

U.S. Department of Energy Responses to Public Comments on the Draft Waste-Incidental-to-Reprocessing Evaluation for the West Valley Demonstration Project Concentrator Feed Makeup Tank and Melter Feed Hold Tank

Introduction

The U.S. Department of Energy (DOE) is providing responses to the comments received from the public and from state and county agencies on the *West Valley Demonstration Project (WVDP) Draft Waste-Incidental-to-Reprocessing (WIR) Evaluation for the Concentrator Feed Makeup Tank (CFMT) and the Melter Feed Hold Tank (MFHT)*, referred to hereafter as the Draft Evaluation.

As a matter of policy and to provide greater transparency in its efforts to cleanup waste at the WVDP, DOE made the Draft Evaluation available for public and state review and comment, as announced in the Federal Register on June 29, 2012 (77 FR 38789). Simultaneously, DOE provided the Draft Evaluation to the U.S. Nuclear Regulatory Commission (NRC) and is consulting with the NRC before finalizing the Evaluation.

The CFMT and MFHT are two vessels (also referred to as “the vessels”) that were used as part of DOE’s process to solidify high-level radioactive waste (HLW) which had been generated by the prior commercial reprocessing of spent nuclear fuel at the Western New York Nuclear Service Center in West Valley New York. The vessels were used to prepare and temporarily store mixtures of pretreated HLW slurry and glass formers that were fed into the vitrification melter that was used in solidification of the HLW pursuant to DOE’s responsibilities under the West Valley Demonstration Project Act of 1980 (WVDP Act) (Public Law 96-368, 42 U.S.C. 2010a).

The Draft Evaluation was prepared in accordance with DOE Manual 435.1-1, *Radioactive Waste Management Manual*. The Draft Evaluation demonstrates that the two vessels are waste incidental to reprocessing (WIR), are not HLW, and, as such, may be managed and disposed of offsite as low-level radioactive waste (LLW) in a manner which is fully protective of human health and safety.

Public Comments Received

One individual, two organizations and two government agencies submitted comments on the Draft Evaluation to DOE:

- Mr. Paul Krantz,
- The West Valley Citizen Task Force,
- The Coalition on West Valley Nuclear Wastes,
- The Clark County, Nevada Department of Comprehensive Planning, and
- The State of Nevada, Agency for Nuclear Projects.

To address the comments received, DOE has grouped the comments as follows:

- Specific questions on the content of the Draft Evaluation,

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- The legal basis and authority for utilizing the WIR evaluation process,
- Whether the Draft Evaluation is precedent for any future onsite disposal of wastes at the West Valley site,
- Possible transportation routes and associated impacts,
- Disposal in an NRC-licensed facility,
- Heavy-haul truck transport,
- The Nevada National Security Site (NNSS) Draft Site-Wide Environmental Statement, and
- Conferring with State officials.

Specific Questions on the Content of the Draft Evaluation

Comment: One question pertained to whether page 6 of the Draft Evaluation should say “. . . 1,926 kilograms of *plutonium* . . .” rather than “. . . 1,926 kilograms of *uranium* . . .”

DOE response: The text should have said *plutonium*; this inadvertent error has been corrected in the final Evaluation.

Comment: Another question involved whether use of maximum instead of average dose rates in characterization of the vessels would affect the Class C or “WIR designation” of either vessel.

DOE response: The answer to this question is no. A note was added to Table 6-1 of the final Evaluation to explain that both vessels would be well below Class C limits had maximum measured dose rates been used in characterization. The use of maximum dose rates for the characterization calculations would not have affected the conclusion that the vessels are well below the radionuclide concentrations for Class C low-level waste, and, as demonstrated elsewhere in the Draft Evaluation, meet the other criteria for waste incidental to reprocessing.

Comment: A third question pertained to the Class C designation of the subject components with a high dose rate.

DOE response: To determine whether waste is incidental to reprocessing and not HLW, DOE Manual 435.1-1 specifies that the waste must meet several criteria. One of those criteria is that the waste must not exceed Class C concentration limits specified in the NRC regulations for LLW at 10 CFR 61.55. The NRC regulations at 10 CFR 61.55 describe classes of LLW, such as Class C LLW, based on radionuclide concentrations in the waste, in this case the vessels, and not on dose rates. These concentrations are well below Class C limits as explained in Section 6 of the Draft Evaluation.

The dose rates on the vessels after completion of decontamination (i.e., removal of key radionuclides to the maximum extent technically and economically practical) are well below the dose rates for vitrified HLW. As explained on page 43 of the Draft Evaluation, the maximum dose rates measured in 2004 were 2.25 Roentgens per hour on the CFMT vessel and 2.39

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Roentgens per hour on the MFHT vessel. For perspective, these dose rates are less than 0.15 percent of the lowest dose rate measured on the canisters of vitrified HLW produced at the WVDP, which ranged from 1,770 to 7,460 Roentgens per hour.

Legal Basis and Authority

Comment: One commenter expressed the opinion that the WVDP Act contains the appropriate definitions of wastes, and expressed misgivings about the “legality of using the WIR reclassification at West Valley”. This commenter referenced its prior comments to the NRC and DOE in this regard.

DOE response: DOE’s Evaluation for the vessels properly follows the definitions of “high level waste” (HLW) and “low level radioactive waste” (LLW) in the WVDP Act, and DOE demonstrated in the draft and final Evaluation that the vessels are incidental wastes, which meet the criteria in DOE Manual 435.1-1, and may be managed and disposed of offsite as LLW in keeping with the definition of LLW in the WVDP Act. The vessels are not within the definition of HLW in the WVDP Act.

With respect to the commenter’s previous comment to the NRC, DOE notes that the NRC similarly stated:

“The NRC does not agree that the definitions of ‘high-level waste’ in either the NWPA [Nuclear Waste Policy Act] or the WVDP [Act] conflict with the ability to make WIR waste determinations. The NRC has explained its view that Congress’ definitions of HLW in those Acts incorporated the understanding of the Atomic Energy Commission and the NRC that HLW does not include incidental waste, see, e.g., Proposed Rule: Disposal of Radioactive Waste, 53 FR 17709 (May 18, 1988). Thus NRC’s participation in a WIR determination does not ‘overrule’ the statutory definitions of HLW. The WVDP [Act] requires NRC to prescribe decontamination and decommissioning criteria to be used by DOE at West Valley. In doing so, NRC established the criteria to be used by DOE for WIR determinations at West Valley, see Decommissioning Criteria for the West Valley Demonstration Project (M-32) at the West Valley Site; Final Policy Statement, 67 FR 5003, 5011-5012 (Feb. 1, 2002), but DOE relies on its own statutory authority in making WIR determinations.” See, NUREG-1854, NRC Staff Guidance for Activities Related to U.S. Department of Energy Waste Determinations, Draft Final Report for Interim Use at C-23 (August 2007).

Consistent with NRC’s position, as expressed above, and DOE’s previous response to a similar comment received on the WVDP’s Draft WIR Evaluation for the vitrification melter, DOE reaffirms its position that it is acting within its authority under the WVDP Act and other applicable law with respect to the Evaluation of the vessels.

DOE used the rigorous waste incidental to reprocessing (WIR) evaluation process, as described in DOE Manual 435.1-1, to evaluate the vessels. This process provides criteria for determining whether waste from reprocessing is incidental to reprocessing, rather than HLW, and, accordingly, may be managed and disposed of as LLW.

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Comment: A commenter stated that the “primary charge” of the Atomic Energy Act is “for defense-oriented nuclear wastes” and, as such, the Atomic Energy Act does not apply to DOE activities at the West Valley Demonstration Project.

DOE Response: DOE is properly applying its Atomic Energy Act authority in carrying out its responsibilities under the West Valley Demonstration Project Act (WVDP Act) concerning LLW produced by the solidification of the HLW at the West Valley Demonstration Project (WVDP). The WVDP Act does not affect DOE’s extant authorities for the management and disposal of nuclear wastes for which it is responsible. Rather, the WVDP Act authorizes DOE to engage in a HLW demonstration project (i.e., the WVDP) at the Western New York Nuclear Services Center and assigns DOE the responsibility to dispose of the LLW produced by the solidification of the HLW, but does not alter or affect DOE’s authorities or responsibilities concerning human health and safety under the Atomic Energy Act of 1954, as amended.

In keeping with these responsibilities and existing authorities, the Evaluation for the vessels is predicated upon the criteria for determining whether waste is incidental to reprocessing, rather than HLW, and may be managed as LLW pursuant to DOE Manual 435.1-1, which accompanies DOE Order 435.1. By implementing these existing authorities, DOE has undertaken the appropriate analysis to fulfill its LLW responsibilities under the WVDP Act concerning the CFMT and MFHT vessels.

Whether Use of the Waste-Incidental-Process for the Vessels Would Set a Precedent

Comment: Comments were received from the public expressing concern that the WIR determination for the CFMT and MFHT may set a precedent or become a standard procedure for other wastes at West Valley, particularly as such determinations might relate to the underground waste tanks, the permeable treatment wall and the NRC-Licensed Disposal Area.

DOE response: Within section 3.1 of the Draft CFMT-MFHT WIR Evaluation, DOE explicitly noted the requirements for onsite and offsite disposal, as follows:

“The WVDP is required to comply with two separate and distinct sets of criteria to determine whether waste from reprocessing is incidental to reprocessing, is not HLW and may be managed as other than HLW through a demonstration of compliance with the appropriate waste determination criteria:

- DOE Manual 435.1-1, *Radioactive Waste Management Manual*, applies to wastes that DOE disposes of offsite.
- The NRC’s *Final Policy Statement on Decommissioning Criteria for the West Valley Demonstration Project at the West Valley Site* (NRC 2002) describes criteria for classification of ‘any residual wastes present after cleaning of the high-level radioactive waste (HLW) tanks at West Valley.’

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Because the NRC West Valley decommissioning criteria policy statement (NRC 2002) does not apply to waste shipped offsite for disposal, as explained in Section 1.3.1, this evaluation for the CFMT and MFHT was performed in accordance with DOE Manual 435.1-1.”

The Draft Evaluation for the vessels is not related to and has no bearing on the final decisions to be made for Phase 2 of the WVDP decommissioning, which would include the ultimate disposition of the underground HLW waste tanks and the NRC-Licensed Disposal Area. Those decisions are expected to occur after completion of additional studies, as explained in the Record of Decision on the *Final Environmental Impact Statement for Decommissioning and/or Long-Term Stewardship of the West Valley Demonstration Project and Western New York Nuclear Service Center*.

Transportation in Clark County, Nevada

Comment: One commenter expressed concerns over potential impacts on Clark County, Nevada from transportation of the vessel waste packages through that county. These concerns included:

- (1) The transfer of the waste packages from railcars to heavy haul trucks;
- (2) The passage of these trucks through the county en route to the NNSS over Nevada State Route 160, the currently used transportation route for LLW through the county; and
- (3) An assertion that DOE failed to evaluate and assess cumulative transportation impacts as well as other environmental and socioeconomic cumulative impacts.

DOE response: Neither the selection of the disposal site for the vessel waste packages nor their transport to the disposal site is within the scope of the Draft Evaluation. Both the Draft Evaluation and the Federal Register Notice (77 FR 38789, dated June 29, 2012) explain that:

“DOE's decision on the disposal site to be used is not within the scope of this draft evaluation. Any DOE decision on the facility to which the vessel waste packages would be sent would be made after the final DOE evaluation and determination, following consideration of NRC and public comments on this draft evaluation, and after DOE confers with appropriate State officials in the state where the waste packages may be disposed.”

In addition to the WIR criteria and demonstrations discussed in the Draft Evaluation, DOE has evaluated the impacts, including cumulative impacts, of transport of the two vessels in accordance with the National Environmental Policy Act. In 2003, DOE issued the final *West Valley Demonstration Project Waste Management Environmental Impact Statement*, DOE/EIS-0337F. This Environmental Impact Statement evaluated, among other things, the cumulative impacts from shipment of WVDP radioactive waste to offsite disposal facilities, such as NNSS, including the impacts to the public from waste transportation by rail and by truck.

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In 2006, DOE issued the Revised Final *West Valley Demonstration Project Waste Management Environmental Impact Statement Supplement Analysis*, DOE/EIS-0337-SA-01. This Supplement Analysis specifically addressed shipment by truck and by rail of the vessels to NNSS and other sites using updated information on the residual radioactivity in this equipment.

Disposal in an NRC-Licensed Facility

Comment: One commenter stated that it would be more appropriate to dispose of the vessels (and the vitrification melter) in an NRC-licensed LLW disposal facility if they are determined to be LLW because the radionuclides contaminating this equipment are a direct result of commercial reprocessing.

DOE response: The selection of the final disposal site for the vessel waste packages is not within the scope the Draft Evaluation. Both the Draft Evaluation and the Federal Register Notice (77 FR 38789, dated June 29, 2012) explain that:

“DOE's decision on the disposal site to be used is not within the scope of this draft evaluation. Any DOE decision on the facility to which the vessel waste packages would be sent would be made after the final DOE evaluation and determination, following consideration of NRC and public comments on this draft evaluation, and after DOE confers with appropriate State officials in the state where the waste packages may be disposed.”

The WVDP Act states that DOE shall dispose of LLW and transuranic waste produced by the solidification of HLW under the project. The vessels and the vitrification melter are clearly waste produced incident to such solidification. The vitrification melter has been determined to be LLW and the Draft Evaluation for the CFMT and MFHT vessels demonstrated that the vessels also are waste incidental to reprocessing, which may be managed and disposed of as LLW. The WVDP Act does not limit the disposal of LLW to NRC-licensed LLW disposal facilities. Further, pursuant to DOE Manual 435.1-1, LLW may be disposed of at DOE sites, or at non-DOE facilities under certain circumstances.

Further, as demonstrated in the appendices of the Draft Evaluation, DOE's requirements for disposal of LLW are comparable to those of NRC, as are the related radiation dose standards. Pursuant to Section IV of DOE Manual 435.1-1, each potential DOE LLW disposal facility undergoes extensive examination and consideration prior to issuance of a disposal authorization statement. Specifically, a disposal authorization statement is based upon a review of the facility's performance assessment, composite analysis, performance assessment and composite analysis maintenance, preliminary closure plan, and preliminary monitoring plan. The disposal authorization statement also specifies the limits and conditions on construction, design, operations, and closure of the LLW facility based on this examination.

Heavy-Haul Truck Transport

Comment: Two commenters expressed concerns about transport of the vitrification melter, CFMT, and MFHT waste packages to NNSS over public highways by heavy-haul truck and

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observed that rail shipment would avoid the regulatory, scheduling, and safety complications that are unavoidable with long-distance heavy-haul truck shipments. One commenter stated that NNSS is singularly ill-suited to receive such shipments because the site has no rail access, which would require transporting the three waste packages on extremely large heavy-haul trucks on rural highways with steep grades, narrow shoulders, and other problematic characteristics and concluded that the unavoidable transportation aspects relative to moving the waste packages to the NNSS makes this site unacceptable as a disposal option for this waste.

DOE response: As explained in responses to other comments, DOE has not made any decision on the appropriate waste disposal site, and the Department will further confer with the appropriate officials from any States in which the vessels may be disposed. The commenters' concerns about transport of the waste packages by heavy-haul truck will be taken into account when the transportation and disposal options are evaluated in the future.

NNSS Draft Site-Wide Environmental Impact Statement

Comment: Two commenters stated that the NNSS Draft Site-Wide Environmental Impact Statement fails to adequately evaluate the transportation impacts associated with shipping the West Valley waste to the NNSS, which has the potential to cause impacts along all shipping routes both nationally and in Nevada that are significantly different from and potentially greater than other types of LLW or mixed waste shipments. One commenter stated that a new National Environmental Policy Act evaluation dealing with the transportation of the West Valley waste should be undertaken before any disposal site is selected.

DOE response: Although the Department's response to comments on the Draft *Site-Wide Environmental Impact Statement for the Continued Operation of the Department of Energy/National Nuclear Security Administration Nevada National Security Site and Off-Site Locations in the State of Nevada* is not within the scope of the Draft Evaluation, DOE notes that DOE has considered all comments timely received on the Draft Environmental Impact Statement, including those concerning transportation, in preparing the Final *Site-Wide Environmental Impact Statement for the Continued Operation of the Department of Energy/National Nuclear Security Administration Nevada National Security Site and Off-Site Locations in the State of Nevada*. As discussed previously, DOE also notes that the transportation impacts associated with transporting the West Valley waste packages to NNSS have been evaluated in the final *West Valley Demonstration Project Waste Management Environmental Impact Statement* and the associated Supplement Analysis. As explained previously, the Draft Evaluation does not select the disposal site or evaluate transportation to such disposal site; rather, the Draft Evaluation has been prepared in addition to the analysis of environmental impacts, including transportation impacts, evaluated by DOE in its National Environmental Policy Act documentation.

Conferring With State Officials

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Comment: One commenter stated that it is expected that DOE will continue the extensive ongoing communication it currently has with NDEP regarding waste acceptance for disposal at NNSS and will expand that communication to include other Nevada state agencies.

DOE response: DOE will maintain and continue established communication and coordination processes with the NDEP regarding waste acceptance for disposal at NNSS. The Department will confer with cognizant state agencies on specific questions, as appropriate, before making a decision on the disposal site to be utilized.

Consideration of Comments and Resulting Changes to the Draft Evaluation

The DOE carefully considered all comments received from the public and state and county agencies, and made changes in the final Evaluation as discussed previously. Additional changes were made in the final Evaluation to incorporate comments from the NRC.