

Nuclear Regulatory Commission

[NRC-2009-0440]

Docket No. 40-8989

Issuance of Environmental Assessment and Draft Finding of No Significant Impact for Modification of Exemption from Certain U.S. Nuclear Regulatory Commission Licensing Requirements for Special Nuclear Material for EnergySolutions LLC, Clive, Utah

AGENCY: U.S. Nuclear Regulatory Commission

ACTION: Environmental Assessment and Draft Finding of No Significant Impact

SUMMARY: The U.S. Nuclear Regulatory Commission (NRC) has prepared an Environmental Assessment for the issuance of an Order pursuant to Section 274f of the Atomic Energy Act that would modify an Order issued to EnergySolutions, LLC (EnergySolutions) on May 30, 2006. In accordance with 10 CFR 51.33, the NRC has also prepared a draft Finding of No Significant Impact (FONSI) for public review and comment. The current action is in response to a request by EnergySolutions dated September 26, 2006. The May 30, 2006 Order was published in the *Federal Register* on June 13, 2006 (71 FR 34165). The May 30, 2006 Order, which modified a previous Order issued to EnergySolutions on July 11, 2005, exempted EnergySolutions from certain NRC regulations and permitted EnergySolutions, under specified conditions, to possess waste containing special nuclear material (SNM), in greater quantities than specified in 10 CFR Part 150, at EnergySolutions's facility located in Clive, Utah, without obtaining an NRC license pursuant to 10 CFR Part 70.

DATES: The public comment period on the draft FONSI closes on [insert date 30 days after the date of publication]. Written comments should be submitted as described in the “ADDRESSES” section of this notice. Comments received after this date will be considered if it is practical to do so, but the Commission is able to assure consideration only for comments received on or before [insert date 30 days after the date of publication].

ADDRESSES: You may submit comments by any one of the following methods. Please include Docket ID **NRC-2009-0440** in the subject line of your comments. Comments submitted in writing or in electronic form will be posted on the NRC website and on the Federal rulemaking website Regulations.gov. Because your comments will not be edited to remove any identifying or contact information, the NRC cautions you against including any information in your submission that you do not want to be publicly disclosed.

The NRC requests that any party soliciting or aggregating comments received from other persons for submission to the NRC inform those persons that the NRC will not edit their comments to remove any identifying or contact information, and therefore, they should not include any information in their comments that they do not want publicly disclosed.

Federal Rulemaking Website: Go to <http://www.regulations.gov> and search for documents filed under Docket ID **NRC-2009-0440**. Address questions about NRC dockets to Carol Gallagher 301-492-3668; e-mail Carol.Gallagher@nrc.gov.

Mail comments to: Michael T. Lesar, Chief, Rulemaking and Directives Branch (RDB), Division of Administrative Services, Office of Administration, Mail Stop: TWB-05-B01M, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by fax to RDB at (301) 492-3446.

You can access publicly available documents related to this notice using the following methods:

NRC's Public Document Room (PDR): The public may examine and have copied for a fee publicly available documents at the NRC's PDR, Public File Area O1 F21, One White Flint North, 11555 Rockville Pike, Rockville, Maryland.

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Publicly available documents created or received at the NRC are available electronically at the NRC's Electronic Reading Room at <http://www.nrc.gov/reading-rm/adams.html>. From this page, the public can gain entry into ADAMS, which provides text and image files of NRC's public documents. If you do not have access to ADAMS or if there are problems in accessing the documents located in ADAMS, contact the NRC's PDR reference staff at 1-800-397-4209, 301-415-4737, or by e-mail to pdr.resource@nrc.gov.

Federal Rulemaking Website: Public comments and supporting materials related to this notice can be found at <http://www.regulations.gov> by searching on Docket ID: **NRC-2009-0440**.

FOR FURTHER INFORMATION CONTACT: Nishka Devaser, Project Manager, Environmental and Performance Assessment Directorate, Division of Waste Management and Environmental Protection, Office of Federal and State Materials and Environmental Management Programs, U.S. Nuclear Regulatory Commission, Washington, DC 20555. Telephone: (301) 415-5196; Fax number: (301) 415-5369; Email: Nishka.Devaser@nrc.gov

SUPPLEMENTARY INFORMATION:

I. Introduction:

EnergySolutions is authorized by license from the State of Utah, an NRC Agreement State, to operate a disposal facility for LLW. *EnergySolutions* is also licensed by Utah to dispose of mixed waste, hazardous waste, and 11(e).2 byproduct material.

The U.S. Nuclear Regulatory Commission (NRC) is considering issuance of the fifth amendment to an Order that was initially issued to Envirocare of Utah, Inc. on May 24, 1999 (64 FR 27826), pursuant to Section 274f of the Atomic Energy Act. NRC previously amended the Order in January 2003 (68 FR 7400), December 2003 (68 FR 59645), August 2005 (70 FR 44123), and June 2006 (71 FR 34165). The amended Order would continue to grant *EnergySolutions* (formerly Envirocare of Utah, Inc.) an exemption from the requirements for an NRC license under 10 CFR Part 70. The amendment is required to allow *EnergySolutions* to receive steel piping waste containing residual special nuclear material (SNM). The steel piping waste will be generated by the Department of Energy as it decommissions the K-25 gaseous diffusion uranium enrichment facility in Oak Ridge, Tennessee.

The 1999 Order exempted Envirocare (now *EnergySolutions*) from certain NRC regulations and permitted the company, under specified conditions, to possess waste containing SNM, in greater quantities than specified in 10 CFR Part 150, at the Envirocare low-level waste (LLW) disposal facility located in Clive, Utah, without obtaining an NRC license pursuant to 10 CFR Part 70. The 1999 Order permitted Envirocare to possess SNM below specified concentrations, without regard for mass. The January 2003 amendment to the Order addressed certain waste treatment processes; a change in the homogeneous contiguous mass limit from 145 kg to 600 kg; clarified certain language of the Order; and removed the confirmatory testing requirements for debris waste. The December 2003 amendment to the Order: amended Condition 1, to include criticality-based concentration limits without magnesium oxide; modified the units of the table in Condition 1 from picocuries of SNM per gram of waste material to gram of SNM per gram of waste material; and (3) revised the language of Condition 5 to be consistent with the revised units in the table in Condition 1. A July 2005 amendment to the Order: modified the table in Condition 1 to include criticality-based limits for uranium-233 and plutonium isotopes

in waste containing up to 20 percent of materials listed in Condition 2 (e.g., magnesium oxide); included criticality-based limits in the table in Condition 1 for plutonium isotopes in waste with unlimited materials in Condition 2, and in waste with unlimited quantities of materials in Conditions 2 and 3 (e.g., beryllium); provided criticality-based limits for uranium-235 as a function of enrichment in waste containing up to 20 percent of materials listed in Condition 2 and in waste containing none of the materials listed in Condition 2; and authorized additional mixed waste treatment technologies under the Order. The most recent amendment to the Order, issued in May 2006, was an administrative change to accommodate a change in the name of the company from Envirocare of Utah, Inc. to EnergySolutions LLC.

The NRC has prepared an Environmental Assessment (EA) in accordance with the requirements of 10 CFR Part 51. Based on the EA, the NRC has concluded that a Finding of No Significant Impact (FONSI) is appropriate for the proposed action, as modified.

II. ENVIRONMENTAL ASSESSMENT (EA)

Proposed Action:

By letters dated September 26, 2006, December 4, 2006, July 16, 2007, September 13, 2007, and January 15, 2009, EnergySolutions requested an amendment to its 2006 Order. EnergySolutions requests an amendment of the package mass limits contained in Condition 4 of the Order, and the addition or revision of other conditions, as necessary. As described in its September 2007 nuclear criticality safety evaluation, EnergySolutions requests these additional changes to the Order so that it may receive and dispose of Oak Ridge K-25 gaseous diffusion plant piping from the Department of Energy (DOE) in larger containers than would be allowable under the 2006 Order. EnergySolutions proposes to receive piping waste from the decommissioning of the K-25 facilities in gondola railcars, each containing up to 3.6 kg (7.9 lbs) of uranium-235 in the form of highly water soluble uranyl fluoride. EnergySolutions also

proposed that certain additional conditions be added to the Order for the purposes of criticality safety during receipt, on-site storage, movement, emplacement, and disposal of K-25 waste. Upon consideration of EnergySolutions' request, the NRC is considering similar conditions to those proposed by EnergySolutions that restrict: the areal density of highly water soluble SNM in disposal embankments at the Clive, UT site; and the amount of water which should be present during receipt, on-site storage, movement, emplacement, and disposal of K-25 waste.

Site and Facility Description

The EnergySolutions LLW disposal facility at Clive, UT is located 128 kilometers (80 miles) west of Salt Lake City, UT. The site is arid, and receives about 20 centimeters (8 inches) of precipitation annually. A description of the site and its history is available in the Utah Division of Radiation Control safety evaluation report for the EnergySolutions license renewal.

All low-level radioactive waste received at the Clive facility must contain radioactive constituents. The low-level radioactive waste embankment is constructed from materials native to the site or available in close proximity to the site. Due to requirements regarding the long-term stability of the embankment, the principal design features of the embankment do not rely upon synthetic materials to provide stability and isolation of the wastes from the environment. The principal construction materials are the naturally low-permeability clay taken from between the ground surface and the unconfined aquifer and the rock riprap and filter material taken from pits located within 16 kilometers (10 miles) of the facility. The vertical minimum separation between the bottom of the disposed LLW and the historic high water table is determined as being 4 meters (13 feet).

After a liner is constructed over a specific area of the Class A LLW disposal embankment, at least 30 centimeters (12 inches) of debris-free soil is placed on top of the liner;

followed by another 30 centimeters (12 inches) of waste as a protection to the integrity of the liner. Both of these layers of protective soil are compacted with rubber tired equipment. Thereafter, the area is available for placement of waste containers and materials. Waste that is removed from the shipping container is typically compacted into 61 centimeter (24 inch) waste lifts. Waste that consists of debris items that do not have a dimension less than 25 centimeters (10 inches) is disposed of using controlled low strength material (CLSM) in a different disposal area.

Need for the Proposed Action:

Condition 4 of the 2006 Order limits the mass of highly water soluble SNM that may be contained in individual waste packages. For example, the 2006 Order limits the amount of highly water soluble uranium-235 in each waste package to 350 grams. Relatively small waste packages that contain highly water soluble uranium compounds in which the uranium-235 concentration limits of Condition 1 are met (e.g., 6.2×10^{-4} gram uranium-235 per gram waste), would normally contain small mass quantities of uranium-235 such that the 350 gram package mass limit would not be exceeded. However, in order to cost-effectively receive and process large quantities of K-25 steel piping waste containing highly water soluble uranyl fluoride, EnergySolutions proposes to use 100-ton capacity gondola railcars. Therefore, even though the concentration of residual uranyl fluoride in K-25 piping waste is expected to remain a fraction of the concentration limits contained in Condition 1 of the 2006 Order, the amount of uranium-235 in each railcar could exceed the current package mass limits in Condition 4. However, EnergySolutions believes that it is not cost-effective to package K-25 waste in sufficiently small quantities to meet Condition 4 of the 2006 Order. For this reason, EnergySolutions requests an amendment to Condition 4 of the 2006 Order in order to receive K-25 steel piping waste in large gondola railcars. In addition, EnergySolutions proposes additional conditions to ensure

criticality safety of large quantities of steel piping waste containing highly water soluble uranyl fluoride during waste receipt, unloading, on-site storage, emplacement and disposal of the waste.

Alternatives to the Proposed Action:

The NRC staff considered one alternative to the proposed action. The alternative to the proposed action is denial of the request to amend the 2006 Order (no-action alternative).

Affected Environment:

NRC has prepared an environmental impact statement (EIS) (NUREG-1476) for its licensing action at the EnergySolutions site to authorize disposal of 11e.(2) byproduct material. The affected environment is discussed in detail in NUREG-1476.

Environmental Impacts of the Alternatives

No Action Alternative:

For the no-action alternative, the environmental impacts would be the same as evaluated in the Environmental Assessments that supported the issuance of original Order (64 FR 26463, May 14, 1999) and its amendments (68 FR 3281; January 23, 2003, 68 FR 59645; October 16, 2003, 70 FR 4124; July 18, 2005). In these prior EAs, the staff concluded that the issuance of the Order would have no significant adverse environmental impacts.

Proposed Action:

For the proposed action, the environmental impacts would be similar to those described in previous EAs noted above, with the exception of environmental impacts associated with:

receipt and unloading of 100-ton capacity gondola railcars containing K-25 piping waste, each of which contains residual deposits of highly water soluble uranyl fluoride in quantities in excess of the limits in Condition 4 of the 2006 Order (i.e., up to 3.6 kilograms of uranium-235); and placement in disposal embankments of piping waste containing highly water soluble uranyl fluoride at areal densities of up to 1 kilogram uranium-235 per square meter.

The proposed action would not significantly alter land or water usage at the Clive facility, or result in new construction. Facility effluents would remain essentially unchanged, since this action would not alter the types or quantities of waste that EnergySolutions is currently authorized to receive and dispose of. Disposal of Class A LLW is currently authorized by license from the State of Utah, for which no significant changes are anticipated other than incorporation into the radioactive materials license of a revision to Condition 4 to impose an areal density limit for highly water soluble SNM, including requirements to minimize water intrusion into the waste containing highly water soluble forms of uranium during receipt, unloading, onsite storage and waste emplacement operations.

The proposed action, which allows the use of large waste packages, will result in a reduction of the use of waste packaging, and thus generate less packaging waste. Also, fewer transportation consignments would be required to transport waste from Oak Ridge, TN to the Clive, UT disposal facility, reducing transportation-related impacts from what would otherwise occur if smaller packages were required. The proposed action also further reduces the risk of accidental nuclear criticality, and resulting worker and public radiation doses, from the proposed action by imposing an areal density limit on disposal of highly water soluble forms of uranium, which is not currently required by the 2006 Order.

The proposed action would not significantly alter available disposal capacity at the Clive facility, or significantly change the performance of disposed waste. The radiation dose rates from K-25 decommissioning waste, which contains uranium and trace amounts of other

radioactive material, are low compared to other forms of Class A waste, which may contain source, byproduct and special nuclear material up to the limits allowed by the State of Utah radioactive materials license. Therefore, the proposed action is not likely to significantly change worker and public doses resulting from waste operations.

Preferred Alternative:

The staff has concluded in the March 2009 safety evaluation report for this proposed action that the proposed action provides sufficient protection of public health and safety, and the environment, and is not inimical to common defense and security, and is otherwise in the public interest. Therefore, staff's preferred alternative is to amend the 2006 Order.

Agencies and Persons Consulted:

Officials from the State of Utah, Department of Environmental Quality, Division of Radiation Control were consulted about this EA for the proposed action and had no comments. Because the proposed action is not expected to have any impact on threatened or endangered species or historic resources, the Fish and Wildlife Service and State of Utah Historic Preservation Officer were not consulted.

III. DRAFT FINDING OF NO SIGNIFICANT IMPACT

The environmental impacts of the proposed action have been reviewed in accordance with the requirements set forth in 10 CFR Part 51. Based upon the foregoing EA, the NRC finds that the preferred alternative of amending the 2006 Order will not significantly impact the quality of the human environment. The NRC also concludes that the proposed action to grant a modification to EnergySolutions' exemption from the requirements of 10 CFR Part 70 is, pursuant to 10 CFR 70.17, authorized by law and will not endanger life or property or the

common defense and security and is otherwise in the public interest. On this basis of this EA, NRC concludes that there are no significant environmental impacts and the issuance of a modified Order does not warrant the preparation of an Environmental Impact Statement. Accordingly, the NRC has determined that a Finding of No Significant Impact is appropriate.

Pursuant to 10 CFR 51.33(e), a final determination to prepare an environmental impact statement or a final FONSI for the proposed action will not be made until the last day of the public comment period has expired on [insert date 30 days after date of publication].

IV. FURTHER INFORMATION

Documents related to this action, including the letter requesting the amendment and supporting documentation, will be available electronically at the NRC's Electronic Reading Room at <http://www.nrc.gov/reading-rm/adams.html> . From this site, you can access the NRC's Agencywide Documents Access and Management System (ADAMS), which provides text and image files of NRC's public documents. The ADAMS accession numbers for the documents related to this notice are:

1. September 29, 2006 authorization request (ML063040029).
2. July 16, 2007 letter response to request for additional information (ML073520212)
3. September 13, 2007 letter response to request for additional information (ML073440260)

If you do not have access to ADAMS or if there are problems in accessing the documents located in ADAMS, contact the NRC's Public Document Room (PDR) Reference staff at 1-800-397-4209, 301-415-4737, or by email to pdr.resource@nrc.gov.

These documents may also be viewed electronically on the public computers located at the NRC's PDR, O-1 F21, One White Flint North, 11555 Rockville Pike, Rockville, MD 20852.

The PDR reproduction contractor will copy documents for a fee.

Dated at Rockville, Maryland this 29th day of September 2009

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

/RA/

Patrice M. Bubar, Deputy Director
Environmental Protection
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Division of Waste Management
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