



Santa Fe, New Mexico

January 17, 2013

**U.S. Department of Energy
Class 2 Permit Modification
(Revise Waste Analysis Plan)
To the Hazardous Waste Facility Permit
Waste Isolation Pilot Plant**

| Name <i>Please Print All Information Clearly</i> | Mailing Address <i>Would You Like to be on the Mailing List</i> | | Yes/No |
|---|--|--|--------|
| Trais Kliphuis | | | ✓ |
| SCOTT Kovac | NWNM | | |
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Class 2 Permit Modification Request Revise Waste Analysis Plan Waste Characterization Methods

WIPP Hazardous Waste Facility Permit
January 2013

Proposed Change

- This Permit Modification Request proposes that waste characterization be accomplished using the following Permit methods:
 - Acceptable Knowledge and
 - Radiography or
 - Visual examination
- Chemical Sampling and Analysis is not necessary to meet the RCRA waste analysis requirements of 40 CFR 264.13
 - 13 years of operational experience demonstrates information gained from chemical sampling/analysis is not needed to make decisions regarding storage and disposal of waste at the WIPP facility
 - Chemical sampling/analysis poses unnecessary radiological risk

Classification of Permit Modification Request

- Class 2 Permit Modification Request:
40 CFR 270.42, Appendix I, Item *B. General Facility Standards...1. Changes to waste sampling or analysis methods:...d. Other changes*

Why is this the Correct Classification?

- The methods used to characterize waste described in the Permit Attachment C, Section C-3, are being revised
- The Waste Analysis Plan prescribes acceptable knowledge to determine hazardous waste numbers for a waste stream
- Chemical sampling/analysis (headspace gas and solids sampling/analysis) is also required to resolve the application of hazardous waste numbers determined by acceptable knowledge
- This Permit Modification Request removes redundant methods for determining the same parameter (HW#'s)

Why is this the Correct Classification? (cont.)

- This Permit Modification Request is similar to prior Permit modifications that have been processed by the NMED as Class 2
- These Permit Modification Requests proposed reduction or elimination of chemical sampling/analysis when
 - Supported by information in acceptable knowledge records or
 - External regulation precluded the need for chemical sampling/analysis

Has Chemical Sampling/Analysis Historically been Required for Disposal Decisions?

- Originally, the NMED established environmental performance standards (Subpart X) that relied upon volatile organic compound measurement in every container
- Congressional mandate (PL 108-137, Section 311) required compliance with environmental performance standards to be determined via room-based monitoring, thereby eliminating the need for headspace gas sampling for this purpose

How do the Waste Analysis Methods Satisfy 40 CFR 264.13?

- The owner/operator of a treatment, storage, or disposal facility must obtain the information necessary to make decisions regarding treatment, storage, or disposal of hazardous waste
- The information needed by the Permittees for decision-making with regard to storage and disposal at the WIPP facility is obtained through acceptable knowledge, radiography, or visual examination
- The Permittees do not treat the waste; therefore, information typically obtained through chemical sampling /analysis is not required ^{DOE:} (concentrations - land disposal/treating)
 - TRU mixed waste designated by the Secretary of Energy for disposal at the WIPP facility is exempt from RCRA treatment standards per the Land Withdrawal Act Amendment

John N.
pls explain
this more

Bases for Parameter Identification

- Permit Part 2, Sections 2.3.3 and 2.3.4
- 40 CFR Part 264, Subpart I, “Use and Management of Containers”
- 40 CFR Part 264, Subpart X, “Miscellaneous Units”

Parameters: What Must be Known to Safely Store and Dispose Waste at the WIPP Facility?

- Absence of prohibited items
- Absence of ignitable, reactive and corrosive wastes
- Identification of hazardous waste numbers that apply to the waste
- Compatibility with backfill, seal and panel closure materials, container and packaging materials, shipping container materials, and other wastes
- Estimation of material parameter weights

How are Parameters to be Analyzed?

- Information on parameters is obtained for 100% of the waste using acceptable knowledge for each waste stream
 - Identification of hazardous waste numbers
 - Compatibility with backfill, seal and panel closure materials, container and packaging materials, shipping container materials, and other wastes
 - Estimation of material parameter weights
 - Absence of prohibited items
 - Absence of ignitable, reactive and corrosive wastes
- Radiography or visual examination on 100% of containers to verify physical form and ensure that the waste is within established parameters

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How are Parameters to be Analyzed? (cont.)

- 40 CFR 264.13 (a)(2) allows treatment, storage, or disposal facilities to use accurate information from generators regarding hazardous waste determinations per 40 CFR 262.11
 - May use testing (including chemical sampling/analysis) of the waste
 - OR
 - May use knowledge of the hazard characteristic of the waste in light of the materials or the processes used
- No regulatory basis for "resolving" the assignment of hazardous waste numbers (when using process knowledge)

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Bases for the Use of Acceptable Knowledge to Characterize TRU Mixed Waste

- RCRA Regulations (40 CFR 262.11)
- Environmental Protection Agency Guidance Document OSWER 9938.4-03, “Waste Analysis at Facilities that Generate, Treat, Store, and Dispose of Hazardous Waste”
- Environmental Protection Agency and Nuclear Regulatory Commission Joint Guidance, 62 FR 62079, “Joint NRC/EPA Guidance on Testing Requirements for Mixed Radioactive and Hazardous Waste”

Environmental Protection Agency/Nuclear Regulatory Commission Guidance Explains When the Use of Acceptable Knowledge is Appropriate

- Process of obtaining samples and performing subsequent analyses pose incremental and increase radiation exposures and are difficult to justify based on health and safety risk
 - Results support this guidance because there has been little benefit to justify the risk associated with WIPP Permit-required chemical sampling and analysis
- Activities are difficult, complex, and costly to execute
 - Chemical sampling and analysis is complex and costly (approximately \$5 million/year, only one facility available for coring)
 - Coring process generates additional radioactive waste

How do Permittees Assure the Accuracy of Waste Analysis Information?

- Audit/Surveillance Program of Permit required activities
- Radiography and Visual Examination Batch Data Report reviews
- Waste Stream Profile Form Review/Approval Process

How is the Adequacy of the Acceptable Knowledge Information Determined?

- Trained experts assemble and compile acceptable knowledge information using DOE approved procedures
- The Waste Stream Profile Form, which includes a summary of the acceptable knowledge information, is prepared by the waste generator/storage site
- Prior to approval of a waste stream for shipment to the WIPP facility, the Permittees evaluate the Waste Stream Profile Form for compliance with the Permit requirements
 - Waste streams determined to have inadequate acceptable knowledge information are not approved for shipment to the WIPP facility

How are “Fingerprinting” Requirements Met?

- The Permittees consider TRU Waste Confirmation (Attachment C7) to be the program that accomplishes the objective of fingerprinting as required by the regulations
- TRU Waste Confirmation :
 - Is performed on at least 7 percent of randomly-selected containers in each waste stream shipment
 - Verifies that the waste received matches the expected characteristics of the waste
 - Does not involve chemical sampling/analysis

Conclusion

- Chemical sampling/analysis is not needed to identify the waste parameters in the WIPP Permit
- Chemical sampling/analysis is not needed to make decisions regarding storage or disposal of TRU mixed waste at the WIPP facility
- Chemical sampling/analysis:
 - Is redundant to acceptable knowledge
 - Poses unnecessary risk to personnel performing sampling/analysis
 - Is difficult, complex, and costly to execute