

U.S. NUCLEAR REGULATORY COMMISSION  
DOCKET NO. 030-36574  
June 16, 2005  
Environmental Assessment  
Related to Issuance of a License Amendment  
of U.S. Nuclear Regulatory Commission Materials License No. 19-10306-02  
Department of the Army

## **SUMMARY**

The U.S. Nuclear Regulatory Commission (NRC) staff has performed an environmental review of the Department of the Army's (Army's or licensee's) decommissioning plan for its Building 7304 at Fort Belvoir, Virginia. Building 7304 is operated by the U.S. Army Research Development and Engineering Command located at Aberdeen Proving Ground, Maryland. The Army was authorized by NRC to use Building 7304 for radiological waste storage in support of its research laboratory. The Army also was authorized to use radiological materials in other buildings at Fort Belvoir which have previously been successfully decommissioned. In 2003, the Army ceased operations at Building 7304 and requested that NRC terminate its license (19-10306-02). The Army has conducted characterization surveys of Building 7304 and the soil beneath it and identified Carbon-14 (C-14), Promethium-147 (Pm-147), Thorium-232 (Th-232), Tritium (H-3) and Cesium -137 (Cs-137) contamination which will require the demolition and removal of the building and some of the underlying soil. The contaminated building material and soil will be shipped for disposal to an authorized disposal facility. The NRC staff has evaluated the Army's request and has developed an environmental assessment (EA) to support the review of the Army's proposed decommissioning plan and license amendment request, in accordance with the requirements of Part 10 of the Code of Federal Regulations (10 CFR) Section 51. Based on the staff evaluation, the conclusion of the EA is a Finding of No Significant Impact (FONSI) on human health and the environment for the proposed licensing action.

## **Introduction**

The NRC has received, by letter dated May 17, 2004, a request from the Army to amend its materials license to allow dismantlement and demolition of Building 7304 at its facility located in Fort Belvoir, Virginia in preparation for termination of its license. Building 7304 is a concrete construction, bunker-type building enclosed within an earthen cover approximately 3 feet thick. The building is 12 feet by 16 feet, equivalent to a footprint of 192 square feet. The entire area to be remediated is expected to be approximately 500 square feet. Currently, the licensee is prohibited from performing building demolition, soil remediation, and a final status survey until these activities are approved by a specific license amendment or an NRC - approved decommissioning plan. The Army conducted characterization surveys of Building 7304 and the soil beneath it and developed a decommissioning plan (See ADAMS ML041490071) to support its license amendment request.

## **The Proposed Action**

The proposed action is to grant an amendment to License No. 19-10306-02 to incorporate the decommissioning plan for Building 7304. The licensee's objective for the decommissioning

project, as stated in the decommissioning plan, is to demolish and remove Building 7304 and remediate any other affected areas sufficiently to enable unrestricted use, while ensuring exposures to occupational workers and the public during the decommissioning are maintained below the regulatory requirements in 10 CFR Part 20 and as low as reasonably achievable (ALARA). The proposed action also would amend NRC Radioactive Materials License 19-10306-02 to incorporate appropriate and acceptable Derived Concentration Guideline Limits (DCGLs) into the license. The Army’s decommissioning plan for Building 7304 proposes to use DCGLs that are screening values developed by NRC (65 FR 37186, June 13, 2000) to demonstrate compliance with the radiological criteria for license termination in 10 CFR 20.1402. The DCGLs will define the maximum amount of residual radioactivity in soils that will satisfy the NRC requirements in Subpart E, 10 CFR Part 20, “Radiological Criteria for License Termination.” The DCGLs proposed to be incorporated into the license are as follows:

<b>Radionuclide</b>	<b>Soil DCGL (pCi/g)</b>
Tritium (H-3)	110
Carbon-14 (C-14)	12.0
Cesium-137 (Cs-137)	11.0
Promethium-147 (Pm-147)	8.2E3
Thorium-232 (Th-232)	1.10
Americium-241 (Am-241)	2.10

These values represent surface soil concentrations of individual radionuclides that would be deemed in compliance with the 25 mrem/y (0.25 mSv/y) unrestricted release dose limit in 10 CFR 20.1402. For radionuclides in a mixture, the “sum of fractions” rule applies; see 10 CFR 20, Appendix B, Note 4.

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

The purpose of the proposed action is to reduce residual radioactivity at the Building 7304 site to a level that permits release of the property for unrestricted use and termination of the license. NRC is fulfilling its responsibilities under the Atomic Energy Act to make a decision on a proposed license amendment for decommissioning that ensures protection of the public health and safety and environment.

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

The NRC staff has reviewed the decommissioning plan for Building 7304 and examined the impacts of decommissioning. Based on its review, the staff has determined that the affected environment and the radiological environmental impacts associated with the decommissioning of Building 7304 are bounded by the impacts evaluated by the “Generic Environmental Impact Statement in Support of Rulemaking on Radiological Criteria for License Termination of NRC-Licensed Nuclear Facilities” (NUREG-1496). The staff also finds that the decommissioning of Building 7304, as proposed, would be in compliance with 10 CFR 20.1402, the radiological

criteria for unrestricted use.

Since ceasing operations, all radiological material has been removed from storage in Building 7304 and shipped to authorized disposal facilities. Access to areas in Building 7304 with residual radioactivity is controlled to assure the health and safety of workers and the public. No ongoing licensed activities are occurring in Building 7304.

Contamination controls would be implemented during decommissioning to prevent airborne and surface contamination from escaping the remediation work areas, and therefore, no release of airborne contamination is anticipated. No liquid effluents are expected to be generated during decommissioning.

The Army and its subcontractor would perform the remediation under the Army's license for the Building 7304 site, with the Army overseeing the activities and maintaining primary responsibility. The Army has developed adequate radiation protection procedures and capabilities, and will implement an acceptable program to keep exposure to radioactive materials ALARA. As noted above, the Army has prepared a decommissioning plan describing the work to be performed, and work activities are not anticipated to result in a dose to workers or the public in excess of the 10 CFR Part 20 limits. NRC's past experiences with decommissioning activities at sites similar to the Building 7304 site indicate that public and worker exposure will be far below the limits found in 10 CFR Part 20.

The non-radiological environmental impacts from the proposed remediation of Building 7304 would be minor due to the limited scope of the decommissioning. An excavator with a jackhammer attachment would be used to demolish the Building structure. As the building is de-constructed, the debris would be sized to meet the acceptance criteria for the disposal facility. As the rubble is sized, it would be placed into intermodal containers in preparation for shipment. The entire amount of material to be shipped offsite is estimated to be less than 3,000 cubic feet. The environmental impacts associated with the de-construction of the building, the sizing of the rubble, and the shipment of waste offsite would be limited due to (1) the short duration of the work (less than 45 days), (2) the limited de-construction area, and (3) the small amount of material for transportation offsite.

In summary, the radiological and non-radiological environmental impacts for the proposed action would be minor.

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

The only alternative to the proposed action of allowing decommissioning of the site is no action. The no-action alternative is not acceptable because it would result in violation of NRC's Timeliness Rule (10 CFR 30.36), which requires licensees to decommission their facilities when licensed activities cease, and to request termination of their radioactive materials license. The impact of the no-action alternative would be to leave a slightly contaminated building in place and would not fulfill the request to decommission for unrestricted use.

### **Agencies and Persons Contacted**

A draft EA was prepared by NRC staff for review by the Virginia Department of Environmental Quality. The Virginia Department of Environmental Quality is responsible for coordinating the Commonwealth's review of federal documents and preparing one response on behalf of the Commonwealth of Virginia. Therefore, the prepared response includes comments from the Commonwealth's Historical Preservation Office as required under Section 106 of the National Historic Preservation Act (See ADAMS ML051170436). The Commonwealth's comments were sent to NRC and incorporated into this EA as appropriate. The Commonwealth's comments were also forwarded to the Army. The Army will have to be in conformance to the Commonwealth's requirements prior to the removal of Building 7304.

The U.S. Fish and Wildlife Service (FWS) was contacted regarding any potential impacts to endangered and threatened species and critical habitat at the Fort Belvoir site. The response was that the only known federally listed species at Fort Belvoir is the bald eagle and decommissioning Building 7304 would not affect the eagle (See ADAMS ML051180035).

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

The NRC staff has concluded that the proposed action complies with 10 CFR Part 20. Decommissioning of the site to the DCGLs proposed for this action would result in reduced residual contamination levels in the facility, enabling release of the facility for unrestricted use and termination of the radioactive materials license. No radiologically contaminated effluents are expected during the decommissioning. Occupational doses to decommissioning 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 therefore, public exposure also would be less than the applicable public exposure limits of 10 CFR Part 20.

The NRC staff has prepared this EA in support of the proposed license amendment to incorporate appropriate and acceptable DCGLs and to use the proposed DCGLs for the planned decommissioning by the licensee at the Building 7304 site. 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 environmental impact statement for the proposed action.

### **List of Preparers**

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### **Sources Used**

NRC, 1997. "Generic Environmental Impact Statement in Support of Rulemaking on Radiological Criteria for License Termination of NRC-Licensed Nuclear Facilities" (NUREG-1496). (July 1997). ML042310492.

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U.S. Fish and Wildlife, 2005. E-mail from Eric Davis (FWS) to Thomas McLaughlin (NRC). (February 15, 2005). ML051180035.

Commonwealth of Virginia, 2005. "Comments on the Draft Environmental Assessment for Fort Belvoir (May 14, 2005)." ML051170436.

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