UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

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OFFICE OF
AIR AND RADIATION

Mr. Edward Ziemianski
Acting Manager, Carlsbad Field Office
U.S. Department of Energy
P.O. Box 3090
Carlsbad, NM 88221

Dear Mr. Ziemianski:

This letter announces the U.S. Environmental Protection Agency's technical approval of the Department of Energy's (DOE's) planned change request (PCR) to emplace a portion of the remote-handled (RH) transuranic (TRU) waste inventory in specially designed shielded containers at the Waste Isolation Pilot Plant (WIPP). The shielded container assembly (SCA) would allow the DOE to emplace certain RH TRU waste on the floor of the disposal rooms, rather than in boreholes in the repository panel walls. These waste streams, if packaged in standard waste containers, would yield a surface dose rate in excess of 200 millirem per hour. After characterization, certification, proper packaging in shielded containers, and verification of surface dose, waste in the SCA would have a surface dose rate of less than 200 millirem per hour. As a result, the DOE can treat waste in shielded containers as contact-handled (CH) waste for the purposes of facility operations. However, the DOE will track waste in the SCA as RH waste in the TRU waste inventory during shipment and upon emplacement in the repository.

In its March 25, 2011 letter (Docket A-98-49, II-B3-117), the Agency found that the DOE had fulfilled all documentation requirements set forth by the Agency, and had demonstrated that use of shielded containers in the repository would not affect facility compliance with either 40 CFR 191 or 40 CFR 194. The EPA proposed approval of the SCA for use at WIPP, pending the solicitation and resolution of public comments.

The EPA opened an informal 60-day comment period – later extended to 90 days at the request of stakeholders – which closed on June 24, 2011. The Agency considered all comments submitted and found that no new technical issues were raised. All public comments have now been addressed, and responses to specific comments are included in the attachment to this letter.

At this time, the EPA approves the emplacement of shielded container assemblies at WIPP with one condition. Prior to shipping shielded containers to WIPP, the DOE must demonstrate a consistent complex-wide procedure to ensure that the shielded containers containing RH waste remain below the Land Withdrawal Act surface dose rate limit for CH waste of 200 millirem per hour. The procedure will be evaluated for technical adequacy as part of the Agency's waste characterization inspection and approval process. No shielded containers may be shipped to WIPP from any RH TRU site until the EPA inspects and approves the implemented procedure. In addition, the DOE will need a separate hazardous

waste permit modification from the New Mexico Environment Department to use the SCA; this approval is independent of that permit modification.

If you have any questions, please contact Jonathan Walsh at 202-343-9238 or walsh.jonathan@epa.gov.

Sincerely,

Jonathan Edwards, Director
Radiation Protection Division

cc: Electronic distribution

Frank Marcinowski, DOE HQ
Christine Gelles, DOE HQ
Alton Harris, DOE HQ
Russ Patterson, DOE CBFO
Steve Kouba, DOE CBFO
George Basabilvaso, DOE CBFO
John Kieling, NMED
Nick Stone, EPA R6

Attachment

Summary of Stakeholder Involvement and Response to Public Comments

(All correspondence noted below can be found on EPA's WIPP website [http://www.epa.gov/radiation/news/wipp-news.html#shielded_containers] and dockets)

On November 15, 2007, DOE submitted the shielded container PCR to EPA for approval (Docket A-98-49, II-B2-31). On November 29, 2007, a stakeholder meeting was held in Albuquerque, NM, and a 60-day informal comment period was opened. EPA considered public comments in its initial response to the PCR on December 7, 2007 (Docket A-98-49, II-B3-106). Specifically, the Agency advised DOE of three requirements that needed to be satisfied prior to a technical consideration of the PCR: 1) NRC would need to approve the shipping container design, 2) the shipping container design would need to be approved by the Department of Transportation (DOT), and 3) DOE would conduct and submit a safety analysis for facility operations involving the shielded container. These requirements were needed to not only address public comments regarding the operational safety of using shielded containers in the repository, but also ensure a final, technically robust shielded container design that incorporated analysis and impacts on waste parameters, performance assessment calculations, and overall WIPP system design. In a December 11, 2008 letter to DOE (Docket A-98-49, Item II-B3-115), EPA committed to provide an additional opportunity for public comment at the conclusion of its technical review, and before issuing a final approval.

Following a series of public technical exchanges (and a hiatus due to the 2009 Recertification process), DOE met EPA's stated requirements for approval of the shielded container assembly in December 2010. The Agency's review showed that DOE successfully demonstrated that handling RH waste in shielded container assemblies does not pose greater operational hazards than those encountered in the handling of standard CH waste drums, and that the presence of shielded containers in WIPP does not impact long-term repository performance. Full details of EPA's technical review are included in the Agency's Technical Support Document (TSD) on shielded containers, which can be found on the WIPP website (Docket A-98-49, II-B3-118).

At the conclusion of its technical review, EPA published a proposed decision on March 25, 2011, pending an informal 60-day comment period. In response to stakeholder requests, the comment period was extended to 90 days, closing June 24, 2011. During this time, two sets of public comments were received. EPA considered all comments, and determined that they did not raise any technical issues which had not been fully addressed in its analysis. Specific comments, and the Agency's response to each, are included below.

Lloyd Piper, Piper & Associates, LLC. E-mail dated March 25, 2011. Docket A-98-49, II-B3-119.

Comment 1: "I strongly support the EPA proposed decision. Shielded containers provide a much safer environment for workers at the packaging site and particularly at WIPP since the shielded container reduces potential radiation dose and can be handled like contact-handled waste without requiring extensive preparatory work for borehole emplacement and extensive manipulation utilizing robotic equipment. That also greatly increases the efficiency of WIPP operations for RH TRU. Transportation is simplified and more efficient utilizing Half-PACTs compared to 72-B shipping casks. The use of shielded containers for RH TRU is a very positive step forward in the safe, quality management of highly radioactive waste."

EPA Response: No response required.

Don Hancock, Southwest Research and Information Center, et. al (Citizens Against Radioactive Dumping, Concerned Citizens for Nuclear Safety, Loretto Community, and Nuclear Watch New Mexico). Letter (via e-mail) dated June 23, 2011. Docket A-98-49, II-B3-120.

Comment 2: "The purpose of the planned change request has not been clearly explained by DOE, nor adequately discussed by EPA's proposed decision letter of March 25, 2011. ... 'Efficiency' is not specifically defined. ... There is no discussion of whether the real purpose of the request is to allow more RH waste to come to WIPP than would occur with current processes and practices."

EPA Response: The Agency believes that DOE clearly identified the purpose of the Planned Change Request. EPA specifically asked for the Department to clarify its stated purpose of increasing operational efficiency. It was answered fully by DOE in its November 15, 2007 planned change request submittal letter and accompanying fact sheet. This response is directly quoted below and can also be found on pages 1-2 of the EPA's aforementioned TSD:

> *"The emplacement of RH TRU waste in the walls of the disposal rooms is appropriate and necessary for higher activity waste streams; however, there are several reasons why an alternative disposal method is advantageous for lower activity RH TRU waste streams. The drilling and emplacement operations for the RH canisters impede direct access to a room. This is the result of the large specialized equipment required to emplace the canisters into boreholes. Borehole drilling is limited to drilling 1 to 2 boreholes per shift. The borehole drilling equipment also restricts access to the room. The operations are time consuming; it requires one 8-hour shift to emplace a single RH TRU waste canister. A single RH waste canister evolution from receipt of the RH TRU 72B until emplacement in the wall of the underground disposal room requires more than 10 hours. WIPP is limited to a maximum of 6 RH shipments per week just from the operational constraints. In contrast, the CH waste handling processes routinely allow 4-5 shipments (i.e., 3 HalfPACTs per shipment) per day to be received, unloaded and*

emplaced per day. Panels 1, 2 and 3 have been filled without emplacing any RH TRU waste canisters in the walls, limiting the available wall space for emplacement of RH TRU waste. Thus, the use of shielded containers can improve the efficiency of facility operations by minimizing the disruptions from in-the-wall emplacement of RH TRU waste canisters while providing additional storage locations for some of the RH TRU waste."

In response to the latter part of this comment, no additional radioactivity will be brought to WIPP as a result of the use of shielded containers. Limitations on the total volume, total activity and surface dose of RH waste emplaced at WIPP are set by the Land Withdrawal Act and the Consultation and Cooperation Agreement between DOE and the State of New Mexico. As stated on page 3 of the TSD, DOE will consider any waste disposed of in shielded containers to be RH TRU waste, and the contents of all shielded containers will count against the statutory limitations on RH waste. The amount of waste disposed will not increase the statutory limit in terms of volume or curies, and no changes are required to the performance assessment inventory. We plan to include a review of this in the Waste Data System once DOE begins using shielded containers.

The permitted waste capacity for specific repository rooms and panels is an issue between DOE and NMED; we understand that public comments regarding this issue will be solicited during the Hazardous Waste permit modification for the SCA. Regardless of whether facility configuration or operations create a "de facto" limitation on the volume of RH waste that can be disposed, compliance with EPA's regulations is determined based on the assumption that DOE will fill the repository to the statutory limits for each waste type. Using the SCA for emplacing RH waste does not allow DOE to emplace more RH waste in the repository; total RH waste is still limited to 5.1 million curies by the Land Withdrawal Act and 7,079 m^3 by the Consultation and Cooperation Agreement between DOE and the State of New Mexico. Therefore, no additional volume or Curie content of waste will arrive at WIPP, and current PA assumptions remain valid.

Comment 3: "The effects of use of shielded containers has not been adequately described by CBFO, nor adequately analyzed in EPA's proposed decision. CBFO should provide information, and EPA should independently analyze, whether that additional radioactivity could increase releases during the operational lifetime and affect compliance with 40 CFR 191, Subpart A."

EPA Response: As stated above, no additional radioactivity will be brought to WIPP – statutory limitations remain unchanged. The Agency's December 2007 letter requiring DOE to complete a safety analysis clearly states that the purpose of such an analysis is to assure that "any potential impact on compliance with 40 CFR 191 Subpart A [is] included in EPA's decision-making process." Because Subpart A requires a measurement, but not a prediction, of dose due to facility operations, DOE has surpassed the requirements of Subpart A by completing these safety analyses. The results, discussed on pages 10-11 of EPA's TSD, demonstrate that neither the probability nor the severity of accidental releases are increased due to the use of the SCA. Furthermore, DOE has shown that it is able to detect and measure any potential releases through

a comprehensive air monitoring system consisting of fixed and continuous sampling devices placed throughout waste handing areas, the underground repository and at exhaust points. Continued compliance with Subpart A of 40 CFR 191 will be demonstrated by DOE's Annual Periodic Confirmatory Measurement Compliance Report, and verified by EPA's annual 40 CFR 191 Subpart A Inspection.

Comment 4: "Operational changes should be required if shielded containers are to be allowed. .... SRIC also believes that the measured surface dose rate must be required in the Waste Data System (WDS) for each canister. ... Upon arrival of the shielded containers at WIPP, new procedures would be needed to examine each container to determine that its surface dose rate is below the 200 millirem per hour limit. ... Any shielded container above that limit must be returned to the shipping site and repackaged. Procedures should also require a suspension of all use of shielded containers and an investigation of the cause(s) of the excessive surface dose rate and measures to ensure that the problem does not recur at any site. ... Additional radioactivity coming to WIPP could also increase worker radiation exposure. ... Containers with surface dose rates at or above 200 millirem per hour pose higher risks to workers. Thus, the worker exposure issue and procedures necessary to avoid increased exposures is relevant to decisions about the use of shielded containers."

EPA Response: Operational changes are being required by EPA. As mentioned in its December 2007 letter, EPA has consistently stated that it will require a "...consistent complex-wide procedure to ensure that the shielded containers remain below the Land Withdrawal Act 200 millirem per hour dose rate limit for contact-handled waste." Each shielded container containing RH waste, prior to certification for WIPP disposal, will be measured for the surface dose using a standardized procedure implemented by all RH TRU waste sites. This measured value for each shielded container will be recorded in DOE's waste tracking database, the Waste Data System, and reported on the shipment manifest. Upon arrival at WIPP for disposal, the shielded container assemblies will then be rechecked for surface dose. Containers packed in an assembly for disposal, such as assemblies of seven 55-gallon drums, or pallets of three shielded container assemblies, are not disassembled for surface dose measurements in order to avoid unnecessary worker exposure. EPA believes this to be reasonable, but it is a primary reason for ensuring that the surface dose rates of individual containers need to be appropriately checked prior to shipment. Each RH TRU site opting to use shielded containers for RH waste disposal will be evaluated by EPA on their implementation of the surface dose measurement procedure. As part of the Agency's waste characterization inspection and approval process, EPA will evaluate the surface dose measurement procedure implemented by the RH TRU site for technical adequacy and to verify that surface dose information is properly recorded in the WDS. No shielded containers with RH waste from any RH TRU site can be shipped to WIPP for disposal until EPA inspects and approves the implemented procedure. On the issue of worker safety, EPA must reiterate that no additional radioactivity will be shipped to WIPP due to the use of shielded containers. Once implemented, new operational procedures will be used to prevent the shipment

of shielded containers with a surface dose rate exceeding 200 millirem per hour to WIPP or handled by workers at RH generator sites or WIPP. Current radiation control practices, which involve regular radiation measurements of waste packages, will be adequate to prevent undue worker exposure from the shielded containers.