

**CLARIFICATION NUMBER CAO-00-014, REV. 2**  
**PROHIBITED ITEMS**

**ISSUE**

1. What is the relationship between free liquids and prohibited items such as corrosives, ignitables, or reactives? B-1c and B-3c
- 2a. What is the significance of the 1% in an inner container limit for residual liquids in WIPP waste? B-1c
- 2b. Is a volume of liquid within an inner container that is greater than 1% acceptable as long as the payload container meets the 1% limit? B-1c
3. How are generator sites to characterize waste for prohibited items? B-1c and B-3c
4. How does a generator site know that waste materials are compatible with backfill, seal, and panel closure materials? B-1c
5. How are data confirming the absence of prohibited items to be reported to the WIPP? B-1c and B-4b(1)(ii)

**CONCLUSION**

1. The permit prohibits liquid waste, but allows containers that have residual liquids in them, except for payload containers with U134 waste. Residual liquids are defined as liquids that remain after reasonable attempts have been made to empty a container using standards techniques such as pumping, purging, and/or aspirating. Section B-3c states that the prohibition on liquids and containerized gases prevents the shipment of corrosive, ignitable and reactive wastes. NMED has indicated that the sites are to make statements regarding the absence of prohibited items based on RTR, VE, or acceptable knowledge.
- 2a. The 1% limit on residual liquids was chosen as a program limit based on WIPP facility considerations. This represents a limit that: assures compliance to WIPP regulatory performance standards, does not pose a safety threat during operations, and is quantifiable during waste characterization activities. Section B-1c of the WAP states "Payload containers with U134 waste shall have no detectable liquid." Wastes that have the U134 code (hydrofluoric acid) applied may not be shipped to WIPP if they contain **any** liquids that can be detected by either radiography or visual examination.

- 2b. Yes, except for containers with U134 waste, an inner container may exceed the 1% criterion as long as the internal container does not contain more than 1 inch of residual liquid and the payload container does not contain more than 1 percent by volume of residual liquid.
3. Generator sites are to use acceptable knowledge to identify whether or not waste streams contain prohibited items. Radiography is used to verify the generator site's conclusions regarding prohibited items.
4. Compatibility issues are handled through the use of approved TRUCON codes.
5. Generator sites are to supply documentation with the Waste Stream Profile Form (WSPF) in the form of a Characterization Information Summary. The Characterization Information Summary must state that each container characterized for the WSPF was checked to ensure there are no prohibited items in the container. This information will be verified by the CBFO.

## **DISCUSSION**

1. Sections B-1c and B-3c address the requirement to characterize waste to determine the absence of corrosive, ignitable, and reactive waste. Section B-3c states:

The prohibition of liquids and containerized gases prevents the shipment of corrosive, ignitable, or reactive wastes.

Therefore, verifying the absence of free liquids during radiography assures the absence of these prohibited items.

Other prohibited items, such as non-radionuclide pyrophorics and compressed gas are documented through acceptable knowledge. The absence of pressurized containers is verified by radiography.

2. The 1% limit on residual liquids was established as a program limit for storage facilities who had no way of removing liquids from waste they were characterizing for WIPP. Generator facilities generally have adopted a no free liquids policy. That is, in the process of filling containers or verifying contents they will remove any liquids (or send the container back to the point of generation for removal).

If a generator site identifies residual liquids in a waste and these residual liquids are within the 1% limit, except for payload containers with U134 waste, the generator site should apply acceptable knowledge to characterize the liquid and assign any appropriate hazardous waste codes to the waste. (See Clarification CAO-00-001.)

3. Section B-3 of the permit states the characterization techniques used by generator sites includes acceptable knowledge, which incorporates confirmation by headspace gas sampling and analysis, radiography, and homogeneous waste sampling and analyses.

The permit details the characterization activities required by the sites in preparing waste for shipment to WIPP.

4. The permit application addressed the issue of compatibility through a chemical compatibility analysis which was carried out with all defense-generated, contact-handled (CH) and remote-handled (RH) transuranic (TRU)-mixed waste streams reported in the Waste Isolation Pilot Plant (WIPP) Transuranic Waste Baseline Inventory Report (WTWBIR). The analysis also accounted for packaging, container, and backfill materials. This compatibility study was performed consistent with EPA guidelines<sup>4</sup> and is documented in the application in Appendix C1. A summary of the waste streams considered is given in Table C-1 of Chapter C of the permit application.
5. In the event a generator finds incompatible waste, the permit requires the waste to be rejected, or the incompatible items be removed. This is found in Section B-1c as follows:

To ensure the integrity of the WIPP facility, waste streams identified to contain incompatible materials or materials incompatible with waste containers cannot be shipped to WIPP unless they are treated to removed the incompatibility. Only those waste streams that are compatible or have been treated to remove incompatibilities will be shipped to WIPP.

Section B-4b(1)(ii) clarifies that the Permittees (CBFO and Washington TRU Solutions [WTS]) will verify three types of data as part of the waste screening and acceptance process. Two of these types of data address prohibited items and includes verifying:

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<sup>4</sup>See Hatayama, H. K., J. J. Chen, E. R. De Vera, R. D. Stephens, and D. L. Strom, 1980, "A method for Determining Compatibility of Hazardous Wastes," [EPA-600/2-80-076](#), U.S. Environmental Protection Agency, Cincinnati, Ohio

...2) a determination of ignitability, reactivity, and corrosivity; and 3) a determination of compatibility.

The permit further specifies:

The Characterization Information Summary will indicate if the waste has been checked for characteristics of ignitability, corrosivity, and reactivity.