

Memorandum

March 19, 1991

To: Elizabeth

From: Maria

Subject: Review of the Waste Characterization Program Plan for
WIPP Experimental Waste (DOE/WIPP 89-025 Rev. 0)
January, 1991

The review of this document was conducted from two aspects:

- (1) the adequacy of the document based on its purpose as stated by DOE; and
- (2) the adequacy of the document regarding RCRA compliance.

The review of the document from the first aspect was based on the statements made within document regarding the purpose of the document. The document includes statements that its purpose is to define the activities required to characterize experimental waste prior to conducting the bin-scale and alcove tests. The document further states that analytical requirements identified in this program plan will determine the quality control and quality assurance requirements that will be documented in the Quality Assurance Program Plan (QAPP) which in turn will be documented for each site in a QAPjP. Because of these statements, I would expect specific, straightforward information which can be used by any reviewer, or, for that matter, a TRU waste generator to determine the activities that are expected for waste characterization. As a basis for QA/QC plans, I would expect a discussion of method(s) appropriate for the required analyses and the necessary detection limits. The QA/QC Plan would use this information to document the appropriate QA/QC procedures. The methods of analyses were only given general terms (e.g. headspace). Detection limit requirements are only included for the sludge analyses of major anions and cations.

As stated in the document, the "waste characterization requirements apply to the governing regulations in 40 CFR Part 191 and 40 CFR Part 268". This basic premise explains the emphasis on gas generation potential and actual documentation of the process by physical descriptions of the waste and headspace analysis. In this regard, the document includes a Table 1, titled Controlling Variables for WIPP Waste Characterization. The document states that ten of the twelve variables are visually



identifiable. The other two variables are "total alpha curies" and "unknown" materials. Apparently, this "unknown" material is not visually identifiable or it would have been identified as one of the other ten variables. Regarding this portion of the document, several questions arise:

- (1) The document also states that the "occurrence of VOCs and/or toxic metals in the wastes should not affect the gas generation rate or gas generation potential of the nonhazardous constituents" and "therefore the wastes used in the ... tests need not be representative of the inventory with respect to the hazardous components". However, since the controlling variables listed in Table 1 include corroding and noncorroding metals and "other organics" it seems as though a complete characterization of the waste is essential to predict gas generation potential or rates, and that hazardous constituents should be represented in the test waste.
- (2) The document discusses the possible event when a waste is found in the system that is not represented by the test waste. Several options are presented to qualify this waste for disposal at WIPP. One option is to predict gas generation based on the knowledge of the waste and the gas generation data obtained during the test phase. Will this be the method under which RH-TRU waste will qualify for disposal since it will not be included in the test phase? The gas generation data should be closely reviewed to determine if this is a valid method for qualifying waste not represented in the test phase.
- (3) The document states that materials placed in the "unknown" variable category will be apportioned later between the 10 other visually identifiable categories and that the gas generation rates will be determined for known materials based on the ratios of occurrence of each one. If the 10 categories to which the "unknown" variable will be apportioned are visually identifiable, then how is material initially placed in the "unknown" category but reclassified later? Since the "unknown" category will be "apportioned", could some portion of the material remain unknown, yet a gas generation rate will be determined for the entire material. If the "apportionment" is ever conducted, it should be thoroughly documented at the generator site.

The second aspect of review (RCRA compliance) was directly addressed by the document in section 2.1 by the statements that waste characterization data requirements apply to 40 CFR Part 191 and 40 CFR Part 268, and that details of sludge sampling and analysis for hazardous waste characterization are not available. It appears that hazardous waste characterization will be limited to sludges, and for VOCs and toxic metals. RCRA compliance (§265 and §264) is not directly discussed for materials other than

sludges. I would require an explanation for the limitation of the analysis to volatile organics (i.e., what about semi-volatiles?).

There are also several incomplete sentences:

Section 2.2.3, last paragraph

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There also appears to be a missing paragraph on page 1-8, between the first and second paragraph.