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September 22, 2005

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Subject: Response to NMED/HWB September 1, 2005 Notice of Deficiency (NOD), Consolidated Response to NOD Class 3 Permit Modification Request (PMR) Submitted in Accordance with P. L. No. 108-137, Section 311, and Second NOD for RH TRU Waste, WIPP Hazardous Waste Facility Permit (HWFP), EPA ID No. NM4890139088

Dear Mr. Bearzi:

The U.S. Department of Energy and Washington TRU Solutions LLC, Permittees under HWFP No. NM4890139088, submit the enclosed response to the subject NOD. Our response addresses the comments in the NOD.

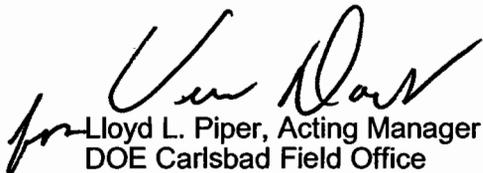
This response further clarifies the Permittees use of acceptable knowledge for waste analysis as authorized by regulations. As described in the PMR, the Permittees will use acceptable knowledge for waste analysis if it is sufficient. If acceptable knowledge information is insufficient to analyze waste, the Permittees shall request the generator/storage sites to perform necessary sampling and analysis to obtain the information required.

Our response also clarifies that the Permittees shall conduct examination and verification of a waste stream either at WIPP, or at an off site location. This activity is only required to be performed one time and the Permittees will not conduct examination and verification of the same waste stream at two locations. To do so would involve unnecessary waste handling for workers and would not use tax dollars wisely.

Our response includes revised, proposed permit text based on the Permittees' June 10, 2005 Consolidated Response Document and NMED's permit revision of July 8, 2005 that incorporated numerous approved PMRs.

The Permittees believe that the NOD has provided a valuable opportunity to allow further clarification of the permit modification request. The response and associated revised draft permit text will allow and facilitate NMED's issuance of a draft permit.

Sincerely,

  
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DOE Carlsbad Field Office

  
Richard D. Raaz, General Manager  
Washington TRU Solutions LLC

Enclosure

Mr. James Bearzi

-2-

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**Response To:**

**NMED/HWB September 1, 2005 Notice of Deficiency (NOD),  
Consolidated Response to NOD Class 3 Permit Modification Request  
Submitted in Accordance with P. L. No. 108-137, Section 311, and Second NOD  
for RH TRU Waste, WIPP Hazardous Waste Facility Permit,  
EPA ID No. NM4890139088-TSDF**

**September 22, 2005**

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**Attachment B**

- Matrix – Technical Comment No. 17

## ISSUE OF CONCERN NO. 1

The proposed changes to the Waste Analysis Plan appear to remove the current framework of chemical sampling and analysis on nearly all containers, and replacing it with determinations of AK sufficiency. As proposed in the Consolidated Response Document, such determinations are based on undefined or unspecified criteria.

### **Response:**

The New Mexico Environment Department (**NMED**) is correct in their observation that the Permittees are proposing a sampling and analysis process that does not rely on sampling “nearly all containers” of waste. These proposed changes will assure that sufficient chemical information is collected to meet the requirements of 20.4.1.500 New Mexico Administrative Code (**NMAC**) incorporating 40 Code of Federal Regulations (**CFR**) Section 264.13(a).

There are cases where the chemical properties are documented in the acceptable knowledge (**AK**) record. The Environmental Protection Agency (**EPA**) states in their guidance manual (*Waste Analysis: EPA Guidance Manual for Facilities That Generate, Treat, Store, and Dispose of Hazardous Waste* (EPA, 1994)) for preparing waste analysis plans that “generators and TSDFs also can meet waste analysis requirements by applying acceptable knowledge. Acceptable knowledge can be used to meet all or part of the waste analysis requirements.” In these cases, the sampling does not have to be performed or repeated. Use of the AK record to satisfy the requirements to determine the chemical properties are allowed by the current Hazardous Waste Facility Permit (**HWFP**). However, the guidance points out that the Treatment, Storage and Disposal Facility (**TSDF**) is not relieved of its responsibility to obtain accurate waste analysis information despite the submission of erroneous information by the generator. In other words, when using AK information from the generator site to determine the chemical properties of the waste, the TSDF (i.e., the WIPP Permittees) still have to assure that the information is accurate (e.g., the criterion of representativeness applies to AK information). This assurance is achieved by the Permittees by requiring the generator/storage site to meet the AK requirements in the HWFP and the revised Permit Modification Request (**PMR**). Regarding the criteria for AK sufficiency determinations, refer to the Permittees response to Technical Comment No. 14.

The NMED reference to “nearly all containers” is associated with the HWFP requirement to determine the concentration of volatile organic compounds (**VOCs**) in the headspace of each container in order to demonstrate compliance with the emission standards specified in the HWFP. The Permittees no longer propose sampling for this purpose since the Pub. L. 108-137, Section 311 (b) specifically states that compliance will be demonstrated exclusively through monitoring. The proposed room-based VOC monitoring system provides a method to determine the emissions from disposed containers that is more accurate than the measurement of gas in the headspace of individual containers. This is documented in the revised PMR and in the technical paper “*Monitoring of Airborne Volatile Organic Compounds In Disposal Rooms at the Waste*

*Isolation Pilot Plant, Carlsbad, New Mexico*” submitted with the Permittees’ August 12, 2005 comments on the Consolidated Response Document.

According to Chapter 9 of the EPA’s guidance for sampling and analysis (SW-846), representative sampling is invoked to achieve the required accuracy and precision in determining the chemical characteristics of a waste stream. Accuracy is related to the closeness of a value to its true value and precision is related to the closeness of the values of repeated samples to each other. According to EPA, “If the chemical measurements are sufficiently accurate and precise, they will be considered reliable estimates of the chemical properties of the waste.”

The EPA goes on to explain that the degree of accuracy and precision is determined by the information needed to make a decision regarding classifying the waste as hazardous or not. EPA also points out that accuracy is achieved through the selection of the location of the samples and precision is achieved by the number of samples. According to the EPA, accuracy is achieved by using random sampling. One method of achieving precision is to specify a desired confidence level or error tolerance. In this case, the number of samples required is inversely related to how close the sample mean or some measure of the sample mean is to the regulatory threshold.

If a waste has a constituent concentration that is very close to the regulatory threshold, then a high degree of precision (i.e., a large number of samples) may be necessary to determine if a waste is hazardous or not. In the case of the Waste Isolation Pilot Plant (**WIPP**), under both the HWFP and the revised PMR, one purpose of chemical sampling is to resolve questions regarding the presence or absence of a hazardous constituent. This does not need a high degree of precision unless the compound is a prohibited item (i.e., a hazardous waste that is not allowed at WIPP). However, it does need to be accurate (i.e., represent the average condition of the waste stream) if the generator wishes to demonstrate that the waste is non-hazardous.

Precision for the determination of the chemical properties of a waste stream is achieved for the program by specifying a minimum of five preliminary solids samples (Permit Attachment B2-2a) or ten preliminary headspace gas samples (Permit Attachment B2-2b), then calculating the required number of samples needed to obtain precision within the specified confidence or error interval. This same sampling rate is proposed in the revised PMR. Accuracy is achieved by simple random sampling (Permit Attachment B2-2).

Therefore, the chemical sampling for the purpose of meeting the regulatory requirements for an accurate and precise sample to represent the chemical properties of the waste stream is the same in the revised PMR as currently appears in the HWFP.

## ISSUE OF CONCERN NO. 2

The Consolidated Response Document does not address a major question: If the Permittees identify a container with a prohibited item during confirmation activities at WIPP, how will the Permittees remedy the problem?

### Response:

The PMR clearly delineates how non-compliant waste will be managed. The PMR states:

“Waste containers that have been identified as non-compliant with the TSDF-WAC will be tagged as "Non-Compliant Waste." Non-compliant waste will not be held at the WIPP facility for more than 60 days after the discovery of non-compliance. The waste will either be returned to a generator/storage site, sent to another DOE facility, or a third party for remediation.”

The Permittees have addressed this Issue of Concern in the same manner in the following sections of the PMR:

- Revised PMR, Section 1.2.5, 3<sup>rd</sup> paragraph and Figures 3, 4, and 5
- B7-1b(1) Examination of the EPA Uniform Hazardous Waste Manifest and Associated Waste Tracking Information
- B7-1b(9) Noncompliant Waste Identified During Waste Examination and Figures B7-3 and B7-5
- M1-1c(1) Waste Handling Building Container Storage Unit
- M1-1d(2) CH TRU Mixed Waste Handling

The Table of Changes for each Attachment referenced above (with the exception of Attachment B7) also describes how the Permittees will address non-compliant shipments and why the change was made.

This applies only to Contact Handled Transuranic (**CH TRU**) mixed waste as Remote Handled Transuranic (**RH TRU**) mixed waste will be examined before shipment to WIPP. RH TRU mixed waste will undergo either radiography or a review of the visual examination (**VE**) records by the Permittees prior to shipment to WIPP.

The transportation of transuranic (**TRU**) mixed waste to and, if necessary, from WIPP is regulated by the U.S. Nuclear Regulatory Commission (**NRC**) and the U.S. Department of Transportation (**DOT**). In the unlikely event that a prohibited item is discovered during examination and verification at WIPP, the non-compliant container will be transported in accordance with NRC and/or DOT regulations and approvals.

## Revised Permit Text:

Permit text has been revised to clarify this issue as shown below:

### B7-1b(1) Examination of the Uniform Hazardous Waste Manifest and Associated Tracking Information

Manifest discrepancies may be identified during manifest examination, container bar-code WWIS data comparison, or during waste examination on-site. A manifest discrepancy is a difference between the quantity or type of hazardous waste designated on the manifest and the quantity or type of hazardous waste the WIPP facility actually receives. The generator/storage site technical contact (as listed on the manifest) will be contacted to resolve the manifest discrepancy. If the manifest discrepancy is identified prior to the containers being removed from the package or shipping cask, the waste will be retained in the parking area staging area. If the discrepancy is identified after the waste containers are removed from the package or cask, the waste will be retained in a waste staging area until the manifest discrepancy is resolved. Errors on the manifest can be corrected by the WIPP facility with a verbal (followed by a mandatory written) concurrence by the generator/storage site technical contact. All manifest discrepancies that are unresolved within fifteen (15) days of receiving the waste will be immediately reported to the NMED in writing. Notifications to the NMED will consist of a letter describing the manifest discrepancies, discrepancy resolution, and a copy of the manifest. If the Waste Isolation Pilot Plant manifest discrepancies have not been resolved within sixty (60) days of waste receipt, the shipment will be returned to a generator/storage facility or another off-site facility. If it becomes necessary to return waste containers to a generator/storage site, a new EPA Uniform Hazardous Waste Manifest may be prepared by the Permittees.

### B7-1b(4) Permittees' Examination of a Representative Subpopulation of the Waste

The Permittees shall determine that the waste contains no ignitable, corrosive, or reactive waste through radiography (Section B7-1b(5)) or the use of visual examination (Section B7-1b(6)) of a statistically representative subpopulation of the waste. Waste examination will be performed on randomly selected containers from each waste stream shipment of TRU mixed waste prior to storage or disposal at WIPP. RH TRU mixed waste will be examined at a generator/storage site before shipment to WIPP.

This The CH TRU mixed waste examination may be performed either on-site after the shipment is received or at an off-site facility (e.g., generator/storage site) prior to receipt. Figure B7-3 presents the overall waste verification and examination process. Figure B7-4 presents the waste examination process at the generator/storage sites (or other off-site facilities). Figure B7-5 presents the waste examination process at WIPP.

### B7-1b(6) Visual Examination Methods Requirements

Visual examination may also be used as a waste examination method by the Permittees. Visual examination shall be conducted to describe all contents of a waste container. The description shall clearly identify all discernible waste items, residual materials, packaging materials, or waste material parameters. Visual examination may be used by the Permittees to examine a statistically representative subpopulation of the waste received for storage and disposal at the WIPP to assure that the waste contains no ignitable, corrosive, or reactive waste. This is achieved by assuring that the waste contains no residual liquids in excess of TSDF-WAC limits or compressed gases, and that the physical form of the waste matches the waste stream description documented on the WSPF. A visual examination data form is used to document this information. During packaging, the waste container contents are directly examined by trained personnel. This waste examination may be performed by the Permittees at the WIPP site or at an off-site facility, e.g., a generator/storage site. The visual examination may be recorded on video and audio media, or alternatively, by using a second operator to provide additional verification by reviewing the contents of the waste container to assure correct reporting. Because waste containers will not be opened at the WIPP site and to keep radiation doses as low as reasonably achievable at a generator/storage site, visual examination for waste examination may be performed by review, by trained Permittee visual examination operators, of video media prepared by the generator/storage site during their visual examination of the waste. If the Permittees perform waste examination by review of video media, the video record of the visual examination must be sufficiently complete for the Permittees to assure the Waste Matrix Code and waste stream description, and verify the waste contains no residual liquids in excess of TSDF-WAC limits or compressed gases.

### B7-1b(9) Noncompliant Waste Identified During Waste Examination

If during waste examination at a generator/storage site, the Permittees identify noncompliant waste (i.e., the waste does not match the waste stream description documented in the WSPF or there are liquids in excess of TSDF-WAC limits or compressed gases) the waste will not be shipped. Shipments of the affected waste stream will be suspended and will not resume until discrepancies have been satisfactorily resolved.

If during waste examination and verification at WIPP the Permittees identify noncompliant waste, the Permittees will determine if this constitutes a manifest discrepancy and, if so, comply with the manifest discrepancy reporting requirements of Section B7-1b(1). When discrepancies relative to waste form or prohibited items cannot be resolved with the generator/storage sites, the entire shipment or the non-conforming portion of the shipment, will be returned to a generator/storage site or another off-site facility. The Permittees will suspend further shipments of the affected waste stream and issue a CAR to the

generator/storage site. Shipments of the affected waste stream shall not resume until the CAR has been closed. The NMED will be notified within 24 hours of any suspension of waste stream shipments due to the identification of nonconforming waste during waste examination. The Permittees may, at their discretion, continue to examine all containers in the waste stream shipment and dispose of the conforming containers.

As part of the corrective action plan in response to the CAR, the generator/storage site will evaluate whether the waste analysis documented in the Waste Analysis Information Summary and/or WSPF for the waste stream must be updated because the results of waste examination for the waste stream indicated that the TRU waste being examined did not match the waste stream description. If the Waste Analysis Information Summary and/or WSPF requires revision, shipments of the affected waste stream shall not resume until the revised waste stream waste analysis information has been reviewed and approved by the Permittees. Waste streams that have discrepancies that cannot be resolved will be returned to a generator/storage site. Repeated nonconformances by a site in implementing and documenting WAP requirements (Permit Attachment B) will result in the termination of storage or disposal of the site's waste, waste stream(s), or summary category group(s), as applicable. Management, storage, or disposal of the subject waste summary category at WIPP will not resume until the Permittees find that all corrective actions have been implemented and the site complies with all applicable requirements of the WAP.

#### M1-1a Containers with Residual Liquids

The Permit Treatment, Storage, and Disposal Facility (TSDF) Waste Acceptance Criteria (WAC) and the Waste Analysis Plan (Permit Attachment B) prohibit the shipment of liquid waste to the WIPP. This prohibition is enforced as a maximum residual liquids requirement. In no case shall the total liquid equal or exceed one volume percent of the waste container (e.g., drum or standard waste box [SWB], or canister). Since the maximum amount of liquid is one percent, calculations made to determine the secondary containment as required by 20.4.1.500 NMAC (incorporating §264.175) are based on ten percent of one percent of the volume of the containers, or one percent of the largest container, whichever is greater. Any container which, through verification and examination, is identified as containing total liquids present that are equal to or greater than one volume percent of the waste container will be tagged as a non-conforming container and placed in an appropriate location until returned to a generator/storage site or sent off-site for remediation.

#### M1-1d(2), CH TRU Mixed Waste Handling

Waste stream shipments may not be disposed until the verification and examination data are approved in accordance with Attachment B7 of this HWFP.

If the verification and examination results are not approved the following options are available:

- Verify and examine all other containers within that shipment.
- The Contact-Handled Package can be returned to a generator/storage site for remediation of the container. Such waste would have to be re-approved prior to shipment to the WIPP.
- Shipment to another off-site facility for management. If the site wishes to return the waste to WIPP, the waste will have to meet the generator/storage site's waste analysis requirements in accordance with the HWEP WAP.

### **ISSUE OF CONCERN NO. 3**

NMED's audit role is not clear.

#### **Response:**

The revised PMR does not change the traditional role of NMED with regard to generator/storage site audits. This role is defined in Permit Condition II.C.2 and Attachment B7-1a(1) of the revised PMR. In accordance with these provisions, NMED will be provided the opportunity to observe any audit or surveillance that the Permittees conduct of generator/storage site activities, including the activities of the Central Characterization Project (CCP).

There are, however, two significant changes in the scope of the audit program:

1. With regard to CCP, in those cases where the CCP uses the same processes at different sites, the Permittees will conduct a single annual audit of the CCP program as opposed to annual audits at each site where the CCP operates. In those cases where the CCP is using different processes at different sites, for example on-line headspace gas sampling at some sites vs. direct canister sampling at others, both methods will be audited annually at a minimum of one site. This reduces unneeded duplication from the audit program. Acceptable knowledge collection and review processes will continue to be audited for each CCP site annually.
2. The Permittees will engage in waste examination activities, including radiography or the review of VE records in order to confirm that waste does not contain reactive, corrosive, or ignitable waste. These activities are subject to inspection by the NMED.

The records of these activities (e.g., radiography and/or VE video/audio recordings, radiography and/or VE data sheets, operator training records, and test drum examination video/audio recordings) will be placed in the operating record at the WIPP facility. The records will be available in the operating

record whether the activity is conducted at WIPP or at another off-site facility. NMED can inspect these records as specified in Permit Condition I.E.9 to determine if the Permittees' activities are compliant with the Permit. The Permittees do not object to the NMED observing the waste examination activities conducted by the Permittees outside the WIPP site.

#### **GUIDING PRINCIPLE NO. 1**

CH and RH TRU mixed wastes must be accurately characterized, including confirmatory characterization activities, and found acceptable before shipment from the generator/storage site to WIPP.

#### **Response:**

The Permittees agree that the waste must be accurately characterized by a generator/storage site. Pursuant to the PMR, the Permittees will conduct verification and examination activities at the WIPP site or at a generator/storage site after the Waste Stream Profile Form (**WSPF**) is approved. The PMR meets the regulatory requirements of 20.4.1.500 NMAC incorporating 40 CFR §264.13, consistent with Pub. L. 108-137, Section 311 (herein referenced as Section 311).

#### **GUIDING PRINCIPLE NO. 2**

The WIPP waste characterization process is required and defined by applicable RCRA regulations and the WIPP administrative record, in addition to Sections 310 and 311.

#### **Response:**

20.4.1.500 NMAC incorporating 40 CFR §264.13 sets forth the general requirements for waste analysis. The waste analysis requirements of §264.13 are implemented by the facility's written waste analysis plan, which "describes the procedures which [the facility] will carry out to comply with paragraph (a) of this section." Therefore, the specific requirements which WIPP must meet to comply with §264.13 are found in the WIPP waste analysis plan (**WAP**). Congress has the authority to amend, clarify, or change federal regulatory requirements as they pertain to a federal facility, such as WIPP. Once Congress has passed the legislation, as it did in Section 311 and Pub. L. 108-447 Section 310 (herein referenced as Section 310) and, that legislation becomes part of the federal requirements for the facility. Additionally, and separate from the requirements of Sections 311/310, the Permittees emphasize that the revised PMR meets the requirements for a Class 3 permit modification pursuant to 20.4.1.900 NMAC incorporating 40 CFR §270.42, which allows the Permittees to request changes to the HWFP, including changes to the waste analysis requirements set forth in the WAP, as long as the proposed changes meet the regulatory requirements. In requesting revisions to the WAP, the Permittees are

not bound by the existing administrative record. The administrative record is being modified by the PMR process.

The PMR integrates Section 311/310 statutory changes, existing regulatory requirements, and improvements in waste management activities identified during the past six years of WIPP disposal operations. The revised PMR responds to waste analysis requirements of 264.13 within the parameters set by Sections 311/310 and provides the Permittees with the information needed to store and dispose of TRU mixed waste at the WIPP facility. The proposed changes improve the waste management practices by tailoring the required waste analysis to the information needed to assign hazardous waste numbers (**HWNs**) and to meet the requirements of the treatment, storage, and disposal facility waste acceptance criteria (**TSDF-WAC**). The PMR, as revised in response to NMED's comments, proposes changes to the WAP that meet the regulatory requirements of the Resource Conservation and Recovery Act (**RCRA**) and are consistent with Sections 311/310.

### **GUIDING PRINCIPLE NO. 3**

The current waste characterization process in the WIPP permit is consistent with RCRA and the New Mexico Hazardous Waste Act. The Permittees must establish that their proposed changes both comply with applicable law and regulations and are supported by objective technical data.

#### **Response:**

The PMR and the following responses to the Notice of Deficiency (**NOD**) establish that the proposed changes comply with applicable law and regulations and are supported by objective technical data. Technical data have been provided to NMED throughout the process for this PMR.

### **NMED COMMENTS ON DEFINITIONS**

Clear, unambiguous definitions of key terms that will be used in the revised Permit are necessary for:

- Ensuring the Permittees' compliance with the Permit;
- Promoting consistent and fair Permit enforcement by NMED; and
- Fostering public understanding.

A term that is frequently employed in the Consolidated Response Document that NMED believes should be more precisely defined is acceptable knowledge (**AK**). Acceptable knowledge is the compilation of all relevant historical information on the waste into an auditable record. According to the definition of AK provided in the EPA guidance

referenced above, AK may consist of a variety of information sources including, but not limited to, the following:

- “Process knowledge,” whereby detailed information on the wastes is obtained from existing published or documented waste analysis data or studies conducted on hazardous wastes generated by processes similar to that which generated the waste;
- Waste analysis data obtained from facilities which send wastes off site for treatment, storage, or disposal (e.g., generators); and
- The facility’s records of analysis performed before the effective date of RCRA regulations.

The use of AK for characterization of CH TRU mixed wastes is summarized in *Improving the Characterization Program for Contact-Handled Transuranic Waste Bound for the Waste Isolation Pilot Plant* (2004, National Academy of Sciences):

*“The concept and use of AK is central to the characterization program for TRU waste because it determines the sampling and characterization regimen for the waste. The AK process delineates the waste stream. If the required elements cannot be documented in the AK summary, the waste must be treated as ‘newly generated waste’ according to DOE’s terminology. AK forms the basis against which the results of other characterization methods are compared. This process is termed ‘confirmation of AK.’ The characterization methods used to confirm AK include non-destructive assay, headspace gas sampling and analysis, radiography, visual examination and homogeneous solids sampling and analysis.”*

This use of the term AK is consistent with the NMED’s and EPA’s definition. The definition of AK does not include both historical and newly generated characterization information collected at the time of waste generation, packaging, and re-packaging. Using the same term for both historical and newly generated waste information is inappropriate due to the differences in the characterization approaches for CH and RH TRU wastes and is inconsistent with well-established definitions in the regulatory community and the WIPP administrative record. The majority of CH TRU waste will require some level of additional characterization beyond AK (e.g., using headspace gas sampling and analysis, radiography, visual examination and homogeneous solids sampling and analysis) while 95% of RH TRU wastes will be characterized during packaging or re-packaging.

The National Academy of Sciences Committee on the Characterization of Remote-Handled Transuranic Waste for the Waste Isolation Pilot Plant stated in their 2002 report:

*“The Committee recommends that DOE use a different term than AK for this newly generated information (during the packaging or re-packaging of RH TRU waste). Using AK for both historical and newly generated information is*

*potentially confusing because AK is generally associated with historical information, which requires some type of confirmation.” (Emphasis in original)*

The Permittees must clearly explain whether, and how, their definition of AK differs from that discussed above.

**Response:**

The HWFP and the PMR, Attachment B4, Page B4-1, Introduction state that the Permittees use of AK is rooted in the RCRA, the New Mexico Hazardous Waste Act (**HWA**), and the EPA Guidance referenced in the NOD. Attachment B4-1 states that AK “includes a number of techniques used to analyze transuranic mixed waste, such as process knowledge, records of analysis acquired prior to RCRA, and other supplemental sampling and analysis data.” (Citing to *Waste Analysis: EPA Guidance Manual For Facilities That Generate, Treat, Store, and Dispose Of Hazardous Waste* (EPA 1994)). The Permittees have maintained this definition in the revised PMR. This definition means that AK is not only historical data about the waste but also all relevant data known about the waste stream.

The NMED comment also addresses the use of AK information. The Permittees have expanded the use of AK information in the PMR to include assessing compliance with the TSDF-WAC and the estimation of material parameter weights (Attachment B-3b and Attachment B4-1 in the revised PMR). This expanded use may result in additional information being collected by the generator/storage site(s). For example, if the generator/storage site cannot provide documentation regarding prohibited items, additional information is needed in the AK record. As detailed in Attachment B-3c of the PMR, the generator/storage site may obtain this information by performing a brief, qualitative radiography scan of containers or VE of 100 percent of the waste.

In accordance with Attachment B-2 of the PMR, the Permittees will examine information related to the generator/storage site’s waste analysis process when the WSPF is reviewed. The Permittees will not require that all containers in the waste stream be analyzed prior to preparing the WSPF.

The PMR Attachment B4, Section B4-2b specifies the minimum written AK information that must be included in the AK record. This minimum information includes:

- Procedures for identifying and assigning the physical waste form of the waste
- Procedures for delineating waste streams and assigning Waste Matrix Codes
- Procedures for resolving inconsistencies in acceptable knowledge documentation
- Procedures for supplementing acceptable knowledge information through headspace gas sampling and analysis, visual examination and/or radiography, and homogeneous waste sampling and analysis
- Procedures describing management controls used to ensure prohibited items (specified in the WAP, Permit Attachment B, TSDF-WAC) are documented and managed

The processes that a generator/storage site uses for packaging RH TRU mixed waste will be reviewed in the same manner as other waste analysis processes and the information provided will be examined to determine if it is adequate for meeting the data quality objectives established for AK information in Attachment B-3b of the PMR.

The Permittees believe that information produced by the generator/storage sites in order to profile their waste is AK information under the HWFP and in the PMR. Introducing a new term for information produced by the generator/storage sites after some unspecified date would provide no improvement in the protection of human health and the environment.

#### **GENERAL COMMENT NO. 1**

The Consolidated Response Document includes an extensive response to the previous NOD comments. NMED provides no commentary as to the adequacy of any responses, except for those explicitly referenced and discussed in this NOD.

#### **Response:**

No response required.

#### **GENERAL COMMENT NO. 2**

The Permittees have eliminated the term “manage” throughout the Permit as it relates to their responsibilities to store and dispose of hazardous wastes. However, 40 CFR §264.1(a) relating to TSD facility standards states as follows:

“The purpose of this part is to establish minimum national standards which define the acceptable management of hazardous waste”

Therefore, “manage” and “management” are appropriate terms for the permit. The Permittees’ must explain why the term “manage” was removed from the proposed permit throughout the Permit modules and attachments.

#### **Response:**

The Permittees agree that the permit provides for the acceptable management of hazardous waste and as such agree that the term should not have been deleted from Permit Condition I.A. However, the Permittees maintain that it is correct to delete it from certain portions of the HWFP such as in Permit Condition II.C.1.

## Proposed Revised Permit Text:

**manage**, indicates removal of the strike out of “manage” in all instances below.

### Module I.A. EFFECT OF PERMIT

The Secretary of the New Mexico Environment Department (**Secretary**) issues this Permit to the United States Department of Energy (**DOE**), the owner and co-operator of the Waste Isolation Pilot Plant (**WIPP**) (EPA I.D. Number NM4890139088), and Washington TRU Solutions LLC, Management and Operating Contractor (**MOC**), the co-operator of WIPP. This Permit authorizes DOE and MOC (**the Permittees**) to **manage**, store, and dispose contact-handled (**CH**) and remote-handled (**RH**) transuranic (**TRU**) mixed waste at WIPP, and establishes the general and specific standards for these activities, pursuant to the New Mexico Hazardous Waste Act (**HWA**), NMSA 1978, §§74-4-1 et. seq. (Repl. Pamp. 1993) and the New Mexico Hazardous Waste Regulations, 20.4.1.100 NMAC et. seq.

### Module III.B.1. Permitted Waste

The Permittees may store **and manage** TRU mixed waste in the WHB Unit and Parking Area Unit, provided the Permittees comply with the following conditions:

### Module III.B.2. Prohibited Waste

The Permittees shall not store **or manage** any TRU mixed waste that fails to comply with Permit Condition III.B.1

**manage**, indicates the word “manage” has been removed

### Attachment B, Introduction and Attachment Highlights

This waste analysis plan (**WAP**) has been prepared for management, storage, or disposal activities to be conducted at the Waste Isolation Pilot Plant (**WIPP**) facility to meet requirements set forth in 20.4.1.500 NMAC (incorporating 40 CFR §264.13). Guidance in the most recent U.S. Environmental Protection Agency (**EPA**) manual on waste analysis has been incorporated into the preparation of this WAP (EPA, 1994). This WAP includes test methods, **and** details of planned waste sampling and analysis **for complying with the general waste analysis requirements of the WIPP Hazardous Waste Facility Permit (HWFP), 20.4.1.500 NMAC (incorporating 40 CFR §264.13), Section 311(a) of Public Law (Pub. L.) 108-137 and Section 310(a) of Pub. L.108-447. The WAP also includes a description of the quality assurance (QA)/quality control (QC) program,** a description of the waste shipment screening and verification process, and a description of the quality assurance (QA)/quality control (QC) program. Before the Permittees **manage**, store or dispose transuranic (**TRU**) mixed waste from a generator/storage site (**site**), the Permittees shall require that site to implement the applicable requirements of this WAP.

### GENERAL COMMENT NO. 3

The proposed waste analysis process includes a determination of AK sufficiency by NMED following an AK sufficiency determination by the Permittees. It is the Permittees' responsibility to determine whether waste analysis or characterization is acceptable; NMED shall evaluate whether the *approval* made by the Permittees appears adequate. The Permittees must ensure this procedure is reflected in the PMR.

#### Response:

The Permittees agree. Several changes have been made to the revised permit text to reflect the NMED determination of the adequacy of the Permittees provisional approval of an AK sufficiency request.

#### Proposed Revised Permit Text:

Attachment B, Introduction and Attachment Highlights:

The generator/storage sites shall analyze their waste in accordance with this attachment and relevant provisions of Permit Attachment B1 Waste Analysis Sampling Methods, Permit Attachment B2 Statistical Methods Used in Sampling and Analysis, Permit Attachment B3 Quality Assurance Objectives and Data Validation Techniques for Waste Analysis Methods, and Attachment B4 TRU Mixed Waste Analysis Using Acceptable Knowledge, and assure that waste proposed for storage and disposal at WIPP meets the TSDF-WAC (Permit Conditions II.C.3.a. through II.C.3.h). The generator/storage site shall assemble the Acceptable Knowledge (AK) information into an auditable record<sup>1</sup> for the waste stream as described in Permit Attachment B4. For those waste streams with a NMED-an approved AK Sufficiency Determination, sampling and analysis per the methods described in Permit Attachments B1 and B2 are not required.

For those waste streams that have sufficient AK information to assign EPA hazardous waste numbers, the generator/storage sites may submit a request to the Permittees for an AK Sufficiency Determination. The request will include an AK Summary Report and address the following required items:

1. Mandatory AK information is available (Permit Attachment B4-2a and B4-2b);
2. A waste stream has been properly delineated and meets the HWFP definition of a waste stream (Permit Attachment B4-2b and B-1a);

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<sup>1</sup> "Auditable records" mean those records which allow the Permittees to conduct a systematic assessment, analysis, and evaluation of the Permittees compliance with the WAP and this Permit.

3. The AK process described in the HWFP was followed (for example, AK personnel were appropriately trained; discrepancies in the AK record were documented and resolved) (Permit Attachment B4-3a);
4. The generator/storage site has developed a written procedure for compiling the AK information and assigning hazardous waste numbers as required by Permit Attachment B4-3b;
5. The generator/storage site has assessed the AK process (Permit Attachment B4-3b);
6. The generator/storage site has documented evidence that the waste meets the TSDF-WAC (Permit Conditions II.C.3.a. through II.C.3.h).

The Permittees will review the request, resolve comments with the generator/storage site and if the Permittees determine that the AK is sufficient, they will provisionally approve the request and may forward the request to NMED for an evaluation that the provisional approval made by the Permittees is adequate. an AK Sufficiency Determination Based on the results of the NMED's determination evaluation, the Permittees will notify the generator/storage sites whether the AK information is sufficient. The Permittees will not approve an AK Sufficiency Determination that the NMED has determined to be inadequate unless the generator/storage site resolves the inadequacies.

If the NMED determines that the AK is insufficient-Permittees provisional approval is inadequate or if the Permittees do not submit—approve an AK Sufficiency Determination request, then sampling and analysis per the methods described in Permit Attachments B1 and B2 is required to resolve the assignment of EPA hazardous waste numbers. The generator/storage site shall perform sampling and analysis on a representative sample of the waste stream using headspace gas sampling and analysis for debris waste and solids sampling and analysis for homogeneous solid or soil/gravel waste streams.

After a complete AK record has been compiled and an AK Sufficiency Determination has been approved by NMED-the Permittees or the generator/storage site has completed the required AK elements in accordance with Permit Attachment B4 and the applicable representative sampling and analysis requirements in accordance with Permit Attachments B1 and B2, the generator/storage site will complete a Waste Stream Profile Form (WSPF) and Waste Analysis Information Summary. The requirements for the completion of a WSPF and a Waste Analysis Information Summary are defined in Permit Attachment B3, Sections B3-11b(1) and B3-11b(2) respectively.

Attachment B, Section B-3a(1), Headspace Gas Sampling and Analysis

Representative headspace gas sampling and analysis shall be used by generator/storage sites to determine the types and concentrations of VOCs in the void volume of randomly selected waste containers in order to resolve the assignment of EPA hazardous waste numbers for those debris waste streams for which an AK Sufficiency Determination has not been approved by NMED or for which the Permittees do not request approval of an AK Sufficiency Determination request.

Attachment B, Section B-3a(2), Homogeneous and Soil/Gravel Waste Sampling and Analysis

Representative homogeneous and soil/gravel waste sampling and analysis shall be used by generator/storage sites to resolve the assignment of EPA hazardous waste numbers for homogeneous and soil/gravel waste streams for those waste streams for which an AK Sufficiency Determination has not been approved by NMED or for which the Permittees do not request approval of an AK Sufficiency Determination.

Attachment B, Section B-3d: Waste Analysis Techniques and Frequency for Newly Generated and Retrievably Stored Waste

~~With the exception of qualifying LANL sealed sources waste containers, all waste containers (retrievably stored and newly generated) or randomly selected~~ For debris waste streams that do not have a NMED an approved AK Sufficiency Determination or for which the Permittees do not request approval of an AK Sufficiency Determination, containers selected in accordance with Permit Attachment B2 from those waste streams ~~that meet the conditions for reduced headspace gas sampling listed in Section B-3a(1) are~~ must be sampled and analyzed for VOCs in the headspace gas. ~~The LANL sealed sources waste containers that meet specified conditions must be assigned VOC concentration values in accordance with Section B-3a(1)(iii).~~ Likewise, a statistically selected portion of ~~each~~ homogeneous solids and soil/gravel waste streams is must be sampled and analyzed for RCRA-regulated total VOCs, SVOCs, and metals (see Permit Attachment B2) when those waste streams do not have a NMED an approved AK Sufficiency Determination or the Permittees do not request approval of an AK Sufficiency Determination. Sampling and analysis methods used for waste analysis ~~characterization~~ are discussed in Section B-3a.

Attachment B, Section B-3d(1)(a), Sampling of Newly Generated Homogeneous Solids and Soil/Gravel

When an AK Sufficiency Determination has not been approved by NMED or the Permittees do not request approval of an AK Sufficiency Determination, sampling and analysis of newly generated homogeneous solids and soil/gravel shall be

conducted in accordance with the requirements delineated in Permit Attachment B1, Section B1-2. The number of newly generated homogeneous solid and soil/gravel waste containers to be sampled will be determined using the procedure specified in Section B2-1, wherein a statistically selected portion of the waste will be sampled.

#### Attachment B1, Section B1-1a, Method Requirements

The Permittees shall require all headspace-gas sampling be performed in an appropriate radiation containment area on waste containers that are in compliance with the container equilibrium requirements (i.e., 72 hours at 18° C or higher).

#### ~~B1-1a(1) Summary Category S5000 Requirements~~

~~With the exception of qualifying LANL sealed sources waste containers, all waste containers of r~~ For those waste streams without an AK Sufficiency Determination approved by NMED or for which the Permittees have not requested approval of an AK Sufficiency Determination, containers shall be randomly selected containers from waste streams that meet the conditions for reduced headspace gas sampling listed in Permit Attachment B, Section B-3a(1), designated as summary category S5000 (Debris waste) and shall be categorized under one of the sampling scenarios shown in Table B1-5 and depicted in Figure B1-1. ~~The LANL sealed sources waste containers that meet specified conditions must be assigned VOC concentration values in accordance with Section B-3a(1)(iii).~~ If the container is categorized under Scenario 1, the applicable drum age criteria (DAC) from Table B1-6 must be met prior to headspace gas sampling. If the container is categorized under Scenario 2, the applicable Scenario 1 DAC from Table B1-6 must be met prior to venting the container and then the applicable Scenario 2 DAC from Table B1-7 must be met after venting the container. The DAC for Scenario 2 containers that contain filters or rigid liner vent holes other than those listed in Table B1-7 shall be determined using footnotes “a” and “b” in Table B1-7. Containers that have not met the Scenario 1 DAC at the time of venting must be categorized under Scenario 3. Containers categorized under Scenario 3 must be placed into one of the Packaging Configuration Groups listed in Table B1-8. If a specific packaging configuration cannot be determined based on the data collected during packaging and/or repackaging (Attachment B, Section B-3(d)(1)), a conservative default Packaging Configuration Group of 3 for 55-gallon drums, 6 for Standard Waste Boxes (SWBs) and ten-drum overpacks (TDOPs), and 8 for 85-gallon and 100-gallon drums must be assigned, provided the drums do not contain pipe component packaging. If a container is designated as Packaging Configuration Group 4 (i.e., a pipe component), the headspace gas sample must be taken from the pipe component headspace. Drums, TDOPs, or SWBs that contain compacted 55-gallon drums containing a rigid liner may not be disposed of under any packaging configuration unless headspace gas sampling was performed before compaction in accordance with this WAP. The DAC for Scenario 3 containers that contain rigid liner vent holes that are undocumented during packaging

~~(Attachment B, Section B-3(d)1), repackaging (Attachment B, Section B-3(d)1), and/or venting (Section B1-1a[64][ii]) shall be determined using the default conditions in footnote “b” in Table B1-9. The DAC for Scenario 3 containers that contain filters that are either undocumented or are other than those listed in Table B1-9 shall be determined using footnote ‘a’ in Table B1-9. Each of the Scenario 3 containers shall be sampled for headspace gas after waiting the DAC in Table B1-9 based on its packaging configuration (note: Packaging Configuration Groups 4, 5, 6, 7, and 8 are not summary category group dependent, and 85-gallon drum, 100-gallon drum, SWB, and TDOP requirements apply when the 85-gallon drum, 100-gallon drum, SWB, or TDOP is used for the direct loading of waste).~~

#### Attachment B1, Section B1-2 Sampling of Homogeneous Solids and Soil/Gravel (Summary Categories S3000/S4000)

For those waste streams without an AK Sufficiency Determination approved by NMED or for which the Permittees have not requested approval of an AK Sufficiency Determination, randomly selected containers of homogeneous solid and/or soil/gravel waste streams (S3000/S4000) shall be sampled and analyzed to resolve the assignment of EPA hazardous waste numbers. For example, analytical results may be useful to resolve uncertainty regarding hazardous constituents used in a process that generated the waste stream when the hazardous constituents are not documented in the acceptable knowledge information for the waste.

#### Attachment B2, Introduction

The Permittees shall require generator/storage sites (**sites**) to use the following statistical methods for sampling and analysis of TRU mixed waste which is managed, stored, or disposed at WIPP, unless determined unnecessary by the New Mexico Environmental Department (NMED) Permittees as a result of an Acceptable Knowledge (AK) Sufficiency Determination. These statistical methods include methods for ~~selecting waste containers for visual inspection,~~ selecting ~~retrievably stored~~ waste containers for totals analysis, selecting waste containers for headspace gas sampling and analysis, and setting the upper confidence limit. ~~and control charting for newly generated waste stream sampling~~

#### Attachment B4, Section B4-2c, Supplemental Acceptable Knowledge Information

AK Documentation shall also include but shall not be limited to, as available and as necessary to determine the hazardous constituents associated with sealed sources, the following: source manufacturer’s sales catalogues, original purchase records, source manufacturer’s fabrication documents, source manufacturer’s drawings, source manufacturer’s fuel capture assembly reports, source manufacturer’s operational procedures for cleanliness requirements, source manufacturer’s shipping documents, source manufacturer’s welding records, transuranic batch material records, and information from national databases (e.g.,

NMMSS). All of this information may not and need not be available for each source, but sufficient information must be included in the auditable record to derive an adequate understanding of source construction and history to ensure that no VOCs are present in association with the sealed source itself that would render the source hazardous. If AK data indicate that assignment of a hazardous waste number related to organic materials is required in association with a source, this specific source will be assigned to a separate waste stream and that waste stream will be subject to representative headspace gas sampling unless a separate AK Sufficiency Determination is approved by NMED the Permittees for the waste stream.

#### Attachment B4, Section B4-3d, Requirements for Re-evaluating Acceptable Knowledge Information

The Permittees shall require sites to use acceptable knowledge to identify spent solvents associated with each TRU mixed waste stream or waste stream lot. Headspace-gas data will ~~then~~ be used to ~~confirm~~ resolve the assignment EPA F-listed hazardous waste numbers to debris waste streams when waste streams do not have an AK Sufficiency Determination approved by NMED or for which the Permittees do not request approval of an AK Sufficiency Determination. acceptable knowledge concerning the presence or absence of F-listed solvents and concentration of applicable toxicity characteristic solvents.

EPA H hazardous waste numbers associated with S3000 and S4000 waste streams will be ~~verified~~ assigned based on the results of the total/TCLP analysis of a representative homogeneous waste sample when waste streams do not have an AK Sufficiency Determination approved by NMED or for which the Permittees do not request an AK Sufficiency Determination. If discrepancies between the results obtained from homogeneous waste sampling and analysis and headspace-gas sampling and analysis exist (i.e., a VOC is detected in the solidified waste but not in the headspace), the most conservative results will be used to verify acceptable knowledge and assign hazardous waste codes, as applicable.

#### Attachment B6, Item 20, General Sampling and Analytical Requirements

Are procedures in place to ensure that headspace gas sampling and analysis shall be used to:

- Determine the types and concentrations of VOCs in the void volume of waste containers to resolve the assignment of EPA hazardous waste numbers for those debris waste streams that do not have a NMED a Permittee approved AK Sufficiency Determination
- ~~Ensure that there are no adverse worker or public health impacts~~
- ~~VOC constituents shall be compared to those assigned by Acceptable Knowledge and assign hazardous waste codes as warranted (Section B-3a(1))~~

Attachment B6, Item 23, General Sampling and Analytical Requirements

Are procedures in place to ensure that a randomly selected set of samples will be collected through core sampling or other EPA approved representative methods from the population of waste containers for homogeneous and soil/gravel waste streams that do not have a NMED Permittee approved AK Sufficiency Determination? Are procedures in place that a sufficient number of samples are collected to evaluate the toxicity characteristic of a waste stream at a 90 percent Upper Confidence limit as specified in Attachment B2? (Section B-3a(2))

Attachment B6, Item 27, General Sampling and Analytical Requirements

Are procedures in place to ensure that the following ~~characterization~~ waste analysis activities shall occur for newly generated wastes:

- Acceptable Knowledge for all wastes, ~~with confirmatory:~~
- ~~Either visual examination during packaging or radiography (or VE in lieu of radiography) after packaging for all waste containers, ensuring this occurs prior to any treatment designed to supercompact waste~~
- Headspace gas analysis for all waste containers or randomly selected containers from waste streams that meet the conditions for reduced headspace gas sampling listed in Section B-3a(1), except for qualifying waste containers belonging to LANL sealed sources waste streams as specified in Section B-3a(1)(iii) debris waste streams that do not have a NMED Permittee approved AK Sufficiency Determination
- Total VOC, SVOC, and Metals analyses for a selected number of homogeneous solids and soil/gravel waste containers ~~for control charting purposes (annually thereafter)~~, as specified in Attachment B2 for those homogeneous solid and soil/gravel waste streams that do not have a NMED Permittee approved AK Sufficiency Determination.
- Evaluation of any TICs found in headspace gas and totals analyses (Section B-3d(1))

Attachment B6, Item 28, General Sampling and Analytical Requirements

Are procedures in place to ensure that the following ~~characterization~~ waste analysis activities shall occur for retrievably stored wastes:

- Acceptable Knowledge for all wastes, ~~with confirmatory:~~
- ~~Visual examination or radiography for all waste containers~~
- ~~Confirmatory visual examination of a statistically determined number of waste containers as specified in Attachment B2 (when radiography is performed)~~
- Headspace gas analysis for all waste containers or randomly selected containers from debris waste streams that meet the conditions for reduced headspace gas sampling listed in Section B-3a(1), except for

~~qualifying waste containers belonging to LANL sealed sources waste streams as specified in Section B-3a(1)(iii) do not have a NMED Permittee approved AK Sufficient Determination.~~

- Total VOC, SVOC, and Metals analyses for a statistically selected number of homogeneous solids and soil/gravel waste containers as specified in Attachment B2 (containers opened for sampling may be used to fulfill the visual examination requirements) for those waste streams that do not have a NMED Permittee approved AK Sufficiency Determination
- Evaluation of any TICs found in headspace gas and totals analyses (Section B-3d(2))

#### Attachment B6, Item 29, General Sampling and Analytical Requirements

Are procedures in place to ensure that the following ~~characterization~~ waste analysis activities shall occur for repackaged waste:

- ~~Acceptable Knowledge, with confirmatory:~~
- ~~Either visual examination during repackaging or radiography (or VE in lieu of radiography) after repackaging for all waste containers, ensuring this occurs prior to any treatment designed to supercompact waste~~
- ~~Headspace gas analysis for all waste containers or randomly selected containers from debris waste streams that meet the conditions for reduced headspace gas sampling listed in Section B-3a(1), except for qualifying waste containers belonging to LANL sealed sources waste streams as specified in Section B-3a(1)(iii) do not have a NMED Permittee approved AK Sufficiency Determination~~
- ~~Total VOC, SVOC, and Metals analyses following either the retrievably stored or newly generated waste characterization process, whichever results in greater sampling requirements, unless it is demonstrated that control charting cannot be applied effectively for homogeneous solid and soil/gravel waste streams that do not have a NMED Permittee approved AK Sufficiency Determination~~
- Evaluation of any TICs found in headspace gas and totals analyses (Section B-3d, B-3d(1))

#### Attachment B6, Item 145a

~~For waste containers that belong to LANL sealed sources waste streams and meet the criteria of Section B-3a(1)(iii) are there procedures in place to assure the collection of the following supplemental AK?:~~

- Documentation that the waste container contents meet the definition of sealed sources per 10 CFR §30.4 and 10 CFR §835.2 (effective January 1, 2004)

- Documentation of the certification of the sealed sources as U.S. Department of Transportation Special Form Class 7 (Radioactive) Material per 49 CFR §173.403 (effective October 1, 2003)
- Documentation of contamination survey results that validate the integrity of each sealed source per 10 CFR §34.27 (effective January 1, 2004).
- AK documentation does not indicate the use of VOCs or VOC-bearing materials as constituents of the sealed sources.
- The outer casing of each sealed source must be of a non-VOC bearing material, which must be verified using the VE technique at the time of packaging.
- Documentation that includes but is not limited to, as available and as necessary to determine the hazardous constituents associated with sealed sources, the following: source manufacturer's sales catalogues, original purchase records, source manufacturer's fabrication documents, source manufacturer's drawings, source manufacturer's fuel capture assembly reports, source manufacturer's operational procedures for cleanliness requirements, source manufacturer's shipping documents, source manufacturer's welding records, transuranic batch material records, and information from national databases (e.g., NMMSS). All of this information may not and need not be available for each source, but sufficient information must be included in the auditable record to derive an adequate understanding of source construction and history to ensure that no VOCs are present in association with the sealed source itself that would render the source hazardous. If AK data indicate that assignment of a hazardous waste number related to organic materials is required in association with a source, this specific source will be assigned to a separate waste stream and that waste stream will be subject to representative headspace gas sampling unless a separate AK Sufficiency Determination is approved by NMED the Permittees for the waste stream. (Section B4-2c)

Attachment B7, Section B7-1a(3), Examination of Waste Stream Profile Form and Container Data Checks

For those waste streams that have sufficient AK information to assign EPA hazardous waste numbers the generator/storage sites may submit a request to the Permittees for an AK Sufficiency Determination.

The request will include an AK Summary Report that addresses the following required items:

1. Mandatory AK information is available (Permit Attachment B4-2a and B4-2b);
2. A waste stream has been properly delineated and meets the HWFP definition of a waste stream (Permit Attachment B4-2b and B-1a);

3. The AK process described in the HWFP was followed (for example, AK personnel were appropriately trained; discrepancies in the AK record were documented and resolved (Permit Attachment B4-3a);
4. The generator/storage site has developed a written procedure for compiling the AK information and assigning hazardous waste numbers as required by Permit Attachment B4-3b;
5. The generator/storage site has assessed the AK process (Permit Attachment B4-3b);
6. The generator/storage site has documented evidence that the waste meets the TSDF-WAC (Permit Condition II.C.3.a through II.C.3.h).

The Permittees will review the request, resolve comments with the generator/storage site and if the Permittees determine that the AK is sufficient, they may will provisionally approve the request and forward the request to NMED for an evaluation that the provisional approval made by the Permittees is adequate. ~~AK Sufficiency Determination.~~ Based on the results of the NMED's evaluation, ~~determination,~~ the Permittees will notify the generator/storage sites whether the AK information is sufficient. ~~The Permittees will not approve an AK Sufficiency Determination that the NMED has determined to be inadequate unless the generator/storage site resolves the inadequacies.~~ If the AK information is not sufficient the Permittees will require the generator/storage site to perform sampling and analysis per Permit Attachment B2 and Figure B2-1. In lieu of requesting an AK Sufficiency Determination, the generator/storage site may decide to perform sampling and analysis in accordance with Permit Attachment B2 and Figure B2-1. After a complete AK record has been compiled, the generator/storage site will complete a WSPF and Waste Analysis Information Summary. The Waste Analysis Information Summary will include an AK Summary Report. The assignment of the waste stream description, Waste Matrix Code Group, and Summary Category Groups; the results of waste analyses; the acceptable knowledge summary documentation; the methods used for waste analysis; the Carlsbad Field Office (CBFO) certification, and appropriate designation of EPA hazardous waste number(s) will be examined. If the WSPF is inaccurate, efforts will be made to resolve inaccuracies by contacting the generator/storage site in order for the waste stream to be eligible for shipment to the WIPP facility. The WSPF check against waste container data will occur during the initial WSPF approval process.

#### Attachment B7, Figure B7-2, Waste Stream Approval Process

- Block 4, Change Figure 2 to Figure B7-6
- Block 13, Change the “Ok?” to “Provisional Approval?”
- Block 14, Change to read “Submit Request for NMED to Evaluate Permittees’ Provisional Approval of AK Sufficiency Determination”

- Block 15 Change to read “NMED Determines Permittees’ Provisional Approval is Adequate
- Block 15a “Permittees Approve AK Sufficiency Determination”

The revised Figure is included in Attachment A to this response.

#### **TECHNICAL COMMENT NO. 1a**

Process flow diagram *Figure 1, Waste Stream Approval Process*, appears in the introduction of the Consolidated Response Document narrative. Since this figure is not provided as part of the permit modification or part of the permit attachments, it is not subject to NMED action on the Permit. This figure should be incorporated into Attachment B7, so that the figure is part of the actual permit.

#### **Response:**

Figure 1 is the same figure as Figure B7-2.

#### **TECHNICAL COMMENT NO. 1b**

In addition, Figure 1 implies that sites have the option of deciding whether to pursue the AK sufficiency determination vs. reduced sampling and analysis route, but language in the text of the PMR implies that the reduced sampling and analysis route will only be an option once an AK sufficiency determination is denied. The Permittees should resolve this inconsistency.

#### **Response:**

The text in the first paragraph in Section B7-1a(3) requires the generator/storage site to perform sampling and analysis in accordance with the WAP. The text in the second paragraph explains that if the generator site believes that sufficient AK is available, they may request an AK Sufficiency Determination and not perform sampling and analysis. This discussion references the process diagram in Figure B7-2 (same as Figure 1 in the Introduction section of Permittees’ June, 2005 Consolidated Response Document). The text and the diagram make it clear that sampling and analysis are needed under both sets of circumstances (i.e., when the generator/storage site does not have sufficient AK information or when an AK Sufficiency Determination request is rejected by the Permittees).

#### **TECHNICAL COMMENT NO. 1c**

The figure should also provide another box after the “reject WSPF” box that indicates what the next action is regarding the rejected waste/form. NMED assumes that Figure 1

is a correct representation of the proposed process, assuming that it can be revised to indicate what will take place when a rejection of a WSPF or any other type of rejection is adequately portrayed.

**Response:**

Figure 1 is consistent with the text in Section B7-1a. That is, if the differences and discrepancies identified by the Permittees during review of a WSPF cannot be resolved adequately by the generator, the WSPF and the waste stream are rejected and cannot be shipped to WIPP. That is why the “Reject WSPF” block is a terminal block. Such rejections would only occur if the generator cannot identify methods to resolve the Permittees concerns with the waste stream. If, after rejection of the WSPF, the generator decides that remediation of the waste stream is possible in order to make it WIPP acceptable, a new profile will be needed after remediation. Therefore, the Permittees have not incorporated the proposed change.

**TECHNICAL COMMENT NO. 2**

In the event that NMED does not concur with the Permittees’ AK sufficiency determination (e.g., due to the inability of AK to determine the presence of prohibited items, waste material parameter weight estimates, other permit requirements that cannot be evaluated by headspace gas or solid sampling, etc.), the sampling and analysis route in Figure 1 includes no way to evaluate the waste for these deficiencies. The process also does not appear to explicitly allow the waste to undergo any other data acquisition processes (e.g., a brief, qualitative radiography scan of drums, etc.) that could quickly and cost effectively resolve the issue. The Permittees should modify the processes accordingly, and provide explanation.

**Response:**

There are actually three opportunities to obtain the needed information from the generator/storage site. First, when the generator/storage site compiles the AK record in Box 3 of Figure B7-2, the expectation is that all the requisite information will be provided to the Permittees. Second, if the Permittees do not believe the request for an AK Sufficiency Determination is complete or if the NMED does not agree with the Permittees provisional approval of an AK sufficiency request, the Permittees will require the generator/storage site to provide the requisite information, update the AK record (Box 5), and proceed with preparing the WSPF. Third, if the information provided with the WSPF is incomplete, the Permittees will require the generator/storage site to provide the needed information (Box 8), or the WSPF will be rejected. The expectation is that in all cases, the Permittees or the NMED will provide definitive information regarding the missing information.

Sufficient enforceable conditions are already proposed in the PMR to assure that the information supplied with the WSPF for approval by the Permittees is accurate and

complete. See for example the Data Quality Objectives in Attachment B-4a(1); the Quality Assurance Objectives in Attachment B-4a(2); the data reconciliation requirements in Attachment B3-9; and the waste screening and verification in Attachment B7-1. In cases where the AK record does not substantiate the absence of prohibited items, Attachment B-3c requires that the generator site perform a brief, qualitative radiography scan of containers or VE on 100 percent of the containers in the waste stream. Although this brief, qualitative radiography scan of containers or VE is not required to be performed in accordance with the methods in the Permit, these activities are part of the administrative control procedures required by Permit Attachment B4-3b and will be subject to audit in accordance with Permit Attachment B4-3f which requires that, "Auditors will verify and document that sites use administrative controls and follow written procedures to analyze hazardous waste for newly-generated and retrievably stored wastes."

### **TECHNICAL COMMENT NO. 3**

The process described does not include a non-destructive examination process that a site may implement as part of the sampling and analysis approach. Justify this omission or revise the PMR to include some process as part of the sampling pathway whereby a generator site can evaluate their waste for items that cannot be detected by headspace gas or solid sampling.

#### **Response:**

See the response to Technical Comment 2. Because the determination of the best time and place for this type of activities is the responsibility of the generator/storage site, the Permittees have not specified at what point in the waste analysis process the generator/storage site must perform non-destructive examination if such examination is required to complete the waste stream analysis activities. When methods such as brief, qualitative radiography scans of containers are used as part of the generator/storage sites waste certification program, they are subject to evaluation by the Permittees during review and approval of the WSPF and during audits of the generator/storage site, as detailed in Attachment B-2 and B4-3f.

### **TECHNICAL COMMENT NO. 4**

Process flow diagram *Figure 2, Approach for Solid and Headspace Gas Sampling and Analysis to Obtain Supplemental Waste Analysis Information*, also appears in the introduction of the Consolidated Response Document narrative. This figure should be incorporated into Attachment B7, so that the figure is part of the actual permit.

**Response:**

The Permittees agree and have added Figure B7-6, Approach for Solid and Headspace Gas Sampling and Analysis to Obtain Supplemental Waste Analysis Information.

**Proposed Revised Permit Text:**

The following revisions were made

B7-1a(3), Examination of Waste Stream Profile Form and Container Data Checks

The Permittees are responsible for verifying the completeness and accuracy of the WSPF (Permit Attachment B3, Section B3-11b(1)). Figure B7-2 presents the Permittees waste stream approval process. The generator/storage sites shall analyze their waste in accordance with the requirements of Permit Attachment B, Waste Analysis Plan, Permit Attachment B1 Waste Analysis Sampling Methods, Attachment B2 Statistical Methods Used in Sampling and Analysis, and Attachment B4 TRU Mixed Waste Analysis Using Acceptable Knowledge, and assure that waste proposed for storage and disposal at WIPP meets the Treatment, Storage, and Disposal Facility-Waste Acceptance Criteria (TSDF-WAC) (Permit Conditions II.C.3.a through II.C.3.h.). The generator/storage site shall assemble the AK information into an auditable record<sup>1</sup> for the waste stream as described in Permit Attachment B4. To resolve the assignment of EPA hazardous waste numbers, the generator/storage site shall perform sampling and analysis on a representative sample of the waste stream. Headspace gas sampling and analysis shall be performed on debris waste. Solids sampling and analysis shall be performed for homogeneous solid or soil/gravel waste streams. The sampling and analysis process is depicted in Figure B7-6.

Attachment B7, Figure B7-2, change “per Figure 2” in Box 4 to “per Figure B7-6”.

Attachment B7, **Add Figure B7-6**, *Approach for Solid and Headspace Gas Sampling and Analysis to Obtain Supplemental Waste Analysis Information*. This figure is included in Attachment A.

**TECHNICAL COMMENT NO. 5**

The footnote in Figure 2 states: “Samples are obtained from the first five (5) available random locations for solid sampling and the first ten (10) available random locations for headspace gas sampling.” Attachment B7, Figures B7-3, B7-4, and other associated Waste Analysis Plan Attachments do not state that samples will be taken from these locations. Clarify this issue, and modify as necessary the appropriate WAP Attachment.

**Response:**

The referenced statement applies to sampling and analysis and would not be appropriate for Figures B7-3 or B7-4 which detail the Permittees Verification and Examination Process. Because these are waste sampling conditions, they are found in Permit Attachment B2-1a and B2-1b. (See Permit condition II.C.1.c which requires all sampling be done in accordance with Permit Attachment B2.)

**TECHNICAL COMMENT NO. 6**

The Consolidated Response Document eliminates the requirement for headspace gas (HSG) sampling and analysis on S3000 and S4000 waste streams, even if the AK information is incomplete. HSG is still required for debris waste in this circumstance. The table listing Change and Explanation of Change for this portion of B1 states that the justification for this change is found in Section 1.2.1 of the Consolidated Response Document and Appendix 1 of the Section 311 NOD comment/response matrix. The referenced section of the Consolidated Response Document does not provide justification for this change, only that the change will be made. Appendix 1 of the Section 311 NOD comment/response matrix, Topic Headspace Gas Sampling and Analysis, again states that only S5000 waste will be subject to HSG but does not explain why S3000 and S4000 waste will not be. Affected sections of the Permit include but are not limited to:

- Attachment B1, Table B1-7, B1-8, and Table B1-10
- Attachment B-1, Section B1-a, *Method Requirements*, pages B1-1 to B1-2
- Attachment B, Section B-3(a)(1), *Headspace Gas Sampling and Analysis*, page B-13, last paragraph

Revise the PMR to justify the elimination of HSG sampling and analysis for S3000 and S4000 waste streams, or include HSG sampling for these waste streams.

**Response:**

In the HWFP, the target analyte list is the same for HSG sampling and for solids sampling with the exception of certain non-volatile compounds such as metals which are measurable from solids sampling. Therefore, for the purpose of resolving the assignment of HWNs, solids sampling and analysis will provide the same information that is obtained from HSG sampling and analysis, plus additional information regarding non-volatile compounds. Consequently, the Permittees see no value in also performing HSG analysis for these waste summary category groups since information on volatile and semi-volatile compounds is available from the solids analysis.

## TECHNICAL COMMENT NO. 7

The Consolidated Response Document eliminates RTR and VE from the Permit as characterization options for generator sites, but states in Section B-3c that the “generator/storage site shall perform radiography or VE on 100 percent of containers in waste streams where acceptable knowledge does not substantiate the absence of prohibited items. Radiography or VE used by generator /storage sites is not required to be performed in accordance with methods in the HWFP.” It is unclear based on Figure 1 at what point in the waste characterization process this 100% RTR/VE action would take place. Locations in the Consolidated Response Document that deal with this issue include but are not limited to:

- Description of the Revised Permit Modification Request, Section 1.2.2.2, *Radiography, VE or Review of VE Records*, page 10, 3<sup>rd</sup> paragraph.
- B-3c, Radiography and Visual Examination, page B-18, last paragraph
- Attachment B3, *Radiography*, pages B3-12 through B3-13

Revise the PMR to clarify at what point in the waste characterization process generator sites would be required to perform 100% RTR/VE.

### **Response:**

See the responses to Technical Comments 2 and 3. As stated previously, determining the best location in the waste certification process for non-destructive examination such as a brief, qualitative radiography scan of containers is a generator/storage site responsibility. However, if 100 percent non-destructive examination is required, it will have to occur before shipment of the waste to WIPP. In addition, some containers will have to have undergone non-destructive examination at the time the WSPF is submitted so that the Permittees can evaluate the generator/storage site procedures. (See Attachment B-2)

## TECHNICAL COMMENT NO. 8

Although RTR and VE are considered to be “verification and examination processes” in Attachment B7, the data generated by these methods are used for the same purpose as in the current Permit (i.e., to assess if the waste is eligible for disposal at WIPP). It is critical, therefore, that these data be accurate, reliable and of the highest quality. The changes proposed for RTR and VE do not appear to be related to Section 311 and will very likely severely weaken and compromise RTR and VE data, and increase the risk of emplacing waste that is not suitable for disposal at WIPP. These changes include:

- a) **Attachment B1, Section B1-3, Visual Examination, page 27, all paragraphs in section.** The method requirements for radiography have been deleted in their entirety in this section of the proposed Permit. Justify the deletion of RTR method requirements, or include appropriate method requirements.

**Response:**

Radiography is a Permittee responsibility under the proposed PMR. Therefore, the Radiography Method Requirements have been moved to Attachment B7-1b(5) Radiography Methods Requirements.

- b) **Attachment B1, Section B1-3, Visual Examination, page 27, 1<sup>st</sup> paragraph.** The B6-5 and B6-6 checklists for RTR and VE have been deleted from Attachment B6 of the proposed Permit. Justify elimination of the RTR and VE checklists from Attachment B6, or reinstate them.

**Response:**

The NMED is correct with regard to the B6 checklist for VE performed by the generator/storage site. If the Permittees use VE data produced by the generator/storage site for the purpose of waste examination, that VE data must meet the method requirements in Attachment B1-3. The Permittees have included a revised B6 checklist (Table B6-5) to reflect the requirements in Attachment B1-3. However, with regard to radiography, the use of radiography in the revised PMR is by the Permittees at the WIPP facility or at a generator/storage site. As stated in the revised PMR, this activity is subject to direct inspection by the NMED, therefore a B6-type audit checklist is not used. The Permittees have assumed that the NMED will conduct this inspection as provided in Condition I.E.9, Inspection and Entry. That is, the NMED will arrive unannounced at the WIPP facility and inspect operations and review the operating record to determine whether the Permittees are in compliance with the HWFP. Documentation at the facility will allow NMED to determine whether or not the Permittees are performing radiography or the review of VE records in accordance with written procedures, using trained personnel, and meeting the method requirements in Attachment B7 of the PMR.

**Proposed Revised Permit Text:**

Table B6-5 *Visual Examination (VE) Checklist* has been revised and is included in Attachment A.

- c) **Attachment B, Section B-2, Waste Analysis Program Requirements and Waste Analysis Parameters, page 12.** The Permittees did not explain why VE was included and RTR excluded from this section. Provide an explanation for not including RTR performance standards, or include appropriate standards.

**Response:**

There may be waste streams that the Permittees will verify by reviewing generator/storage site VE activities. For example, many of the RH TRU waste streams will be documented through VE of the waste at the time the waste is packaged for

shipment to WIPP. In these cases, the Permittees want to assure that the VE information collected meet the Permittees quality standards. Therefore, these standards are specified in the HWFP. Conversely, the Permittees do not anticipate using a generator/storage site's brief, qualitative radiography scans of containers to satisfy the Permittees examination requirements. Instead, the Permittees will perform radiography themselves on seven percent of each waste stream in each shipment to WIPP. Therefore, generator/storage site performance standards for radiography are not needed. Note that Permittees radiography method requirements are given in Attachment B7-1b(5).

- d) **Attachment B7, Section B7-1b(5)(ii), Radiography Oversight, page 13, 1<sup>st</sup> paragraph.** The RTR training drum is not required to contain prohibited items. As successful examination of the training drum contents is an important part of RTR operator training, these items should be added. Justify excluding prohibited items from the RTR training drum, or include them.

**Response:**

This requirement is identical to the requirement in Attachment B1-3b(2) in the HWFP. Other portions of the Radiography Training Program have been moved to Permit Attachment H2 Training Course and Qualification Card Outlines. Between the requirements in Attachment B7 and H2, the radiography training requirements have been retained in the proposed PMR.

- e) **Attachment B7, Section B7-1b(5)(ii), Radiography Oversight, page 13, 3<sup>rd</sup> paragraph.** Both the generator/storage site and WIPP are responsible for the quality of the data they produce and for adequate review of those data. The Permittees did not provide information on how the quality of RTR data would be monitored nor how the corrective action process would be implemented. Provide this information.

**Response:**

The quality of radiography performed by the Permittees is monitored and maintained through the Radiography Training Program and Radiography Oversight. These are the same as in the current permit and are described in Permit Attachments B7-1b(5) and H2. Specifically, the Permittee radiography requirements include the following:

- Complete classroom and on-the-job training under the supervision of a qualified trainer (Attachment H2)
- Successfully pass a written and practical examination as defined in Attachment H2
- Requalification every two years with documentation of ongoing satisfactory performance (Attachment H2)
- Disqualification for unsatisfactory performance (Attachment H2)

- Complete successful biannual scan of a training drum (Attachment B7-1b(5)(iii))
- Complete independent replicate scans (Attachment B7-1b(5)(iii))
- Complete independent observations (Attachment B7-1b(5)(iii))

Radiography, if performed by the generator/storage sites, is evaluated, by review of their procedures, by the Permittees during WSPF approvals and subject to audit. (Attachment B-2)

- f) **Standard Operating Procedures (SOPs) are no longer required for RTR and VE.** The justification provided by the Permittees is that RTR and VE are not included in waste analysis. However classified, the data generated by RTR and VE will be used for the same purpose in the proposed Permit as in the current Permit and should be generated under the same requirements. Without SOPs, the Permittees cannot assure the accuracy and consistency of the data generated. Attachment B-7, Section B7-1b(5) contradicts the above by stating that RTR SOPs will be generated. The Permittees must resolve this discrepancy. Affected sections of the PMR include but are not limited to:
- Attachment B-5-1, *Quality Assurance Project Plan Requirements*
  - Attachment B-3c, Radiography and Visual Examination, pages 17 and 18, 1<sup>st</sup> paragraph.

**Response:**

There are numerous places in the revised PMR that require standard operating procedures for radiography and VE. Specifically:

1. Attachment B-2 requires the generator/storage site to provide copies of all procedures used as part of the site's waste certification program.
2. Attachment B1-3 references the generator/storage site need for procedures to conduct VE activities.
3. The reinstated B6-5 checklist requires that VE procedures be part of a generator/storage site audit if the Permittees are using generator/storage site VE data for purposes of waste examination and verification.
4. Attachment B7-1b(5) requires the Permittees to have procedures for radiography.

Attachment B7-1b(6) addresses the Permittees VE activities. This section does not explicitly require that a procedure be used for these reviews. A revision to this section is proposed to require the Permittees to conduct this review in accordance with a written procedure.

**Proposed Revised Permit Text:**

Attachment B7, Section B7-1b(6), first paragraph is modified as follows:

Visual examination may also be used as a waste examination method by the Permittees. Visual examination shall be conducted by the Permittees in accordance with written standard operating procedures to describe the contents of a waste container. The description shall identify the discernible waste items, residual materials, packaging materials, or waste material parameters. Visual examination may be used by the Permittees to examine a statistically representative subpopulation of the waste received at the WIPP to assure that the waste contains no ignitable, corrosive, or reactive waste. This is achieved by assuring that the waste contains no residual liquids in excess of TSDF-WAC limits or compressed gases, and that the physical form of the waste matches the waste stream description documented on the WSPF. A visual examination data form is used to document this information. During packaging, the waste container contents are directly examined by trained personnel. This waste examination may be performed by the Permittees at the WIPP site or at an off-site facility, e.g., a generator/storage site. The visual examination may be recorded on video and audio media, or alternatively, by using a second operator to provide additional verification by reviewing the contents of the waste container to assure correct reporting.

**TECHNICAL COMMENT NO. 9**

The Permittees make the following statement in the discussion of the use of VE as a method of confirmation in Section B7-1b(6): “Because waste containers will not be opened at the WIPP site ... visual examination for waste examination may be performed by review, by trained Permittee visual examination operators, of video media prepared by the generator/storage site during their visual examination of the waste.” As stated above, the Permittees have removed all method descriptions for VE from the Consolidated Response Document. If review of VE media is to be used for confirmation, the Permittees must establish methods for the generator/storage sites performance of VE.

**Response:**

The method requirements are in Attachment B1-3. As stated previously, the B6 checklist for VE has been revised and reinstated and is in Attachment A. The Permittees VE method requirements are in Attachment B7-1b(6).

**TECHNICAL COMMENT NO. 10**

The Permittees propose that any waste container from a waste stream or waste stream lot which has not undergone non-destructive examination of a statistically representative

subpopulation of waste pursuant to Permit Attachment B7 is prohibited from storage or disposal. However, all other references to statistical non-destructive examination is based on shipments, not waste streams. The Permittees must resolve this discrepancy.

**Response:**

Attachment B7-1b(4) states that the Permittees will make a determination on “each waste stream shipment.” This means each waste stream in each shipment.

**TECHNICAL COMMENT NO. 11**

The Consolidated Response Document changes the collection of supplemental data to support mandatory data requirement (Permit Attachment B4, Section B4-2c, *Supplemental Acceptable Knowledge Information*, page B4-5, 1<sup>st</sup> ¶) from being a required to an optional activity. The Permittees claim that the robustness of the current AK program has allowed them to submit this PMR to decrease the sampling and analysis requirements, but this particular change significantly undermines the AK program. The reason that supplemental information is required is so that the generator sites do not rely on a single piece of data from a document without ensuring that the information in this document can be adequately supported. Revise the PMR to remove the suggested language.

**Response:**

The PMR has been revised to indicate that the collection of supplemental AK data is a required activity.

**Proposed Revised Permit Text:**

Attachment B4, Section B4-2c Supplemental Acceptable Knowledge Information

The generator/storage sites shall may obtain supplemental acceptable knowledge information.

**TECHNICAL COMMENT NO. 12**

The Consolidated Response Document provided a listing of six items in Permit Attachment B, *Introduction and Attachment Highlights*, page B-5, which will be included in the AK Sufficiency Determination. The following must also be addressed:

- a) TSDF-WAC requirements other than Permit Conditions II.C.3.a-h must be specified in the listing;

**Response:**

The only elements of the TSDF-WAC that have applicability for an AK Sufficiency Determination request from a generator /storage site are those found in Permit Conditions II.C.3.a through II.C.3.h. Permit Condition II.C.3.i. applies to the Permittees examination and verification activities which occur after a waste stream is authorized for shipment. Permit Condition II.C.3.j. requires that a WSPF be provided. This can only occur once AK sufficiency has been determined.

- b) The listing says that mandatory AK information must be available. This information must be provided with the AK Sufficiency Determination. Similarly, supplemental information supporting the mandatory data must be provided, as a thorough review of the submission cannot be accomplished without this;

**Response:**

The Permittees agree. See response to Technical Comment 11. See proposed revised permit text.

**Proposed Revised Permit Text:**

Attachment B, Introduction

The request will include an AK Summary and supporting AK documentation and address the following required items:

- c) The criteria or required contents of the AK generator site assessment of the AK process should specify that this assessment must address compliance with Appendix B4 of the WAP; and

**Response:**

In the introduction to Attachment B, page B-4, the language specifies that the generator/storage site AK assessment be carried out in accordance with the requirements of Attachment B4 of the WAP among other things. Furthermore, the six elements addressed by the AK Sufficiency Determination as noted on page B-5, directly or by reference, address the AK requirements of Attachment B4.

- d) The AK Sufficiency Determination must include sufficient information for the Permittees to determine whether the five bullets presented in Attachment B4, Section B4-1 have been adequately addressed.

**Response:**

The Permittees agree. A review of the requirements directly called out or referenced in the six items on page B-5 that are covered in an AK Sufficiency Review indicates that each of the five bullets in Section B4-1 are addressed. Therefore, a thorough technical and regulatory review of these six criteria will address the elements of B4-1 as well.

**TECHNICAL COMMENT NO. 13**

The Consolidated Response Document indicates (Attachment B, *Introduction and Attachment Highlights*, page B-5, 4<sup>th</sup> ¶) that once the Permittees have determined that AK is sufficient, NMED will then be requested to provide an AK Sufficiency Determination. The Consolidated Response Document must specify that NMED has the authority to request all information provided to the Permittees when making their AK sufficiency determination, and that NMED also has the authority to request additional information from the Permittees if necessary to resolve any questions or issues that might arise.

**Response:**

The Permittees agree that all information provided to the Permittees in order to determine AK sufficiency shall be available to NMED for their evaluation of the Permittees provisional approval. The Permittees also agree that NMED may request additional information if necessary. The Permittees believe that Permit Condition I.E.8 provides the necessary regulatory authority for NMED to request this information and requires the Permittees to provide the information.

**TECHNICAL COMMENT NO. 14**

The Consolidated Response Document provides the required contents of the AK Sufficiency Determination submission (Attachment B, page B-5), but does not state the criteria by which this information will be evaluated by the Permittees. At a minimum, the data submitted must be evaluated to determine the technical and regulatory adequacy of the hazardous waste number assignments, completeness of these assignments, adequacy of prohibited item identification, adequacy of waste stream identification, adequacy of waste material parameter weight estimates, and other relevant information. AK must meet the technical requirement of providing a detailed chemical and physical analysis of a representative sample of the waste stream. Additionally, the definition of waste stream must be sufficiently succinct and specific enough to clearly identify processes involved and to ensure that appropriate waste populations are identified. None of the bulleted items in the AK Sufficiency Determination Listing explicitly state that the technical adequacy of these elements will be evaluated. The Permittees must modify the PMR accordingly.

**Response:**

The Permittees will examine the information submitted to establish AK Sufficiency including the AK Summary Report and the supporting AK source documentation. The technical adequacy of this documentation will be evaluated as it pertains to the criteria listed on page B-5 of Attachment B including, for example, rationale for waste stream delineation, justification for application of HWNs and evidence of AK meeting the requirements of B4-2a and B4-2b. With regard to providing a detailed chemical and physical analysis of a representative sample of the waste stream, the Permittees believe if the provisions of the Permit are met, this requirement will be satisfied, see the response to Issue of Concern 1. The Permittees have revised the Permit text to clarify that the AK Sufficiency Determination request will be reviewed for technical adequacy in accordance with standard operating procedures by trained and qualified individuals.

**Proposed Revised Permit Text:**

Attachment B, Introduction and Attachment Highlights

The Permittees will review the request for technical adequacy and compliance with the requirements of the Permit, using trained and qualified individuals in accordance with standard operating procedures, resolve comments with the generator/storage site and if the Permittees determine that the AK is sufficient,...

**TECHNICAL COMMENT NO. 15**

In Attachment B4, Section B4-2b, *Required TRU Mixed Waste Stream Information*, page B4-4, the Consolidated Response Document removes the requirements in the bulleted listing specific to newly generated waste, but requirements that waste generating procedures requiring documentation and verification of waste contents during packaging are retained. Justify the removal of the requirements for newly generated waste.

**Response:**

The language in B4-2b specific to newly generated waste relates to the use of VE or radiography for confirmatory testing by the generator/storage site and is not applicable in the PMR because verification and examination will now be performed by the Permittees.

**TECHNICAL COMMENT NO. 16**

The bulleted list in Attachment B4, Section B4-3b, *Acceptable Knowledge Assembly and Compilation and Required Administrative Controls*, page B4-9 pertaining to administrative controls over prohibited items implies that the waste generation is ongoing. Clarify whether sites must demonstrate that each of these same bullets were in effect when retrievably stored waste was generated.

**Response:**

The bulletized list cited on page B4-9 deals with current administrative controls in place to address the management of prohibited items identified during waste examination, packaging, or treatment and is not intended to impose a requirement on the generator to demonstrate an equivalent program at the time of waste generation. However, the existence of such controls would be expected to be captured in the AK record.

**TECHNICAL COMMENT NO. 17**

The Permittees have removed discussion of “confirmation” of AK at the WIPP facility from Attachment B4, former Section B4-4, *Additional Final Confirmation of Acceptable Knowledge at the WIPP Facility*, page B4-17, but information presented in this deleted section included important comparisons and data evaluation processes. Explicitly identify all elements of this section that were editorially revised and moved to the new Attachment B7, and justify the exclusion of any elements that were deleted and not moved.

**Response:**

Comparison of the deleted text in HWFP Attachment B4, Section B4-4 with related activities described in PMR Attachments B3, B4, and B7 indicates that the applicable elements contained in HWFP Attachment B, Section B4-4 have been captured in the PMR. The Permittees have included a table in Attachment B to this NOD response showing where the applicable elements are located in the PMR and providing a justification for any elements that were not retained verbatim in the PMR.

**TECHNICAL COMMENT NO. 18**

The AK Accuracy calculation discussion in Attachment B3, Section B3-8, *Acceptable Knowledge*, Page B3-20, 2<sup>nd</sup> bullet, does not include a quantitative way to calculate AK accuracy, nor any consequences or trigger points that would cause the Permittees to take a certain course of action. Similarly, there is no quantitative comparison between measured sampling and analysis data and AK that would trigger an increase in the sampling rate. The Permittees must provide consequences or quantitative triggers for AK accuracy data quality requirements or differences between AK and measured data.

**Response:**

The referenced section in the PMR provides a quantitative definition of AK accuracy, that is, “the percentage of waste containers which require reassignment to a new waste matrix code and/or designation of different hazardous waste numbers”. Trigger points are clearly identified in Attachment B7, Section B7-1b(9) which calls for suspension of the shipment of a waste stream containing the non-compliant waste container, and the

issuance of a Corrective Action Report (**CAR**) by the Permittees. Attachment B7, Section B7-1b(9) requires that NMED be notified within 24 hours of any suspension of waste stream shipments due to the identification of non-conforming waste during waste examination and verification. Corrective action calls for the generator site, among other things, to evaluate whether the Waste Analysis Information Summary (**WAIS**) and/or the WSPF require revision. All changes would be reviewed by the Permittees and provided to NMED as required by the HWFP. As stated in both the HWFP and the PMR, repeated non-conformances could result in termination of the generator's access to disposal of its TRU waste inventory (or specific waste streams) at WIPP.

Sampling and analysis may be conducted by the generator/storage site, as needed, to resolve the assignment of HWNs. As required by the HWFP, the generator/storage site would use data identifying the presence of hazardous constituents to resolve the assignment of HWNs. The use of results of sampling and analysis for this purpose does not necessitate a quantitative comparison of the data with AK.

#### **TECHNICAL COMMENT NO. 19**

Section B-2, *Waste Analysis Program Requirements and Waste Analysis Parameters*, pages B-11 and B-12, 2<sup>nd</sup> paragraph and 1<sup>st</sup> paragraph, respectively, of the Consolidated Response Document provides procedures that specify "waste analysis program requirements." Under the current permit, these procedures are assessed as part of the audit program, but it is unclear why these are now included as a separate provision requirement. NMED assumes these procedures will still be examined during audits. Also, on page B-12, the Consolidated Response Document removes the requirement to "confirm" physical waste form, but the sites must still "determine" the physical waste form (i.e., Waste Matrix Code [**WMC**], Summary Category Group [**SCG**]), as well as the exclusion of prohibited items. The PMR should be revised to include the determination of physical form and exclusion of prohibited items. No justification was found for excluding the identification of hazardous constituents, which would ensure correct hazardous waste number assignment and continued compliance with Subpart X risk assessment analysis results.

#### **Response:**

As noted in the referenced B-2 section of the PMR, the generator/storage site waste analysis program procedures will be evaluated by the Permittees during the WSPF review and approval process. These procedures will also be subject to audit in accordance with Permit Attachment B4, Section B4-3f, which requires that, "Auditors will verify and document that sites use administrative controls and follow written procedures to analyze hazardous waste for newly-generated and retrievably stored wastes." The requirements for the generator/storage site to determine the physical waste form and exclusion of prohibited items appear at several locations in the PMR (e.g., Permit Attachments B-1b, B-2, and B4-2b). Furthermore, the listing and grouping of hazardous constituents remain in tables B-1, B-2, and B-3 along with specified analytical protocol.

## TECHNICAL COMMENT NO. 20

Based upon the Waste Analysis Information Summary Contents in Attachment B3, Section B3-11b(2), page B3-44, 4<sup>th</sup>, 6<sup>th</sup>, and 9<sup>th</sup> bullets, it appears that the WAIS is to take the place of the Characterization Information Summary. If so, it must include total solid sampling analysis results and radiography and visual examination results from the Permittees as an attachment, or included in the Waste Stream Waste Analysis Package. Further, there is no discussion of the “method for determining waste material parameter weights per unit of waste” discussed elsewhere; reference to where this is specifically addressed in the Consolidated Response Document should be provided here.

### Response:

Total solids analysis results will be added to the requirements of the WAIS. However, the results of Permittee RTR or VE waste verification and examination activities is an activity independent of the generator/storage site characterization process and occurs after approval of the WSPF. Such data are not appropriate as an attachment to those generator/storage site documents.

The method for estimating waste material parameter weights is not specified by the PMR. The generator/storage sites are required to submit procedures for estimating waste material parameter weights in accordance with Permit Attachment B4-2b. The WAIS was selected as the vehicle whereby the generator/storage site can describe for Permittee review the process/procedure used to develop those estimates.

### Proposed Revised Permit Text:

Attachment B3, Section B3-11b(2) Waste Analysis Information Summary

- **Total metal, VOC, and SVOC analytical results for homogeneous solids and soil/gravel (if applicable).**

## TECHNICAL COMMENT NO. 21

40 CFR §264.13(a)(4) indicates that each hazardous waste movement must be inspected and 40 CFR §264.13(b) indicates that the WAP must specify the frequency. The Permittees have not adequately indicated how the 7% figure was derived and what actions would be taken if their inspections illustrate that the waste did not correspond to the manifested hazardous waste descriptions, if prohibited items were found, or if the waste was characteristic as defined in 40 CFR §261.21-23; or what recourse the Permittees have to increase the level of inspection for problematic waste streams or generators. Revise relevant sections of the PMR, including Attachment B7, *Permittees Examination of a Representative Subpopulation of the Waste*, Page B7-12, 2<sup>nd</sup> paragraph, to address these concerns.

**Response:**

Section 1.2.2.2 of the introduction section of Permittees' June 2005 Consolidated Response Document explains the derivation of the seven (7) percent sampling rate. As indicated in Permit Attachment B7-1b(4), the seven (7) percent figure was based on a minimum of one container from each fourteen containers in each waste stream in each designated shipment ( $1/14 \times 100$  percent = 7.14 percent). The figure was based on the fact that for shipments of 55 gallon drums in a TRUPACT-II, there are a maximum of 14-55 gallon drums per TRUPACT-II. The Permittees believe this verification and examination rate is sufficiently high to detect non-compliant waste while taking into account the packaging requirements for shipment of waste to WIPP.

As described in Attachment B7, Section B7-1b(9), if non-conforming waste is identified during verification and examination by the Permittees, shipments of that waste stream will be suspended, the NMED will be notified within 24 hours, and a CAR will be issued to the generator/storage site. Shipments of the affected waste stream will not resume until the corrective action process is complete.

Attachment B7, Section B7-1b(9) also requires that, if a generator/storage site has repeated non-conformances, the Permittees will terminate storage and disposal of that site's waste, summary category groups, or waste streams, as applicable. The Permittees believe this is protective of human health and the environment, without introducing the complexity of different verification rates for different waste streams.

How non-conforming waste streams in shipments are dispositioned is described in Permit Attachment M1.

**TECHNICAL COMMENT NO. 22**

The Permittees did not clearly indicate how waste containers will be randomly selected for sampling from buried waste containers or newly generated containers. The Permittees indicated that randomly selected locations for sampling would be chosen for the waste stream as a whole. While this approach may appear to work for buried wastes, this approach does not appear to apply to newly generated wastes. Provide further clarification for the random selection process for unavailable waste containers. Pertinent locations in the PMR include:

- a) Attachment B2, Section B2-1a, *Statistical Selection of Containers for Totals Analysis*, page B2-4, 2<sup>nd</sup> paragraph; and
- b) Attachment B2, Section B2-1b, *Statistical Selection of Containers for Headspace Gas Analysis*, page B2-7, 3<sup>rd</sup> paragraph.

**Response:**

Both Sections, B2-1a and B2-1b, indicate that if only a portion of a waste stream is available for sampling (e.g. the remainder of the waste stream will be recovered from

storage at the generator/storage site, or only a portion of the waste stream has been repackaged, treated, or generated), the calculated number of samples will be randomly selected from the available portion of the waste stream.

For waste streams where the remaining portion of the waste stream is indeterminate, such as newly generated waste streams, the permit language in Permit Attachment B2, Sections B2-1a and B2-1b have been clarified that the waste stream may be divided into lots for purposes of random sampling.

**Proposed Revised Permit Text:**

Attachment B2, Section B2-1a, Statistical Selection of Containers for Statistical Sampling

If only a portion of a waste stream is available for sampling (e.g., the remainder of the waste stream will be recovered from storage at the generator/storage site, or only a portion of the waste stream has been repackaged, treated, or generated), the calculated number of samples will be randomly selected from the available portion of the waste stream. A minimum of five randomly selected samples will be obtained and analyzed from the available portion of the waste stream. The Permittees may approve the WSPF and authorize the generator/storage site to begin shipping the waste stream to WIPP once the analytical data for the randomly selected samples from the available portion of the waste stream have been obtained. The generator/storage site will also randomly select the calculated number of sample locations from the waste stream as a whole, both the available and unavailable portions. A minimum of five randomly selected sample locations will be selected from the waste stream as a whole. As those randomly selected locations (e.g., buried or newly generated waste containers) become available for sampling, samples will be obtained and analyzed. For those waste streams where the population of the waste stream as a whole is indeterminate (e.g., continually generated waste streams from ongoing processes) or to facilitate waste processing, the generator/storage site may divide the waste stream into lots. In this case, five randomly selected sample locations will be selected from within each subsequent lot. As those randomly selected locations (e.g., buried or newly generated waste containers) become available for sampling, samples will be obtained and analyzed. As with sampling from the waste stream as a whole, the generator/storage site may ship waste from the lot being generated or retrieved prior to completing sampling and analysis of the lot. The generator/storage site will use the data to update the UCL90 values for the waste stream as described in Section B2-2a and assign EPA hazardous waste numbers as appropriate. The generator/storage sites will submit the analytical data from subsequent sampling to the Permittees for inclusion in the WIPP facility operating record. If changes to EPA hazardous waste numbers are required as a result of subsequent sampling, the generator/storage site will notify the Permittees and shipments of the affected waste stream shall be suspended until the Permittees approve a revised WSPF for the affected waste stream.

Attachment B2, Section B2-1b, Statistical Selection of Containers for Headspace Gas Sampling and Analysis

If only a portion of a waste stream is available for sampling (e.g., the remainder of the waste stream will be recovered from storage at the generator/storage site or only a portion of the waste stream has been repackaged or treated), the calculated number of samples will be randomly selected from the available portion of the waste stream. A minimum of ten randomly selected samples will be obtained and analyzed from the available portion of the waste stream. The Permittees may approve the WSPF and authorize the generator/storage site to begin shipping the waste stream to WIPP once the analytical data for the randomly selected samples from the available portion of the waste stream has been obtained. The generator/storage site will also randomly select the calculated number of sample locations from the waste stream as a whole, both the available and unavailable portions. A minimum of ten randomly selected sample locations will be selected from the waste stream as a whole. As those randomly selected locations (e.g., buried or newly generated waste containers) become available for sampling, samples will be obtained and analyzed. For those waste streams where the population of the waste stream as a whole is indeterminate (e.g., continually generated waste streams from ongoing processes) or to facilitate waste processing, the generator/storage site may divide the waste stream into lots. In this case, ten randomly selected containers will be selected from within each subsequent lot. As those randomly selected containers (e.g., buried or newly generated waste containers) become available for sampling, samples will be obtained and analyzed. As with sampling from the waste stream as a whole, the generator/storage site may ship waste from the lot being generated or retrieved prior to completing sampling and analysis of the lot. The generator/storage site will use the data to update the UCL90 values for the waste stream as described in Section B2-2b and assign EPA hazardous waste numbers as appropriate. The generator/storage sites will submit the analytical data from subsequent sampling to the Permittees for inclusion in the WIPP facility operating record. If changes to EPA hazardous waste numbers are required as a result of subsequent sampling, the generator/storage site will notify the Permittees, and shipments of the affected waste stream shall be suspended until the Permittees approve a revised WSPF for the affected waste stream.

**TECHNICAL COMMENT NO. 23**

The Permittees did not clearly define the regulatory thresholds proposed to assign hazardous waste numbers based upon headspace gas results. The regulatory threshold values for solid waste analysis are defined; the regulatory threshold for headspace gas analysis is not, and should be. Pertinent locations in the PMR include:

- a) Attachment B2, Section B2-1a, *Statistical Selection of Containers for Totals Analysis*, page B2-4, 2<sup>nd</sup> paragraph; and
- b) Attachment B2, Section B2-1b, *Statistical Selection of Containers for Headspace Gas Analysis*, page B2-7, 3<sup>rd</sup> paragraph.

**Response:**

The use of regulatory thresholds for resolving the assignment of EPA HWNs is addressed in Attachments B2-1a and B4-3d for solid waste analysis and in Attachment B4-3d for HSG analysis.

**TECHNICAL COMMENT NO. 24**

Attachment B-6, *Section B6-1, Introduction*, page 1, 1<sup>st</sup> paragraph, confirms NMED's status at an observer at Permittees' audits of generator/storage site and Permittee approved laboratories for sampling and analysis activities (AK, HSG, solid sampling and analysis). There is no clear language that extends this observer status to Permittees' surveillances of sites and approved laboratories, but the language addressing this issue has not been changed from that in the current Permit. As NMED has observed Permittees' surveillance under the current Permit, NMED expects this activity will continue under the revised Permit. However, the proposed Permit does not include a provision allowing NMED to observe waste verification and examination activities (RTR and VE) at generator/storage sites outside of New Mexico, and inspect those activities at sites within New Mexico, including the WIPP facility. The Permittees must revise the PMR to address these concerns.

**Response:**

As the NMED correctly notes, the language addressing NMED status as observers on audits has not been modified. Since the HWFP was issued, the Permittees have notified NMED of surveillances of the generator storage/sites and have facilitated the observation of those surveillances by NMED when requested. The Permittees have no intention of changing this practice regarding surveillances. To clarify this, the Permittees propose a change to the language in Permit Attachment B6, Section B6-1. NMED already has the right to enter the WIPP facility and inspect HWFP activities under Permit Condition I.E.9, Inspection and Entry. Records related to waste examination activities performed by the Permittees (i.e., radiography or VE of a statistically representative subpopulation of the waste) will be maintained in the WIPP Facility Operating Record. This will include radiography and VE video/audiotapes, datasheets, operator training records, and test drum information for Permittee examination activities performed at WIPP or at a generator/storage site or other off-site facilities. The NMED will be able to verify compliance with the Permit by inspection of these records. The Permittees have no objection to the NMED observing waste examination activities performed by the Permittees at a generator/storage site or other off-site facilities.

**Proposed Revised Permit Text:**

Attachment B6, Section B6-1, Introduction

...NMED personnel may observe these audits **and surveillances** to validate the implementation of WAP requirements (Permit Attachment B) at each site **and Permittee approved laboratory.**

**TECHNICAL COMMENT NO. 25**

Consolidated Response Document, Section 1.2.3, *Audit and Surveillance Program*, page 12, 3<sup>rd</sup> paragraph. The fourth bullet implies that RTR and VE will be audited annually but the B6-5 and B6-6 checklists from the current Permit have been deleted rather than revised. Because of this deletion, the requirement for auditing RTR and VE on an annual basis is ambiguous, as the Permittees have not defined the criteria that will be used to audit RTR and VE. The Permittees must revise the PMR to address these concerns.

**Response:**

The fourth bullet refers to evaluating a generator/storage site's programmatic waste analysis requirement procedures and administrative controls. As described in Attachment B, Section B-2 of the PMR, a site's program procedures (including procedures for brief, qualitative radiography scans of containers or VE) will be evaluated during review and approval of each WSPF, and whenever data-affecting modifications are made to the procedures. As required by PMR Attachment B4, Section B4-3f, as part of the annual AK audit for each generator/storage site, auditors will verify and document that the generator/storage sites use administrative controls as part of their waste analysis process. These administrative controls may include brief, qualitative radiography scan of containers or VE. In addition, the Permittees have included a revised B6-5 checklist for auditing VE conducted by the generator/storage site in accordance with Attachment B1, Section B1-3. (See Attachment A of this NOD Response). This audit checklist will be used when the Permittees use a generator/storage site's VE record for waste examination. In that instance, a generator/storage site's VE process will be audited annually during their recertification audits. With regard to radiography, the use of radiography in the revised PMR is by the Permittees and evidence of compliance with these requirements will be in the WIPP Facility Operating Record, thus a B6-type audit checklist is not required.

**Proposed Revised Permit Text:**

Table B6-5 is included in Attachment A

## TECHNICAL COMMENT NO. 26

Attachment B-6, *Section B6-3, Audit Position Functions*, page B6-4, last paragraph, proposes that for single entities at multiple sites, the annual audit approval will apply to all sites where the entity is performing the approved procedures and processes. Allowing approval in this manner does not take into account site-specific requirements and different personnel implementing the procedures and processes, and would only be appropriate if equipment, procedures and operators of the mobile facilities did not change between sites. The Permittees did not address how sites will be chosen for audit and if every site will be audited within a defined time period. The revised Attachment B6 change matrix stated that the justification for this change was described in section 1.2.3 of the Consolidated Response Document. This section does not contain a justification for this change but only states the Permittees intention to do this. This section describes audit personnel tasks and does not appear to be appropriate place for this proposal. The Permittees must revise the PMR to address these concerns.

### **Response:**

Site specific requirements will be addressed during the annual AK audit for each generator/storage site as required by Permit Attachment B6, Section B6-3. The Permittees do not believe generator/site approval should be tied to individual operators. Although personnel may change, it is only necessary to assure that training and qualification requirements for personnel are properly implemented. The NMED is correct that the approval of a single entity at multiple sites is contingent on the fact that the waste analysis processes are the same at the different sites. Based on NMED's comment, the HWFP has been modified to require that the waste analysis processes at each site be audited at least every three years. Given the context of the text in the HWFP, the Permittees believe the description of audit scheduling is in the appropriate place in the PMR.

### **Proposed Revised Permit Text:**

Attachment B6, Section B6-3 Audit Position Functions

Audits will be conducted at least annually for each site involved in the waste analysis program. Both announced and unannounced audits will address the following:

- Results of previous audits
- Changes in programs or operations
- New programs or activities being implemented
- Changes in key personnel

For waste analysis processes performed for multiple sites by a single entity (e.g., mobile waste analysis vendors, Permittee approved laboratories) the procedures and processes used by these single entities will be audited at least annually for at least one site. **At a minimum, the waste analysis processes performed for multiple sites by a single entity will be audited for each site once every three years.** Upon

approval, the procedures and processes may be used at any site without requiring an additional audit. In any case, the acceptable knowledge process will be audited at least annually for each site involved in the waste analysis program.

#### **TECHNICAL COMMENT NO. 27**

The text of Section 311 states that VOC room based monitoring will be performed exclusively through air monitoring until panel closure. The Permittees assert that the use of HSG data can not be correlated to room based concentrations due to several factors. The Permittees should provide information showing what attempts have been made to make such a correlation and how the factors at play in a closed room differ significantly from the conditions encountered in a waste container when attempting to calculate an appropriate drum age criteria. Pertinent locations in the PMR include:

- a) Module IV, Section IV.D.1, *Room Based Limits*, page IV-4, 1<sup>st</sup> paragraph; and
- b) Module IV, Section IV.F.2.g, *Remedial Action for Disposal Room Monitoring*, page IV-10, 1<sup>st</sup> paragraph

#### **Response:**

The PMR emphasizes what is important to protecting human health and the environment is the measurement of actual room VOC concentrations, rather than correlation of room VOCs to HSG VOCs.

The Permittees have not asserted that HSG data can't be correlated to VOC concentrations in the rooms. The Permittees have performed experimental room-based monitoring in Panel 1 and Panel 2, and results have been compared to the VOC concentrations in the drums in the rooms and shared with NMED<sup>1,2</sup>. These results demonstrate that VOCs measured in the underground air in WIPP disposal rooms are from the containers of waste disposed in the rooms.

The measured VOC concentrations in WIPP disposal rooms are not related to calculating drum age criteria. Rather, results from monitoring room VOC concentrations, as proposed in the Permittees' PMR, are to be compared to action levels set at 50 percent and 95 percent of the room-based limits (see Figure 6, pg. 23 of the Introduction section of the Permittees' June 2005 Consolidated Response Document).

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<sup>1</sup> *Technical Evaluation Report of WIPP Room-Based VOC Monitoring*, W. Boatwright, December 1, 2003, Section 3.2.3, "Rank-Order Correlation of Disposal-Room VOCs to HSG Data" **NOTE:** this report was submitted to NMED with the Permittees' January 9, 2004 Request for Class 3 Permit Modification to the Hazardous Waste Facility Permit, Permit Number NM4890139088-TSDF, Implementing Section 311 of Public Law 108-137.

<sup>2</sup> *Monitoring of Airborne Volatile Organic Compounds in Disposal Rooms at the Waste Isolation Pilot Plant*, S. White and W. Boatwright, August 11, 2005. **Note:** this report was submitted to NMED with the Permittees' August 12, 2005 Comments Regarding the April 29, 2005 Class 3 PMR Submitted in Accordance with Pub. L. 108-137, Section 311 and Second NOD, Class 3 PMR for RH TRU Waste, WIPP Hazardous Waste Facility Permit.

## TECHNICAL COMMENT NO. 28

In Module IV, Permit Condition IV.F.2, Air Monitoring, pages IV-7 to IV-10, all paragraphs, the VOC monitoring program requires monitoring of nine specific VOC compounds, and uses available HSG data to correlate results for the existing nine compounds as well as to identify other potential VOCs on the HSG target list and possible TICs. However, the Permittees have not adequately accounted for the potential influx of other organic solids and poorly defined waste streams emplaced at WIPP. The Permittees must provide further justification for not expanding the VOC target list, specifically addressing this point.

### Response:

The room-based monitoring program proposed by the Permittees is intended to supplant HSG sampling and analysis for purposes of demonstrating compliance with WIPP RCRA environmental performance standards, and does not propose that HSG data be correlated to measurements of VOCs in the air of WIPP disposal rooms. The room-based monitoring proposed in the PMR is designed to measure VOCs in the WIPP underground regardless of what the VOC content (high or low) of organic solids or other waste streams may be.

The proposed target analyte list of the nine VOCs was based on the room-based limits reflected in Table IV.D.1 of Module IV of the HWFP, which were in turn based on the Permittees' 1996 RCRA Permit Application.<sup>3</sup> The Permittees' PMR does not propose to expand the room-based VOC monitoring target analyte list beyond the nine VOCs on Table IV.D.1 for two reasons. First, the 1996 Permit Application evaluated the risk of 20 specific VOC species that were identified in the HSG samples collected from 930 drums of the Idaho National Laboratory and the Rocky Flats Environmental Technology Site TRU waste. Since the 1996 Permit Application, HSG data have been collected from upwards of 60,000 TRU waste containers. None of the subsequently collected HSG data indicate that other VOCs - not evaluated in the 1996 Permit Application - are present in TRU waste in other than trace quantities.

Second, the target analyte list for room-based monitoring was not expanded because the analytical methods proposed by the Permittees have the ability to detect a broad array of VOCs, numbering over 100, including the VOCs on the HSG target list.<sup>4</sup> If the analysis of the room-based air samples identify VOCs other than the nine with room-based limits, be they VOCs on the HSG target list or tentatively identified compounds (TICs), they

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<sup>3</sup> *Resource Conservation and Recovery Act Part B Permit Application, Revision 6, 1996, DOE/WIPP 91-005, Appendices C2, D9, D13, and D20.*

<sup>4</sup> *Compendium Method TO-15, Determination Of Volatile Organic Compounds (VOCs) In Air Collected In Specially-Prepared Canisters And Analyzed By Gas Chromatography/Mass Spectrometry (GC/MS), Table 1, pp. 15-37 to 15-40, <http://www.epa.gov/ttn/amtic/files/ambient/airtox/to-15r.pdf>, and Method 8260B Volatile Organic Compounds By Gas Chromatography/Mass Spectrometry (GC/MS), Section 1, Scope and Application, pp. 1 to 3, <http://www.epa.gov/epaoswer/hazwaste/test/pdfs/8260b.pdf>.*

will be identified in the WIPP Facility Operating Record and reported to NMED in the Annual Mine Ventilation Report. TICs will be added to the confirmatory and room-based VOC monitoring target analyte lists as explained in the response to Technical Comment 29 below.

#### **TECHNICAL COMMENT NO. 29**

In Module IV, Permit Condition IV.F.2, Air Monitoring, pages IV-7 to IV-10, the Permittees did not indicate what action will be taken in the event compounds other than the nine VOC monitoring compounds are identified in 25 percent or more of the VOC monitoring air samples collected in a given year. The Permittees did not address the possibility of such an event happening and did not include any provisions for adding additional compounds to the room monitoring target list. Provide revised permit language to address the addition of TICs to the room monitoring target list.

#### **Response:**

The proposed permit text has been revised to clarify the addition of VOC TICs to the target analyte list for both the room-based and confirmatory monitoring programs.

#### **Proposed Revised Permit Text:**

Attachment N, Section N-3b, Analytes to be Monitored

The nine VOCs that have been identified for confirmatory and room-based monitoring are listed in Table N-1. The analysis will focus on routine detection and quantification of these compounds in collected samples. ~~Other compounds may also be present in the samples.~~ As part of the analytical evaluations, the presence of other compounds will be investigated. ~~The analytical method will allow semiquantitative evaluation of these compounds as tentatively identified compounds.~~ The analytical laboratory will be directed to classify these compounds as Tentatively Identified Compounds (TICs). TICs detected in 25% or more of the confirmatory VOC monitoring samples, in a running year, will be added to the target analyte lists for both the confirmatory and room-based monitoring programs, unless the Permittees can justify the exclusion from the target analyte list(s).

TICs detected in the confirmatory and room-based monitoring programs will be placed in the WIPP Operating Record and reported to NMED in the Annual Mine Ventilation Report in accordance with Section IV.F.2.b of Module IV of the HWFP.

## TECHNICAL COMMENT NO. 30

Module IV, Permit Conditions IV.F.2.f, IV.F.2.g, and Table IV.F.2.g, *Action Levels for Disposal Room Monitoring*, page IV-9 to IV-10, 1<sup>st</sup> paragraph, indicates that the 95% of room-based limits will only be monitored for closed rooms immediately adjacent to an open room. This section also indicates that the increased sampling for exceeding 50% of room based limits in all closed rooms will continue until the concentrations fall below 50% or until closure of Room 1. The PMR does not clarify what action would be taken if the concentration continued to rise in a closed non-adjacent room to the point that it exceeded the 95% limit. The PMR does not define Room 1 and what significance this room has to monitoring VOC concentrations. Additionally, this protocol for monitoring room based VOC limits does not demonstrate how the proposed room based limits requirements of Module IV.D.1 would be met for all closed rooms in active panels. The Permittees must clarify the procedures for monitoring closed and open rooms to ensure that room based limits are not exceeded.

### **Response:**

The PMR proposes to increase the frequency of sample collection when any room reaches 50 percent of the room based limits (**RBL**). The response of abandoning an active room would only be triggered by either the active room itself or the immediately adjacent closed room reaching 95 percent of the RBL. The rationale for this approach is associated with how the RBLs that are in the HWFP were established.

The RBLs stemmed from two disposal room worker acute exposure scenarios that NMED asked the Permittees to assess in the 1996 RCRA Permit Application: 1) a roof fall in an open room, and 2) a roof fall in the immediately adjacent closed room. These two exposure scenarios were described in the RCRA Permit Application<sup>5</sup>, and in NMED's direct written testimony associated with the 1999 hearing.<sup>6</sup> The reason the PMR proposes to abandon the active room when either the immediately adjacent closed room or the active room itself reaches 95 percent of the RBLs is that it is these two locations that present a potential immediate acute exposure risk to workers. Even if a non-adjacent closed room were to reach 95 percent of the RBL, the ongoing monitoring of the closed room directly adjacent to the active room would be protective of room workers.

Room 1 is defined in the HWFP by Figure M3 titled "Drawing Number 51-W-214-W, 'Underground Facilities Typical Disposal Panel'". The PMR proposes that room-based monitoring would take place in Room 1 only during the time that it is active because upon being filled with waste a ventilation barrier is installed at the inlet side limiting access to the room, and worker access to the inlet and outlet ventilation barriers is

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<sup>5</sup> *Resource Conservation and Recovery Act Part B Permit Application, Revision 6, 1996, DOE/WIPP 91-005, Attachment 1 to Appendix D9.*

<sup>6</sup> *New Mexico Environment Department's Direct Testimony Regarding Regulatory Process and Imposed Conditions, Module IV, 2. VOC Room-Based Concentration Limits.*

restricted. Because access to the room is terminated, and access to the areas near the ventilation barriers is restricted, the two potential acute exposure scenarios described in the 1996 Permit Application are not present.

Additionally, after installation of the ventilation barrier at the inlet of Room 1, panel closure activities begin. Panel closure activities include removal or abandonment of infrastructure from the ribs of the inlet and exhaust drifts to the panel – including sealing of the sample tubing runs for room-based VOC monitoring. It is for these reasons that the PMR proposes only active room monitoring of Room 1.

### **TECHNICAL COMMENT NO. 31**

Module IV, Permit Condition IV.F.2.g, *Remedial Action for Disposal Room Monitoring*, page IV-10, 1<sup>st</sup> paragraph. This module does not specify what actions will be taken if an active room or closed room concentration exceeds the VOC room based limit. The current permit specified that the entire panel should be closed. Clarify what actions will be taken if an active or closed room exceeds the VOC room based limits.

#### **Response:**

The PMR explains the actions taken, not after the active room or immediately adjacent closed room exceed the RBLs, but the actions taken before the VOC levels reach the RBLs (i.e., at 50 percent and 95 percent of the RBLs). The confirmatory VOC monitoring program in the HWFP provides for panel closure only when the running annual average of VOC concentrations in the E-300 exhaust drift (i.e., at Station VOC-A) exceed the Concentrations of Concern in Table IV.F.2.c of the current permit for six (6) consecutive months. For the room-based VOC monitoring program, the PMR proposes that the active disposal room be abandoned if either the active room or the immediately adjacent closed room were ever to reach 95 percent of the RBLs. The proposed tiered action levels are depicted in Figure 6 of the Introduction section of Permittees' June 2005 Consolidated Response Document.

### **TECHNICAL COMMENT NO. 32**

Attachment B3, Section B3-12, *Waste Analysis Plan*, page 36, 4<sup>th</sup> paragraph, assigns responsibility for the nonconformance process to the Site Project Manager. This process is a Quality Assurance function and cannot be performed by line/operations management, but must be performed by independent Quality Assurance personnel, such as the Site project QA Officer. The Permittees must revise the PMR to reflect the appropriate responsibility.

**Response:**

The position of Site Project Quality Assurance Officer has been removed from the PMR as a consequence of collapsing the levels of data verification and validation to an Independent Technical Review and a Site Project Manager review. The PMR is correct as written; the Site Project Manager is responsible for monitoring and controlling the status of work and WAP activities at the generator/storage sites. The issue of independence is not applicable to the HWFP, since independent quality assurance functions are not required in the NMAC.

**TECHNICAL COMMENT NO. 33**

The Permittees propose no different waste analysis approach for RH waste. However, the following should be considered and addressed:

- a) The PMR did not specify that RH and CH wastes would be considered separate waste categories, although separate RH and CH approvals by SCG should be required. If an RH waste goes through the AK route this is not an issue because the Permittees and NMED approve AK on a waste stream basis. If AK is so poor that characterization is required, the inference is that RH could be approved by SCG basis at sites and could even be “wrapped” into a CH SCG approval. The Permittees must clarify this issue.

**Response**

Although one waste generating process can produce both RH TRU and CH TRU mixed waste streams, RH TRU mixed waste streams are separate and distinct from CH TRU mixed waste streams and managed differently because of the energy emitted. Summary Category Groups alone do not distinguish one waste stream from another.

- b) RH radiological waste characterization methodologies use dose to curie and other methods unique to RH waste. The PMR, as written, allows for no such unique characterization processes and would require revision for these to be considered in the future.

**Response**

The Permittees have not identified any unique waste analysis processes that would apply to RH TRU mixed waste.

- c) The PMR implies that if AK is insufficient with respect to parameters that must be identified by visual examination and RTR, the Permittees

will require 100% of the waste be examined by either VE or RTR. The Permittees should consider a more statistically based or other approach to non destructively examining RH waste, as any changes to the “100%” mandate would require another PMR.

## **Response**

The Permittees’ Consolidated Response Document includes the requirement that the waste contains no prohibited items. If AK alone is insufficient to make the determination that no prohibited items are contained in the waste stream, then brief, qualitative radiography scans or VE of the containers must be performed.

## **TECHNICAL COMMENT NO. 34**

The Waste Analysis Plan associated attachments do not address waste compatibility between the various types of RH Wastes, or RH-Waste and CH-Waste. Determination of compatibility should be based on EPA or other referenced procedures, such as “A Method for Determining the Compatibility of Hazardous Waste”; EPA-600/2-80-076. In accordance with 40 CFR §264.117(c) incompatible waste should not be stored in the same areas and should be separated by dikes, berms, walls or other devices. The PMR does not address this. In addition, the PMR does not provide sufficient assurances of chemical compatibility of RH-Waste with waste containers or container liners, in which the waste will be stored. The Permittees must address these incompatibility issues. Pertinent portions of the PMR include:

- a) Attachment B, including Section B-3b *Waste Analysis Plan*, all pages
- b) Attachment B1 – *Waste Analysis Sampling Methods*, all pages (not addressed in the PMR)
- c) Attachment B3, *Quality Assurance Objectives for Waste Analysis Methods*, (not addressed in the PMR)
- d) Attachment B4, *TRU Mixed Waste Analysis using Acceptable Knowledge* (not addressed)
- e) Module III, *Container Storage, Compatibility of Waste with Containers*, page III-7
- f) Attachment D, *Container Storage* (does not address compatibility)
- g) Attachment E, *Preparedness and Prevention* (not addressed in PMR)
- h) Attachment F, *RCRA Contingency Plan, Section F-1* (not addressed in PMR for compatibility)

## **Response:**

WIPP does not accept incompatible materials for storage and disposal. Waste containing the EPA HWNs allowed in Attachment O of the HWFP has been determined to be compatible with other waste, container materials, backfill, seal materials and the fire extinguishing systems at WIPP. This demonstration is provided in Appendix C1 of the

Permit Application, titled *Chemical Compatibility Analysis of Waste Forms and Container Materials*. This demonstration included RH TRU mixed waste. Demonstrating that a waste stream complies with the TSDF-WAC as required in Permit Attachments B and B4 (particularly the liquids prohibition and the HWNs) is essential to ensuring that incompatible waste is not accepted. Additional compatibility determinations are made and documented in the operating record every time the HWFP is modified to add a new HWN to Attachment O. New HWNs may be added to the HWFP in accordance with a generator/storage site's request.

### **TECHNICAL COMMENT NO. 35**

Table D-1a entitled "RH TRU Mixed Waste Inspection Schedule/Procedures," in the "procedure number" column, lists numerous DOE procedures under which specific equipment, devices or units will be inspected. Applicable information from these procedures, which are used to conduct the inspection, should be provided in the PMR, or all procedures listed in Table D-1a should be included in the PMR.

#### **Response:**

Inspection of RH TRU mixed waste handling equipment has been presented in the same manner as in WIPP's HWFP for CH TRU mixed waste handling equipment. The new Table D-1a of the PMR has the same level of detail currently shown in the existing WIPP HWFP.

On March 6, 2001 the Permittees submitted a Class 2 PMR which included as Item 1 the removal of specific inspection procedures and forms as well as stating:

"The inspection procedures, logbooks and forms, are currently in the Operating Record and open to NMED inspection and review at anytime. The requirements of 20.4.1.500 and 900 NMAC (incorporation 40 CFR Sections 264.15(b) and 270.14 (b)) will be met without the inclusion of the inspection forms and detailed procedures in the HWFP."

This Class 2 PMR was approved by the NMED on July 6, 2001 with only editorial changes. The Permittees "Second RH NOD Response Matrix" portion of the PMR also responds to NMED Comment 7-2 in which the Permittees state:

"In addition, the Permittees have elected to modify Table D-1a to include what checks (i.e., inspection criteria) are performed on each piece of equipment listed in that Table. Referenced procedures will be maintained in the WIPP Operating Record."

## TECHNICAL COMMENT NO. 36

Expanded container storage in the proposed new CH Bay Storage Area (apparently including the former NE and TRUDOCK Storage Areas) is not diagrammed or outlined to show unit boundaries or adequate storage and aisle space. This new unit is not explicitly described as a new unit, although the name is changed, and the area and waste capacity of the unit are increased by more than 100% (compared to the previous NE and TRUDOCK unit areas). Similarly, specific RH waste storage locations are not defined in text or shown on figures. Appropriate revision should be made to the PMR to address these issues. Pertinent locations in the PMR include:

- a) Module III, Section III.A.1., *Waste Handling Building Container Storage Unit*, page III-1, 2<sup>nd</sup> paragraph
- b) Attachment M1, Figure M1-1, *Waste Handling Building- Container Storage and Staging Areas*; and Figures M1-17a, b and c, (*RH Bay and other RH rooms*)

### **Response:**

Within Attachment M1, Figure M1-1, the CH Bay Storage Area is clearly delineated.

The CH Bay Storage Area is also clearly and explicitly described in Table III.A.1, which shows the changes in size of the storage area, the maximum capacity and the container equivalents within the CH Bay Storage Area. The HWFP does not now delineate the location of every container within designated storage areas nor is there any regulatory requirement for such a designation. However, mathematics demonstrate that if seven facility pallets can be stored in an area of approximately 3,000 square feet then 2.5 times that amount (17 facility pallets) can be stored in an area approximately seven times as large (20,574 square feet).

There are no current figures in the HWFP which show aisle space as that is addressed in other sections of the HWFP (also see response to Technical Comment No. 40).

With regards to RH storage areas, these are also delineated in Table III.A.1 and figures of those areas are included in Attachment M1 as Figures M1-14, M1-14a, M1-17a, M1-17b, M1-17c, and M1-17d. Also Figures M1-14, M1-17a, M1-17b, M1-17c and M1-17d do show locations of specific RH storage.

Figures M1-17c and G-7 have been revised to indicate that one position in the RH Bay Canister Transfer Cell will not contain a facility canister.

Table III.A.1 has been revised to correct the row entitled Total for CH TRU Mixed Waste to reflect the correct maximum capacity.

**Proposed Revised Permit Text:**

Figure G-7 and Figure M1-17c has been revised to clarify storage in the RH Bay Transfer Cell.

Table III.A.1

Description	Approximate Area	Maximum Capacity of TRU Mixed Waste	Container Equivalent
Total For CH TRU Mixed Waste	20,914.5 ft <sup>2</sup> (1,945.7 m <sup>2</sup> )	5,826.3 ft <sup>3</sup> 165.7 m <sup>3</sup>	

**TECHNICAL COMMENT NO. 37**

Expanded container storage in the Parking Area Unit is not diagrammed or outlined to show unit boundaries or adequate storage and aisle space. Although the permitted unit area is reduced from 115,000 square feet to 24,985 square feet, the maximum capacity is increased from 1,591 cubic feet to 7,160 cubic feet of waste. It is not clear whether the additional waste containers (a total of 50 CH packages and 14 RH packages) will fit into the reduced area, especially while maintaining required aisle space. This is the same quantity of waste proposed for “staging” in the new Parking Area Staging Area (area = 156,656 square feet) as shown in Attachment A, Table A-2. It is unclear whether the total number of waste packages is intended to be distributed between the permitted unit and the Staging Area, or if each area is intended to hold up to the total number of waste packages. Appropriate revisions should be made to the PMR to address these issues. Pertinent locations in the PMR include:

- a) Module III, Table III.A.2- *Parking Area Unit*, page III-4
- b) Attachment M1, Figure M1-2, *Parking Area- Container Staging and Storage Areas*

**Response:**

Within Attachment M1, Figure M1-2, the Parking Area Storage Unit and Parking Area Holding Unit are clearly delineated and are further restated in Tables III.A.2 and A-2. Also, the footnote of Table II.A.2 states:

“There may be no more than a combined total of 50 CH Packages and 14 RH Packages in the PAU storage or holding areas.”

The requested volume of 50 CH Packages and 14 RH Packages may be all stored in the Parking Area Storage Unit; may be all staged in the Parking Area Holding Unit or may be split between the two units depending upon the verification and examination process.

The Permittees have performed calculations to show that there is sufficient space in the Parking Area Storage Unit for this volume and that sufficient aisle space will be available as required by 20.4.1.500 NMAC (incorporating 40 CFR Section 264.35) which states:

“The owner or operator must maintain sufficient aisle space to allow the unobstructed movement of personnel, fire protection equipment, spill control equipment and decontamination equipment to any area of facility operations in an emergency,…”

As stated in Sections III.A.2.e, and E-1b the Permittees have not requested any changes in the aisle space requirements for CH or RH packages.

### **TECHNICAL COMMENT NO. 38**

RH and total waste volumes to be emplaced in underground HWDUs are not consistently specified. Proposed Module IV, Table IV.A.1 states that 750 RH TRU Canisters may be disposed in Panel 3 and each future panel. However, Attachment I, Section I-1c, and Attachment M2, Sections M2-1 and M2-2b, state that the total number of RH canisters per panel will be 730. Similarly, the total volume of TRU mixed waste to be emplaced in Panel 3 and future panels is stated in Module IV, Table IV.A.1 as 660,000 cubic feet, but in Attachment I the total volume per panel is given as 662,400 cubic feet. Appropriate revisions should be made to the PMR to address these issues. Pertinent locations in the PMR include:

- a) Module IV, Table IV.A.1, *Underground HWDUs*, page IV-2
- b) Attachment I, Section I-1c, *Maximum Waste Inventory*, page I-4, 3<sup>rd</sup> paragraph
- c) Attachment M2, Section M2-1, *Description of the Geologic Repository*, page M2-1, 4<sup>th</sup> paragraph, and Section M2-2b, *Geologic Repository Process Description*, page M2-3, 3<sup>rd</sup> paragraph

### **Response:**

See the Response to Technical Comment 39. The Permittees agree that clarification of the emplacement volumes for RH TRU mixed waste is needed. Based on the analysis in the Response to Technical Comment 39, the number of boreholes per panel has been set at 730. This number is derived from repository design criteria and limitations imposed by operational considerations in place at the time the number was developed. The maximum volume of RH TRU mixed waste is specified as 2,230 canisters, based on the design criterion of 10 kilowatts per acre and the design assumption of a maximum heat content of 60 watts per canister. In revising Table IV.A.1, the Permittees have used the maximum allowable volume based on the repository design. The total for RH TRU waste does not exceed the current repository limit of 250,000 ft<sup>3</sup> (7,080 m<sup>3</sup>).

Note also that the volume of waste is based on the maximum of 2,230 canisters per panel. In making the conversion to volume, the volume of a direct loaded RH TRU mixed waste

canister (0.89 m<sup>3</sup> per canister) was used. However, the disposed volume can vary depending on the type of RH TRU mixed waste container used. For example a RH TRU mixed waste canister loaded with three 55-gallon drums would have a waste volume of 0.63 m<sup>3</sup> of RH TRU mixed waste. Although not currently planned, other types of containers would yield other disposal volumes.

The following proposed permit text permit is being provided.

**Proposed Revised Permit Text:**

Module IV, Table IV.A.1

Table IV.A.1 - Underground HWDUs			
Description <sup>1</sup>	Area <u>TRU Mixed Waste Type</u>	Maximum Capacity <u>of TRU Mixed Waste<sup>2</sup></u>	Container Equivalent <sup>2</sup>
Panel 1	<u>124,150 ft<sup>2</sup> (+1,533 m<sup>2</sup>) CH TRU Mixed</u>	371,000 <u>636,000</u> ft <sup>3</sup> (10,500 <u>18,000</u> m <sup>3</sup> )	50,460 <u>86,500</u> 55-Gallon Drums
Panel 2	<u>124,150 ft<sup>2</sup> (+1,533 m<sup>2</sup>) CH TRU Mixed</u>	636,000 ft <sup>3</sup> (18,000 m <sup>3</sup> )	86,500 55-Gallon Drums
Panel 3	<u>124,150 ft<sup>2</sup> (+1,533 m<sup>2</sup>) CH TRU Mixed</u>	636,000 ft <sup>3</sup> (18,000 m <sup>3</sup> )	86,500 55-Gallon Drums
	<u>RH TRU Mixed</u>	<u>70,100 ft<sup>3</sup> (1,985 m<sup>3</sup>)</u>	<u>2,230 direct loaded canisters</u>
Panel 4	<u>124,150 ft<sup>2</sup> (+1,533 m<sup>2</sup>) CH TRU Mixed</u>	636,000 ft <sup>3</sup> (18,000 m <sup>3</sup> )	86,500 55-Gallon Drums
	<u>RH TRU Mixed</u>	<u>70,100 ft<sup>3</sup> (1,985 m<sup>3</sup>)</u>	<u>2,230 direct loaded canisters</u>
Panel 5	<u>124,150 ft<sup>2</sup> (+1,533 m<sup>2</sup>) CH TRU Mixed</u>	636,000 ft <sup>3</sup> (18,000 m <sup>3</sup> )	86,500 55-Gallon Drums
	<u>RH TRU Mixed</u>	<u>70,100 ft<sup>3</sup> (1,985 m<sup>3</sup>)</u>	<u>2,230 direct loaded canisters</u>
Panel 6	<u>124,150 ft<sup>2</sup> (+1,533 m<sup>2</sup>) CH TRU Mixed</u>	636,000 ft <sup>3</sup> (18,000 m <sup>3</sup> )	86,500 55-Gallon Drums
	<u>RH TRU Mixed</u>	<u>70,100 ft<sup>3</sup> (1,985 m<sup>3</sup>)</u>	<u>2,230 direct loaded canisters</u>

Panel 7	<u>124,150 ft<sup>2</sup></u> <u>(11,533 m<sup>2</sup>) CH TRU</u> <u>Mixed</u>	636,000 ft <sup>3</sup> (18,000 m <sup>3</sup> )	86,500 55-Gallon Drums
	<u>RH TRU Mixed</u>	<u>70,100 ft<sup>3</sup> (1,985 m<sup>3</sup>)</u>	<u>2,230 direct loaded</u> <u>canisters</u>
<b>Total</b>	<u>CH TRU Mixed</u>	<u>4,187,000 - 4,452,000 ft<sup>3</sup></u> <u>(118,500 - 126,000 m<sup>3</sup>)</u>	<u>569,460 - 605,500 55-</u> <u>Gallon Drums</u>
	<u>RH TRU Mixed</u>	<u>250,000 ft<sup>3</sup> (7,080 m<sup>3</sup>)<sup>3</sup></u>	<u>7,955 direct loaded</u> <u>canisters</u>

<sup>1</sup> The area of each panel is approximately 124,150 ft<sup>2</sup> (11,533 m<sup>2</sup>).

<sup>2</sup> "Maximum Capacity" and "Container Equivalent" values have been reduced to actual capacity and container equivalent for closed Underground HWDUs.

Total values reflect remaining permitted capacity and container equivalent. The actual emplaced volume in Panel 1 is 371,000 ft<sup>3</sup> (10,500 m<sup>3</sup>) and 50,460 55-gallon drum equivalents.

<sup>3</sup> The total volume of RH TRU mixed waste cannot exceed the repository limit.

Note: The actual capacity of each panel of TRU mixed waste and non-mixed TRU waste combined may exceed 19,985 m<sup>3</sup> so long as the maximum repository capacity of 175,600 m<sup>3</sup> is not exceeded.

#### Attachment I, Section I-1c Maximum Waste Inventory

The WIPP will receive no more than 6.2 million ft<sup>3</sup> (175,600 m<sup>3</sup>) of TRU mixed waste which may include up to 250,000 ft<sup>3</sup> (7,080 m<sup>3</sup>) of RH TRU mixed waste. Excavations are mined as permitted when needed during operations to maintain a reserve of disposal areas. The amount of waste placed in each room is limited by structural and physical considerations of equipment and design. Waste volumes include waste received from off-site generator locations as well as derived waste from disposal and decontamination operations. Maximum waste volumes The maximum volume of TRU mixed waste in the a disposal panel is established in Table IV.A.1. panels are calculated as follows: of 100 percent 55-gallon drums-- 11,502 7-packs consisting of 80,514 drums and 591,800 ft<sup>3</sup> (16,760 m<sup>3</sup>) of waste. Since the waste can arrive in any combination of 7-packs, a fixed volume is not set for each panel. Furthermore, the placement of backfill materials to modify chemical nature of brines over the long-term will likely result in fewer containers per panel as described in Permit Attachment M2. For closure planning purposes, a maximum achievable volume of 706,100 ft<sup>3</sup> (19,985 m<sup>3</sup>) of TRU mixed waste is used. The actual capacity of each panel of TRU mixed waste and non-mixed TRU waste combined may exceed 19,985 m<sup>3</sup> so long as the maximum repository capacity of 175,600 m<sup>3</sup> is not exceeded. This equates to 662,400 ft<sup>3</sup> (18,750 m<sup>3</sup>) of contact handled (CH) TRU per panel. 81,000 containers were assumed in design calculations since, for air dispersion modeling, it is important to maximize the number of container vents through which volatile organic compounds (VOC)

may be released. In reality, using the 40 percent-60 percent mix, there would be only 51,000 containers in a panel, containing 56,000 vents (2 vents per SWB).

#### Attachment M2, Section M2-1 Description of the Geologic Repository

The HWDUs identified as Panels 1 through 7 (Figure M2-1) provide room for up to 4,187,000 4,452,000 cubic feet (ft<sup>3</sup>) (~~418,500~~ 126,000 meters (m<sup>3</sup>)) of CH TRU mixed waste. The CH TRU mixed waste containers (typically, 7-packs and standard waste boxes (SWBs)) may be stacked three-high across the width of the room. RH TRU mixed waste may be disposed of in up to 730 boreholes per Panel. At a minimum, these boreholes shall be drilled on nominal eight-foot centers, horizontally, about mid-height in the ribs of a disposal room. The thermal loading from RH TRU mixed waste shall not exceed 10 kilowatts per acre when averaged over the area of a panel as shown in Permit Attachment M3 plus one hundred feet of each of a Panel's adjoining barrier pillars.

#### Attachment M2, Section M2-2b Geologic Repository Process Description

##### RH TRU Mixed Waste Emplacement

The Facility Cask Transfer Car is loaded onto the waste hoist and is lowered to the waste shaft station underground. At the waste shaft station underground, the facility cask is moved from the waste hoist by the Facility Cask Transfer Car (Figure M2-16). A forklift is used to remove the facility cask from the Facility Cask Transfer Car and to transport the facility cask to the Underground HWDU. There, the facility cask is placed on the HERE (Figure M2-17), which has been previously aligned with a horizontal hole bored into the room wall. The facility cask is moved forward to mate with the shield collar, and the transfer carriage is advanced to mate with the rear facility cask shield valve. The shield valves on the facility cask are opened, and the transfer mechanism advances to push the canister into the borehole. After retracting the transfer mechanism into the facility cask, the forward shield valve is closed, and the transfer mechanism is further retracted into its housing. The transfer mechanism is moved to the rear, and the shield plug carriage containing a shield plug is placed on the emplacement machine. The transfer mechanism is used to push the shield plug into the facility cask. The front shield valve is opened, and the shield plug is pushed into the borehole (Figure M2-18). The transfer mechanism is retracted, the shield valves close on the facility cask, and the facility cask is removed from the HERE.

Shield plugs (29 in.(73 cm) in diameter) are inserted into the borehole (30 in.(75 cm) in diameter) after emplacement of the canister (approximately 26 in.(65 cm) in diameter). They provide the necessary shielding for the exposed end of the borehole, limiting the borehole radiation dose rate at 30 cm to less than 10 mrem per hour for a canister surface dose rate of 100 rem/hr.

The amount of RH TRU mixed waste disposal in each panel is limited based on thermal and geomechanical considerations and shall not exceed 10 kilowatts per

acre as described in Permit Attachment M2-1 RH TRU mixed waste emplacement boreholes shall be drilled in the ribs of the panels at a nominal spacing of 8 ft (2.4 m) center-to-center, horizontally.

Figures M1-26 and M1-27 are flow diagrams of the RH TRU mixed waste handling process for the RH-TRU 72-B and CNS 10-160B casks, respectively.

Attachment O, Section XII

XII. PROCESS—CODES AND DESIGN CAPACITIES (continued)

During the ten year period of the permit, up to ~~418,500~~ 126,000 m<sup>3</sup> of CH TRU mixed waste and 7,080 m<sup>3</sup> of RH TRU mixed waste could be emplaced in Panels 1 to 7. Panels 8, 9 and 10 will be constructed under the initial term of this permit. These latter areas will not receive waste for disposal under this permit.

**TECHNICAL COMMENT NO. 39**

The limitation of RH waste disposal to 730 canisters per panel in Attachment M2 is “based on thermal and geomechanical considerations,” but these considerations are not identified, explained or referenced. The basis for this limitation may have been included in previous submittals, which should, at a minimum, be referenced. If not previously submitted, the thermal and geomechanical considerations should be fully identified and discussed in the PMR and/or supporting documentation. Pertinent locations in the PMR include:

- a) PMR Section 1.1, *Remote-Handled TRU Mixed Waste*, page 5, 2<sup>nd</sup> paragraph
- b) Attachment M2, Section M2-1, *Description of the Geologic Repository*, page M2-1, 4<sup>th</sup> paragraph, and
- c) Section M2-2b, *Geologic Repository Process Description*, page M2-3, 3<sup>rd</sup> paragraph

**Response:**

The Permittees have addressed the thermal and geomechanical considerations of the repository with respect to RH TRU mixed waste in the Part B Permit Application. Specifically, Section 12.2.2 of Appendix D1 which is the Final Design Validation Report (DVR) provides the design criteria for RH TRU waste emplacement in the repository. Four criteria are listed as follows:

1. RH TRU waste canisters shall be placed perpendicular to the walls, approximately midway between the floor and ceiling and evenly spaced horizontally,
2. Canister spacing shall be based on an assumption that the output of each canister is 60 watts or less,

3. Thermal loading shall not exceed 10 kilowatts per acre, and
4. Equipment shall be designed to operate in an effective room height of 12 feet.

Criterion 3 is relevant to the determination of the volume of RH TRU waste that can be placed in a Hazardous Waste Disposal Unit (**HWDU**). Using the assumption of 60 watts per canister that was used in the DVR a waste panel can have up to 2,230 canisters (using a panel dimension that includes 100 feet of salt surrounding the disposal area).

Criteria 1 and 2 establish a general geometry for the placement of RH TRU waste, with the criterion that the waste be placed midway between the roof and floor and at equal horizontal intervals. Also in the Part B Permit Application, Section D-10a(3)(c), the Permittees stated that the nominal spacing between RH TRU mixed waste emplacement boreholes is eight feet. This is the geometry that was analyzed in the risk assessment that was included with Chapter D of the Part B Permit Application. Using this geometry, up to 730 RH TRU mixed waste emplacement boreholes can be drilled into the walls of a panel (this allows for a 25 foot barrier on the corners of each pillar in the panel). The eight foot center-to-center spacing was selected based on the operational characteristics of the emplacement machinery as configured at the time.

The requested changes have been made to the permit text. Note that the RH TRU limit for the term of the HWFP is set at the repository limit since it is possible to emplace that much waste in Panels 3 through 7 without exceeding the 10 kilowatt per acre design criteria.

### **Proposed Revised Permit Text:**

#### Attachment M2, Section M2-1 Description of the Geologic Repository

The Disposal Phase will consist of receiving contact-handled (**CH**) and remote-handled (RH) TRU mixed waste shipping containers, unloading and transporting the waste containers to the Underground HWDUs, emplacing the waste in the Underground HWDUs, and subsequently achieving closure of the Underground HWDUs in compliance with applicable State and Federal regulations.

The WIPP geologic repository is mined within a 2,000-foot (ft) (610-meters (m))-thick bedded-salt formation called the Salado Formation. The Underground HWDUs (miscellaneous units) are located 2,150 ft (655 m) beneath the ground surface. TRU mixed waste management activities underground will be confined to the southern portion of the 120-acre (48.5 hectares) mined area during the Disposal Phase. During the initial term of this Permit, disposal of containers of **CH** TRU mixed waste will occur only in the seven HWDUs designated as Panels 1-7 (See Figure M2-1). RH TRU mixed waste disposal may begin in Panel 3. In the future, the Permittees may request a Permit to dispose of containers of CH and RH TRU mixed waste in additional panels that meet the definition of the HWDU

in Permit Module IV. In addition, the Permittees may also request in the future a Permit to allow disposal of containers of TRU mixed waste in the north-south entries marked as E-300, E-140, W-30, and W-170, between S-1600 and S-3650. These areas are referred to as the disposal area access drifts and have been designated as Panels 9 and 10 in Figure M2-1. This Permit, during its initial 10-year term, authorizes the excavation of Panels 2 through 10 and the disposal of waste in Panels 1 through 7.

The HWDUs identified as Panels 1 through 7 (Figure M2-1) provide room for up to 4,187,000 4,452,000 cubic feet (ft<sup>3</sup>) (418,500 126,000 meters (m<sup>3</sup>)) of CH TRU mixed waste. The CH TRU mixed waste containers (typically, 7-packs and standard waste boxes (SWBs)) may be stacked three-high across the width of the room. RH TRU mixed waste may be disposed of in up to 730 boreholes per Panel. At a minimum, these boreholes shall be drilled on nominal eight-foot centers, horizontally, about mid-height in the ribs of a disposal room. The thermal loading from RH TRU mixed waste shall not exceed 10 kilowatts per acre when averaged over the area of a panel as shown in Permit Attachment M3 plus one hundred feet of each of a Panel's adjoining barrier pillars.

#### M2-2a(3) Subsurface Structures

During the initial term of this Permit, the volume of CH TRU mixed waste emplaced in the repository will not exceed 4,187,000 ft<sup>3</sup> (118,500 m<sup>3</sup>) and the volume of RH TRU mixed waste shall not exceed 250,000 ft<sup>3</sup> (7,080 m<sup>3</sup>). CH TRU mixed waste will be disposed of in up to 7 Underground HWDUs identified as Panels 1 through 7. RH TRU mixed waste may be disposed of in Panels 3 through 7.

#### M2-2a(3) Underground Ventilation System Description

At any given time during waste emplacement activities, there may will be a significant activities level of activity in multiple rooms in a panel. one room that will be receiving CH waste containers. For example, one room that will may be receiving CH TRU mixed waste containers, another room may be receiving RH TRU mixed waste canisters, and the drilling of RH TRU mixed waste emplacement boreholes may be occurring in another room. The remaining rooms in a panel will either be completely filled with waste; be idle, awaiting waste handling operations; or being prepared for waste receipt. A minimum of 35,000 ft<sup>3</sup> (990 m<sup>3</sup>) per minute will be maintained in each active room where waste disposal is taking place when workers are present in the room. This quantity of air is required to support the numbers and types of diesel equipment that are expected to be in operation in the area, to support the underground personnel working in that area, and to exceed a minimum air velocity of 60 ft (18 m) per minute as specified in the WIPP Ventilation Plan. The remainder of the air is needed in order to account for air leakage through inactive rooms.

## Attachment M2, Section M2-2b Geologic Repository Process Description

### RH TRU Waste Emplacement

The Facility Cask Transfer Car is loaded onto the waste hoist and is lowered to the waste shaft station underground. At the waste shaft station underground, the facility cask is moved from the waste hoist by the Facility Cask Transfer Car (Figure M2-16). A forklift is used to remove the facility cask from the Facility Cask Transfer Car and to transport the facility cask to the Underground HWDU. There, the facility cask is placed on the HERE (Figure M2-17), which has been previously aligned with a horizontal hole bored into the room wall. The facility cask is moved forward to mate with the shield collar, and the transfer carriage is advanced to mate with the rear facility cask shield valve. The shield valves on the facility cask are opened, and the transfer mechanism advances to push the canister into the borehole. After retracting the transfer mechanism into the facility cask, the forward shield valve is closed, and the transfer mechanism is further retracted into its housing. The transfer mechanism is moved to the rear, and the shield plug carriage containing a shield plug is placed on the emplacement machine. The transfer mechanism is used to push the shield plug into the facility cask. The front shield valve is opened, and the shield plug is pushed into the borehole (Figure M2-18). The transfer mechanism is retracted, the shield valves close on the facility cask, and the facility cask is removed from the HERE.

Shield plugs (29 in. (73 cm) in diameter) are inserted into the borehole (30 in. (75 cm) in diameter) after emplacement of the canister (approximately 26 in. (65 cm) in diameter). They provide the necessary shielding for the exposed end of the borehole, limiting the borehole radiation dose rate at 30 cm to less than 10 mrem per hour for a canister surface dose rate of 100 rem/hr.

The amount of RH TRU mixed waste disposal in each panel is limited based on thermal and geomechanical considerations and shall not exceed 10 kilowatts per acre as described in Permit Attachment M2-1 RH TRU mixed waste emplacement boreholes shall be drilled in the ribs of the panels at a nominal spacing of 8 ft (2.4 m) center-to-center, horizontally.

Figures M1-26 and M1-27 are flow diagrams of the RH TRU mixed waste handling process for the RH-TRU 72-B and CNS 10-160B casks, respectively.

### **TECHNICAL COMMENT NO. 40**

The Permittees state in Aisle Space Requirements, Permit Condition III.A.1.f, “For RH TRU mixed waste sufficient aisle space will be maintained to assure that emergency equipment can be accessed or moved to the necessary locations.” The Permittees must elaborate on this statement, providing, at a minimum, specific minimum aisle space for RH waste as is provided for the CH waste in the above permit conditions. In permit

condition III.A.2.e, the Permittees indicate that 4 ft minimum spacing will be maintained "... between Contact or Remote handled packages not on trailers." This part of the statement is ambiguous and should be clarified as to what is meant by packages not on trailers. Pertinent locations in the PMR include:

- a) Permit Module III, *Container Storage*, Permit Condition III.A.1.f and III.A.2.e, pages III-3 and III-5 of the PMR respectively.
- b) Attachment E, *Preparedness and Prevention*, Section E-1b, Aisle Space Requirements, page E-1, 3<sup>rd</sup> paragraph

**Response:**

As stated in Second RH NOD Response Matrix section of the PMR, it is not always applicable to maintain a 44 in. aisle space, because RH TRU mixed waste is stored in single row(s). This is clarified in the PMR. For example, the Table of Changes for Section III.A.1.i.states:

"The Permittees shall maintain adequate aisle space of 44 inches between loaded casks in the RH Bay. Aisle space shall not apply to other locations within the RH Complex because waste containers are stored in racks. Sufficient space shall always be provided to allow the unobstructed movement of emergency equipment."

Also Condition III.A.1.f and PMR Attachment E-1b state:

"For RH TRU mixed waste, sufficient aisle space will be maintained to assure that emergency equipment can be accessed or moved to necessary locations."

Because, RH TRU mixed waste is stored in single rows this eliminates the issue of inspection of containers between rows.

"Packages not on trailers" are CH or RH Packages that have been removed from the transport vehicle and are placed in the appropriate storage or holding area, including on the ground.

**TECHNICAL COMMENT NO. 41**

All Emergencies, RH TRU Mixed Waste, Attachment F, page F-13, 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> paragraph, does not provide sufficient information on how a RH-TRU mixed waste incident will be controlled, contained, or mitigated. The description indicates that the evaluation will be made by cognizant managers, the RCRA Emergency Coordinator, and radiological control personnel. However, the Contingency Plan should also address the steps that will be taken to handle an RH TRU mixed waste emergency. The Permittees must provide detailed descriptions of the control, containment and corrective action criteria used.

**Response:**

The Permittees' response to a spill or release, whether radiological (RH or CH TRU mixed waste) or chemical spills, is event specific. However, overarching this is the fact that the transportation packages and WIPP structures that are used to manage TRU mixed waste are designed and operated to prevent the release of hazardous waste to the environment; therefore, mitigation is focused on protecting workers, cleaning up spills and releases to assure ongoing protection and restoring operations. WIPP procedures ensure personnel are evacuated from the spill area, notification to the RCRA Emergency Coordinator is made and, if the Contingency Plan is implemented, logged into the WIPP Facility Operating Record, hazard identification made, re-entry plan established consistent with the hazard and trained personnel wearing appropriate personal protective equipment performing the appropriate remediation of the spill. One specific response strategy cannot be made for any release of a radionuclide or hazardous constituent.

For RH TRU mixed waste, the detection of contamination on a RH TRU mixed waste canister may occur outside the Hot Cell Complex during cask to cask transfer of the canister. Contamination may also be detected within the Hot Cell Complex during the unloading of the CNS 10-160B shipping cask. In either case, the Permittees may decontaminate or return the shipment to the generator/storage site or another site for remediation. Spills or releases that occur within RH Complex or the underground as the result of RH TRU mixed waste handling will be mitigated by using appropriate measures which may include:

1. Placing waste material in another container
2. Vacuuming the waste material
3. Overpacking or plugging/patching the spilled, leaking or punctured waste container;
4. Decontamination methods
5. Disassembling equipment to facilitate decontamination
6. Decontaminating contaminated equipment
7. Decontaminating the affected area(s)
8. Minimizing derived waste
9. Conducting a final, intensive radcon survey
10. Documenting details of the spill and cleanup in a log

**Proposed Revised Permit Text:**Attachment F, Introduction

This Contingency Plan was prepared in accordance with the Resource Conservation and Recovery Act (**RCRA**) requirements codified in Title 20 of the New Mexico Administrative Code, Chapter 4.1.500 (20.4.1.500 NMAC, incorporating 40 CFR §264.50 to §264.56), "Contingency Plan and Emergency Procedures," and submitted in compliance with 20.4.1.900 NMAC (incorporating

40 CFR §270.14(b)(7)). The purpose of this document is to define responsibilities, to describe coordination of activities, and to minimize hazards to human health and the environment from fires, explosions, or any sudden or nonsudden release of hazardous waste, or hazardous waste constituents to air, soil, or surface water (20.4.1.500 NMAC (incorporating 40 CFR §264.51 [a])). This plan consists of descriptions of processes and emergency responses specific to hazardous substances, contact-handled (**CH**) and **remote-handled (RH)** transuranic (**TRU**) mixed waste and other hazardous waste handled at the WIPP facility. ~~This permit does not authorize the disposal of remote-handled (RH) waste.~~

## F-1 General Information

The RCRA permit addresses TRU mixed waste management activities in the WHB Unit, the Parking Area Unit, **holding areas**, and the disposal units. The provisions of this Contingency Plan apply to hazardous waste disposal units (**HWDU**) in the underground waste disposal panels, storage in the WHB Unit and the Parking Area Unit, **holding areas**, the Waste Shaft, and supporting TRU mixed waste handling areas. The remainder of the facility will not manage TRU mixed waste. This Contingency Plan has also been designed in accordance with 20.4.1.300 NMAC (incorporating 40 CFR § 262.34(a)(4) - Standards for Generators of Hazardous Waste), and will be implemented whenever there is a fire, explosion, or release of hazardous waste which could threaten human health or the environment. Hazardous substances in the remainder of the facility are included as possible triggers of the Contingency Plan but are outside the scope of the regulations promulgated pursuant to RCRA. This allows WIPP to maintain one emergency response plan which is consistent with the National Response Teams Integrated Contingency Plan Guidance (Federal Register, Vol. 61, No. 109, June 5, 1996). Inclusion is based on their National Fire Protection Association (**NFPA**) ratings in addition to their storage quantities. The majority of hazardous substances on-site are not expected to trigger the contingency plan because they are present in the same form and concentration as the product packaged for distribution and use by the general public or are used in a laboratory under the direct supervision of a technically qualified individual. Superfund Amendments and Reauthorization Act (**SARA**) Title III excludes these from emergency planning reporting. The list of hazardous substances in large enough quantities to constitute a Level II incident (Section F-3) is provided in Table F-1. In addition to TRU **mixed** waste, these are the only hazardous substances currently on site which, if spilled, may be of sufficient impact to cause this Contingency Plan to be implemented. Magnesium Oxide (**MgO**) is stored on-site in large quantities. It is used as backfill in the waste emplacement rooms as a pH buffer. The pH buffer will limit the solubility of radionuclides after the underground rooms are filled and closed. MgO is not a hazardous substance, a release of MgO will not create hazardous waste and poses no threat to human health or the environment, and is therefore not addressed in the Contingency Plan.

#### F-4b Identification of Hazardous Materials

Sources of information available to identify the hazardous wastes, substances, or materials involved in a fire, an explosion, or a release at the WIPP facility include operator/supervisor knowledge of their work areas, materials used, and work activities underway; the WIPP Waste Information System (WWIS), which identifies the location within the facility of emplaced CH and RH TRU mixed waste, including emplaced derived waste; and waste manifests and other waste characterization information in the operating record. The WWIS also includes information on wastes that are in the waste handling process. Also available are MSDSs for hazardous material in the various user areas throughout the facility, waste acceptance records, and materials inventories for buildings and operating groups at the WIPP facility. Information or data from the derived waste accumulation areas, the hazardous waste staging area, satellite staging areas, and nonregulated waste accumulation areas are included.

CH and RH TRU mixed waste received by the WIPP facility during the Disposal Phase will be characterized for hazardous constituents prior to receipt, and acceptable knowledge will be used to characterize derived waste prior to emplacement.

Information required for identifying CH and RH TRU mixed hazardous constituents in case of an incident is readily available through the WWIS and the waste acceptance records. CH and RH TRU mixed waste Waste accepted at WIPP is already known to be compatible with all materials used to respond to an emergency. All non-TRU mixed waste materials received on site, other than those listed in Table F-1, are in such small quantities that no reaction could develop which would trigger an Incident Level II or III response.

#### F-4c Assessment of the Nature and Extent of the Emergency

Once the required notifications have been made, the RCRA Emergency Coordinator will ensure that the identity, exact source, amount, and areal extent of any released materials are determined, as required under 20.4.1.500 NMAC (incorporating 40 CFR §264.56(b)). The RCRA Emergency Coordinator will determine whether the occurrence constitutes an emergency based on knowledge of the area and access to the CH and RH TRU mixed waste identification/characterization information described in Section F-4b. An emergency will require response by only trained emergency response personnel. The RCRA Emergency Coordinator will be responsible for responding to immediate and potential hazards, using the services of trained personnel to determine: 1) the identity of hazardous wastes, hazardous waste constituents, and other hazardous materials involved in a release, as described in Section F-4b; 2) whether or not a release involved a reportable quantity of a hazardous substance;

3) the areal extent of a release; 4) the exact source of a release; and 5) the potential hazards to human health or to the environment.

#### F-4d Control, Containment, and Correction of the Emergency

The WIPP facility is required to control an emergency and to minimize the potential for the occurrence, recurrence, or spread of releases due to the emergency situation, as described in 20.4.1.500 NMAC (incorporating 40 CFR §264.56 (e)). The WIPP Emergency Response procedures utilize the incident mitigation guidelines in NFPA 471, Responding to Hazardous Materials Incidents, with initial response priority being on control, and those actions necessary to ensure confinement and containment (the first line of defense) in the early, critical stages of a spill or leak. The RCRA Emergency Coordinator is responsible for stopping processes and operations when necessary, and removing or isolating containers. CH and RH TRU mixed waste will remain within the WHB Unit, ~~parked Contact Handled Packages~~ the Parking Area Unit, and the underground HWDU.

#### All Emergencies

The WIPP Emergency Response procedures include, but are not limited to, the following actions appropriate for control:

1. Isolate the area from unauthorized person by fences, barricades, warning signs, or other security and site control precautions. Isolation and evacuation distances vary, depending upon the chemical/product, fire, and weather situations.
2. Identify the chemical/product according to Section F-4b.
3. Drainage controls.
4. Stabilization of physical controls (such as dikes or impoundment[s]).
5. Capping of contaminated soils to reduce migration.
6. Using chemicals and other materials to retard the spread of the release or to mitigate its effects.
7. Excavation, consolidation, removal, or disposal of contaminated soils.
8. Removal of drums, barrels, or tanks where it will reduce exposure risk during situations such as fires.

If the facility stops operations in response to a fire, explosion, or release, the RCRA Emergency Coordinator shall ensure continued monitoring for leaks, pressure buildup, gas generation, or ruptures in valves, pipes, or other equipment, wherever appropriate. If operations continue, personnel normally assigned to these tasks will continue.

Both natural and synthetic methods will be employed to limit the releases of hazardous materials so that effective recovery and treatment can be accomplished with minimum additional risk to human health or the environment. A combination of the above methods to achieve protection of human health and the environment, with emphasis on two basic methods for mitigation of hazardous materials incidents - Physical and Chemical (Tables F-4, F-5) mitigation, will be used.

1. Physical methods of control involve any of several processes to reduce the area of the spill/leak, or other release mechanism (such as fire suppression).
  - A. Absorption is the process in which materials hold liquids through the process of wetting. Absorption is accompanied by an increase in the volume of the sorbate/sorbent system through the process of swelling. Some of the materials utilized in response to Level I incidents or Level II incidents involving liquids will be absorbent sheets of polyolefin-type fibers, spill control bucket materials (specifically for solvents, neutralization, or for acids/caustics), and absorbent socks for general liquids or oils.
  - B. Covering refers to a temporary form of mitigation for radioactive incidents that will be utilized in response to Level II or Level III incidents involving CH TRU mixed waste. These could include absorbent sheets, plastic, or actual ambulance blankets.
  - C. Dikes or Diversions refer to the use of physical barriers to prevent or reduce the quantity of liquid flowing into the environment. Dikes may be soil or other barriers temporarily utilized to hold back the spill or leak. Diversion refers to the methods used to physically change the direction of the flow of the liquid. Absorbent socks or earth may be utilized as dikes or diversions for all levels of incidents.
  - D. Overpacking is accomplished by the use of an oversized container. Overpack containers will be compatible with the hazards of the materials involved.
  - E. Plug and Patch refers to the use of compatible plugs and patches to reduce or temporarily stop the flow of materials from small holes, rips, tears, or gashes in containers. A Series "A" hazardous response kit containing nonsparking

equipment to control and plug leaks may be utilized for response to all levels of incidents.

- F. Transfer refers to the process of moving a liquid, gas, or some forms of solids, either manually or by pump, from a leaking or damaged container. Scoops, shovels, jugs, and pails as well as drum transfer pumps for chemical and petroleum transfer are utilized as needed in response to all levels of incidents.
- G. Vapor Suppression refers to the reduction or elimination of vapors emanating from a spilled or released material through the most efficient method or application of specially designed agents such as an aqueous foam blanket.

## 2. Chemical Methods of Mitigation

- A. Neutralization is the process of applying acids or bases to a spill to form a neutral salt. The application of solids for neutralizing can often result in confinement of the spilled material. This would include using the neutralizing adsorbents.
- B. Solidification is the process whereby a hazardous liquid is added to material such as an absorbent so that a solid material results.

The established procedures are based upon the incident level and a graded approach for nonradioactive **or CH TRU** waste emergencies and initiated to:

1. Minimize contamination or contact (through PPE, etc.)
2. Limit migration of contaminants
3. Properly dispose of contaminated materials

**For RH TRU mixed waste, the detection of contamination on a RH TRU mixed waste canister may occur outside the Hot Cell Complex during cask to cask transfer of the canister. Contamination may also be detected within the Hot Cell Complex during the unloading of the CNS 10-160B shipping cask. In either case, the Permittees may decontaminate or return the shipment to the generator/storage site or another site for remediation. Spills or releases that occur within RH Complex or the underground as the result of RH TRU mixed waste handling will be mitigated by using appropriate measures which may include the items above.**

## Fire

The incident level emergency response identified in Section F-3 includes fire/explosion potential. WIPP fire response includes incipient, exterior structure fires, and internal structure fires. The RCRA Emergency Coordinator can implement the Memoranda of Understanding (**MOU**) for additional support.

The first option in mine fire response will be to apply mechanical methods to stop fires (e.g., cut electrical power). The last option in mine fire response will be to reconfigure ventilation using control doors associated with the underground ventilation system. The following actions are implemented in the event of a fire:

1. All emergency response personnel at an incident will wear appropriate PPE.
2. Only fire extinguishing materials that are compatible with the materials involved in the fire will be used to extinguish fires. Compatibility with materials involved in a fire are determined by pre-fire plans, Emergency Response Guide Book (DOT, 1993), DOT labeling, and site-specific knowledge of the emergency response personnel. Water and dry chemical materials have been determined to be compatible with all components of the **CH and RH** TRU mixed waste. Pre-fire plans for the WHB are included in Figures F-10 and F-11.

Fires in areas of the WHB Unit should not propagate, due to limited amount of combustibles, and the concrete and steel construction of the structures. Administrative controls, such as landlord inspections and EST/FPT inspections, help to insure good housekeeping is maintained. Combustible material and TRU mixed waste will be isolated, if possible. Firewater drain trenches collect the water and channel it into a sump. In areas not adjacent to the trenches, portable absorbent dikes (pigs) will be used to retain as much as possible, until it can be transferred to containers or sampled and analyzed for hazardous constituents.

3. Only materials compatible with ~~the~~ **CH and RH TRU mixed** waste may be used for fire response.

## Explosion

The following actions will be implemented in the event that an explosion that involves or threatens hazardous or **CH and RH** TRU mixed waste or hazardous materials has occurred:

## Spills

Protection of response personnel at a hazardous material incident is paramount. The primary methods to protect personnel are time, distance, and shielding. If a Level II or III incident exists, the RCRA Emergency Coordinator will implement the following actions:

1. Released wastes may be collected and contained by stabilizing or neutralizing the spilled material, as appropriate, pouring an absorbent over the spilled material, and sweeping or shoveling the absorbed material into drums or other appropriate containers. The absorbents have been determined to be compatible with all components of the **CH and RH** TRU mixed waste.
2. No **CH and RH** TRU mixed waste that may be incompatible with the released material will be managed in the affected area until cleanup procedures are complete.

## Control of Spills or Leaking or Punctured Containers of CH and RH TRU Mixed Waste

In the event of spills or leaking or punctured containers of CH and RH TRU mixed waste, the WIPP responds **into** three distinct phases: 1) the event, 2) the re-entry, and 3) the recovery.

During the event, the following immediate actions are completed: 1) stop work, 2) warn others (notify CMR), 3) isolate the area, 4) minimize exposure, and 5) close off unfiltered ventilation. These actions can take place simultaneously, as long as they are completed before proceeding to the re-entry phase.

### CH TRU Mixed Waste

**During the Prior to the re-entry phase following an event involving containers of CH TRU mixed waste**, a Radiological Work Permit (**RWP**) is written for personnel to enter with protective clothing to assess the conditions, take surveys and samples, and mitigate problems that could compound the hazards in the area (cover up spilled material with plastic material sheeting and or any approved fixatives such as polyvinyl alcohol (**PVA**) or paint, place equipment in a safe configuration, etc.). **During the re-entry phase, smears** and air sample filters are **taken and** counted. This information is used by cognizant managers, RC personnel, and As Low As Reasonably Achievable (**ALARA**) Committee representatives to determine an appropriate course of action to recover the area. A plan to decontaminate and recover affected areas and equipment will be approved with a **separate** RWP written to establish the radiological controls required for the recovery.

During the recovery phase, the plan will be executed to utilize the necessary resources to conduct decontamination and/or overpacking operations as needed. The completion of this phase will occur prior to returning the affected area and/or equipment to normal activities. The recovery phase will include activities to minimize the spread of contamination to other areas. These activities will involve placing the waste material in another container; vacuuming the waste material; overpacking or plugging/patching the spilled, leaking, or punctured waste container; and/or decontaminating the affected area(s). If an affected surface cannot be decontaminated to releasable levels, it may be covered with a fixative coating and established as a Fixed Contamination Area to prevent spread of contamination, or it may be removed using heavy machinery and tools, packaged in approved waste containers, and emplaced in the underground. Every reasonable effort to minimize the amount of derived waste, while providing for the health and safety of personnel, will be made.

Should a breach of a **CH TRU mixed waste** container occur at the WIPP that results in **external removable contamination** exceeding the small area "spot" decontamination levels, the affected container(s) (e.g., breached and contaminated) will be placed into an available overpack container (e.g., 85-gal drum, SWB, TDOP), except that TDOP's will be decontaminated, repaired/patched in accordance with 49 CFR §173 and §178 (e.g., 49 CFR §173.28), or returned to the generator. The decontamination of equipment and the overpacking of contaminated/damaged waste containers will be performed in the vicinity of the incident. For example, under normal operations **CH TRU mixed** waste will be handled only in the areas of the WHB Unit. Therefore, it is within these same areas that decontamination and/or overpacking operations would occur. By eliminating the transport of contaminated equipment to other areas for decontamination or overpacking, the risk of spreading contamination is reduced.

Equipment used during a spill cleanup or **CH TRU mixed waste** overpacking operation could include: cloths, brushes, scoops, absorbents, squeegees, tape, bags, pails, slings, hand tools, and others as needed for a given incident.

At the underground emplacement room, salt contaminated by a spill of **CH** TRU mixed waste would be either covered or cleaned up, depending on location, extent, and spilled material, due to potential radioactive contamination spread via the salt dust. The contaminated salt would be covered to isolate it from the workers, and the stacking of waste containers would resume or would be removed and packaged as site-derived waste using applicable site procedures for decontaminating surfaces.

The decontamination methods will initially involve wiping down structures, equipment, and other containers in the area with absorbent cloths moistened with tepid water. Surveys of these structures will take place and the need to continue decontamination activities will be established. If further decontamination is

required, nonhazardous decontaminating agents, such as Liquinox®, Simple Green®, Windex®, citric acid, Bartlett Strip Coat®, and high pressure CO<sub>2</sub> will be used to prevent generating **CH** TRU mixed waste.

RWPs and other administrative controls provide protective measures to help ensure that new hazardous constituents will not be added during decontamination activities.

Certain structures and/or equipment may be disassembled to facilitate decontamination or may be placed directly into a derived waste container. Items used in the spill cleanup and decontamination operations (e.g., swipes, tools, PPE, etc.) may also be placed into a derived waste container.

When decontamination is deemed by the recovery team to be complete, RC personnel will conduct one final, intensive radcon survey of the area and components in the area to release it for uncontrolled use. The free release criteria for items, equipment, and areas is < 20 dpm/100 cm<sup>2</sup> for alpha radioactivity and < 200 dpm/100 cm<sup>2</sup> for beta-gamma radioactivity. Personnel will then perform hazardous material sampling after decontamination efforts are complete to ~~confirm~~ **verify** the removal of hazardous waste substances. After cleanup is complete, facility personnel will complete an inspection and include the details of the spill and cleanup in the log.

### RH TRU Mixed Waste

For RH TRU mixed waste, the detection of contamination on a RH TRU mixed waste canister may occur outside the Hot Cell Complex during cask to cask transfer of the canister. Contamination may also be detected within the Hot Cell Complex during the unloading of the CNS 10-160B shipping cask. In either case, the Permittees may decontaminate or return the shipment to the generator/storage site or another site for remediation. Spills or releases that occur within RH Complex or the underground as the result of RH TRU mixed waste handling will be mitigated by using appropriate measures which may include the following.

During the re-entry phase, an evaluation of the incident, including the nature of the release, amount, location, and other appropriate factors will be performed. A RWP will be written and approved prior to personnel entering the Hot Cell Complex with the appropriate PPE to further assess the situation, perform surveys and take samples, and, if possible, mitigate problems that could compound the hazards in the area. Based on the results of the evaluation, a determination will be made by the RCRA Emergency Coordinator, with input from the cognizant managers, radiological control personnel, and As Low As Reasonably Achievable Committee representatives whether to implement the Contingency Plan and to determine the appropriate course of action to recover from the event. An action response plan to decontaminate and recover affected areas and equipment,

together with an RWP establishing the radiological controls required for the recovery will be developed and approved.

Should a breach of a RH TRU mixed waste container occur in the Hot Cell Complex that results in removable contamination exceeding the small area "spot" decontamination levels, the affected container(s) (e.g., breached and contaminated) will be placed into an available container and processed for disposal. The decontamination of equipment, cleanup of spilled material, and the overpacking of contaminated/damaged waste containers will be performed in the vicinity of the incident. For example, under normal operations RH TRU mixed waste in 55-gallon drums will be handled only in the Hot Cell Complex. Therefore, it is within this area that decontamination and/or overpacking operations would occur. By eliminating the transport of contaminated equipment to other areas for decontamination or overpacking, the risk of spreading contamination is reduced. Contaminated materials for the cleanup and overpacking of a breached RH TRU mixed waste container may be managed as CH TRU mixed waste, depending on the surface dose rate.

Equipment used during a spill cleanup or RH TRU mixed waste overpacking operation could include: cloths, brushes, scoops, absorbents, squeegees, tape, bags, pails, slings, hand tools, and other equipment as needed for a given incident.

The decontamination methods may initially involve wiping down structures, equipment, and other containers in the area with absorbent cloths moistened with tepid water. Surveys of these structures will take place and the need to continue decontamination activities will be established. If further decontamination is required, nonhazardous decontaminating agents, such as Liquinox®, Simple Green®, Windex®, citric acid, Bartlett Strip Coat®, and high pressure CO<sub>2</sub> will be used to prevent generating CH TRU mixed waste.

RWPs and other administrative controls provide protective measures to help ensure that new hazardous constituents will not be added during decontamination activities.

Certain structures and/or equipment within the Hot Cell Complex may be disassembled to facilitate decontamination or may be placed directly into a derived waste container. Items used in the spill cleanup and decontamination operations (e.g., swipes, tools, PPE, etc.) may also be placed into a derived waste container.

When decontamination of the Hot Cell Complex is deemed by the recovery team to be complete, radcon personnel will conduct one final, intensive radcon survey of the area and components in the area to release it for continued use. Personnel will then perform hazardous material sampling after decontamination efforts are complete to confirm the removal of hazardous waste substances. After cleanup is complete, facility personnel will complete an inspection and include the details of

the spill and cleanup in the log. The recovery phase must be completed before the affected area and/or equipment are returned to service.

### Roof Fall

Roof fall is not expected to affect RH TRU mixed waste because it is emplaced in the rib of the disposal room and not subject to impact from a roof fall. The following incident description and mitigation apply to CH TRU mixed waste.

#### F-4f Management and Containment of Released Material and Waste

Under normal operations, administrative controls will be implemented to ensure that hazardous materials and incompatible materials will not be introduced to the radioactive materials area during CH and RH TRU mixed waste handling operations. Examples of administrative controls include restricting the waste received in the CH and RH TRU mixed waste management storage and disposal area(s) to CH and RH TRU mixed waste properly manifested from the generator sites and ensuring that materials used in these area(s) are restricted to only those that have previously been determined to be compatible with the CH and RH TRU mixed waste. The RCRA Emergency Coordinator will have access to building design information and information on specific equipment used within an area upon which to base a determination of the compatibility of materials with the area. If necessary, the RCRA Emergency Coordinator will use EPA-600/2-80-076, "A Method for Determining the Compatibility of Hazardous Waste," (EPA, 1980) for making compatibility determinations. Waste resulting from the cleanup of a fire, explosion, or release in the miscellaneous unit and the CH TRU mixed waste handling area or the Hot Cell Complex will be considered derived from the received CH and RH TRU mixed waste and will may be treated and managed as CH TRU mixed waste depending on the surface dose rate.

In the event of a prolonged cessation of CH or RH TRU mixed waste handling operations, CH or RH TRU mixed waste can be placed in areas of the WHB Unit that are available for such contingencies. These areas and the CH or RH TRU mixed waste containers in them would be located so that adequate aisle space would be maintained for unobstructed movement of personnel and equipment in an emergency. Permit Attachments M, M1, and M2 describe the HWMUs in detail, including the facility description, support structures and equipment, security, waste handling areas, ventilation, and fire protection.

Because of the restrictions which the WIPP facility places on generators, and because of control of WIPP operations, CH and RH TRU mixed wastes and derived wastes will not contain any incompatible wastes. However, the areas established for the temporary holding of nonradioactive waste routinely generated at the WIPP facility is divided into bays to accommodate the management of wastes that may be incompatible. If waste is generated as the result of a spill or release of hazardous materials or nonradioactive hazardous waste, the waste

generated as a result of abatement and cleanup will be evaluated to determine its compatibility with other wastes being managed in the temporary holding areas. The evaluation will be by identifying the material or waste that was spilled or released and determining its characteristics (e.g., ignitable, reactive, corrosive, or toxic). The waste generated by the abatement and cleanup activities will be stored in that part of the temporary holding area that has been established to manage wastes with which it is compatible.

#### F-4g Incompatible Waste

Implementation of the TSDF-WAC for the WIPP ensures that incompatible **CH and RH** TRU mixed waste will not be ~~shipped~~ **accepted into storage or disposal at** ~~to~~ the WIPP facility. Nonradioactive waste at the WIPP facility will be carefully segregated during handling and holding and will be transported within and off the facility. The RCRA Emergency Coordinator will not allow hazardous or **CH and RH** TRU mixed waste operations to resume in a building or area in which incompatible materials have been released prior to completion of necessary post-emergency cleanup operations to remove potentially incompatible materials. In making the determination of compatibility, the RCRA Emergency Coordinator will have available the resources and information described in Section F-4b, Identification of Hazardous Materials. In addition, ES&H department personnel will be available for consultation. Finally, the RCRA Emergency Coordinator may use EPA-600/2-80-076, (EPA, 1980).

#### F-4h Post-Emergency Facility and Equipment Maintenance and Reporting

The RCRA Emergency Coordinator will ensure that emergency equipment that is located or used in the affected area(s) of the facility and listed in the Contingency Plan is cleaned and ready for its intended use before operations are resumed, as specified in 20.4.1.500 NMAC (incorporating 40 CFR §264.56(h)(2)). Any equipment that cannot be decontaminated will be discarded as waste (e.g., hazardous, mixed, solid), as appropriate. The WIPP facility is committed to replacing any needed equipment or supplies that cannot be reused following an emergency. After the equipment has been cleaned, repaired, or replaced, a post-emergency facility and equipment inspection will be performed, and the results will be documented.

Cleaning and decontaminating equipment will be accomplished by physically removing gross or solid residue; rinsing with water or another suitable liquid, if required; and/or washing with detergent and water. Decontamination and cleaning will be conducted in a confined area, such as a wash pad or building equipped with a floor drain and sump isolated from the environment. Care will be taken to prevent wind dispersion of particles and spray. Liquid or particulate resulting from cleaning and decontamination of equipment will be placed in clean, compatible containers. Waste produced in an emergency cleanup in the **CH and RH** TRU mixed waste handling areas is derived waste and will be emplaced in the

underground **derived** waste emplacement area. Waste resulting from decontamination operations elsewhere in the WIPP facility will be analyzed for hazardous waste constituents and/or hazardous waste characteristics to ensure proper management.

#### F-4i Container Spills and Leakage

The **CH and RH TRU mixed** waste **received accepted into storage** at the WIPP facility will meet stringent TSDF-WAC (e.g., no free liquids and less than one percent residual liquids), which will minimize the possibility of waste container degradation and liquid spills. Should a spill or release occur from a container, **following an initial assessment of the event**, the WIPP facility will immediately take the following actions, in compliance with 20.4.1.500 NMAC (incorporating 40 CFR §264.52(a) and §264.171):

- Assemble the required response equipment, such as protective clothing and gear, heavy equipment, empty drums, overpack drums, and hand tools
- Transfer the released material to a container that is in good condition or overpack the leaking container into another container that is in good condition
- Once the release has been contained, determine the areal extent of migration of the release and proceed with appropriate cleanup action, such as chemical neutralization, vacuuming, or excavation

#### **TECHNICAL COMMENT NO. 42**

Attachment F (Contingency Plan) of the PMR indicates that “more extensive inspection of the areas (RH storage areas) is performed at least annually during routine maintenance periods when waste is not present.” The PMR must address the specific procedures of inspection of the RH storage areas. If the procedures are described in one or more of the Standard Operating Procedures listed in Table D-1a, then a brief narrative in the actual text should be provided.

- a) Attachment F, Section F-1, page F-9, 4<sup>th</sup> paragraph
- b) Attachment E, *Preparedness and Prevention* (not addressed)
- c) Attachment D, Table D-1a, pages D-8 through D-15

#### **Response:**

The term “more extensive” is meant to indicate that, at least annually, visual and manual inspections, rather than inspections by camera, will be performed. Due to As Low as Reasonably Achievable (**ALARA**) issues these manual inspections can only be

performed when waste is not present in the RH Complex. The term “more extensive” has been revised in the permit text.

To further address this comment the Permittees have revised Table D-1a to include a row entitled “Surface RH TRU Mixed Waste Handling Area”. This inspection will include language that is exactly the same as that currently in Table D-1 of the HWFP for CH Surface TRU Mixed Waste Handling Area. Procedure number WP05-WH1744 will be referenced.

**Proposed Revised Permit Text:**

Attachment F, Section F-1, Containment

When a RH TRU mixed waste container is present in the RH Complex, inspections will be conducted visually and/or using a closed-circuit television camera in order to manage worker dose and minimize radiation exposures. Manual inspections of the areas are performed at least annually during routine maintenance periods when waste is not present.

Attachment D, Table D-1a RH TRU Mixed Waste Inspection Schedule/Procedures

<u>System/ Equipment Name</u>	<u>Responsible Organization</u>	<u>Inspection Frequency and Job Title of Personnel Normally Making Inspection</u>	<u>Procedure Number</u>	<u>Deterioration</u>	<u>Leaks/ Spills</u>	<u>Other</u>
<u>Surface RH TRU Mixed Waste Handling Area</u>	<u>Waste Operations</u>	<u>Preoperational See List 1</u>	<u>WP- 05 WH1744</u>	<u>Yes</u>	<u>Yes</u>	<u>Posted Warning, Communications.</u>

**TECHNICAL COMMENT NO. 43**

Attachment F, Contingency Plan, Section F-1, states on page F-4 that waste containers will be checked for surface contamination. However, there is no procedure described on how this will be done. The procedure should be described and a determination provided as to what is an acceptable level or limit of contamination on the outside surface.

**Response:**

The only change made in this section was to add RH TRU mixed waste to those containers that are checked for surface contamination. Other aspects remain the same as for CH TRU mixed waste. A discussion of taking swipe samples is included in Section M1-1d(3) and the procedures (WP05-WH1710 and WP05-WH1722) are on file at the WIPP facility.

**TECHNICAL COMMENT NO. 44**

The spacing of boreholes for RH canisters is not provided in Attachment M2 (Geologic Repository) or elsewhere, although previous submittals by the Permittees (not part of this PMR) stated that boreholes would be spaced on 8 feet centers. Previous comments on borehole closure and failure in review of the 2003 RH PMR (comments S-23 and S-24) were not adequately addressed. The procedure for emplacement of RH canisters in Attachment M2 does not include checking the predrilled boreholes for creep closure or spalling, although the time period between drilling and emplacement may be months or even a year or more. If a borehole has partially closed, or if small pieces of salt or anhydrite debris are present in the borehole when a canister is inserted, jamming or binding of the canister may occur when the canister is only partially inserted into the borehole. This could in turn result in difficulties in removing the canister, and in the worst case, rupture of the canister and release of wastes. The RH emplacement procedure should include checking and documenting the condition of each borehole, and removal of debris if necessary, prior to setting up the horizontal emplacement and retrieval equipment at that borehole.

- a) PMR Section 1.1, *Remote-Handled TRU Mixed Waste*, page 5, 2<sup>nd</sup> Attachment M2,
- b) Section M2-1, *Description of the Geologic Repository*, page M2-1, 4<sup>th</sup> paragraph
- c) Section M2-2b, *Geologic Repository Process Description*, page M2-3, 1<sup>st</sup> paragraph

**Response:**

Both of these issues are addressed through WIPP procedures WP05-WH-1710 and WP05-WH-1722.

**Proposed Revised Permit Text:**

Attachment M2, Section M2-2b, Geologic Repository Process Description

The Facility Cask Transfer Car is loaded onto the waste hoist and is lowered to the waste shaft station underground. At the waste shaft station underground, the

facility cask is moved from the waste hoist by the Facility Cask Transfer Car (Figure M2-16). A forklift is used to remove the facility cask from the Facility Cask Transfer Car and to transport the facility cask to the Underground HWDU. There, the facility cask is placed on the HERE (Figure M2-17). The HERE is used to emplace the RH TRU mixed waste canister into the borehole. The borehole will be visually inspected for obstructions prior to aligning the HERE and emplacement of the RH TRU mixed waste canister. The facility cask is moved forward to mate with the shield collar, and the transfer carriage is advanced to mate with the rear facility cask shield valve. The shield valves on the facility cask are opened, and the transfer mechanism advances to push the canister into the borehole. After retracting the transfer mechanism into the facility cask, the forward shield valve is closed, and the transfer mechanism is further retracted into its housing. The transfer mechanism is moved to the rear, and the shield plug carriage containing a shield plug is placed on the emplacement machine. The transfer mechanism is used to push the shield plug into the facility cask. The front shield valve is opened, and the shield plug is pushed into the borehole (Figure M2-18). The transfer mechanism is retracted, the shield valves close on the facility cask, and the facility cask is removed from the HERE.

#### **TECHNICAL COMMENT NO. 45**

The PMR asserts that all modeling assumptions, parameters, and inputs used in the Permit Application used to meet Subpart X Risk assessment requirements remain unchanged for RH waste and that the previous assessment included RH waste. However, previous assessments conducted for WIPP and reviewed as part of the original Permit hearing in March, 1999 makes no mention of RH waste as that was not included in the original determination. NMED agrees that the modeling results are applicable to the CH inventory (assuming that the new inventory has been taken into account), however, additional justification and information (which may include additional modeling) is required to demonstrate the applicability to the RH inventory. The Permittees must provide this information in their response to this NOD.

#### **Response:**

As explained in the response to Technical Comment No. 28 above, the room based VOC monitoring proposed in the PMR is designed to measure VOCs in the WIPP underground regardless of the source.

#### **TECHNICAL COMMENT NO. 46**

Attachment B7, Section B7-1a(2) WWIS Description, page B7-6, 4<sup>th</sup> paragraph, indicates that the Permittees will verify, through the WWIS, the waste matrix code, determination of ignitability/corrosivity/reactivity, and determination of compatibility of each waste container. The Permittees must also verify the hazardous waste numbers for each waste

container to ensure that the numbers are consistent with those allowed by the permit and consistent with those indicated for a particular waste stream. In their response to this NOD, the Permittees must clearly indicate in this section that the hazardous waste numbers for each container are also verified.

**Response:**

The Permittees have revised the PMR to indicate that verification of HWNs will occur through the WWIS.

**Proposed Revised Permit Text:**

Attachment B7, Section B7-1a(2) WWIS Description

The Permittees will verify, through the WWIS, the waste matrix code, determination of ignitability/corrosivity/reactivity, hazardous waste numbers and determination of compatibility of each waste container.

**TECHNICAL COMMENT NO. 47**

Attachment I, Closure Plan, is unclear as to which Panels are covered by the closure plan in the PMR. Section I-1, page 1-2, indicates panels 1 through 8 are subject to closure, Section I-1c, page I-4, 2<sup>nd</sup> paragraph, indicates panels 1-4 and 9-10 are subject to closure. The Permittees must resolve this discrepancy in their response to this NOD.

**Response:**

The Permittees have provided clarified permit language text below. This text has been modified to state that the areas that are included in the Closure Plan are Panels 1-7, the surface storage areas and the holding areas. Future areas are not included except in a general sense when discussing the schedule for final facility closure.

**Proposed Revised Permit Text:**

Attachment I, Introduction

Introduction

The hazardous waste management units (HWMUs) addressed in this Closure Plan include the aboveground hazardous waste management unit (HWMU) in the WHB, the parking area HWMU, TRU mixed waste holding areas, and Panels 1 through 8, each consisting of seven rooms. In addition, the disposal area access drifts shown as E-300, E-140, W-30, and W-170 between S-1600 and S-3650 on Figure I-1 may, at some time in the future, be needed for waste disposal. These access drifts, if used for disposal, are also subject to this Closure Plan.

## Attachment I-1

### I-1 Closure Plan

This Closure Plan is prepared in accordance with the requirements of 20.4.1.500 NMAC (incorporating 40 CFR §264 Subparts G, I, and X), Closure and Post-Closure, Use and Management of Containers, and Miscellaneous Units. The WIPP underground HWDUs, including Panels 1 through 87 and the disposal area access drifts, designated as Panels 9 and 10 on Figure I-1, will be closed under this permit to meet the performance standards in 20.4.1.500 NMAC (incorporating 40 CFR §264.601). The WIPP surface facilities, including Waste Handling Building Container Storage Unit, and the Parking Area Container Storage Unit, and holding areas will be closed in accordance with 20.4.1.500 NMAC (incorporating 40 CFR §264.178). The Permittees may perform partial closure of the WHB and PAU HWMUs prior to final facility closure and certification. For final facility closure, this plan also includes closure of future waste disposal areas including Panels 8 through 10 and closure and sealing of the facility shafts in accordance with 20.4.1.500 NMAC (incorporating 40 CFR §264.601).

#### I-1a(1) Container Storage Units

Final or partial closure Closure of the permitted container storage units (the Waste Handling Building Unit and Parking Area Unit) and holding areas will be accomplished by removing all waste and waste residues. Indication of waste contamination will be based, among other techniques, on the use of radiological surveys as described in Permit Attachment I3.

## Attachment I, Section I-1c:

### I-1c Maximum Waste Inventory

The WIPP will receive no more than 6.2 million ft<sup>3</sup> (175,600 m<sup>3</sup>) of TRU mixed waste which may include up to 250,000 ft<sup>3</sup> (7,080 m<sup>3</sup>) of RH TRU mixed waste. Excavations are mined as permitted when needed during operations to maintain a reserve of disposal areas. The amount of waste placed in each room is limited by structural and physical considerations of equipment and design. Waste volumes include waste received from off-site generator locations as well as derived waste from disposal and decontamination operations. Maximum waste volumes The maximum volume of TRU mixed waste in the a disposal panel is established in Table IV.A.1. panels are calculated as follows: of 100 percent 55-gallon drums—11,502 7-packs consisting of 80,514 drums and 591,800 ft<sup>3</sup> (16,760 m<sup>3</sup>) of waste. Since the waste can arrive in any combination of 7-packs, a fixed volume is not set for each panel. Furthermore, the placement of backfill materials to modify chemical nature of brines over the long-term will likely result in fewer containers per panel as described in Permit Attachment M2. For closure planning purposes, a

maximum achievable volume of 706,100 ft<sup>3</sup> (19,985 m<sup>3</sup>) of TRU mixed waste per panel is used. The actual capacity of each panel of TRU mixed waste and non-mixed TRU waste combined may exceed 19,985 m<sup>3</sup> so long as the maximum repository capacity of 175,600 m<sup>3</sup> is not exceeded. This equates to 662,400 ft<sup>3</sup> (18,750 m<sup>3</sup>) of contact handled (CH) TRU per panel. 81,000 containers were assumed in design calculations since, for air dispersion modeling, it is important to maximize the number of container vents through which volatile organic compounds (VOC) may be released. In reality, using the 40 percent-60 percent mix, there would be only 51,000 containers in a panel, containing 56,000 vents (2 vents per SWB).

#### TECHNICAL COMMENT NO. 48

Definitions proposed for Waste Receipt and Staging Areas do not specify which currently permitted storage units or portions of units are to be closed and converted to Staging Areas. The definition of “Proposed Waste Receipt” is confusing, and not necessary to allow for performing manifest verification or custody transfer. The Permittees should delete this definition. The definition of “Staging Area” expands the regulatory definition (*see* March 4, 2005 Federal Register notice for the final Hazardous Waste Manifest Rule) to include the time period for “manifest review, awaiting placement in permitted storage areas or undergoing screening and verification” prior to rejection of a non-compliant waste load. The discussion of staging areas in the Rule applies to wastes held after determining them to be non-compliant with a facility’s waste acceptance criteria. The Permittees should use the regulatory definition of “Staging Area”. Pertinent locations in the PMR include:

- a) PMR Section 1.2.5, *Use of Staging Areas*, page 14, 3<sup>rd</sup> through 6<sup>th</sup> and footnote 6.
- b) Module I, Section I.D.8., *Waste Receipt*, page I-1, 3<sup>rd</sup> Module I, Section I.D.9., *Staging Areas*, page I-1, 4<sup>th</sup> paragraph.

#### Response:

The Permittees do not concur with this comment, however, to mitigate any confusion with terminology (see Federal Register, March 4, 2005, Volume 70, Number 42, pages 10775-10825), the Permittees will use the term “holding area” in lieu of “staging area”.

Table III.A.1 shows that the TRUDOCK Storage Area and NE Storage Area will be eliminated. Figure M1-1 shows that the TRUDOCK Storage Area will become a holding area and that the NE Storage Area is encompassed into the CH Bay Storage Area. Since the TRUDOCK Storage Area will become a holding area it will require closure.

Section 4-a(2), Table A-1 and Figure M1-1 show the areas defined as holding areas.

The Permittees do not believe that the definition of “Waste Receipt” is confusing rather they believe it is necessary to define when waste is to be accepted at WIPP. This is in direct response to a concern expressed by NMED regarding receipt of non-conforming waste into permitted storage areas.

**Proposed Revised Permit Text:**

To address this NMED comment, the word “staging” must be changed to “holding” in the following portions of the PMR: Modules I and III, Attachments A, C, D, E, F, G, I, M, M1, M2. Figures F-8c, G-3, G-7, M1-1, M1-2, M1-13, M2-12, O3-3 and O3-4, have been revised to reflect this change and are included in Attachment A of this response. Figure M1-7 has been deleted.

In developing the draft permit NMED should change all occurrences of the word “staging” to “holding”. To facilitate this, the Permittees are providing an electronic format of the appropriate revisions throughout the PMR, but have not printed all of these changes in this response.

**TECHNICAL COMMENT NO. 49**

Container storage units or portions of units to be closed and converted to unpermitted Staging Areas are not explicitly identified. Schedules are not proposed for closure of the units or portions of units to be converted to Staging Areas. The Staging Areas are not considered permitted units, but are nevertheless included in the Closure Plan (although not in the “maximum extent of operations”). The current Closure Plan explicitly assumes (page I-1) that no surface HWMU will be closed until final facility closure is underway -- after closure of all underground HWDUs. This contradicts the statement in Section 1.2.5 of the PMR narrative (Use of Staging Areas, 2<sup>nd</sup> paragraph) which indicates that “Permitted storage areas that will be changed to staging areas will undergo closure...” The current Closure Plan, Section I-1d (4), requires submittal of an amended Closure Plan at least 60 days prior to a proposed change in design or operations. The Permittees must resolve these discrepancies. Pertinent locations in the PMR include:

- a) Attachment I, Section I-1, *Introduction*, page I-1, 1<sup>st</sup> paragraph
- b) Attachment I, Section I-1, *Closure Plan*, page I-2, 2<sup>nd</sup> and 4<sup>th</sup> paragraph
- c) Attachment I, Section I-1a(1), *Container Storage Units*, page I-3, 4<sup>th</sup> paragraph and page I-4, 2<sup>nd</sup> paragraph
- d) Attachment I, Section I-1, *Maximum Waste Inventory*, page I-4, 4<sup>th</sup> paragraph

**Response:**

Two areas are proposed to undergo closure for conversion to Holding Areas. The first area is labeled “TRUDOCK Storage Area” in Figure M1-1 of the HWFP. This area is proposed to become the TRUDOCK Holding Area as shown in Figure M1-1 of the PMR.

The second area is a portion of the PAU shown in Figure M1-2 of the HWFP. The portion that is being converted to a Holding Area is shown in Figure M1-2 of the PMR.

Closure of these areas, which constitutes partial closure of the permitted WHB and PAU will be performed immediately upon issuance of the revised permit as defined in Permit Attachment I-1. The schedule in Table I-2 has been modified to show partial closure assuming that the permit is issued May 2006. These areas will be closed to meet the clean closure performance standard as described in the HWFP, Attachment I-1 and final closure and certification will be deferred until final closure of the facility.

Although the holding areas are not permitted units, it is the Permittees' belief that they are units regulated under the HWA and RCRA and are subject to closure. Holding areas have been added to Attachment I Introduction, I-1 Closure Plan, and I-1a(1) Container Storage Units.

The Permittees have modified the assumption that no surface HWMUs will be closed prior to final facility closure through changes to Permit Attachment I-1.

Because nothing in the design and intended operation of the TRUDOCK and PAU areas has changed since the closure plan was written and approved, the actions necessary to close these storage areas are still applicable and do not require modification. A revised schedule for partial and final closure of the HWMUs is provided in Table I-2.

### **Proposed Revised Permit Text:**

Attachment I, Introduction

#### Introduction

Consequently, this Closure Plan describes several types of closures. The first type is panel closure which involves placing closures in each of the underground Hazardous Waste Disposal Units (HWDUs) when they filled. The second type is partial closure which can be less than the entire facility and therefore less than an entire unit as described herein for the Waste Handling Building (WHB) Unit and the Parking Area Unit (PAU). The third type of closure is Final Facility Closure at the end of the Disposal Phase which will entail closure of all remaining surface storage and holding areas and construction of the shaft seal systems. The hazardous waste management units (HWMUs) addressed in this Closure Plan include the aboveground hazardous waste management unit (HWMU) in the WHB, the parking area HWMU, TRU mixed waste holding areas, and Panels 1 through 87, each consisting of seven rooms. ~~In addition, the disposal area access drifts shown as E 300, E 140, W 30, and W 170 between S 1600 and S 3650 on Figure I-1 may, at some time in the future, be needed for waste disposal. These access drifts, if used for disposal, are also subject to this Closure Plan.~~

## Attachment I-1, Section I-1 Closure Plan

This Closure Plan is prepared in accordance with the requirements of 20.4.1.500 NMAC (incorporating 40 CFR §264 Subparts G, I, and X), Closure and Post-Closure, Use and Management of Containers, and Miscellaneous Units. The WIPP underground HWDUs, including Panels 1 through ~~87 and the disposal area access drifts, designated as Panels 9 and 10~~ on Figure I-1, will be closed under this permit to meet the performance standards in 20.4.1.500 NMAC (incorporating 40 CFR §264.601). The WIPP surface facilities, including Waste Handling Building Container Storage Unit, ~~and~~ the Parking Area Container Storage Unit, and holding areas will be closed in accordance with 20.4.1.500 NMAC (incorporating 40 CFR §264.178). The Permittees may perform partial closure of the WHB and PAU HWMUs prior to final facility closure and certification. For final facility closure, this plan also includes closure of future waste disposal areas including Panels 8 through 10 and closure and sealing of the facility shafts in accordance with 20.4.1.500 NMAC (incorporating 40 CFR §264.601).

Following completion of waste emplacement in each underground HWDU, the HWDU will be closed. The Permittees will notify the NMED of the closure of each underground HWDU as specified in the schedule in Figure I-2. For the purpose of this Closure Plan, panel closure is defined as the process of rendering underground HWDUs in the repository inactive and closed according to the facility Closure Plan. The Post-Closure Plan (Permit Attachment J) addresses requirements for future monitoring that are deemed necessary for the post-closure period, including monitoring closed panels prior to final facility closure.

For the purposes of this Closure Plan, final facility closure is defined as closure that will occur when all waste disposal areas are filled or when the WIPP achieves its capacity of 6.2 million cubic feet (ft<sup>3</sup>) (175,600 cubic meters (m<sup>3</sup>)) of TRU mixed waste. At final facility closure, the surface container storage areas will be closed, and equipment that can be decontaminated and used at other facilities will be cleaned and sent off site. Equipment that cannot be decontaminated plus any derived waste resulting from decontamination will be placed in the last open underground HWDU. Stockpiled salt may be placed in the underground; it may be used as the core material for the berm component of the permanent marker system; or it must be otherwise disposed of in accordance with Sections 2 and 3 of the Minerals Act of 1947 (30 U.S.C. §§602 and 603). In addition, shafts and boreholes which lie within the WIPP Site Boundary and penetrate the Salado will be plugged and sealed, and surface and subsurface facilities and equipment will be decontaminated and removed. Final facility closure will be completed to demonstrate compliance with the Closure Performance Standards contained in 20.4.1.500 NMAC (incorporating 40 CFR §264.111, 178, and 601).

In the event the Permittees fail to obtain an extension of the hazardous waste permit in accordance with 20.4.1.900 NMAC (incorporating 40 CFR §270.51) or fail to obtain a new permit in accordance with 20.4.1.900 NMAC (incorporating

40 CFR §270.10(h)), the Permittees will seek a modification to this Closure Plan in accordance with 20.4.1.900 NMAC (incorporating 40 CFR §270.42) to accommodate a contingency closure. Under contingency closure, storage units will undergo clean closure in accordance with 20.4.1.500 NMAC (incorporating 40 CFR §264.178). **wasteWaste** handling equipment, shafts, and haulage ways will be inspected for hazardous waste residues (using, among other techniques, radiological surveys to indicate potential hazardous waste releases as described in Permit Attachment I3) and decontaminated as necessary, **and, U**nderground HWDUs that contain radioactive mixed waste will be closed in accordance with the panel closure design described in this Closure Plan. Final facility closure, however, will be redefined and a request for a time extension for final closure will be requested. A copy of this Closure Plan will be maintained by the Permittees at the WIPP facility and at the Department of Energy (DOE) Carlsbad Field Office. The primary contact person at the WIPP facility is:

Manager, Carlsbad Field Office  
U.S. Department of Energy  
Waste Isolation Pilot Plant  
P. O. Box 3090  
Carlsbad, New Mexico 88221-3090  
(505) 234-7300

#### Attachment I-1, Section I-1a(1) Container Storage Units

**Final or partial closure** Closure of the permitted container storage units (the Waste Handling Building Unit and Parking Area Unit) and **holding areas** will be accomplished by removing all waste and waste residues. Indication of waste contamination will be based, among other techniques, on the use of radiological surveys as described in Permit Attachment I3. Radiological surveys use very sensitive radiation detection equipment to indicate if there has been a potential release of TRU mixed waste, including hazardous waste components, from a container. This allows the Permittees to indicate potential releases that are not detectable from visible evidence such as stains or discoloration. Visual inspection and operating records will also be used to identify areas where decontamination is necessary. Contaminated surfaces will be decontaminated until radioactivity is below free release limits<sup>2</sup>. Once surfaces are determined to be free of radioactive waste constituents, they will be tested for hazardous waste contamination. These surface decontamination activities will ensure the removal of waste residues to levels protective of human health and the environment. The facility is expected to require no decontamination at closure because any waste spilled or released during operations will be contained and removed immediately. Solid waste management units associated described in Permit Module VII will be subject to closure. In the event portions of these units which require decontamination cannot

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<sup>2</sup> The free release criteria for items, equipment, and areas is < 20 dpm/100 cm<sup>2</sup> for alpha radioactivity and < 200 dpm/100 cm<sup>2</sup> for beta-gamma radioactivity.

be decontaminated, these portions will be removed and the resultant wastes will be managed as appropriately.

Once the container storage units and holding areas are decontaminated and certified by the Permittees to be clean, no further maintenance is required. The facilities and equipment in these units will be reused for other purposes as needed.

Figure I-2 includes the schedule for closure of container storage units and holding areas as well as a schedule for conversion of the TRUDOCK Storage Area and a portion of the Parking Area Unit to waste holding areas.

Attachment I, Section I-1c:

#### I-1c Maximum Waste Inventory

The WIPP will receive no more than 6.2 million ft<sup>3</sup> (175,600 m<sup>3</sup>) of TRU mixed waste which may include up to 250,000 ft<sup>3</sup> (7,080 m<sup>3</sup>) of RH TRU mixed waste. Excavations are mined as permitted when needed during operations to maintain a reserve of disposal areas. The amount of waste placed in each room is limited by structural and physical considerations of equipment and design. Waste volumes include waste received from off-site generator locations as well as derived waste from disposal and decontamination operations. Maximum waste volumes The maximum volume of TRU mixed waste in the a disposal panel is established in Table IV.A.1. panels are calculated as follows: of 100 percent 55-gallon drums 11,502 7-packs consisting of 80,514 drums and 591,800 ft<sup>3</sup> (16,760 m<sup>3</sup>) of waste. Since the waste can arrive in any combination of 7-packs, a fixed volume is not set for each panel. Furthermore, the placement of backfill materials to modify chemical nature of brines over the long-term will likely result in fewer containers per panel as described in Permit Attachment M2. For closure planning purposes, a maximum achievable volume of 706,100 ft<sup>3</sup> (19,985 m<sup>3</sup>) of TRU mixed waste per panel is used. The actual capacity of each panel of TRU mixed waste and non-mixed TRU waste combined may exceed 19,985 m<sup>3</sup> so long as the maximum repository capacity of 175,600 m<sup>3</sup> is not exceeded. This equates to 662,400 ft<sup>3</sup> (18,750 m<sup>3</sup>) of contact handled (CH) TRU per panel. 81,000 containers were assumed in design calculations since, for air dispersion modeling, it is important to maximize the number of container vents through which volatile organic compounds (VOC) may be released. In reality, using the 40 percent 60 percent mix, there would be only 51,000 containers in a panel, containing 56,000 vents (2 vents per SWB).

The maximum extent of operations during the term of this permit is expected to be Panels 1 through 107 as shown on Figure I-1, the WHB Container Storage Unit, and the Parking Area Container Storage Unit, and the holding areas. Note that panels 8, 9, and 10 are scheduled for excavation only under the initial term of this permit. If other waste management units are permitted during the Disposal Phase, this Closure Plan will be revised to include the additional waste

management units. At any given time during disposal operations, it is possible that two multiple rooms may be receiving TRU mixed waste for disposal at the same time. Underground HWDUs in which disposal has been completed (i.e., in which CH TRU and RH TRU mixed waste emplacement activities have ceased) will undergo panel closure.

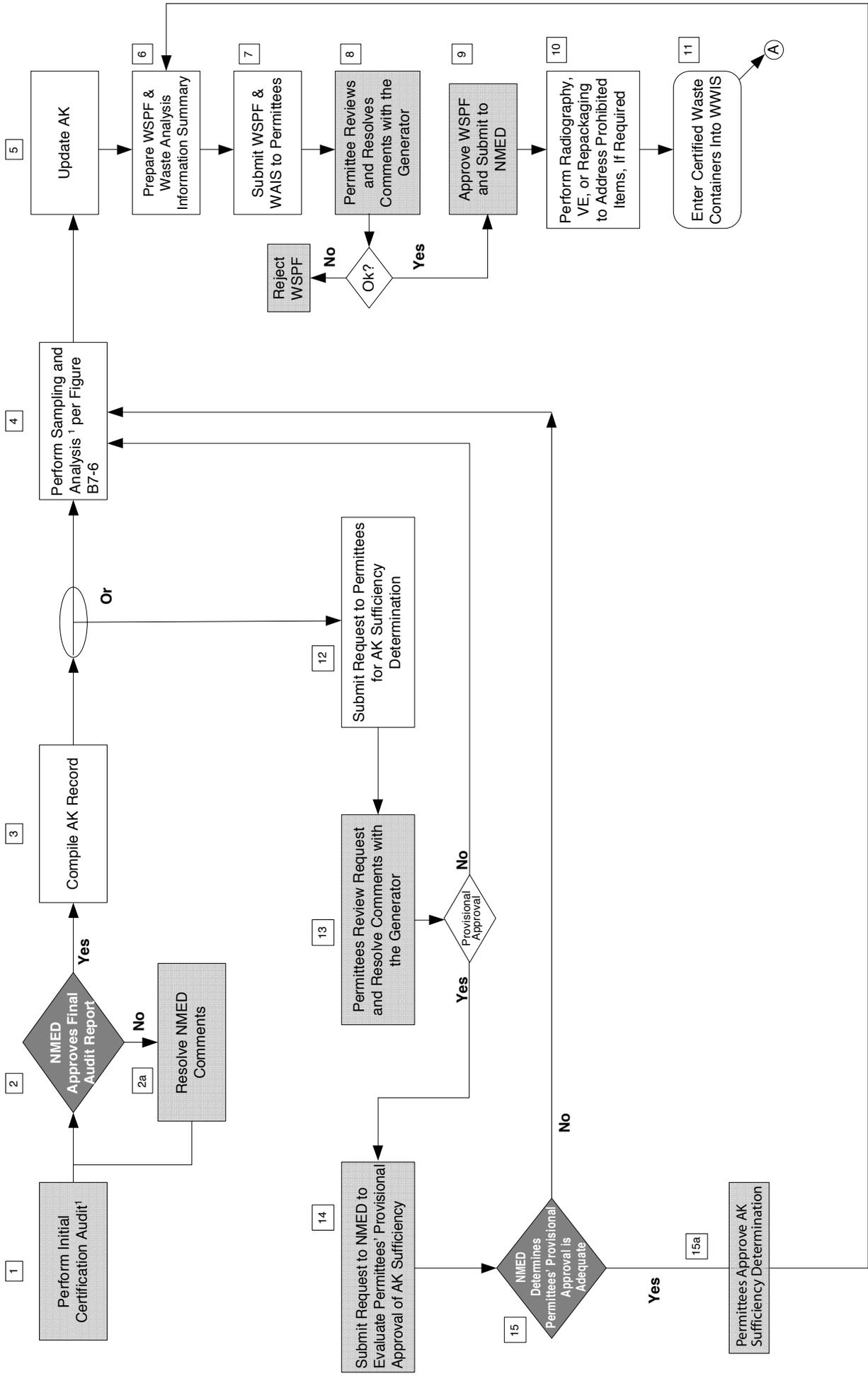
Table I-2

**TABLE I-2  
ANTICIPATED OVERALL SCHEDULE FOR CLOSURE ACTIVITIES**

ACTIVITY	FINAL FACILITY CLOSURE	
	START	STOP
<u>Notify NMED of Intent to Perform Partial Closure of the WHB and PAU Storage Areas (TRUDOCK Storage Area and portion of the Parking Area Storage Unit)</u>	<u>Prior to Initiating Radiography Activities at WIPP</u>	<u>N/A</u>
<u>Complete Closure of TRUDOCK Storage Area and Portion of the Parking Area Storage Unit</u> <ul style="list-style-type: none"> <li>• <u>Review of records with regard to spills and releases</u></li> <li>• <u>Performing contamination surveys</u></li> <li>• <u>Taking samples as needed</u></li> <li>• <u>Decontaminating as needed</u></li> <li>• <u>Performing final contamination surveys if needed</u></li> <li>• <u>Documenting closure</u></li> </ul>	<u>Upon issuance of modified permit authorizing use of these areas for Waste Holding (Assumed to be May 2006)</u>	<u>Within 6 weeks of start</u>
Notify NMED of Intent to Close WIPP (or to Implement Contingency Closure)	October 2030	N/A
Perform Contamination Surveys in both Surface Storage Areas <u>and Holding Areas</u>	October 2030	April 2031
Sample Analysis	December 2030	July 2031
Decontamination as Necessary of both Surface Storage Areas <u>and Holding Areas</u>	June 2031	January 2032

Final Contamination Surveys of both Surface Storage Areas <u>and Holding Areas</u>	February 2032	September 2032
Sample Analysis	June 2032	January 2033
Prepare and Submit <del>Container Management Unit</del> <u>Surface Storage Areas and Holding Areas</u> Closure Certification	February 2033	May 2033
Dispose of Closure-Derived Waste	November 2030	January 2032
Closure of Open Underground HWDU panel	February 2032*	September 2032
Install Borehole Seals	October 2032	September 2033
Install Repository Seals	June 2033	September 2037
Recontour and Revegetate	October 2037	May 2038
Prepare and Submit Final (Contingency) Closure Certification	October 2037	May 2038
Post-closure Monitoring	July 2038	N/A

**ATTACHMENT A**  
**REVISED PERMIT FIGURES AND TABLE**



<sup>1</sup>The generator/storage site will have to perform waste analysis activities for at least a few containers in at least one waste stream prior to the audit so objective evidence of implementation can be generated for review during the audit.



**Figure B7-2**  
**WASTE STREAM APPROVAL PROCESS**

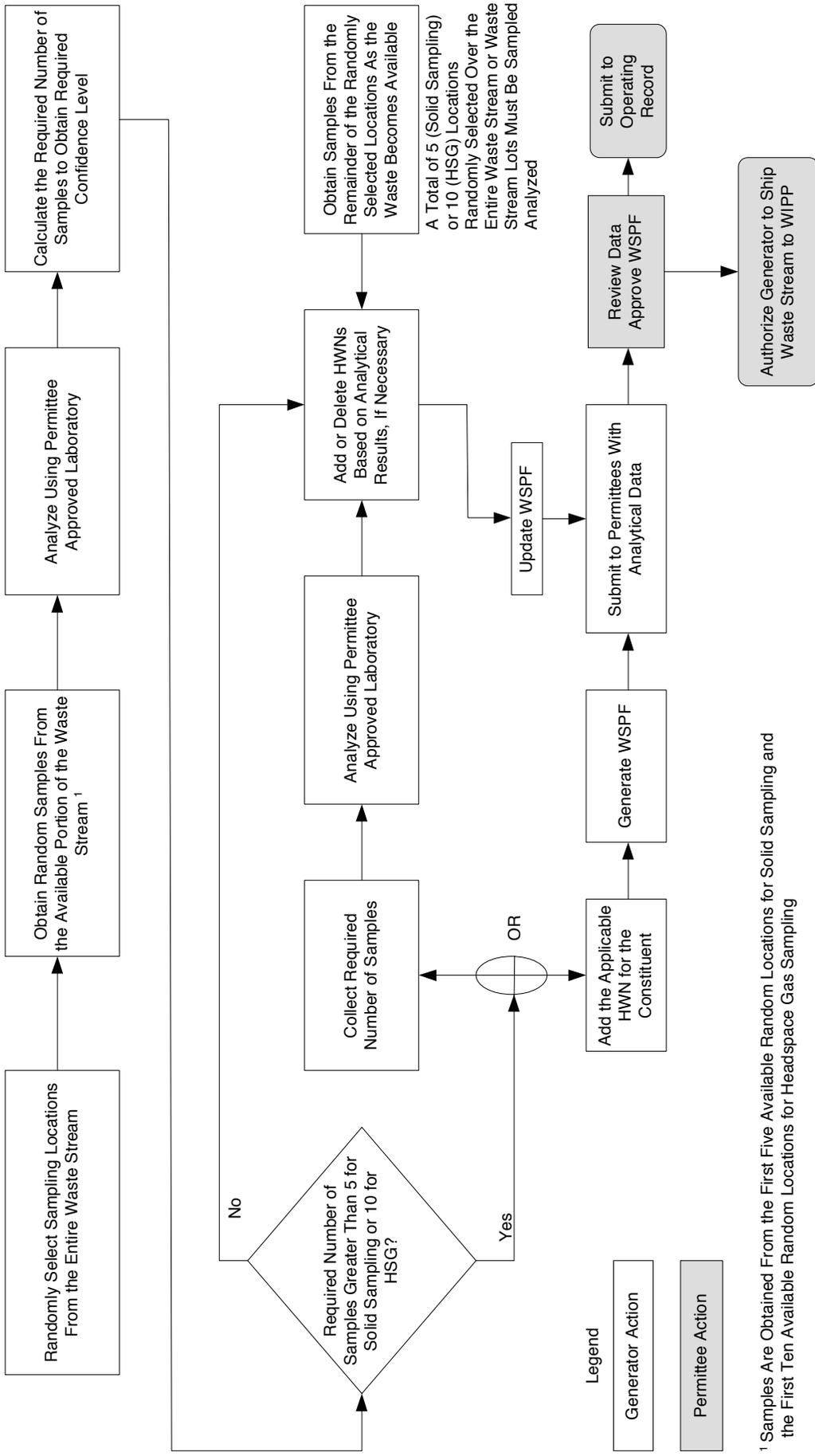
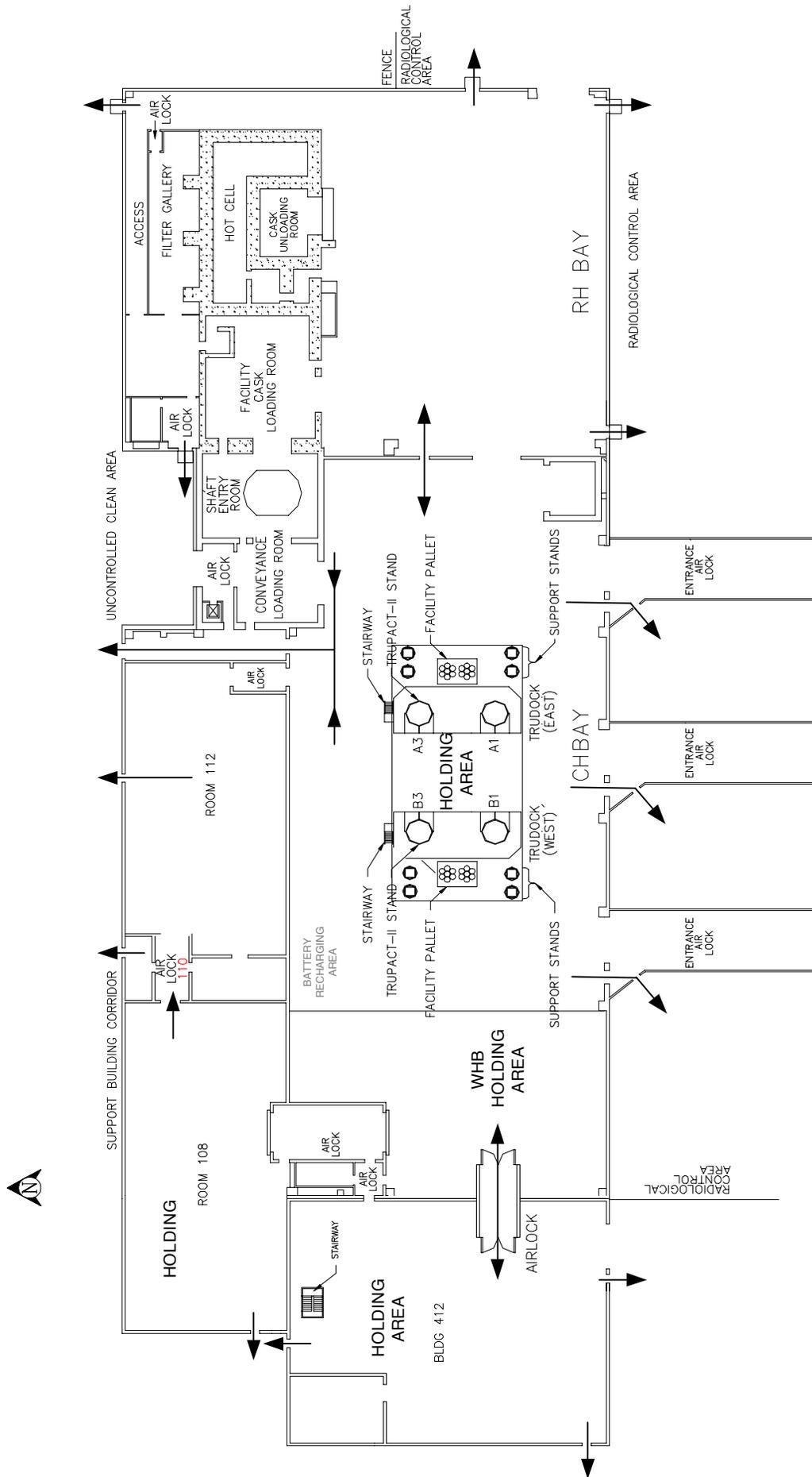
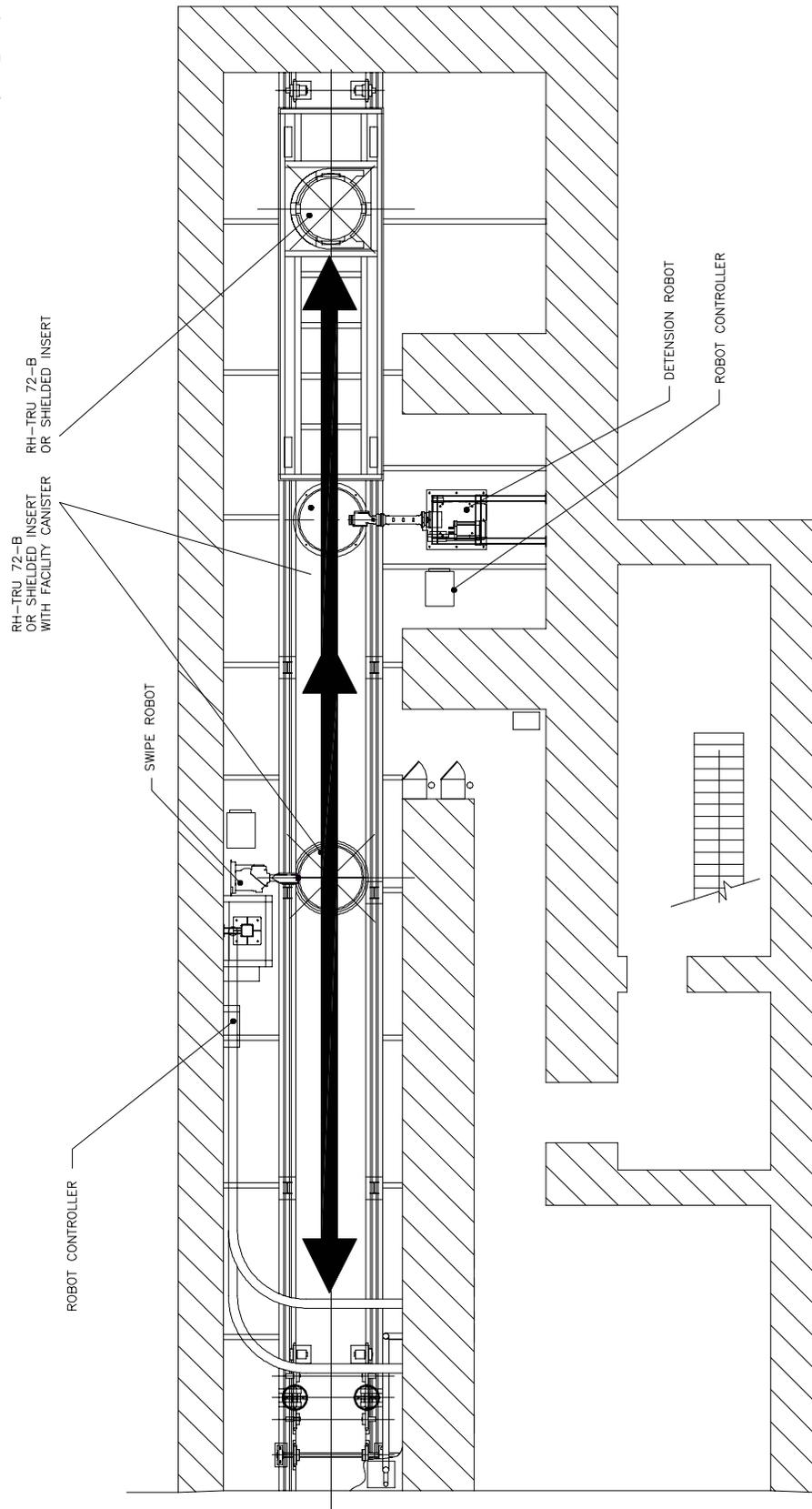


Figure B7-6 APPROACH FOR SOLID AND HEADSPACE GAS SAMPLING AND ANALYSIS TO OBTAIN SUPPLEMENTAL WASTE ANALYSIS INFORMATION



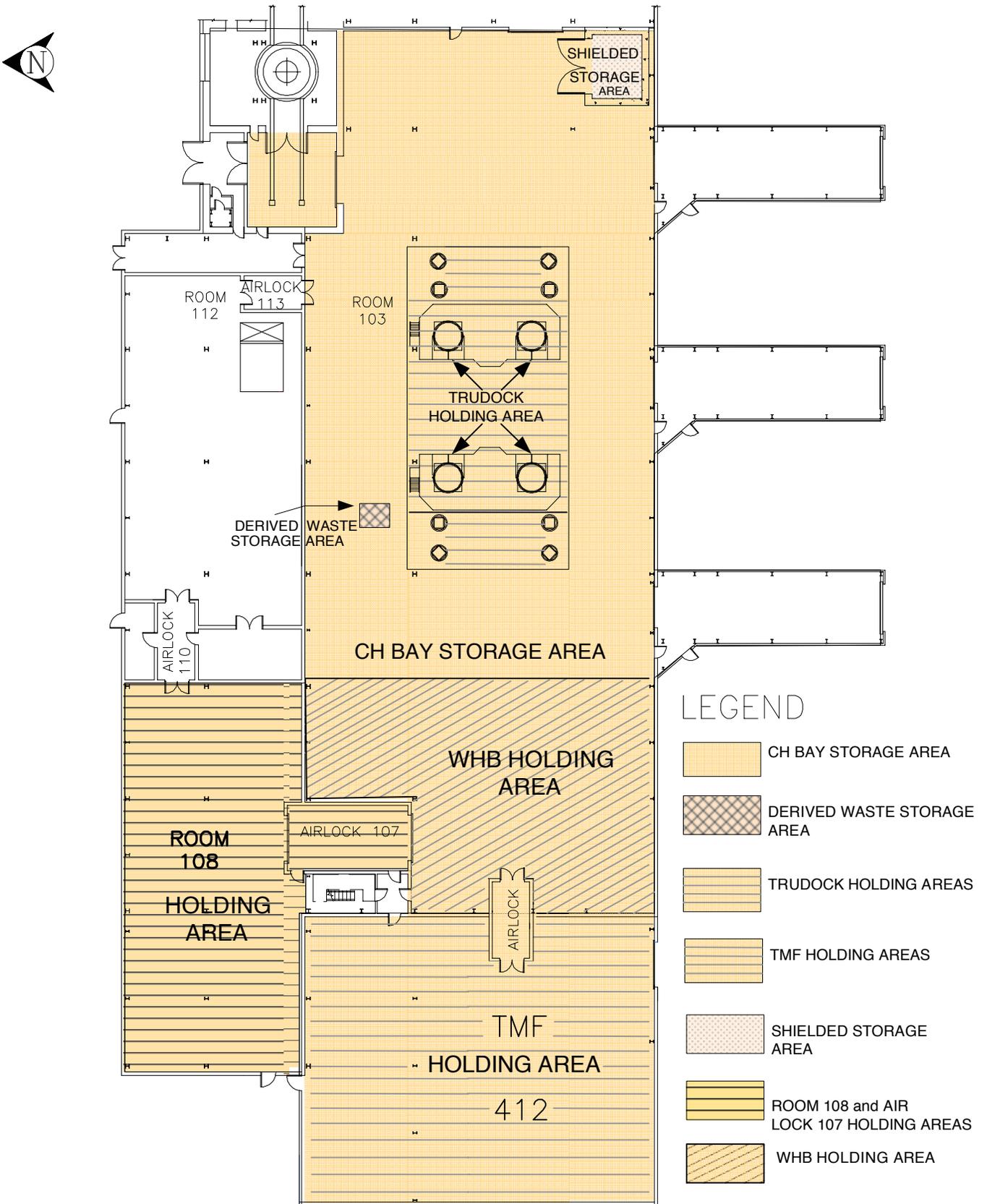
**Figure F-8c**  
**Evacuation Routes in Waste Handling Building**



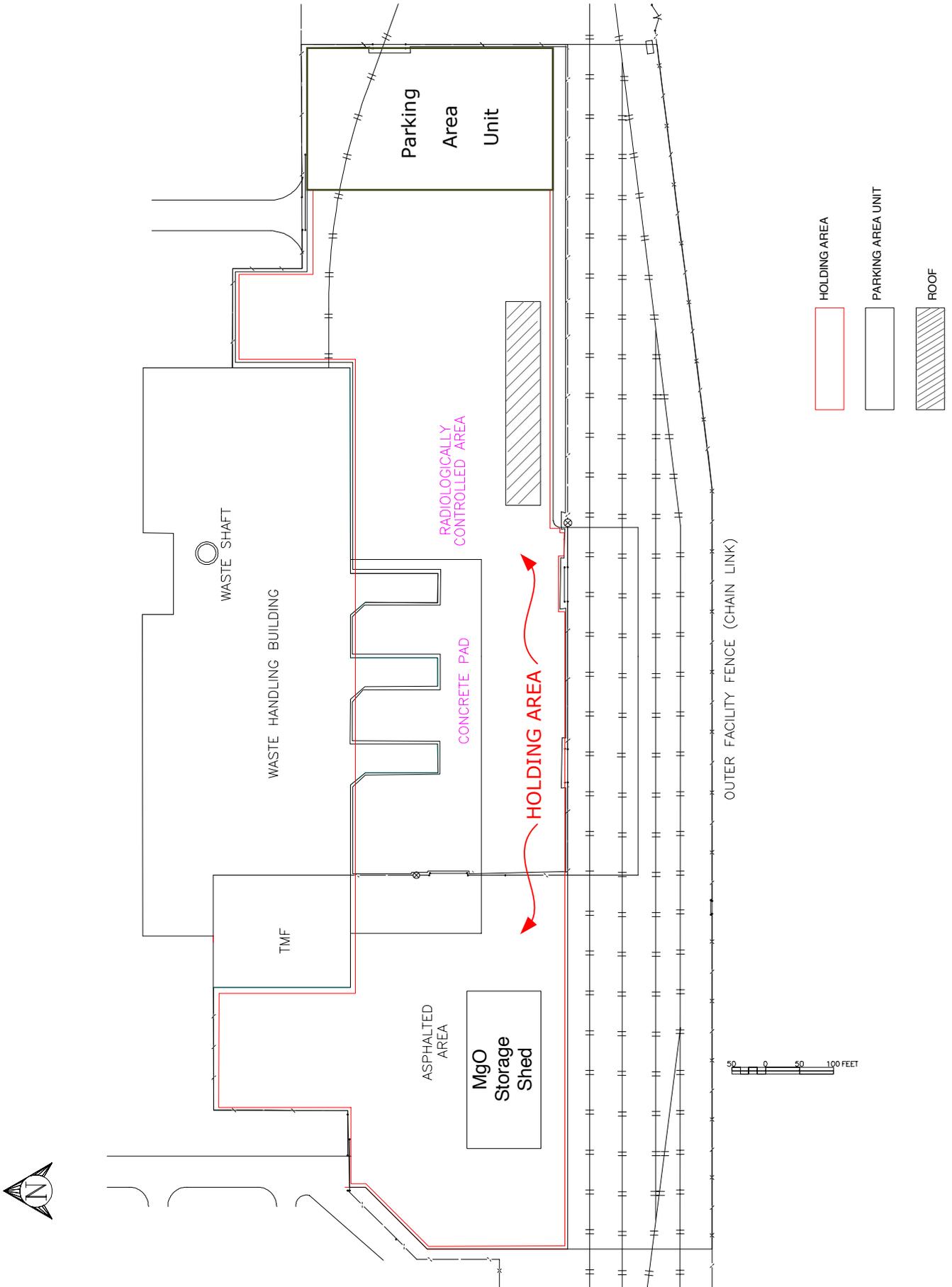


This illustration for  
Information Purposes only.

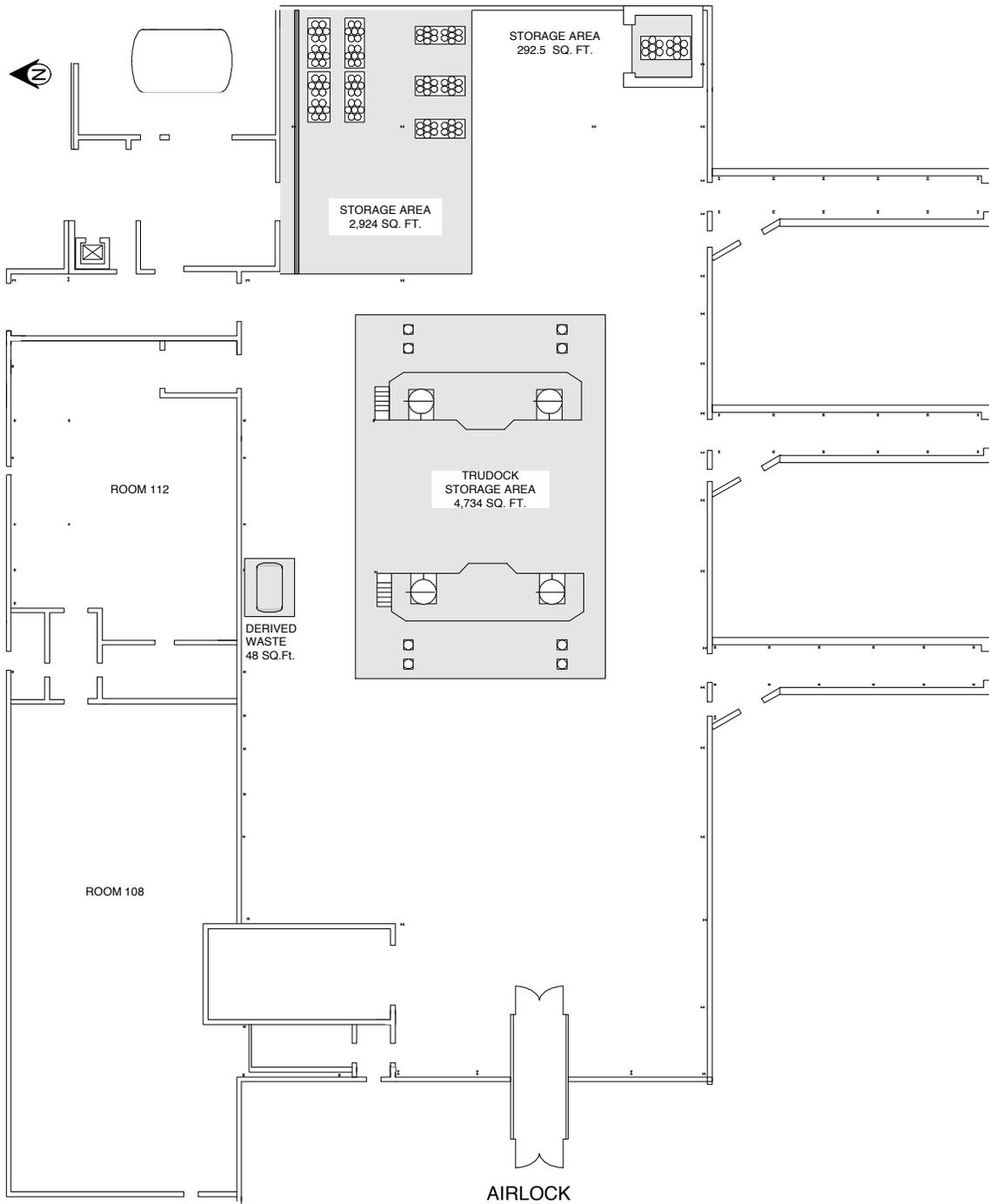
**Figure G-7**  
**RH Bay Canister Transfer Cell Waste Transport Route**



**Figure M1-1**  
**Waste Handling Building - Container Storage and Holding Areas**



**Figure M1-2**  
**Parking Area - Container Holding and Storage Areas**



~~Figure M1-7~~  
~~Waste Handling Building Facility Pallet Temporary Storage Area~~

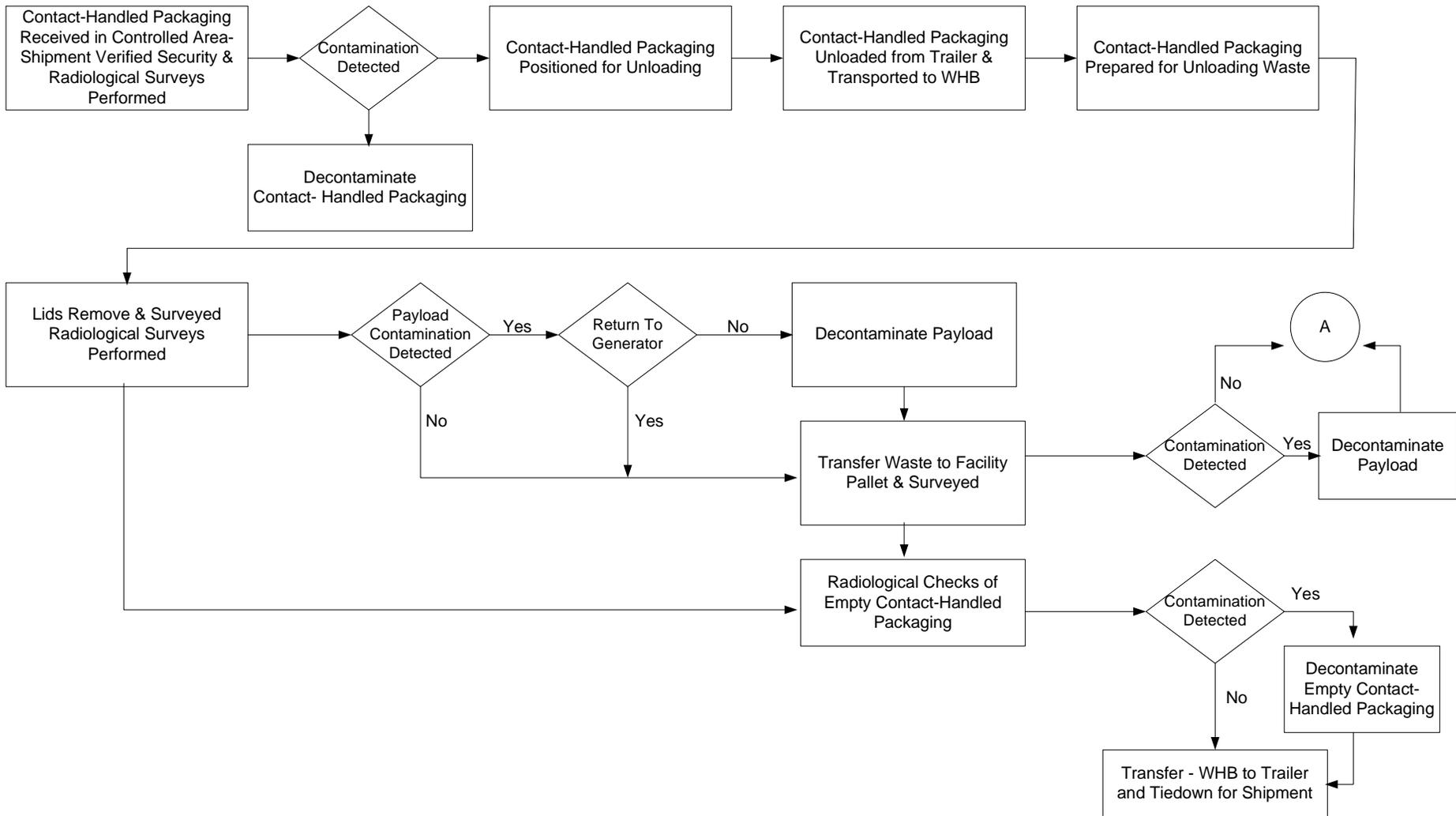


Figure M1-13  
WIPP Facility Surface and Underground CH Transuranic Mixed Waste Process Flow

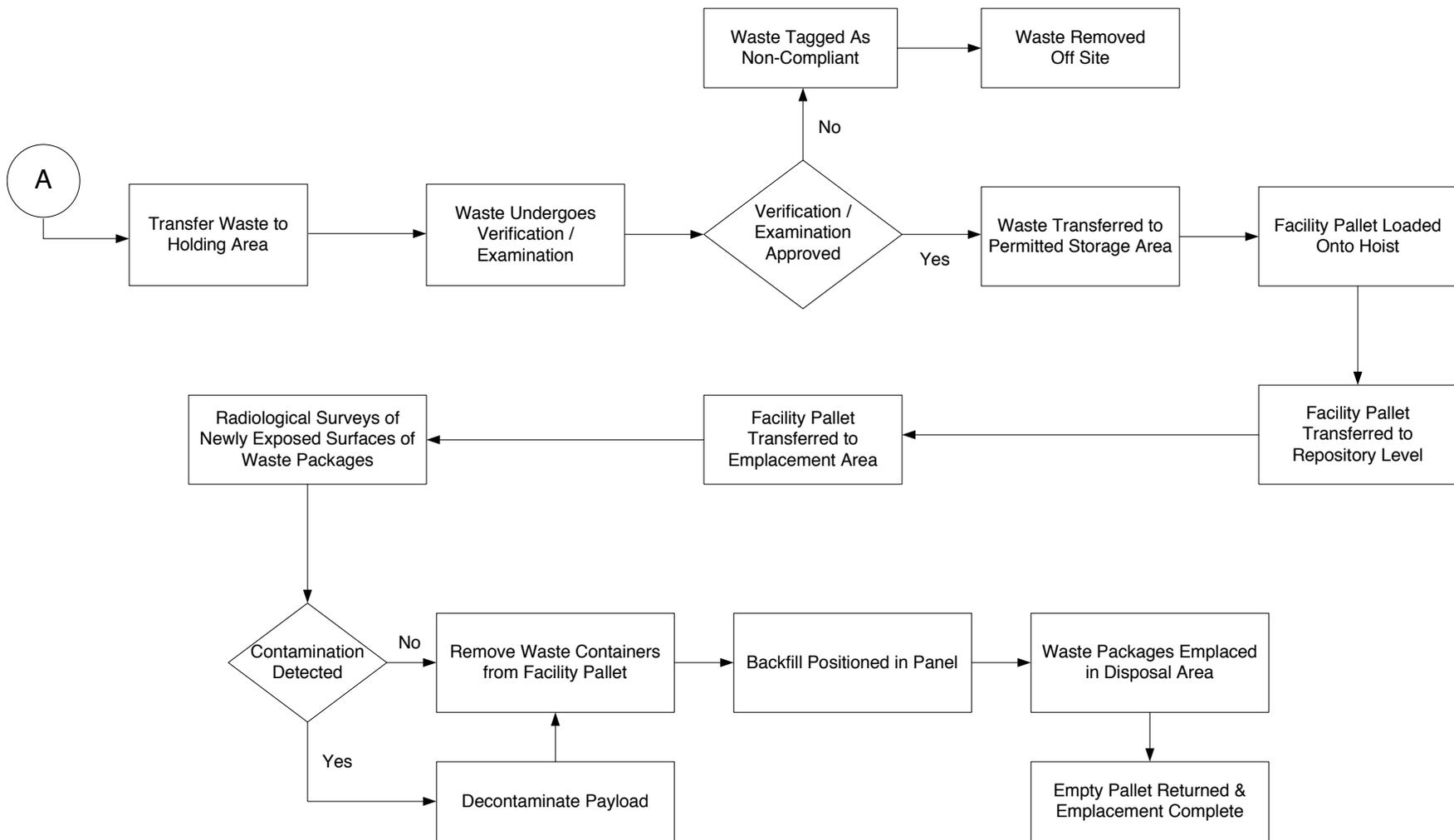
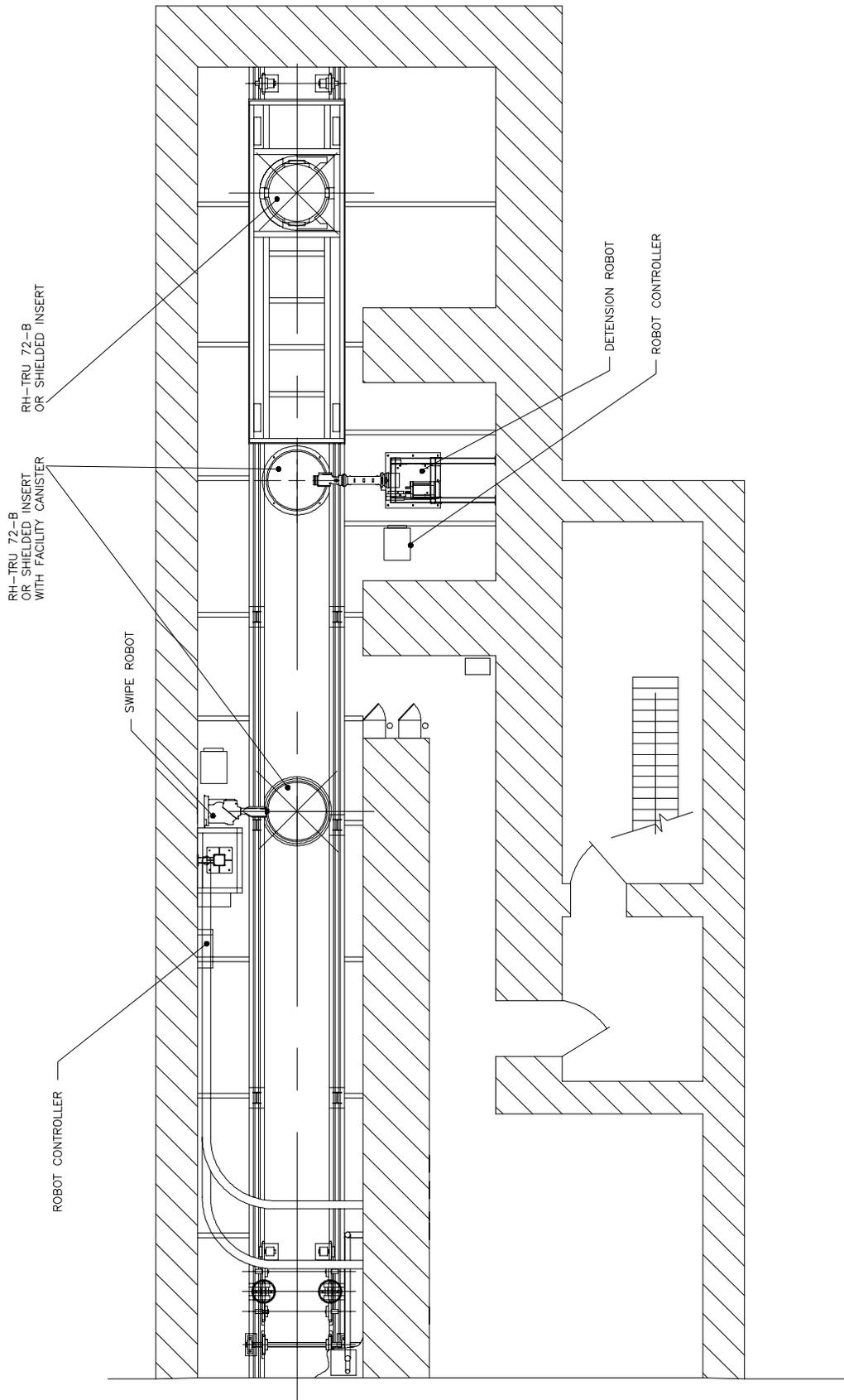


Figure M1-13

WIPP Facility Surface and Underground CH Transuranic Mixed Waste Process Flow (continued)



This illustration for  
Information Purposes only.

Figure M1-17c  
RH Bay Canister Transfer Cell

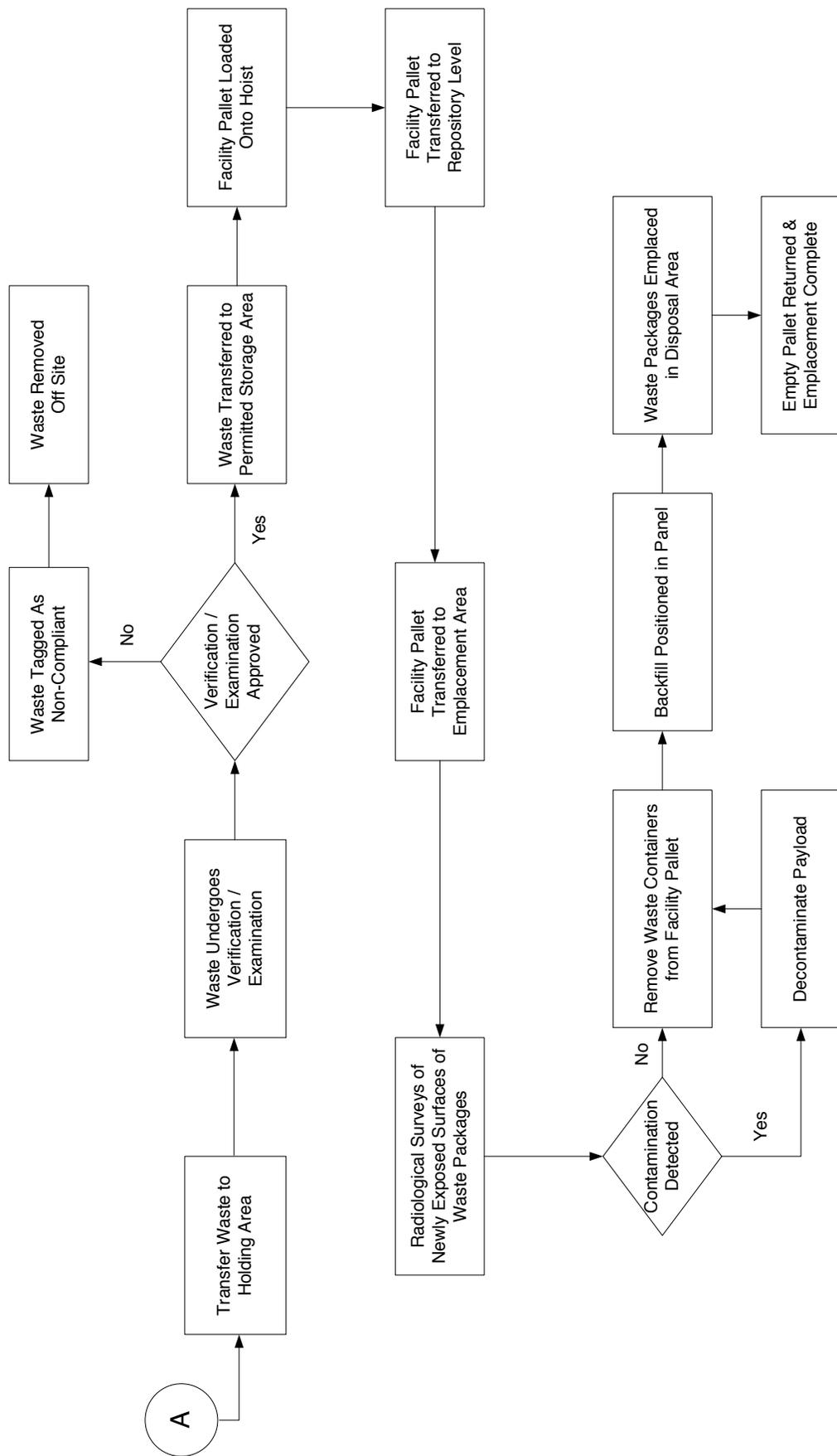


Figure M2-12  
 WIPP Facility Surface and Underground CH Transuranic Mixed Waste Process Flow ( continued)

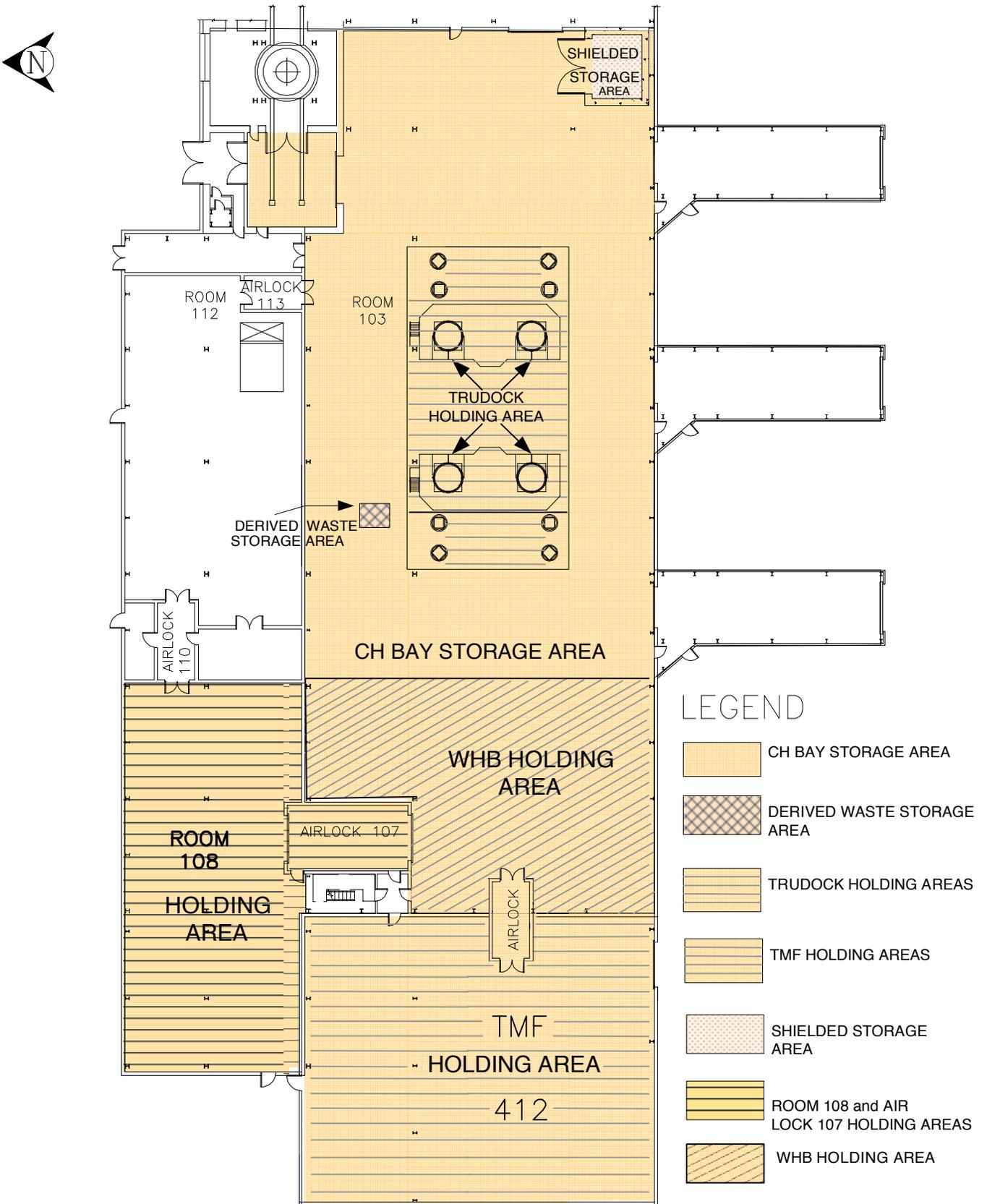


Figure O3-3  
 Waste Handling Building - Container Storage and Holding Areas

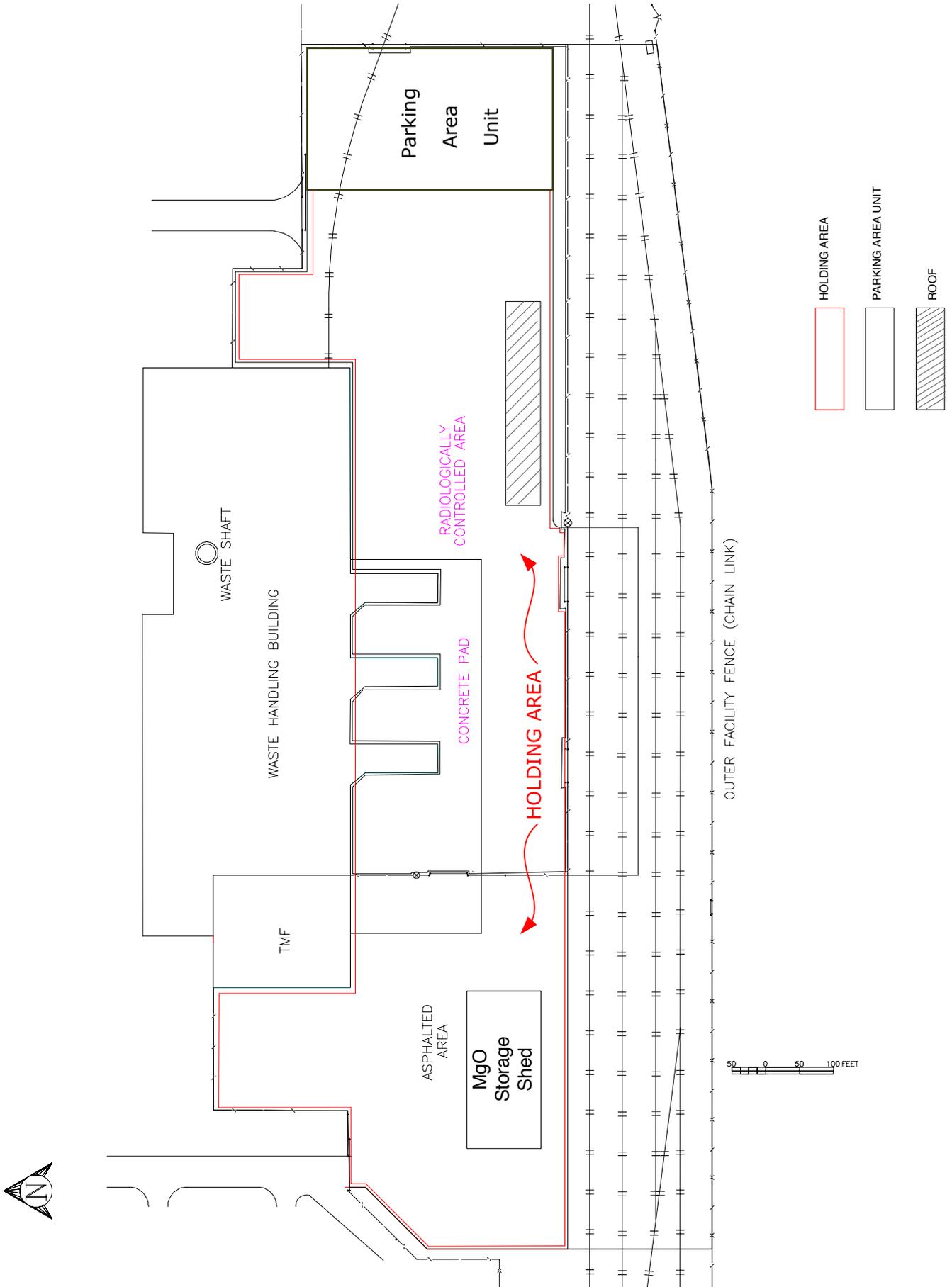


Figure O3-4  
 Parking Area - Container Holding and Storage Areas

**Table B6-65 Visual Examination (VE) Checklist**

	<u>WAP Requirement</u> <sup>1</sup>	<u>Procedure Documented</u>		<u>Example of Implementation/ Objective Evidence, as applicable</u>		<u>Comment</u> (e.g., any change in procedure since last audit, etc.)
		<u>Location</u>	<u>Adequate?</u> Y/N (Why)	<u>Item Reviewed</u>	<u>Adequate?</u> Y/N	
<b>VISUAL EXAMINATION PROCEDURES FOR VE RECORDED ON VIDEO/AUDIO MEDIA</b>						
<b>233</b>	<u>Do site procedures ensure that audio/video media record the waste packing event for the container such that items placed into the container are recorded in sufficient detail that a trained Permittee visual examination expert can determine what the waste items are and their associated material parameters? (Section B1-3)</u>					
<b>234</b>	<u>Do site procedures ensure that the video/audio media shall capture the waste container identification number? (Section B1-3)</u>					
<b>235</b>	<u>Do site procedures ensure the personnel loading the waste container shall be identified on the video/audio media or on packaging records traceable to the loading of the waste container? (Section B1-3)</u>					
<b>236</b>	<u>Do site procedures ensure that the date of loading the waste container will be recorded on the video/audio media or on packaging records traceable to the loading of the waste container? (Section B1-3)</u>					

	<u>WAP Requirement</u> <sup>1</sup>	<u>Procedure Documented</u>		<u>Example of Implementation/ Objective Evidence, as applicable</u>		<u>Comment</u> (e.g., any change in procedure since last audit, etc.)
		<u>Location</u>	<u>Adequate? Y/N (Why)</u>	<u>Item Reviewed</u>	<u>Adequate? Y/N</u>	
<b><u>VISUAL EXAMINATION PROCEDURES FOR VE CONDUCTED BY TWO OPERATORS</u></b>						
<b><u>237</u></b>	<b><u>Do site procedures ensure that at least two generator/storage site personnel shall approve the data forms or packaging logs and attest to the contents of the waste container? (Section B1-3)</u></b>					
<b><u>238</u></b>	<b><u>Do site procedures ensure that the data forms or packaging logs shall contain an inventory of waste items in sufficient detail that a trained Permittee visual examination expert can identify the associated waste material parameters? (Section B1-3)</u></b>					
<b><u>239</u></b>	<b><u>Do site procedures ensure that the waste container identification number shall be recorded on the data forms or packaging logs? (Section B1-3)</u></b>					

1. The WAP requirements should be presented in documents, such as procedures. Each of the questions posed under WAP requirements are meant to determine whether procedures are in place or whether documents are evident which demonstrate that the specific WAP requirement is or can be met.

**ATTACHMENT B**  
**MATRIX FROM TECHNICAL COMMENT NO. 17**

### Technical Comment No. 17 Matrix Response

Text from B4-4	PMR Location	Comments
The Permittees shall require confirmation of acceptable knowledge characterization designations at the site, as stated in Section B4-3(b)	B7 figures B7-3, B7-4, B7-5	Waste examination and verification is performed by the Permittees under the PMR.
In addition and prior to notifying a site that a waste stream can be managed, stored, or disposed at the WIPP facility, the Permittees will review the Waste Stream Profile Forms,	B7-1a, B7 figure B7-2, B3-10a	
the WIPP Waste Information System (WWIS),	B7-1a	
and associated Characterization Information Summary to ensure that radiography or visual examination, headspace-gas sampling and analysis data, and homogeneous waste sampling and analysis data confirm hazardous waste characterization made using acceptable knowledge.	B3-11b	The Characterization Information Summary is designated as the Waste Analysis Information Summary in the PMR.
The Permittees shall require all sites to provide all of the required data associated with waste stream characterization, including summary acceptable knowledge information, radiography or visual examination, headspace gas sampling and analysis, and homogeneous waste sampling and analysis results.	B3-11b(2)	
In addition, sites will designate the assigned hazardous waste codes for the waste stream on the waste profile form.	B3-11b(1)	
The WWIS and associated Characterization Information Summary will be evaluated as illustrated in Figure B4-2 and compared to the hazardous waste codes specified on the waste stream profile form.	B7-1a, B7-1a(3)	The Characterization Information Summary is designated as the Waste Analysis Information Summary in the PMR.

Text from B4-4	PMR Location	Comments
<p>The Permittees will review information provided by the sites to ensure that additions to hazardous waste codes are identified and justified based on data and that hazardous waste codes are included in the Part A of the WIPP permit application.</p>	<p>B7-1a(3)</p>	
<p>As part of the reconciliation of data quality objectives (DQOs) (Permit Attachment B3, Section B3-11), sites are required to track and report changes to hazardous waste characterizations. If data consistently indicates that discrepancies with acceptable knowledge information were identified at the site level (and were subsequently reconciled), the Permittees will require sites to reassess the materials and processes that generate the waste, and resubmit waste stream profile information and implement their corrective action system.</p>	<p>See Comment</p>	<p>This language was not transferred verbatim into the PMR. However, this process is addressed by the following PMR requirements. Attachment B4 "TRU Mixed Waste Analysis Using Acceptable Knowledge" Section B4-3e "Acceptable Knowledge Data Quality Requirements", Section B4-3d "Requirements for Reevaluating Acceptable Knowledge Information" and Attachment B3 "Quality Assurance Objectives for Waste Analysis Methods" Section B3-8 "Acceptable Knowledge".</p>
<p>If the Permittees' review of a waste stream profile form and associated waste characterization data reveal nonconformance with acceptable knowledge requirements as described in Permit Attachment B3 (i.e. project level nonconformance), the Permittees shall not manage, store, or dispose of the waste stream until corrective action is taken as specified in Permit Attachment B3.</p>	<p>B7-1a</p>	
<p>Repeated non-conformances by a site in implementing and documenting WAP requirements (Permit Attachment B) will result in the termination of management, storage, or disposal of the site's waste, waste stream(s), or summary category group(s), as applicable.</p>	<p>B7-1b(9)</p>	
<p>Management, storage, or disposal of the subject waste summary category at WIPP will not resume until the Permittees find that all corrective actions have been implemented and the site complies with all applicable requirements of the WAP.</p>	<p>B7-1b(9)</p>	

Text from B4-4	PMR Location	Comments
Any drum with unresolved discrepancies associated with hazardous waste characterization will not be managed, stored, or disposed at the WIPP facility until the discrepancies are resolved.	B7-1a(3)	
The Permittees shall require the sites to reassess the materials and processes that generate the waste, and headspace-gas sampling and analysis, radiography or visual examination, and homogeneous waste sampling and analysis results.		Permittees believe that the language requiring resolution of the discrepancy(ies) prior to receiving approval to ship is sufficient without prescribing detailed corrective actions plans for the generator/storage site.
All shipments of the subject waste stream will cease until the corrective action(s), as necessary, have been implemented and the discrepancy resolved.	B7-1a(3)	
The Permittees will notify NMED when the certification status of a waste stream at a site is revoked.	B7-1a(3)	
Waste characterization and certification authority will not be reinstated until the site demonstrates all corrective actions have been implemented and the program is reassessed by the Permittees.	B7-1a(3)	