

**U.S. NUCLEAR REGULATORY COMMISSION**  
**DOCKET NO. 040-08838**  
**March 6, 2006**  
**Environmental Assessment**  
**Related to Issuance of a License Amendment to**  
**U.S. Nuclear Regulatory Commission Materials License No. SUB-1435**  
**Department of Army**

## **Summary**

The U.S. Nuclear Regulatory Commission (NRC) staff has performed an environmental review of the Department of Army's ("Army's" or "licensee's") request for an alternate decommissioning schedule for its Jefferson Proving Ground (JPG) facility in Madison, Indiana. The U.S. Army, Rock Island Arsenal, Rock Island, Illinois has oversight of JPG. Army was authorized previously by NRC to use depleted uranium (DU) munitions for military testing. Army has ceased operations at JPG and currently has a possession-only license. Army is requesting a 5-year period to characterize the site and produce and submit a decommissioning plan (DP). NRC staff has evaluated Army's request and has developed an environmental assessment (EA) to support the review of Army's proposed alternate decommissioning schedule, in accordance with the requirements of 10 CFR Part 51. Based on the staff evaluation, the conclusion of the EA is a Finding of No Significant Impact on human health and the environment for the proposed licensing action.

## **Introduction**

Army tested DU projectiles at JPG from 1983 to 1994. Approximately 70,000 kg of DU remain in the DU impact area which is north of the firing line and approximately 2 kilometers from the western boundary of the site. The DU is co-mingled with unexploded ordnance (UXO). Army submitted "Final Environmental Impact Statement (EIS) for Disposal and Reuse of the Jefferson Proving Ground" in 1995 (see [www.jpgbrac.com](http://www.jpgbrac.com)) as part of its preparation for ultimate decommissioning. In response to an NRC request, Army also submitted an Environmental Radiation Monitoring (ERM) Plan in 1996, which calls for semi-annual sampling of groundwater, surface water and sediment. NRC approved the 1996 ERM Plan, which was then modified by a letter dated August 10, 1999 (see ADAMS ML993230068), and semi-annual sampling continues to be conducted at the site. To date, no DU has been detected in the samples collected. Army also submitted an Environmental Report (ER) in 2002 to update its 1995 EIS (see ML021960089 and ML021960135).

DPs were submitted by Army in December 1999 and June 2001. NRC staff discontinued review of the 1999 DP, considering it superseded by the 2001 DP. The staff rejected the 2001 DP during an expanded acceptance review, noting a number of deficiencies, particularly the need for an off-site transport model. In a revised DP dated June 2002, Army addressed the deficiencies noted by the staff with respect to the 2001 DP. After completing an expanded acceptance review, the 2002 DP was accepted for technical review by the staff. However, from the initial limited technical review of the 2002 DP, the staff determined that the off-site transport model would need to be validated before NRC could approve any DP. The inability to validate the model severely limited NRC's options regarding approval of the DP. In subsequent correspondence, Army noted that the collection of this data could result in an imminent personnel safety hazard because of the presence of UXO.

In 2003, Army requested NRC approval to continue with a possession-only license with a five-year renewal period (see ML030520478). Army submitted a revised ERM Plan (see ML032731017) to support its license amendment request. NRC staff reviewed the revised ERM Plan and noted that it was flawed (see ML042240299). Also, in 2004, NRC requested that, for the off-site transport model, Army identify the data parameters it could not collect due to the UXO (see ML042710122). Army withdrew its 5-year possession-only license amendment request on July 19, 2005 (see ML052130480).

In a letter dated May 25, 2005 (see ML051520319), Army submitted a license amendment request for an alternate schedule for submittal of a decommissioning plan pursuant to 10 CFR Part 40.42(g)(2). Army's justification for an alternate schedule was that it needed to characterize the site in order to prepare and submit a DP which would permit decommissioning of the site and license termination under restricted conditions. Army's May 2005 request is the subject of this EA.

### **The Proposed Action**

The proposed action is to amend Radioactive Materials License SUB-1435 to allow Army to use an alternate schedule for submittal of a decommissioning plan in accordance with 10 CFR Part 40.42(g)(2). Army is requesting a 5-year period to characterize the site and submit an acceptable DP.

### **The Need for the Proposed Action**

The proposed action is needed to amend the license to allow Army to complete site characterization and to collect enough information to develop an off-site transport model that adequately can predict the concentration of DU at points some distance from the source during the next 1,000 years. Without this site-specific data, Army will not be able to prepare an adequate DP and commence decommissioning, and NRC will not be able to terminate the license. NRC is fulfilling its responsibilities under the Atomic Energy Act to make a decision on a proposed license amendment that ensures protection of the public health and safety and environment.

### **Environmental Impacts of the Proposed Action**

Army has stated that a 5-year alternate schedule is necessary to complete site characterization and to prepare a DP that will meet NRC's criteria for approval. The activities proposed for Army's site characterization include installation of new monitoring wells, collection of biota and deer tissue samples, and measurement of stream flow rates.

Based on the staff's evaluation, the above activities associated with site characterization should not produce significant radiological or nonradiological impacts to the environment, workers or members of the public. NRC staff has determined from reviewing the Field Sampling Plan and Health and Safety Plan that were submitted with the May 25, 2005, letter, that the occupational doses to workers are expected to be low and well within the limits of 10 CFR Part 20. No radiation exposure to any member of the public is expected, and public exposure would therefore also be less than the applicable public exposure limits of 10 CFR Part 20.

The staff concludes that the potential environmental impact of the proposed sampling and monitoring activities is largely consistent with that of the sampling and monitoring that has been performed by Army under its current regimen. The Training Range Site Characterization and Risk Screening Regional Range Study, Jefferson Proving Ground, Madison, Indiana, August 2003, prepared by the United States Army Center for Health Promotion and Preventative Medicine (see [www.jpgbrac.com](http://www.jpgbrac.com)), explains how monitoring wells were safely installed and samples collected near the southwestern corner of the DU impact area with no radiological or nonradiological impact.

As Army has acknowledged, there is still risk to human health and safety from UXO in placing the wells and gathering the site-specific data in the areas with UXO. Although the staff has concluded that the radiological environmental impact from the proposed plan attributable to UXO is insignificant, the triggering of UXO during site characterization could potentially have nonradiological environmental impacts. However, Army has indicated that it will take precautions in its planning and implementation of site characterization to mitigate the risks from UXO. Consequently, the staff does not anticipate that UXO will be a source of significant environmental impact from the proposed alternate schedule request.

As part of its current license obligations, Army has been collecting semi-annual samples under its ERM Plan. To date, no DU has been detected in the samples collected. NUREG/CR-6705, "Historical Case Analysis of Uranium Plume Attenuation," describes the study of uranium plumes in groundwater produced in the course of mining, ore processing, and weapons testing and concluded: "the combined effects of dispersion and chemical reaction are sufficient to arrest most uranium plumes before they move more than roughly a kilometer from the source. The natural life cycle of a uranium plume appears to involve an initial movement away from a source region that takes place within a few years and does not exceed 2 kilometers." Consequently, the staff concludes that there is little likelihood that a groundwater plume containing DU from the impact area would reach the boundary of the site during the 5-year period proposed by Army. Moreover, if any of the pre-established action levels for groundwater, surface water or sediment are exceeded during the site characterization period, Army is required by its current license obligations to contact NRC and take corrective measures to reduce the DU concentration below the action level. Therefore, there is not expected to be any significant environmental impact attributed to DU migration as a result of the proposed 5-year extension.

### **Environmental Impacts of the Alternatives to the Proposed Action**

The purpose of Army's requested license amendment is to obtain additional time to conduct site characterization before preparing and submitting a DP. As stated above, the staff does not anticipate that approval of the amendment will result in any significant environmental impact. As a regulatory alternative to the proposed action, the staff considered the no-action alternative, which would entail the denial of the 5-year alternate schedule. The staff concludes that the environmental impacts of the no-action alternative would be slightly less than the impacts associated with the proposed action, because several site characterization activities would not occur. However, without the requested time to conduct additional site characterization, the staff concludes that Army would not have information adequate to produce a viable DP. Therefore, the no-action alternative would not serve the objective of effective decommissioning.

## **Agencies and Persons Consulted**

There are both historical properties and endangered species at JPG. These are discussed at length in Army's 2002 ER in Section 1.5.2, Section 106 Consultation, and Section 2.8.3, Wildlife. NRC staff has reviewed the Field Sampling Plan and the 2002 Environmental Report pursuant to the National Historic Preservation Act of 1966 (16 USC 470 et seq.) and determined that the collection of data for site characterization is not an undertaking that has the potential to cause effects on historic properties under 36 CFR 800.3. The U.S. Fish and Wildlife Service (FWS) was consulted in November 2005 about the proposed action and they concluded that the site characterization activities were not likely to adversely affect any endangered species at JPG (see ML060590627). On June 30, 2000, Army gave FWS a 25-year permit to use the property outside of the DU impact area for the establishment of a National Wildlife Refuge (see ML010570048). A draft of the EA was reviewed by the Indiana Department of Environmental Management in November 2005. They had no concerns or issues with the proposed action (see ML060590626).

## **Conclusions and Finding of No Significant Impact**

NRC staff has prepared this EA in support of its analysis of the proposed license amendment. On the basis of the analysis in this EA, NRC staff has concluded that the environmental impacts from the proposed action are not expected to be significant and has determined not to prepare an EIS for the proposed action.

## **List of Preparers**

Thomas McLaughlin  
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## **Sources Used**

Department of Army, 1995. "Final Environmental Impact Statement for Disposal and Reuse of the Jefferson Proving Ground." See [www.jpgbrac.com](http://www.jpgbrac.com).

Department of Army, 1996, and 1999. "Environmental Radiation Monitoring Plan at JPG." See ADAMS ML993230068

Department of Army, 2002. "Environmental Report." ML021960089 and ML021960135.

Department of Army, 2005. "Field Sampling Plan" and "Health and Safety Plan." ML051520319

NUREG/CR-6705, 2001. "Historical Case Analysis of Uranium Plume Attenuation." ML010460162.

NUREG-1748, 2003. "Environmental Review Guidance for Licensing Actions Associated with NMSS Programs." ML032450279.

United States Army Center for Health Promotion and Preventative Medicine. 2003. *The Training Range Site Characterization and Risk Screening Regional Range Study, Jefferson Proving Ground, Madison, Indiana*. August 2003. See [www.jpgbrac.com](http://www.jpgbrac.com).

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