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October 31, 2002

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REFERENCE: Comments by the Environmental Evaluation Group regarding the U.S. Department of Energy (DOE) Carlsbad field Office (CBFO) and Westinghouse TRU Solutions Class 3 Permit Modification Request (PMR) to allow the management, storage and disposal of remote-handled transuranic waste at the Waste Isolation Pilot Plant: **Request for RCRA Class 3 Permit Modification in Accordance with 20.4.1900 NMAC Incorporating 40 CFR Part 270:** EPA I.D. Number: NM4890139088.

Dear Mr. Zappe:

On June 28, 2002, the U.S. Department of Energy Carlsbad Field Office and Westinghouse TRU Solutions submitted the referenced Class 3 Permit Modification Request to the New Mexico Environment Department. Attached herewith are the comments by the Environmental Evaluation Group on the Class 3 Permit Modification Request.

If you have any questions or desire additional information, please contact me.

Sincerely,

Matthew K. Silva
Matthew K. Silva
Director

MKS:GA:js
Enclosure

cc w/encl: Dr. Ines Triay, U.S. DOE/CBFO
Ms. Elizabeth Forinash, U.S. EPA

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Environmental Evaluation Group Comments on the Class 3 Permit Modification Request (PMR) to Manage, Store and Dispose of Remote Handled Transuranic (RH TRU) Mixed Waste at the Waste Isolation Pilot Plant (WIPP)

<http://www.eeg.org>

Remote handled transuranic waste is transuranic waste with a measured dose rate at the container surface equal to or greater than 0.2 Rem per hour up to 1,000 Rem per hour. However, no more than 5% of the RH TRU waste destined for WIPP can exhibit a dose rate at the container surface in excess of 100 Rem per hour. Both gamma and neutron radiation can be emitted from a container of RH TRU; accordingly, the radiation safety unit that includes all directly ionizing radiation (gamma, alpha, beta and x-rays) and indirectly ionizing radiation (neutrons) is used in the RH TRU waste criteria.

RH TRU mixed waste consists of RH TRU waste commingled with hazardous waste as defined in federal regulations (40 CFR 261.3) and New Mexico regulations (20 NMAC 4.1). The New Mexico Environment Department (NMED), under the Resources Conservation and Recovery Act (RCRA) and the New Mexico Hazardous Waste Act (HWA), regulates the non-radiological risks related to hazardous waste disposal.

Westinghouse TRU Solutions LLC (WTS) and the U.S. Department of Energy (DOE) {hereafter referred to as "the Permittees"} have applied to modify the NMED Hazardous Waste Facility Permit {hereafter referred to as "the Permit" or "the HWFP"} for the WIPP (Ref. 1). This PMR includes facility, waste handling and process and procedure changes specific to RH TRU mixed waste at WIPP and DOE generating sites.

A Waste Analysis Plan (WAP) (Ref. 2) describes the efforts the DOE generating sites will use to characterize remote handled transuranic waste prior to shipment to the WIPP.

Background:

In 1999, the Secretary of the New Mexico Environment Department issued a Permit to the DOE and to the WTS authorizing the disposal of contact handled transuranic (CH TRU) mixed waste at the WIPP (Ref. 3). The 1999 Permit however prohibits the management, storage and disposal of remote handled transuranic mixed waste at the WIPP (Ref. 4). The prohibition was placed in the Permit because waste characterization information specific to RH TRU mixed waste did not sufficiently indicate that the Waste Analysis Plan (WAP) dealing with CH TRU mixed waste would be pertinent to RH TRU mixed waste.

On June 28, 2002, the Permittees submitted to the NMED the referenced PMR. The EEG has reviewed the PMR. The EEG has also reviewed the Draft Transuranic Waste Performance Management Plan dated July 2002 prepared by the Carlsbad Field Office (CBFO) of the DOE (Ref. 5) and the Final Report of the National Academy of Sciences (NAS)/National Research Council (NRC) Committee on the Characterization of Remote-Handled Transuranic Waste for the Waste Isolation pilot Plant, July 2002 (Ref. 6).

The Permittees throughout the PMR refer to RH TRU or RH TRU waste. For the purpose of these comments RH TRU and RH TRU waste are synonymous with RH TRU mixed waste. RCRA and the New Mexico Hazardous Waste Act relate to hazardous waste and not to any radioactive constituents. However, the PMR is replete with references to radiation, radiation safety and radioactive materials. For these reasons the EEG has commented not only on the items relating to the HWFP but to those items relating to all discussions in the PMR, including those items relating to radiation and radioactive materials.

The PMR contains not only items relating to RH TRU, but to CH TRU as well. The EEG understands that there are some common areas (i.e.: Parking Area Unit Storage) and crossover or cross impact activities (i.e.: scheduling and underground traffic, forced outage of common facilities). The EEG has tried to address as many of these common elements as we could identify in the PMR.

The format of these comments are in the form of a discussion relating to an item or statement and one or more comments on that item or statement.

1. RH TRU Waste Characterization

The Permittees propose to use a RH TRU waste characterization program that is different from the CH TRU waste characterization program. The CH TRU characterization program has been accepted by regulatory agencies and has been in use for about two years. The EEG understands that a major reason for this requested change is that the dose rate associated with RH TRU waste containers will be significantly greater than the dose rate associated with CH TRU waste containers. Nevertheless, the Permittees do not present the results of investigations or studies that support their assertion that, when using the CH TRU waste characterization program for RH TRU waste, personnel doses would not meet DOE requirements and would not meet ALARA considerations.

EEG Comment 1

The EEG believes that the Permittees should provide relevant information that supports their position for not using the CH TRU waste characterization program for RH TRU waste. The EEG is aware of Supplement 4 to the PMR that relates to the "Comparison Between the Proposed RH and CH Mixed Waste Characterization Methods". Supplement 4 does not meet the critical needs of evaluating the proposed RH program with the extant CH program. The DOE should begin with the framework of the CH TRU program and provide technical justification for each deletion or variance from that approved program. The information should be placed in one location in the PMR and not scattered throughout the document.

2. RH TRU Inventory, Estimated Volume of RH TRU in the DOE Complex and Estimated Volume of RH TRU Destined to WIPP

The Permittees currently estimate (Ref. 7) that approximately 3800 cubic meters of RH TRU waste is in the DOE Complex. They indicate that after volume reduction at the generating sites, 1972 cubic meters is destined for disposal at the WIPP. Over the years there have been

substantial variations in the estimated volumes of RH TRU waste in the DOE Complex (Ref. 8, Ref. 9). The uncertainties in the estimated volumes of RH TRU waste may be a problem for sites in the DOE Complex that have yet to generate RH TRU. If there is uncertainty regarding the inventory of RH in the DOE complex, then there is uncertainty in the constituents that comprise that uncertain inventory. Moreover, the Performance Assessment is based upon the 1995-1996 inventory.

The two following situations are illustrative of potential or actual uncertainties in the estimated volumes. The estimate of RH TRU waste contained in the sludge in the K-Basins (Hanford K-100 Area) is approximately 1700 cubic feet (48 cubic meters) of layered particulate matter. Several different types of sludge exist, depending upon location, and each type of sludge is a unique mixture, thus probably making treatment of these sludges an operation unique for each mixture. The estimate of 48 cubic meters is not based upon data resulting from processing any of the sludge. The EEG is not sure of the basis of the estimate. In the second situation the estimate of RH TRU waste at the Idaho National Engineering and Environmental Laboratory (INEEL) does not include approximately 900 cubic meters of RH TRU waste located at the Idaho Nuclear Technology and Engineering Center (INTEC).

In a third situation, a November 16, 2001 Technology Opportunity Statement Outline prepared by INEEL indicates:

“The INEEL stores approximately 84 m³ of RH TRU waste in the Intermediate-Level TRU Storage Facility (ILTSF) vaults or in shielded overpacks, and approximately 220 m³ of suspect RH TRU waste at the Radioactive Waste Management Complex (RWMC). Efforts have been initiated to begin preparations to retrieve and characterize RH TRU waste for transportation and disposal at WIPP prior to 2015.”(Ref. 10).

Supplement 1 to Reference 1 does not identify the 220 m³ of suspect waste as candidate for shipment to the WIPP.

EEG Comment 2

The Permittees should provide an upper bound estimate of the volume of RH TRU waste by generating site and an upper bound estimate of the volume of RH TRU by generating site destined for WIPP. The upper bound estimate should include the uncertainty in the estimate, perhaps by addressing the “suspect RH TRU” at the generating sites. The Permittees should also provide an upper bound estimate of the RH TRU waste activity, by significant isotope, destined to the WIPP from each generating site. Significant isotope means at least the ten isotopes identified by the DOE, and required by the EPA, as important to the long-term performance of the WIPP. These ten isotopes are: ²⁴¹Am, ¹³⁷Cs, ²³⁸Pu, ²³⁹Pu, ²⁴⁰Pu, ²⁴²Pu, ⁹⁰Sr, ²³³U, ²³⁴U and ²³⁸U (Ref. 11).

3. Status of RH TRU Packaging

The DOE currently estimates that approximately 95 percent of the volume of RH TRU waste is to be generated, packaged and repackaged. Table 1 summarizes the packaging status of the RH TRU inventory presented in the PMR.

Packaging Status of the RH TRU Inventory (adapted from Ref. 12)
Table 1

Category of RH TRU	Percentage (approximate)	Cumulative Percentage	Volume (cubic meters)	Cumulative Volume
Already Packaged	~2	2	~70	70
To Be Repackaged	~5	7	~200	270
To Be Generated	~41	48	~1554	1824
To be Packaged	~52	100	~1980	3804

EEG Comment 3

The Permittees rely upon the assertion that most (>95%) of the RH TRU mixed waste is to be generated, packaged or repackaged. There is a probability that there may be additional RH TRU that is not in the current inventory contained in Supplement 1 of Reference 1 (see “suspect RH TRU” in items 1 and 2 above). The EEG believes that any material change in the percentage of RH TRU waste in each of the packaging categories is an important consideration for the PMR. The EEG encourages the Permittees to proceed expeditiously with a complete, new inventory to support the PMR. The inventory contained in the PMR does not contain any references. Any new inventory should contain references to the sources used to develop the inventory.

4. Proposed Waste Analysis Plan, Reliance on Characterization at the Time of Packaging, CTP

The PMR indicates at Section 5.8.1 on page 5-14 that after the data quality objectives (DQO) for the RH TRU characterization program had been developed, the DOE evaluated the estimated RH TRU waste inventory and the waste characterization methods in order to develop a process for RH TRU mixed waste characterization. Since about 2% (~70 cubic meters) of the RH TRU mixed waste is already packaged, the DOE expects it will be able to characterize approximately 98% of the waste at the time of packaging. Characterization at the time of packaging (CTP) allows the DOE to comply with significant portions of the applicable regulations (NMAC 20.4.1.500). The Permittees indicate that those regulatory requirements that cannot be met using CTP will be met using acceptable knowledge (AK) or testing (e.g., visual examination {VE} or radiography).

EEG Comment 4

CTP, including radiochemical analysis, provides the opportunity for the DOE to obtain current information regarding the hazardous characteristics of the waste just before the waste is packaged. The EEG encourages the use of CTP or other approaches to meet or exceed regulatory requirements without creating undue risk to the health and safety and without creating risk to the protection of the environment. Nevertheless, the AK, VE or radiography that is used must meet or exceed the DQOs as adopted by NMED.

5. Volatile Organic Compounds (VOCs)

The extant Permit requires that the CH TRU waste characterization program determine the headspace gas concentration for a number of volatile organic compounds. This effort requires sampling of the headspace gas by trained personnel. The requirement for headspace gas sampling is in response to the understanding that the air pathway is a major route for release of hazardous constituents. The personnel radiation exposure associated with this sampling of CH TRU waste containers has been small to date because the exposure rate at the surface of the containers has been less than 0.2 Rem per hour.

RH TRU waste containers may have surface dose rates in the range of 0.2 Rem per hour up to 1,000 Rem per hour. Because of the potential for significant radiation exposure to personnel, the Permittees propose an alternative for VOC headspace gas sampling associated with RH TRU waste. They indicate that when using the maximum possible concentrations, the potential contribution to VOC emissions from the RH TRU waste is small (maximum of 8.23% of the allowable emissions). Rather than measuring the VOCs in a RH TRU waste container, the Permittees propose to address the potential VOC contribution from RH TRU waste by reducing the CH TRU waste disposal room limits. Note: A number of disposal rooms constitute a Panel (Ref. 1, p. 5-16, also Supplement 3, Maximum VOC Emission Rates from RH Canisters Report). {Note: Measurements of VOCs in the headspace of CH TRU waste containers do not appear to result in any material personnel radiation exposure}.

The EEG understands and appreciates the Permittees desire to maintain radiation exposure to occupationally exposed employees As Low As Reasonably Achievable (ALARA). If radiation exposure to personnel were the only issue relating to VOC determination in the headspace, then EEG would support the proposed approach. However, there is a safety issue that goes beyond that of occupational radiation exposure.

Because of federal transportation regulatory requirements relating to the operation of the RH TRU shipping casks, the Permittees are required to assure that the concentration of flammable VOCs in the shipping containers does not exceed 500 parts per million. This assurance can be reasonably attained by sampling or by rigorous calculations. Even though the HWFP is not concerned with federal transportation requirements, these federal requirements do affect the testing for VOCs in the shipping cask (and the surrogate is testing for VOCs in the headspace of RH TRU containers that is of concern to the HWFP). RH TRU waste will be transported by truck to the WIPP in either the 72-B cask or the CNS 10-160B cask. The US Nuclear Regulatory Commission issued a Certificate of Compliance for use of the 72-B cask (Ref. 13) and a

Certificate of Compliance for use of the 10-160B cask (Ref. 14). The 72-B cask contains a canister that may contain up to three waste drums. The US NRC Certificate for that cask states, "Flammable volatile organics are limited to 500 ppm in the headspace of the waste canister." The 10-160B cask may contain up to ten 55-gallon drums of RH TRU waste. The US NRC Certificate for that cask states, "The total amount of potentially volatile organic compounds present in the headspace of a secondary container is restricted to 500 parts per million;..."

EEG Comment 5a

The EEG is in support of activities and approaches that may have the potential to reduce occupational and public risk. This support includes the reduction of radiation exposure consistent with the ALARA philosophy. The Permittees, however, must comply with all other safety related criteria, such as those contained in the Certificates of Compliance issued by the US NRC. The NRC staff does not necessarily require sampling to show compliance with the flammable VOC requirement. Without assurance that the Permittees proposed approach can meet the US NRC cask safety requirements for VOCs, EEG must oppose the approach proffered by the Permittees. The Permittees should provide a description of the means they will use to assure that the US NRC requirements could still be met while still proceeding as described in the PMR.

EEG Comment 5b

The EEG believes that the proposal to estimate maximum VOC concentrations in RH TRU containers (in lieu of measurement), and accordingly adjust the current Room Based Concentration Limits (RBCLs), may be appropriate. The NMED should carefully review the assumptions, methodology and calculations in Supplement 3 contained in the PMR in order to make sure that the new RBCLs are appropriate.

6. Already Packaged Wastes (currently 70 cubic meters, ~2% of the identified RH TRU waste)

The PMR at page R-11 says that

"Waste that is currently in a container suitable for shipment and disposal at the WIPP (i.e., a drum or RH-72-B canister) will be evaluated to determine if the AK information meets the requirements for characterization. *If deficiencies are found, additional characterization, including testing, may be required.* If testing is required (i.e., VE or radiography), the testing will be conducted on a minimum of 10% of the waste stream. The testing will be verified by using a second operator to examine the video/audio tape of the testing activity at the minimum rate of one per batch or one per day, whichever is less frequent."

Unlike the CH TRU waste characterization approach, which requires 100 percent confirmation of the AK information, the Permittees propose performing confirmatory measurements only on 10 percent of the RH TRU waste (Ref. 6 p. 3).

EEG Comment 6a

The italicized sentence above should be re-written as follows: *If deficiencies in AK are found, additional characterization, including testing, shall be required (Emphasis added).* The word “may” provides the latitude for not testing, the word “shall” makes testing obligatory.

EEG Comment 6b

The Permittees state, “If testing is required (i.e., VE or radiography), the testing will be conducted on a minimum of 10% of the waste stream.” The Permittees should provide the basis of selecting 10% of the waste stream. The Permittees should also indicate if the 10% is on a container basis (for example, one out of every 10 containers), a volume basis, or weight basis. There is some question in assuming that a 10% sample will be representative for debris waste, where each container may have different contents. Confirmatory measurements on 10% of a waste stream might be sufficient for a well-defined waste stream. Certain waste streams are planned to be sampled because they are NOT well-defined waste streams. This would seem to require a considerably higher testing percentage.

EEG Comment 6c

The Permittees indicate that testing would be verified by using a second operator to examine the video/audio tape of the testing (VE or RTR) activity at the minimum rate of one per batch or one per day, whichever is less frequent. The Permittees should provide the rationale or criteria for selecting “one” per batch (and provide the definition of a batch) and “one” per day. The Permittees should also provide the rationale or criteria relating to “whichever is less frequent”. The EEG assumes the “one” referenced is one 120 minute video tape.

EEG Comment 6d

The Permittees do not provide a description of the testing process that will be used when “testing will be conducted on a minimum of 10% of the waste stream.”

The Permittees should provide a complete description of the process, including steps that will take place, if violations are found when 10% of the waste stream is tested. The following three scenarios serve as examples.

- 1) the first container examined contained free liquid in excess of 1% of the container volume,
- 2) the second container examined contained both excess liquid and other prohibited items,
- 3) the first and fourth containers examined contained free liquid in excess of 1% of the container volume, and
- 4) the first container examined contained free liquid in excess of 1% of the container volume and a prohibited item (compressed gas bottle) is found in the second container.

7. Radiography

The Permittees indicate that the testing discussed on page R-11 of the PMR consists of VE or radiography. The literature suggests that radiography of RH TRU waste may not be reliable because: (1) the RH TRU container may contain lead or be lead lined, thus reducing the efficacy of radiography and/or (2) the efficacy of radiography is questionable with RH TRU waste containers exhibiting 100 or more Rem per hour (Ref. 15). The EEG is not aware of any actual radiography of RH TRU waste containers with the exception of the effort described in Reference 16.

EEG Comment 7

The EEG recommends that the Permittees arrange for the radiography of actual RH TRU waste containers that exhibit a range of exposure rates (i.e., 80, 100, 120, ... Rem/hour at contact with various ratios of gamma radiation to neutron radiation, consistent with the ratios already established by DOE monitoring of RH TRU waste) and determine the efficacy of radiography as a means of testing. By doing this, the Permittees will have real data to support assertions relating to the efficacy of radiography for RH TRU waste.

8. Completed Draft Waste Characterization Plans

Generating sites usually prepare site-specific draft waste characterization plans.

EEG Comment 8

The EEG recommends that the Permittees provide several generator/storage site-specific draft or final characterization plans for review. The review of these plans will allow the NMED to review details on how the sites plan to implement the RH TRU waste characterization efforts.

9. Storage of RH and CH TRU Waste Containers in the WIPP Parking Area Storage Unit (Parking Area Unit, or PAU)

The Permittees propose to use the PAU to hold up to 60 m³ of CH and/or RH TRU waste in up to twenty-nine (29) US Nuclear Regulatory Commission certified shipping containers (Ref. 1, page 16-9). Currently, the PAU can contain 12 TRUPACT IIs up to 45 m³ of CH waste. The Permittees indicate that they will follow requirements relating to venting and protection of the shipping containers. The request to temporarily store these containers provides material handling flexibility which would allow the WIPP to receive shipping containers during the time that periodic maintenance is performed or during such times as there may be a stoppage or slowdown in processing TRUPACT IIs, HalfPACTs, 72-B casks and 10-160B casks.

EEG Comment 9

If there is sufficient maneuvering room in the PAU and there is no undue risk to the health and safety or to the protection of environmental values, then the EEG supports the Permittees request to store up to twenty-nine (29) NRC-certified shipping containers at the PAU, consistent with

applicable regulatory requirements. This storage capacity, while not excessive, may be needed because of the planned accelerated shipping schedule for CH and RH TRU waste. Moreover, unscheduled maintenance and forced outages of key equipment (i.e.; the waste hoist) would require moderate shipping container storage space to accommodate shipments nearing WIPP at the time of the outage.

Nevertheless, the Permittees should provide a detailed description of the arrangement of these containers with enough detail to assure sufficient maneuvering room and no adverse effect on industrial safety, fire protection, fire suppression, physical security and the public health and safety.

10. HWDU

The Permittees indicate at page 1-2, lines 1-3 of Reference 1 that they are proposing changes to the underground Hazardous Waste Disposal Units (HWDU). On page 4-2 of Attachment A (Ref. 1), the Permittees state (at lines 29-31) that they wish to add 2 Panels and have amended the extant Permit as follows:

“Panels 1 through 3-5 (panels 1, 2 and 3 for CH waste; Panels 2, 3, 4 and 5 for RH TRU waste) will be used under the terms of this permit.”

EEG Comment 10

The addition of Panels 4 and 5 is a significant change in the operation of the facility. This change is commensurate with the addition of the disposal of RH TRU waste and the scheduled accelerated shipping and disposal schedule. Nevertheless, the full impact on HVAC, staffing, unscheduled outages, unscheduled maintenance and associated repair, underground traffic control and above ground traffic control should be discussed further in the PMR.

11. NRC-Certified Shipping Containers

Section I.D.3.a defines NRC-certified shipping containers as TRUPACT-II, RH-72B, and the 10-160B shipping containers (Ref. 1). The NRC has certified one additional shipping container for material destined to WIPP, the HalfPACT.

EEG Comment 11

The definition of NRC-Certified shipping containers should be characterized in a way that provides for some flexibility. The EEG suggests that the wording for I.D.3.a be changed to reflect the following: NRC-certified shipping containers are those shipping containers that have received approval/certification by the staff of the US Nuclear Regulatory Commission and may be used to convey transuranic waste to the WIPP. These containers include, as of September 2002, the TRUPACT-II, the HalfPACT and the RH-72B and the 10-160B shipping containers.

12. NNMED Approval of Shipping Casks

The NMED is required to approve the use of the 72-B cask and the 10-160B cask.

EEG Comment 12

There may be insufficient information contained in the PMR for NMED to make that approval. The description of the shipping containers in the Permit Addendum M1R (§M1R-1b), including figures M1R-5 and M1R-6, does not provide sufficient engineering or safety related information to make a safety determination. Accordingly, the Permittees should provide this information or a copy of the analyses that is dispositive of cask safety.

13. Section R-1.1 RH TRU “waste is managed in a shielded condition at all times”

Section R-1.1, Purpose and Scope of the Waste Analysis Plan (Ref. 1), states:
“Because of the high dose rates, RH TRU waste is managed in a shielded condition at all times, including the use of hot cells in order to meet ALARA requirements.”

Section R-2.3, Identification, Classification, and Quantity of Waste to be Stored and Disposed at WIPP, states:

“Only sites that meet the requirements specified in this RH WAP will be permitted to ship their RH TRU mixed waste to the WIPP facility for disposal.”

Thus, generator sites would be in violation of the WAP should the Section R-1.1 requirement to manage RH-TRU in a shielded condition not be met.

EEG Comment 13

The Permittees should change the wording in such a way to assure the application of ALARA and, if necessary, require appropriate approaches and measures to control potential radiation exposure situations. For example, the Permittees might consider a statement with the following approach: RH TRU waste is managed at all times to meet ALARA requirements, good safety practices, and good environmental stewardship practices. In order to meet ALARA considerations, RH TRU waste can be handled in a number of ways, including in a shielded condition, in a hot cell and using appropriate remote handling depending on the circumstances, dose rates involved and the personnel potential exposure time.

14. Waste Characterization

Section R-3.1, RH TRU Waste Characterization Requirements states:
“The WIPP facility must comply with the general waste analysis requirements of 20.4.1.500 NMAC (incorporating 40 CFR §264.13), which require that waste characterization be conducted to ensure that the chemical and physical information necessary to store and dispose of the waste is collected.”

This statement could allow a misinterpretation of the requirements of 40 CFR §264.13, and should more accurately reflect the actual §264.13 requirements. As the EEG has noted several times previously §264.13(a) (1) requires the following:

“Before an owner or operator treats, stores, or disposes of any hazardous wastes,...he must obtain a detailed chemical and physical analysis of a representative sample of the wastes.”

Thus, the requirement is for a detailed chemical and physical analysis of a representative sample of the waste, not for “waste characterization”. The term “waste characterization” is not defined either in the regulations covering hazardous waste facility permits, nor in the WIPP HWFP itself.

§264.13(a) (1) does go on to state:

“At a minimum, the analysis must contain all the information which is necessary to treat, store, or dispose of the waste in accordance with this part and part 268 of this chapter.”

Note that the requirement is for an analysis more than that “necessary for storage and disposal” of the waste; the requirements of all of §264 must be met. The EEG noted in a comment previously provided to the CBFO in an August 25, 2000 letter the following:

“...the RH-TRU WAP should address 40 CFR 264(b)(3), which requires that all WAPs contain a sampling method[ology] based on the ASTM standards listed in Appendix I to 40 CFR 261, or an equivalent method. It appears that the relevant ASTM standards in Appendix I would all require intrusive sampling. “

The requirements of 40 CFR 264(b) (3) do not appear to be addressed in the PMR.

EEG Comment 14

The Permittees should provide a discussion clarifying what has been accomplished to meet the requirements contained in the regulatory citations identified above.

15. Parking Area Unit, Storage of NRC-Certified Shipping Containers

Module III, Container Storage indicates that the Permittees are requesting authorization to place 29 NRC-Certified shipping containers in the Parking Area Unit. The Permittees stipulate that the total waste volume in these 29 containers will not exceed 60 m³ (Table III.A.2 Parking Area Unit). There are a number of scenarios where the waste in 29 NRC-Certified shipping containers would exceed 60 m³. Two standard waste boxes (SWBs) in a TRUPACT II have a capacity of 3.76 m³ (2 X 1.88 m³) of waste. Two seven packs of 55 gallon waste drums in a TRUPACT II has a volume of 2.9 m³ (14 drums X 0.208 m³) of waste. A mix of waste containers of 14 TRUPACT IIs containing SWBs (14 X 3.76 m³) plus 15 TRUPACT IIs containing seven packs (15 X 2.9 m³) results in a total volume of waste of well over 90 m³. Moreover, the EEG is aware

of a Class 2 PMR before the NMED that would allow use of direct-loaded ten-drum overpacks (TDOPs). TDOPs have a capacity of 4.5 m³. Should the Class 2 PMR be approved, 29 direct-loaded TDOPs would exceed the 60 m³ by an even greater amount.

It might be appropriate for the NMED to assure that this PMR only focus on RH-TRU waste. Thus, any discussion of PAU capacity would relate only to RH TRU and not to CH TRU. In this case then, the Permittees would be required to amend this PMR to only address RH TRU waste and submit a subsequent PMR to increase the CH TRU storage in the PAU.

This PMR would appear to be more appropriate if space for only RH TRU waste was requested in the PAU, not for a total allotment variable between CH TRU waste and RH TRU waste.

EEG Comment 15

The Permittees should reevaluate the maximum capacity of waste in the Parking Area Unit. A waste volume in the order of 80m³-90m³ appears more reasonable than the 60m³ stipulated by the Permittees.

NMED may wish to separate the allowed CH TRU storage from the allowed RH TRU storage in the PAU.

16. Number of Containers and Volume of Waste in NRC-Certified Shipping Containers in the Parking Area Unit (PAU)

Module III, Container Storage, III.A.2.e provides a maximum number of NRC-Certified Containers and a maximum capacity (volume) of stored waste. It is unclear which value takes precedence (i.e. is limiting).

EEG Comment 16

The Permittees should be required to indicate the maximum number of containers and the maximum capacity (volume) for storage at the Parking Area Unit that provides the Permittees sufficient flexibility to meet operational needs, including forced outage occurring in CH or RH operations. NMED should consider indicating that either value is limiting (for example, 29 NRC-Certified Containers and no more than 80 m³ of waste in those containers may be stored at any one time in the PAU).

17. Minimum Aisle Space, Module III, Container Storage, III.A.2.e states

“the Permittees shall maintain a minimum spacing of 4 ft (1.2 m) between NRC-certified shipping containers in the Parking Area Unit.”

EEG Comment 17

III.A.2.e is titled “Minimum Aisle Space” yet the discussion relates to minimum spacing between containers. In order to assure unencumbered access and easy movement of vehicles,

including industrial trucks, and fire fighting equipment, the Permittees should reevaluate such a small aisle space between rows of containers based upon the size, turning radius and operating conditions of the industrial trucks used to move the containers and fire safety requirements.

18. M1R-1d(2) RH-72-B Shipping Cask Unloading, Permit Addendum M1R, page M1R-8, lines 1-5

“Using the remote-operated fixed 6.25 ton-grapple hoist in the Facility Cask Loading Room, the inner vessel lid is lifted clear of the RH-72-B shipping cask, and the robotic manipulator takes swipe samples and places them in the swipe delivery system for counting outside the Transfer Cell. If found to be contaminated above acceptable levels, a determination is made whether to return the canister and cask to the originating site or to overpack the canister.” (note: this refers to removable contamination as indicated by wipes of the top of the canister).

EEG Comment 18a

The Permittees should indicate what is subject to the wipe test indicated above, the inner lid of the RH-72-B cask, the top of the canister or both areas.

EEG Comment 18b

The PMR indicates that, “If found to be contaminated above acceptable levels, a determination is made whether to return the canister and cask to the originating site or to overpack the canister.” The Permittees should define the unacceptable levels (dpm per 100 cm² by isotope) since canisters could contain not only transuranic isotopes emitting neutrons but Sr-90/Y-90 and Cs-137/Ba-137m as well.

EEG Comment 18c

A canister might also have other contamination present (i.e.: PCBs, hydraulic fluid, ...) which is more in keeping with the HWFP. It is unclear if the Permittees will also check for contamination by other substances as well as radioactive materials.

EEG Comment 18d

The EEG assumes that the overpack process will occur in the hot cell. The Permittees should describe the process by which a canister is overpacked, including the movement of the canister from the Transfer Cell to the Hot Cell.

EEG Comment 18e

The Permittees should provide the (outside) dimensions of the canister overpack in order to assure that the overpacked canister can be placed in the Facility Cask and then be placed in the disposal hole.

EEG Comment 18f

The Permittees should provide the design, engineering and safety analysis of the overpack and indicate if any of the overpacks have been manufactured and received.

EEG Comment 18g

If overpack canisters have been received, then the Permittees should provide the results of the receipt QA checks to assure compatibility of hardware (i.e.: bolts, sockets, flanges, ...), material and dimensions.

EEG Comment 18h

The Permittees should provide a copy of the procedures for overpacking a canister.

EEG Comment 18i

The Permittees should provide information relating to the schedule for a run-through of the canister overpack process.

19. Permit Addendum M1R, page M1R-10, lines 11 and 12

“As the canister is being lifted from the RH-72B shipping cask into the facility Cask, additional wipes **may** be taken.” (**emphasis added, see Comment 19.a below**).

Discussion: earlier the top of the canister was wipe tested (see item 18 above).

EEG Comment 19a

The Permittees should be required to wipe test those portions of the canister not previously wiped tested at the WIPP (i.e.: delete the word “**may**” above and insert the word **shall**). In addition, the Permittees should indicate if the wipe tests will be analyzed for other hazardous constituents such as oil, grease, hydraulic fluid, etc.

EEG Comment 19b

The Permittees should provide the number and approximate locations of any wipes of the canister. (The EEG suggests that the bottom of the canister should be subject to a wipe test (swipe)).

EEG Comment 19c

The Permittees should provide a description of the process and decision criteria under which the contaminated canister is decontaminated or overpacked.

20. Permit Addendum M1R, page M1R-10, lines 12-14

“If the canister surface contamination levels exceed acceptable levels a determination is made whether to return the canister to the originating site or to overpack the canister (**Permit Attachment F**).” (emphasis added).

EEG Comment 20a

Attachment F contains the RCRA Contingency Plan. Permit Addendum FR contains the RCRA Contingency Plan Remote-Handled TU Waste. Neither Attachment F nor Addendum FR contains any discussion relating to “canister surface contamination levels exceed acceptable levels a determination is made whether to return the canister to the originating site or to overpack the canister”. The Permittees should provide an appropriate reference, delete the notation **Permit Attachment F** or move the citation to the correct position in the discussion.

EEG Comment 20b

The Permittees should provide the decision criteria and numerical values used to decide whether to return the canister to the generating site or to overpack the canister.

21. Permit Addendum DR, page DR-2, lines 4 through 9 discusses inspections of the RH complex.

“The inspections are conducted visually and/or using a closed-circuit video camera in order to manage worker dose and to minimize occupational radiation exposures to as low as reasonably achievable (ALARA). More extensive inspections of these areas are performed at least annually during routine maintenance periods when waste is not present.”

EEG Comment 21a

The EEG understands that several video cameras are located in a number of strategic locations in order to operate equipment and to monitor the RH process. The above citation indicates only one camera will be used for inspections. The Permittees should identify those locations covered by video cameras.

EEG Comment 21b

The Statement “(M)ore extensive inspections of these areas are performed at least annually during routine maintenance periods when waste is not present.” does not provide sufficient detail of these “more extensive inspections”. The Permittees should provide sufficient information regarding these “more extensive inspections” to allow NMED to evaluate the propriety of the inspections.

22. Permit Addendum FR, page FR-2, lines 2 and 3, provides information on the RH processing rate.

“The expected processing rate for RH TRU waste is two (with a maximum of three) shipping casks per day.”

EEG Comment 22a

The EEG understands the “day” is two complete shifts and this estimate only applies to the 72-B shipping cask. The EEG understands that the “processing rate” used above is complete processing, from opening the cask to placement of the waste canister in the disposal room. The EEG recommends that the Permittees discuss more quantitatively the RH TRU waste processing time for both the 72-B and the 10-160B casks.

EEG Comment 22b

The EEG understands that at full operation over 100 shipments of TRUPACT IIs per week and about 8 RH shipments per week will be disposed in the underground. It is unclear what steps the Permittees have taken to assure that traffic arrangements underground can handle this heavy load (one waste hoist, two forklifts, two shifts of workers and rather narrow underground passageways).

23. Table 13R-1, Permit Addendum 13R, page 13R-5, Radiological Surveys

During RH TRU Waste Processing provides a list of dose rate surveys and at what steps in the process the Permittees make these measurements. The table does not indicate that both beta-gamma and neutron measurements are made.

EEG Comment 23a

The Permittees should indicate that both beta-gamma and neutron measurements are made as part of the dose rate survey.

EEG Comment 23b

The Permittees should clarify that all radiation doses/exposures and the units of mrem (millirem) and Rem include the contributions from x-rays, gamma rays and neutrons throughout the PMR. If there are any exceptions to this, the Permittees should specifically identify which situations this does not hold and provide the basis for exclusions.

24. Permit Addendum M1R, page M1R-11, lines 3 and 4 indicate “The integrity of the shipping casks and the spacing between shipping casks will be inspected.”

Clearly, a visual inspection of the spacing seems appropriate. However, it is unclear how the integrity of the casks will be inspected.

EEG Comment 24

The Permittees should provide details on how the integrity of the shipping casks located in the PAU will be inspected.

25. §IV.C.1 Acceptable Disposal Containers, page 3-17 states

“The Permittees shall use containers that comply with the requirements for U.S. Department of Transportation shipping container regulations (49CFR....) for disposal of TRU mixed waste at WIPP.”

EEG Comment 25

It is unclear that the overpack complies with the regulatory requirements cited above.

26. M1R, page M1R-3, page 16-19 states

“The RH-72-B shipping cask (FigureM1R-5) is a cylinder designed to meet U.S. Department of Transportation Type B shipping container requirements.” and in **M1R, page M1R-4, page 16-20 states**

“The 10-160 B shipping cask is designed to meet DOT Type B shipping container requirements and consists of ...”

EEG Comment 26

It is not sufficient to indicate that the casks have been designed to meet certain regulatory requirements. The statements should go on to indicate that the casks have also been fabricated in accordance with the regulatory requirements and will be operated in accordance with the regulatory requirements including applicable certificates of compliance or other regulatory permits.

References

1. US Department of Energy. Carlsbad Field Office. Request for RCRA Class 3 permit modification in accordance with 20.4.1.900 NMAC (incorporating 40 CFR Part 270; DOE/WIPP/HWFP/C3 PMR-2002 Jun 28; 2002.
2. Ibid, section 5.0, Attachment R: Remote Handled Waste Analysis Plan.
3. New Mexico Environment Department. Hazardous Waste Facility Final Permit issued to Waste Isolation Pilot Plant; EPA No. NM4890139088; 27 October 1999.
4. Ibid, section II.C.3.h: Treatment, storage, and disposal facility waste acceptance criteria (TSDF-WAC): remote-handled transuranic waste.
5. US Department of Energy. Carlsbad Field Office. Transuranic waste performance management plan, draft. July 2002.
6. National Research Council. Characterization of remote-handled transuranic waste for the Waste Isolation Pilot Plant: final report. Washington (DC): National Academy Press; 2002.
7. Reference 1, supplement 1, p 5: Remote handled transuranic (RH TRU) waste inventory report and site description; June 2002.
8. Silva, Matthew K; Neill, Robert H. Unresolved issues for the disposal of remote-handled transuranic waste in the Waste Isolation Pilot Plant. Albuquerque (NM): Environmental Evaluation Group; EEG-56; September 1994.
9. Silva, Matthew K. Some issues identified by EEG regarding the characterization of RH TRU waste; statement by Matthew K. Silva to the NAS WIPP Committee; Albuquerque, NM; 4 October 2001.
10. Idaho National Engineering and Environmental Laboratory. Technology Opportunity Statement Outline: Operations Office Program description #11[online]. Available at: <http://www.inel.gov/st-needs/need-detail.asp?id=868>. Accessed 29 October 2002.
11. US Environmental Protection Agency. Compliance application review documents for the criteria for the certification and recertification of the Waste Isolation Pilot Plant's compliance with the 40 CFR Part 191 disposal regulations: proposed certification decision. Card No 24: Waste Characterization. EPA 402-R-97-013, Docket A-93-02, Item III-B-2; October 1997.
12. Reference 7, p 3.
13. US Nuclear Regulatory Agency. Certificate of Compliance No. 9212 for the Model No. RH-TRU 72-B package, rev 1; June 2001.

14. US Nuclear Regulatory Agency. Certificate of Compliance No. 9204 for the Model No. CNS 10-160B package, rev 7; 8 August 2001.
15. Reference 6, p. 57.
16. Idaho National Engineering and Environmental Laboratory (INEEL). Characterization of RH-TRU and Lead-Lined Drums Using X-Ray Imaging Techniques; INEEL/EXT-2001-00625 July 2001.