives safety. Yet, DDESB's responsibilities, specifically for the review and approval of explosives safety submittals (ESS), have been delegated to the USACE and the U.S. Army Technical Center for Explosives Safety in McAlistler, Oklahoma. EPA has raised this as a concern regarding FUDS in particular.

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The inventory process and potential reclassification of ranges may be controversial in many cases. Current "owners" of active and inactive ranges within DoD are operations personnel who may have a different view of what constitutes an incompatible use than environmental personnel have. In addition, there are tremendous cost and management implications associated with these decisions. In many cases, ranges classified as closed will be subject to regulatory oversight for cleanup, while inactive ranges will remain under the purview of DoD operations and management activities.

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In addition, transfers of property out of DoD control may be impeded. If such transfers occur, risks from unknown, subsurface UXO could be significant. In fact, almost 50 percent of ranges in the survey are at BRAC facilities that are designated for transfer to new ownership and control in the future. These findings clearly illustrate the need for DoD to implement applicable innovative technologies that are commercially available. DoD also will need to continue working with private industry to improve these technologies to make UXO identification and remediation more efficient and cost effective.

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7.7 Survey Responses as Related to Issues Raised by EPA

The findings of this report relate directly to the issues cited within the April 22, 1999, letter from Timothy fields, Assistant Administrator of OSWER, EPA, to Sherri W. Goodman, Deputy Under Secretary of Defense (Environmental Security). Considering that many CTT ranges have been or are being transferred for uses other than military ranges, EPA believes it is very important that DoD and non-DoD parties develop a better understanding of the issues and potential solutions. The letter cited five primary areas of concern and provided a thorough explanation of why these concerns need prompt attention. Those primary areas of concern and the relevant survey findings follow:

- **Methods of Range Assessment and Investigation:** Use of selected field screening, detection, statistical sampling, and other investigation techniques often results in mischaracterization of UXO and hazardous contaminants.

At 91 percent of the ranges at which statistical sampling was used, the EPA could not support the recommendations that were based upon these methods. One respondent wrote, "The Gridstat/Sitestat models do not work and failed miserably at characterizing UXO on the range! The model consistently underestimated the density of UXO and UXO scrap, it failed to identify the extent or size of contaminated areas, and it failed to identify live UXO on several impact areas." (See discussion in Section 5.4.)

- **Non-Compliance with Regulatory Authorities:** DoD often does not adhere to the requirements of applicable statutes or regulations (e.g., CERCLA, RCRA, Defense Department Explosive Safety Board (DDESB) 6055.9 standards). DoD's use of modified or inconsistent interpretations of the applicable statute or regulation result in many UXO-contaminated areas' not being investigated or, when discovered, not being addressed by the equivalent levels of protection provided by these requirements.

Draft workplans were submitted to the DDESB for less than 60 percent of the ranges represented in the survey. (See discussion in Section 6.5)

- **Communication, Coordination, and Dissemination of Information:** DoD has not adequately provided coordination with or distributed information to Federal, State, Tribal, and local government regulators. At a number of sites, negotiations for property transfer have taken place without the involvement of regulators.

To illustrate, 14 percent of the EPA respondents felt that situations concerning UXO that occurred on a range were out of their control. (See Section 5.5.2 for more information about this issue.) Fifty-two percent of the ranges were reported as regulated solely by DoD. (See Section 6.2.2.)

- **Remedy Selection and Implementation:** UXO investigation and cleanup activities have relied heavily on accelerated or emergency actions that are deemed to be CERCLA-like

actions consistent with the removal program (the CERCLA emergency response program). There are two problems caused by this. First, some UXO detection and clearance operations may not be appropriate for these rapid responses. The complexity of the problem (and absence of an immediate threat) suggests the need for a more thoughtful and thorough investigation and consideration of alternatives. Second, the use of a "CERCLA-like" process may skip some elements of protection built into the CERCLA process, including public involvement, adequate consideration of alternatives, and use of institutional controls to manage long-term threats.

EPA respondents stated that of the 64 percent of cleanups with which USACE was involved, only 15 percent were conducted consistently with CERCLA requirements. (See discussion in Section 6.3).

- **Transfer of UXO Contaminated Land:** EPA, other regulators, and all other non-DoD parties have strong concerns regarding CTT ranges where significant amounts of UXO remain and the property is already being used for a wide variety of land uses (other than a military range).

The expected future use of over half the ranges in the survey is residential. (See section 3.3 for further information). At 50 percent of the ranges, there are currently no institutional controls in place. Where institutional controls are in place, at 26 percent of the ranges, they are felt to be ineffective. (See Section 6.7.)

7.8 General Conclusions

"CERCLA-like" approaches to cleanup, including excessive use of removal actions, can lead to limited regulatory involvement and inadequate public participation. Cleanup decisions, both at normal hazardous waste sites and at CTT ranges, are ultimately based on a combination of scientific and engineering information and value judgments, which are based on perceptions of risk. Since one may never know with absolute certainty whether all used munitions that may create a risk have been detected and appropriately removed or managed, decisions that result from processes that inadequately involve the regulators and the public may not be defensible. The regulators and the public may feel that

decisions made by DoD alone do not sufficiently protect public health and the environment. When such decisions are made, ranges will not receive the necessary concurrence for transferring a site or delisting a site from the NPL until regulators can ensure that public health and safety and the environment are adequately protected. Long experience with the Superfund program suggests that implementing processes that appear to expedite internal DoD decisions may be shortsighted. These processes will in fact delay implementation of decisions when their acceptability is later called into question.

Many aspects of DoD's responses to the immense challenges of clearing and transferring ranges have been called into question by EPA. The results of this survey also highlight many situations in which the Regions are not satisfied with DoD's handling of the complex policy, technical and regulatory issues at CTT ranges. These findings clearly illustrate the need for a more comprehensive, coordinated, and inclusive approach to addressing CTT ranges.