[7590-01-P]

Nuclear Regulatory Commission

[NRC-2009-0440]

Docket No. 40-8989

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

AGENCY: Nuclear Regulatory Commission.

ACTION: Environmental Assessment and Final Finding of No Significant Impact.

SUMMARY: The U.S. Nuclear Regulatory Commission (NRC) has prepared an Environmental Assessment for the issuance of an Order as authorized by Section 274f of the Atomic Energy Act that would modify an Order issued to Energy*Solutions*, LLC (formerly Envirocare of Utah, Inc.) on May 7, 1999 (64 FR 27826; May 21, 1999). In accordance with 10 CFR 51.33, the NRC prepared a draft Finding of No Significant Impact (FONSI) for this amendment, which was published for public review and comment on October 7, 2009 (74 FR 51622). The public comment period closed on November 6, 2009. NRC received 12 comments from 4 commenters. The Order responds to a request by Energy*Solutions* dated September 26, 2006, to amend the package mass limits contained in Condition 4 of their 2006 Order, and to add or revise other conditions. The May 7, 1999, Order exempted Energy*Solutions* from certain NRC regulations and permitted Energy*Solutions*, under specified conditions, to possess waste containing special nuclear

material (SNM), in greater quantities than specified in 10 CFR Part 150 at its facility located in Clive, Utah, without obtaining an NRC license under 10 CFR Part 70. As discussed below, the Order has been amended four times since it was issued in 1999.

ADDRESSES: 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 20852.

NRC's Agencywide Documents Access and Management System (ADAMS): 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:

Energy*Solutions* is licensed by the State of Utah, an NRC Agreement State, to operate a disposal facility for LLW. Energy*Solutions* 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 a fifth amendment to an Order that was initially issued to Envirocare of Utah, Inc. on May 7, 1999 (64 FR 27826; May 21, 1999). NRC previously amended the Order on January 30, 2003 (68 FR 7399; February 13, 2003), December 16, 2003 (68 FR 74986; December 29, 2003), July 22, 2005 (70 FR 44123; August 1, 2005), and May 30, 2006 (71 FR 34165; June 13, 2006). The amended Order would continue to grant Energy*Solutions* an exemption from the requirements for an NRC license under 10 CFR Part 70. The amendment is necessary if Energy*Solutions* is to receive steel piping waste containing residual special nuclear material (SNM) without first obtaining a 10 CFR Part 70 license. 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 Energy*Solutions*) 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 under 10 CFR Part 70. The 1999 Order permitted Envirocare to possess SNM below specified concentrations, without regard for the mass of the SNM in the waste. 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 revised the language of Condition 5 to be consistent with the revised units in the table in Condition 1. The 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 May 2006 amendment made an administrative change to accommodate a change in the name of the company from Envirocare of Utah, Inc. to Energy*Solutions* 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 (ML063040029), December 4, 2006 (ML0735321280), July 16, 2007 (ML073520212), September 13, 2007 (ML073440260), and January 15, 2009 (ML090510588), Energy*Solutions* requested an amendment to its 2006 Order. Energy*Solutions* requested an amendment of the package mass limits contained in Condition 4 of the Order, and the addition or revision of other conditions. As described in its September 2007

nuclear criticality safety evaluation, Energy*Solutions* requested these additional changes to the Order so that it can 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. Under the amended Order Energy*Solutions* would 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. Energy*Solutions* also proposed the addition of other conditions to the Order to ensure criticality safety during receipt, on-site storage, movement, emplacement, and disposal of K-25 waste. Upon consideration of Energy*Solutions*' request, the NRC is considering conditions that would restrict: the areal density of highly water soluble SNM in disposal embankments at the Clive, UT site; and the amount of water that should be present during receipt, on-site storage, movement, emplacement, and disposal of K-25 waste. The amended Order would only allow Energy*Solutions* to receive and dispose of the plant piping and would not exempt Energy*Solutions* from other applicable laws. Energy*Solutions* or any other entity transporting the waste will have to obtain any necessary permits or authorizations at the time of transport.

Site and Facility Description:

The Energy*Solutions* LLW disposal facility in 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 Energy*Solutions* license renewal.[1]

[1] Utah Division of Radiation Control, EnergySolutions (Formerly Envirocare of Utah) LLRW Disposal Facility Radioactive Material License Renewal: Safety Evaluation Report." June 14, 2007

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 4 meters (13 feet).[2]

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.[3] 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 that does 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

[2] *Ibid, pg 82*
[3] *Ibid, pg 80*

concentration limits of Condition 1 are met (e.g., 6.2 x 10^{-4} grams uranium-235 per gram of waste), would normally contain small mass quantities of uranium-235, which would not exceed the 350 gram package mass limit. But Energy*Solutions* believes that the K-25 waste must be processed in larger quantities to be cost effective. This would be accomplished by shipping the waste in large capacity 100-ton gondola railcars, which could result in shipments that exceed the current package mass limits in Condition 4 of the 2006 Order; the concentration of residual uranyl fluoride in the K-25 piping waste in the railcars would likely remain a fraction of the concentration limits in Condition 1 of the 2006 Order. Therefore, Energy*Solutions* requested an amendment to Condition 4 of the 2006 Order to allow the receipt of K-25 steel piping waste in large gondola railcars. Energy*Solutions* also proposed additional conditions to ensure the criticality safety of this waste during 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:

The NRC prepared an environmental impact statement (EIS) (NUREG-1476) for its previous licensing action at the Energy*Solutions* site to authorize disposal of 11e.(2) byproduct material. The affected environment is discussed in detail in NUREG-1476. (ML100820353)

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 41241; 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 the 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 Energy*Solutions* is currently authorized to receive and dispose of. Disposal of Class A LLW is currently licensed by 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, would result in a reduction of the use of waste packaging, which would generate less packaging waste. Also, fewer transportation consignments would be required to transport waste from Oak Ridge, TN to the Clive, UT disposal facility, which would reduce transportation-related impacts. The proposed

action would also further reduce the risk of accidental nuclear criticality, and the 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 concluded in the June 2010 safety evaluation report 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 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.

Public Comments:

During a 30-day public comment period that ended November 6, 2009, 4 comment letters offered 12 comments that covered various topics concerning the exemption request. These commenters included:

- Arnold L. Dalton, Resident of Utah, (ADAMS Acc. Number ML093270217)
- Judy M. Mallory-McCorvey, Resident of Utah, (ADAMS Acc. Number ML093270218)
- Christopher Thomas, Representing HEAL Utah, (ADAMS Acc. Number ML093140560)
- Michael L. West, Representing Bechtel-Jacobs, (ADAMS Acc. Number ML093100207)

NRC staff reviewed each of the comments received. Some of the comments were very similar to other comments; the staff has provided one response to each of these comments. . The staff did not address comments that were outside the scope of the EA.

Public Opposition

Two commenters expressed general opposition to radioactive waste disposal in the State of Utah

Response: The NRC recognizes that some members of the public do not support radioactive waste disposal; however, these comments are beyond the scope of the EA.

One commenter expressed specific concern about the possibility of health risks and unintended exposure. This commenter suggested that the waste would get “hotter and hotter,” and that climatic events might “scatter” these wastes creating an unsafe environment for the public.

Response: The NRC staff considered the effects of variability in climate and weather and the effects of radioactive decay and ingrowth when assessing environmental impact and concluded under the constraints of disposal listed in the revised Order, public health and safety are preserved.

One commenter suggested that the NRC should deny Energy*Solutions*' request on the grounds that the requested exemption is not "in the public interest" as required under 10 CFR 70.17(a)

Response: NRC's mission is to protect public health and safety, and to provide for the common defense and security. NRC has established rules and procedures for licensees and license applicants to, among other things, receive, possess, use, and dispose of radioactive materials and waste in a manner that protects public health and safety and security. It is in the public interest that NRC adhere to these rules and procedures. In addition, this specific action would provide for permanent disposal of the K-25 piping, rather than its storage onsite. This action would help facilitate decommissioning of the K-25 facility and eliminate worker exposures from having to monitor waste in storage. Both of these outcomes are in the public interest.

Further Public Input

One commenter requested that the NRC provide the public the opportunity to comment on the exact language used in the draft Order.

Response: The public is encouraged to provide input during the public comment period of the EA and draft FONSI to ensure the staff has considered all alternatives and environmental impacts while drafting the Order. It is not the practice of the NRC to invite public comment on the exact text used in an Order.

Inadequate Permission

One commenter noted that Energy*Solutions* required additional permitting from the U.S. Department of Transportation to transport the waste.

Response: The comment is correct; NRC's licensing of this facility does not excuse compliance with other applicable laws. EnergySolutions or any other entity transporting the waste will have to obtain any necessary permits or authorizations at the time of transport.

Reconcentration

One commenter provided comments suggesting potential reconcentration of SNM under conditions not considered by either the EA or Energy*Solutions*' Nuclear Criticality Safety Evaluation.

Response: The NRC staff considered various aspects of material mobility over time and considered various conditions under which reconcentration might take place. See pages 6 and 7 of the SER (ADAMS Acc. Number ML090750109). The NRC acknowledges that reconcentration is possible and has accounted for this by requiring areal density limits within the disposal embankments.

Technical Evaluation

One comment requested that Energy*Solutions*' Nuclear Criticality Safety Evaluation be independently evaluated, and that the evaluation be made available to the public.

Response: The EA and Order are an independent evaluation of the Nuclear Criticality Safety Evaluation.

Scope of Proposed Action

One comment suggested that the NRC's NEPA analysis did not consider a sufficient number of alternatives to the proposed action. The commenter suggested that the NRC consider the decontamination of the material prior to shipment as another alternative.

Response: Since the waste generator and current owner are the DOE, NRC's alternatives are then only to allow or not allow the receipt and disposal of these wastes by EnergySolutions. Alternatives considered must be reasonably commensurate with the scope of the requested action; imposing decontamination requirements on waste generators (DOE) is outside the scope of the requested action.

10 CFR Part 70 License

One comment suggested that the NRC require Energy*Solutions* to apply for a 10 CFR Part 70 license instead of amending the Order.

Response: NRC cannot require EnergySolutions to apply for a license. Section 70.17(a) allows the Commission to grant an exemption from the requirements in Part 70 in response to an application from any interested person. In this case, EnergySolutions submitted an application for an exemption, which the NRC staff reviewed. The NRC staff has concluded that the Commission should grant the exemption because it is authorized by law and will not endanger life or property or the common defense and security and is in the public interest.

III. CONCLUSION:

The environmental impacts of the proposed action have been reviewed in accordance with the requirements in 10 CFR Part 51. Based upon the foregoing EA, the NRC finds that amending the 2006 Order will not significantly impact the quality of the human environment. As

required by 10 CFR 70.17, the NRC also concludes that the proposed action to grant a modification to Energy*Solutions*' exemption from the requirements of 10 CFR Part 70 is 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 that 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.

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); and
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 this18thday of June 2010

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

/RA/

Larry W. Camper, Director
Division of Waste Management
and Environmental Protection
Office of Federal and State Materials
and Environmental Management Programs