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February 11, 2003

Dr. Thomas McLaughlin
U.S. Nuclear Regulatory Commission
NMSS/DWM/DCB Facilities Decommissioning Branch
Mail Stop T-7F27
Washington, DC 20555

Dear Sir:

Please accept the following as comments on the June, 2002 "Decommissioning Plan for License Sub-1435 - Jefferson Proving Ground [JPG], Madison, Indiana." Because I originally prepared the text for public distribution, it contains some background material near the beginning. The Army's document, in essence, is an argument that there is no need for the Army to clean up depleted uranium (DU) left over from the test firing of projectiles in 1983 and 1984.

The Army established JPG, located in southern Indiana, in 1941 primarily to test ordnance containing conventional explosives. Though the Army installation closed in 1994, the Army retains ownership. Today the U.S. Fish and Wildlife Service operates the Big Oaks National Wildlife Refuge on most of the property, and the Air National Guard uses two separate bombing target areas near the center of the facility.

An estimated 1.5 million ammunition rounds, out of more than 24 million fired there, lie unexploded on or beneath the surface of the 51,000 impact area. Though the Army is remediating ordnance and other contamination in the 4,000-acre cantonment area south of the impact area, it is conducting virtually no cleanup in the impact area. In fact, Army officials cite an administrative decision at Army headquarters, but I have never been able to obtain a specific reference, let alone a copy of that document.

The Army confined depleted uranium weapon testing to a 2,080-acre impact area. It calculates that it fired munitions containing 100,000 kilograms of uranium, and that it removed about 30,000 kilograms in semiannual recovery operations, leaving about 70,000 kilograms on site as either fragments or dust, on or just beneath the surface.

Because the Army conducted the tests under a license from the Nuclear Regulatory Commission, the Army was required to file an Decommissioning Plan. The NRC is reviewing the plan, and Save the Valley, a local environmental organization, has requested a public hearing before the NRC accepts the Plan.

In the plan the Army uses As Low As Reasonably Achievable (ALARA) analysis to argue that it should not be required to remediate the depleted uranium target area. I'm not qualified to judge whether the Army analysis meets the requirements of statute, but it fails miserably in the court of common sense.

The ALARA study is essentially a cost-benefit analysis. That is, it compares remediation to a level allowing unrestricted use with a response based upon institutional controls restricting access and use. It concludes (p. 6-2), "The cost of detecting and removing UXO [unexploded ordnance] and DU from the DU Impact Area to meet unrestricted release requirements is greater than the benefit that would accrue from detection and removal actions."

I find shortcomings in the calculation of the costs of cleanup, in the assessment of the benefits, and in the nature of the analysis.

Costs

The Army calculates the cost of cleaning up JPG's DU Impact Area to unrestricted use to be anywhere between \$45 million and \$1.613 billion. The high range assumes clearance of unexploded ordnance from the DU area to a depth of ten feet at a cost of more than \$100,000 per acre. Even more significant, it projects the identification and removal of a half million cubic feet of DU-contaminated soil at as much as \$1.365 billion. On top of that, off-site disposal could cost \$111 million.

The upper bounds of the cost estimates are indeed scary, particularly for those of us who normally use the National Contingency Plan (NCP) to develop cleanup remedies. The Army is using these astronomic costs to argue that cleanup is impossible, rather than - as the NCP requires - to develop a cost-effective cleanup plan. The NCP encourages decision-makers to maximize cleanup efficiencies by weighing the costs of alternatives for each step in the eventual remedy.

If UXO clearance at JPG, with today's technology, were really to cost \$100,000 an acre, it's likely that the Army or any other responsible party following the NCP would propose clearance to a shallower depth. The Army says DU contaminated the ground to a depth of two feet, so clearance might be to that level. Perhaps analysis of the freeze-thaw cycle would suggest a deeper clearance in areas likely to see public use, or other factors, such as the concentration of contamination near the surface, might lead to a shallower goal. In any case, ten feet is extreme.

Second, to evaluate usefully the cost of soil removal, the Army should offer estimates of the cost of various mass removals. It knows roughly how much uranium is in the ground, and it known that most of it is concentrated along the line of fire. How much would it cost to remove 10%? 90%? 99%? It is likely that most of the uranium - thus most of the environmental and human risk - could be removed for a small fraction of the estimated cost.

Third, disposal cost could be cut dramatically by constructing an on-site disposal cell, as

the Energy Department did at Fernald, Ohio with public support. I don't know all of the implications of such an approach at JPG, but a competent NCP analysis should raise all the right questions.

By targeting resources to the reduction of risk, careful planning, and using innovative technologies, the Army could keep down the costs of remediating the DU impact area. No doubt the total would be in the tens of millions of dollars, or maybe even a couple of hundred million, but it would be on a scale with remediation on other former military ranges.

Benefits

The Army's summary of the benefits of cleanup are similarly shortsighted. It fragments the benefits and only addresses radioactive hazards.

Though it counts UXO clearance as a cost, it calculates no benefit from that activity. As far as I know, it does not consider the benefits of eliminating the sources of energetic compounds such as RDX and perchlorate, even though such contaminants are frequently found on ranges. In fact, to my knowledge, the Army hasn't even sampled for such constituents at JPG.

The Army for years has claimed that depleted uranium, a heavy metal, is more of a toxic risk than a radioactive risk, but it assesses no benefit to the removal of the toxic substance. Sampling for DU has been very limited, and the Army's decommissioning plan proposes no additional tests.

Analysis

One of the problems with a straight cost-benefit analysis is that the people who bear the risks - that is, who would benefit from cleanup - are not the institution responsible for the costs. The cost of cleanup is a concern, but it would set a frightening precedent for hazardous waste cleanup if polluters such as the Army were simply allowed to put people at risk just to save themselves some money.

The Army's vision for JPG is a permanent national sacrifice zone, on the theory that if a risk exists in the forest, and no one is there to measure it, it doesn't make a sound. It's likely that any final remedy for the JPG DU impact area, as well as other parts of the Proving Ground, will require continuing monitoring and institutional controls, but cost effective action to reduce risk should be required.

In regulatory terms, NRC oversight of risks within its normal jurisdiction - that is, ionizing radiation - is useful only if it uses a process similar to the National Contingency Plan. Otherwise the Army should also proceed under CERCLA (the Comprehensive Environmental Response, Compensation, and Liability Act, or Superfund law) and the National Contingency Plan. The state of Indiana, the principal regulator, needs to assure that site characterization will take place and that risks will be addressed according to the NCP. Alternatively, U.S. EPA could assess and qualify JPG for the National Priorities [Superfund] List. That would make EPA the

lead regulator.

New Army Strategy

Finally, on February 4, 2003, the Army proposed to withdraw its Decommissioning Plan and instead negotiate a "5-year renewable possession-only license for an indefinite time period." It claims that sending people into the DU impact area to collect data for the NRC technical review would create an unacceptable safety hazard, even though it has already removed 30,000 kg of DU from that area. It appears, however, that the Army noticed the growing public opposition to its Decommissioning Plan, so it is proffering an alternative, a license to do nothing.

The Army's approach to the entire 51,000-acre JPG impact area is unacceptable. It has administratively determined that it will not spend funds on cleanup there, and no regulatory agency has yet challenged that position. I have attended innumerable meetings where U.S. military representatives brag about the Defense Department's current environmental performance. They argue that today there is too much regulatory oversight. The proposed sacrifice of JPG's DU impact area, however, demonstrates how easy it is for the military to revert to irresponsible practices when no one holds its feet to the fire of environmental protection.

Sincerely,

Lenny Siegel
Executive Director