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



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OFFICE OF  
AIR AND RADIATION

Mr. J. R. Stroble  
Manager, TRU Sites and Transportation Division  
Carlsbad Field Office  
U.S. Department of Energy  
P.O. Box 3090  
Carlsbad, NM 88221-3090

Dear Mr. Stroble:

On March 25, 2015 the U.S. Department of Energy (DOE), Carlsbad Field Office requested the U.S. Environmental Protection Agency's approval of a Tier 1 change to allow the assembly of contact-handled waste payloads at the Advanced Mixed Waste Treatment Project (AMWTP) to include some compacted containers (pucks) that cannot be directly measured. EPA has analyzed the submitted information and concludes that AMWTP can proceed to implement its plan as described in the enclosure to the request referenced above under its currently approved program. The enclosed discussion provides EPA's analysis of the request.

If you have any questions regarding this approval, please contact Ed Felteorn at (202) 343-9422 or Rajani Joglekar at (202) 343-9462.

Sincerely,

*for* Tom Peake, Director  
Center for Waste Management and Regulations

Enclosure

cc: Electronic Distribution  
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Site Documents



Enclosure

### **Rationale for EPA's Approval of Tier 1 Change Request for Product Drum Assembly**

The Advanced Mixed Waste Treatment Project (AMWTP) requested that EPA approve the disposal of waste with MDA (Minimum Detectable Activity) values in excess of the 100 nCi/g criterion for transuranic (TRU) waste. AMWTP has stated that these wastes are TRU because they originate in a waste stream that produces TRU waste, i.e., they were generated and managed as TRU. Their concern is their inability to confirm via direct measurement on their EPA-approved non-destructive assay (NDA) systems that the containers with elevated MDAs are in fact TRU. The elevated MDAs are typically caused by radionuclide interferences within the measured container. The interference renders them essentially unmeasurable for radionuclide content using the EPA-approved NDA systems available at the AMWTP.

Waste containers that AMWTP packages for disposal intended to be compacted by crushing are referred to as "silvers"<sup>1</sup> prior to compaction. Neither the silvers nor the pucks created by compaction are approved for direct shipment to WIPP. The pucks are intended to be placed in a 100-gallon overpack, and each 100-gallon overpack contains between 5-10 pucks. The overpack is the approved shipping container for disposal at WIPP.

In this case, silvers with elevated MDAs would, after being compressed, be combined with other silvers that have been assayed successfully, i.e., have TRU radionuclide assay values above the 100 nCi/g criterion. AMWTP then plans to assemble 100-gallon overpacks such that they contain a combination of containers with elevated MDAs and successfully assayed silvers (now pucks).

This is similar to but differs from what is referred to as Load Management<sup>2</sup> that is currently prohibited at AMWTP and some other EPA-approved TRU sites. Note that in addition to Load Management and the super-compaction process employed at AMWTP, containers may be overpacked for reasons of container integrity or surface contamination.

EPA concludes that the T1 change request AMWTP is making is within their approved program (see EPA Air Docket # A-98-49; II-A4-66) for the following reasons:

- All waste containers with MDA > 100 nCi/g belong to a waste stream from an approved Summary Group Category and not intermingled with containers belonging to different waste streams.

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<sup>1</sup> Silvers are containers packaged from wastes in larger boxes that have been emptied, sorted and repacked which are then crushed in the AMWTP box line. They are unpainted drums, i.e., they are silver in color in their uncrushed form, hence the name.

<sup>2</sup> Load management is the overpacking of containers all of which measure at least one TRU radionuclide but are below the 100 nCi/g threshold required to be shipped on their own. Containers suitable for load management have at least one measured TRU radionuclide above the measurement system's detection limit.

- Waste containers disposed of at WIPP typically include many individual items; some of these items meet the definition of TRU according to acceptable knowledge and confirmed by a measurement assay, while other items do not. However, on the whole all containers must be TRU waste. In the same way, the pucks (silvers) represent individual items of waste within a container, some assaying as TRU, others from a TRU waste stream but not directly measurable as TRU. The 100-gallon container configuration described above would provide that pathway for containers that are difficult to measure due to interference from other radionuclides.
- The high MDA containers would be from an approved waste stream and would become part of a TRU certified container. The shipped container would have an overall measured TRU concentration of greater than 100 nCi/g, accounting for the mass of the unmeasurable containers but taking no credit for the possible TRU activity content (a conservative approach).
- The Waste Data System (WDS) inventory record, however, would account for the possibility of all TRU radionuclides at the MDA (a conservative approach), since the MDA value would be used for the WDS record. The WDS record for all containers subjected to this process would include both the silver's zero contribution to the TRU determination of the overpack and the MDA value for inventory/PA purposes.