

NUCLEAR REGULATORY COMMISSION  
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Environmental Assessment Related to an Amendment  
of U.S. Nuclear Regulatory Commission Materials License No. 29-00117-06,  
Issued to Merck & Co., Inc.

The U.S. Nuclear Regulatory Commission (NRC) is considering amending Materials License Number 29-00117-06 and approving, pursuant to 10 CFR 20.2002, procedures not otherwise authorized in the regulations of this chapter, to dispose of soil containing hydrogen-3 (tritium) to an industrial landfill and has prepared an Environmental Assessment (EA) in support of this action.

**SUMMARY:** The NRC reviewed the request submitted by Merck & Co., Inc. in Rahway, New Jersey, for disposal pursuant to 10 CFR 20.2002 of 61 cubic meters (80 cubic yards) of solid materials (soil) containing up to 28 megabecquerels (MBq) (756 microcuries) of hydrogen-3 (tritium) to an industrial landfill. The licensee and the NRC performed dose assessments of the disposal of this material in this manner, and determined that such disposal, with certain restrictions, would result in doses of less than 0.01 millisievert (1 millirem) per year. The NRC staff has evaluated Merck & Co., Inc.'s request and the results of the surveys, and has developed an EA in accordance with the requirements of 10 CFR Part 51. The NRC has determined that a Finding of No Significant Impact (FONSI) is appropriate for the proposed action.

### **Introduction**

Merck & Co., Inc. (Merck) is a pharmaceutical manufacturer that uses licensed materials in research and development activities pursuant to License 29-00117-06. During renovation of a drain line, the licensee identified an area of leakage and detected small amounts of tritium in an area of surrounding soil. A total of 80 cubic yards of contaminated soil was excavated during the renovation. The mean concentration of tritium in the soil was determined to be 7.6 picocuries per gram (pCi/gm), and the total source term was determined to be 756 microcuries (uCi) of tritium in the entire volume of contaminated soil. The licensee requested disposal of this material to an industrial landfill pursuant to 10 CFR 20.2002, and provided a dose analysis that demonstrated that the maximum dose from such a disposal would be less than 0.1 millirem. The NRC performed dose assessments of the disposal of soil in this manner, and determined that such disposal would result in doses of much less than 1 millirem per year to members of the public.

### **Proposed Action**

The NRC is considering the issuance of a license amendment to License No. 29-00117-06 to allow disposal, in accordance with 10 CFR 20.2002, of 80 cubic yards of soil contaminated with 756 uCi of tritium, as described in the licensee's amendment request dated February 23, 2004.

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This proposed action would also exempt the low-contaminated material authorized for disposal from further Atomic Energy Act (AEA) and NRC licensing requirements.

### **The Need For The Proposed Action**

The licensee needs this amendment to the license in order to have a cost-effective method of disposal of the soil contaminated with very small amounts of tritium. The soil also contains concentrations of metals that exceed non-residential standards and require disposal in an industrial landfill that is permitted to accept soil containing metals.

### **Alternatives to The Proposed Action**

The only alternative to the proposed action of amending the license to allow disposal of the low-contaminated soil to an industrial landfill and exempting the material from further AEA and NRC regulation is no action. The no action alternative would result in the disposal of the soil as low level radioactive waste in a land disposal facility licensed pursuant to 10 CFR Part 61. The extremely high cost of this alternative would not be offset by a significant reduction in dose to members of the public.

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

The activities that NRC staff will authorize, pursuant to 10 CFR 20.2002, through the issuance of an amendment to License No. 29-00117-06, is expected to have an insignificant impact on the environment. The disposal of the soil containing a total of 756 microcuries of tritium would result in a dose of less than 1 millirem to a member of the public. The proposed action and attendant exemption of the material from further AEA and NRC licensing requirements will not significantly increase the probability or consequences of accidents, no changes are being made in the types of any effluents that may be released off site, and there is no significant increase in occupational or public radiation exposure.

### **Agencies and Persons Consulted**

The NRC staff has determined that the proposed action will not affect listed species or critical habitat. Therefore, no further consultation is required under Section 7 of the Endangered Species Act. Likewise, the NRC staff have determined that the proposed action is not the type of activity that has the potential to cause effects on historic properties. Therefore, no further consultation is required under Section 106 of the National Historic Preservation Act.

NRC discussed the licensee's request for an alternative disposal authorization with the States of New York and New Jersey. NRC provided a draft of its EA to the State of New Jersey for review. On March 1, 2005, the Department of Environmental Protection responded by letter and agreed with the conclusions of the EA.

### **Conclusions**

Based on its review, the NRC staff has concluded that the completed action complies with 10 CFR Part 20. The NRC staff have prepared this EA in support of the proposed action to

amend License No. 29-00117-06. On the basis of the EA, NRC has concluded that there are no significant environmental impacts and the license amendment does not warrant the preparation of an Environmental Impact Statement. Accordingly, it has been determined that a Finding of No Significant Impact is appropriate.

### **List of Preparers**

Betsy Ullrich, Senior Health Physicist, Division of Nuclear Materials Safety, Region I

### **List of References**

1. NRC License No. 29-00117-06 inspection and licensing records.
2. Letter dated February 23, 2004 [ADAMS Accession No. ML040711197].
3. Title 10, Code of Federal Regulations, Part 51, "Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions."

The application for the license amendment and supporting documentation are available for inspection at NRC's Public Electronic Reading Room at <http://www.nrc.gov/reading-rm/adams.html>. Any questions with respect to this action should be referred to Betsy Ullrich, Commercial and R&D Branch, Division of Nuclear Materials Safety, Region I, 475 Allendale Road, King of Prussia, Pennsylvania 19406, telephone (610) 337-5040, fax (610) 337-5269.

Dated at King of Prussia, Pennsylvania this 6 day of June

FOR THE NUCLEAR REGULATORY COMMISSION

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James P. Dwyer, Chief  
Commercial and R&D Branch  
Division of Nuclear Materials Safety  
Region I

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SISP Review Complete: \_\_\_Jdwyer 6/6/05\_\_\_

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