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PETER MAGGIORE  
SECRETARY

December 9, 1998

TO: See Distribution List

RE: Transmittal of Additional Material for Revised Draft Hazardous Waste Facility Permit for the Waste Isolation Pilot Plant, EPA ID NM4890139088

Enclosed are the following items which need to be incorporated into your copy of the revised draft permit for WIPP dated November 13, 1998:

1. Fact Sheet dated November 13, 1998
2. Legal Notice dated December 8, 1998
3. Supplemental Fact Sheet dated December 8, 1998
4. Corrected pages for Attachment B4 (pages B4-1 through B4-4)

Items 1, 2, and 3 should be placed within the sheet protector in the front of Volume 1. Item 4 replaces the equivalent pages currently in Attachment B4 in Volume 1. Note that the header on pages B4-2 and B4-3 indicates that these pages were corrected on December 8, 1998.

The December 8, 1998 legal notice provides further information on items 3 and 4.

Please contact Mr. Steve Zappe of my staff at (505)827-1560 x1013 if you have any comments or questions.

Sincerely,

A handwritten signature in cursive script that reads "Benito J. Garcia".

Benito J. Garcia  
Chief, Hazardous and Radioactive Materials Bureau

cc: WIPP Hearing Clerk  
WIPP File - Red '98

981203



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## FACT SHEET

### Intent to Issue a Permit for the Operation of A Hazardous Waste Storage and Disposal Facility under the New Mexico Hazardous Waste Act

Waste Isolation Pilot Plant  
Carlsbad, New Mexico

**Facility Name:** Waste Isolation Pilot Plant (WIPP)

**EPA ID Number:** NM4890139088

**Location:** The facility is located north of Jal Highway (State Highway 128) in Eddy County, New Mexico. The facility consists of 16 sections of Federal land in Township 22 South, Range 31 East. The WIPP site is located approximately 20 miles east of Loving, and 26 miles east of Carlsbad.

**Owner:** U.S. Department of Energy

**Operators:** U.S. Department of Energy  
Westinghouse Electric Company, Waste Isolation Division

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#### Introduction of Facility and Purpose of Permit:

##### Permit Application

The U.S. Department of Energy (DOE) and the Waste Isolation Division (WID) of Westinghouse Electric Company (Permittees) requested a Permit from the New Mexico Environment Department (NMED) to manage, store and dispose transuranic (TRU) waste at the Waste Isolation Pilot Plant (WIPP) in an application submitted between May 26, 1995 and November 20, 1997. NMED deemed the application finally complete on January 5, 1998. The Permittees requested approval by NMED to operate two TRU waste container storage units on the surface, and to operate three TRU waste disposal units in the underground, within a portion of the subsurface excavated areas.

The Permittees requested approval for the management, storage, and disposal of TRU waste (non-mixed and mixed), explicitly stating that "all TRU waste" would be "managed as though it were mixed [waste]" (Page A-5, Line 20+). TRU waste is defined as waste containing more than 100 nanocuries of alpha-emitting transuranic isotopes per gram of waste, with half-lives greater than 20 years. "Transuranic" means radioisotopes heavier than uranium, such as plutonium and americium. TRU waste is not low-level radioactive waste. The Permittees are required to obtain an amendment from Congress to the WIPP Land Withdrawal Act (LWA), Public Law 102-579,

before emplacing or disposing high-level radioactive waste or spent nuclear fuel at WIPP.

*TRU mixed waste* is transuranic waste which contains both radioactive and hazardous components. Under federal and state law, the management, storage and disposal of "mixed waste" is not self-regulated by DOE, but is regulated by the State of New Mexico under the New Mexico Hazardous Waste Act (HWA) pursuant to State authorization from the United States Environmental Protection Agency (EPA) under the Resource Conservation and Recovery Act (RCRA).

The Permittees requested authority to store and dispose both contact-handled (CH) and remote-handled (RH) TRU waste. CH-TRU waste is TRU waste with a surface dose rate not greater than 200 millirem/hour. RH-TRU waste is TRU waste with a surface dose rate of 200 millirem/hour or greater and, as the name implies, must be handled remotely and shielded heavily to reduce the risk of exposure to workers and the public.

##### Facility Description

WIPP is located in southeastern New Mexico, approximately 26 miles east of the city of Carlsbad. The WIPP facility consists of surface buildings and structures, an underground network of subsurface excavated openings, and vertical shafts which connect the surface and subsurface areas. In 1980, Congress authorized WIPP for the express purpose of providing a research and develop-

ment facility to demonstrate the safe disposal of radioactive waste resulting from the defense activities and programs of the United States. In 1996, Congress amended the WIPP LWA to allow DOE to dispose TRU waste at WIPP without a requirement for a "test phase."

#### Proposed Permit

On May 15, 1998, NMED issued a Draft Permit for public review and comment for ninety (90) days until August 14, 1998. During the public comment, NMED received approximately 3300 pages of written comments from 30 commentors. Based upon the comments received, NMED issued a revised Draft Permit and is now seeking additional written public comment on the revised Draft Permit. NMED also determined to hold a public hearing on the revised Draft Permit to receive oral public comment as set forth in the public notice. NMED's revisions to the Draft Permit are reflected in redline/strikeout form to allow the public to provide additional comment, as appropriate, on those portions of the Draft Permit which were revised.

The revised Draft Permit and permit conditions are based upon the RCRA Part B permit application received from the Permittees on May 26, 1995, including all revisions and other clarifying information submitted by the Permittees before issuance of the previous Draft Permit on May 15, 1998. NMED also considered all comments received by August 14, 1998 when revising the Draft Permit.

The Permittees are prohibited from managing, storing, or disposing TRU mixed waste which does not comply with the terms and conditions of the Permit. The Permittees will be required to obtain a permit modification from NMED to vary from any requirements of the Permit. All permit modifications are subject to the public notice requirements as provided for by law.

In addition to the HWA and the New Mexico Hazardous Waste Regulations (**20 NMAC 4.1**), the Permittees must meet additional requirements of a number of other agencies and statutes which have jurisdiction or regulatory authority over operations at the WIPP facility. There are a number of operational and waste handling activity issues concerning WIPP which are not within the purview of the Permit or that NMED does not have statutory or regulatory authority under the HWA or 20 NMAC 4.1. Examples of these issues include: transportation of waste to WIPP; disposal of non-mixed TRU waste under 40 CFR §191 and §194; and compliance with regulations enforced by other agencies, such as the Mine Safety and Health Administration.

#### **Organization of the Permit:**

The WIPP Permit follows the format specified by NMED used for other New Mexico hazardous waste facility

permits. The Permit also generally incorporates the format specified in the EPA guidance entitled the "Model RCRA Permit for Hazardous Waste Management Facilities," Office of Solid Waste, U.S. Environmental Protection Agency, September, 1988. However, since WIPP is proposed to be the first permitted geologic repository for disposal in the United States, there was no "model" guidance or format to follow for the development of permit conditions for the underground hazardous waste disposal units (**Underground HWDUs**).

#### General Description

The WIPP Permit is divided into seven modules, each of which will be briefly described in this fact sheet. The waste management portion of the Permit, found in Permit Modules I through VI, implements the requirements imposed by the HWA, as codified in 20 NMAC 4.1. This portion of the Permit describes the structures, equipment, and procedures the Permittees are required to comply with in order to manage, store, and dispose TRU mixed waste. TRU mixed waste will be stored in a variety of containers at two locations above ground, and disposed in up to three locations underground. These locations are further described in the remainder of the fact sheet.

The corrective action portion of the Permit, found in Permit Module VII, implements the requirements imposed by the HWA, such as waste minimization, land disposal restrictions, and corrective action to investigate possible releases from Solid Waste Management Units (**SWMUs**).

#### Specific Description

The first two modules, Modules I and II, are entitled "General Permit Conditions" and "General Facility Conditions," respectively, and are generally applicable to all RCRA permits. Module I addresses such issues as permit expiration date, and the NMED's authorization to inspect and obtain samples. Module II establishes permit conditions for such issues as waste sources, waste analysis, security, inspections, and training. Module II also addresses preparedness and prevention, emergency procedures (contingency plan), general closure requirements, and cost estimates and financial assurance for closure and post-closure activities.

Module III addresses the design and operations of the above ground TRU mixed waste container storage areas referred to as the Waste Handling Building Unit (**WHB Unit**) and the Parking Area Unit. For example, this module describes the design requirements for the building, the secondary containment system, and the containers used to manage waste. The module also specifies the maximum volume of waste which can be managed in the units and how the waste containers will be managed, stored and inspected to minimize the potential for release of hazardous constituents to the environment. Module IV specifies the requirements for

disposal in the Underground HWDUs. Module V addresses the groundwater monitoring program requirements for the WIPP facility. Module VI contains requirements which become effective after WIPP operations cease and the facility enters what is referred to as the "post-closure care" period. Module VII contains permit conditions pertaining to corrective action at SWMUs required by the HWA.

#### **Description of the Permit:**

NMED reviewed the Permittees' application and determined that the application, as modified by the conditions of the revised Draft Permit, adequately addresses the requirements of the HWA and 20 NMAC 4.1. A Permit is required for any area at WIPP where TRU mixed waste will be managed, stored or disposed. The following sections describe the type of waste to be managed and units to be permitted.

#### Waste to be Managed

Two classes of TRU mixed waste exist: "retrievably stored" refers to waste generated after 1970 and before NMED notifies the Permittees that the characterization requirements of the WAP have been implemented at a generator/storage site, whereas "newly generated" refers to waste generated after NMED notification. For both waste classes, the waste may be further categorized into three broad groups related to the final physical form of the waste: homogenous solids, soils/gravels, and heterogenous debris. Every retrievably stored waste container will undergo either radiography or visual examination to identify the physical form of the waste, and headspace gas analysis to determine the presence of volatile organic compounds (VOCs). In addition, some homogenous solids and soil/gravel wastes will undergo coring/sampling and analysis to establish the concentrations of VOCs, semi-VOCs, and metals for hazardous waste characterizations.

#### *1. TRU and TRU mixed waste*

In its comments, the Permittees requested that the Draft Permit be revised to reflect the regulation of only TRU mixed waste on the ground that the State has no authority to regulate "non-mixed" TRU waste. As previously outlined above, the Permittees expressly stated that *all TRU waste* (mixed and non-mixed) would be managed, stored and disposed as if it were "mixed waste." The Draft Permit has been revised to allow Permittees to manage, store, and dispose "TRU mixed waste." The Draft Permit has also been revised to prohibit the Permittees from disposing non-mixed TRU waste in Underground HWDUs unless such waste has been characterized in compliance with applicable provisions of the Permit. This permit condition is authorized by law, and is necessary to assure compliance with the Permit and to protect human health and the environment.

#### *2. Types of TRU mixed waste*

The types of mixed waste to be managed under the Permit will be limited to contact handled (CH) TRU mixed waste. A more complete description of the waste may be found in Permit Attachment B, the Waste Analysis Plan (WAP). The Permit also allows the storage and disposal of derived wastes, which are mixed wastes that may be generated from on-site management of TRU mixed waste.

#### *3. Prohibited wastes*

This Permit prohibits the management, storage, or disposal of the following: (1) RH-TRU mixed waste; and (2) waste which does not meet the waste acceptance criteria (WAC) for WIPP. NMED determined that the Permittees did not adequately demonstrate that CH-TRU mixed waste characterization procedures could be used to characterize RH-TRU mixed waste, and thus were inadequate to meet the waste analysis requirements under 20 NMAC 4.1.500 (incorporating 40 CFR §264.13). Further, WIPP is not authorized to receive wastes which do not meet the WAC as specified in the Permit, such as liquids, non-mixed hazardous wastes, ignitable, corrosive or reactive wastes.

#### Units to be Permitted

The Permittees requested to operate five hazardous waste management units at the WIPP site. The first unit is a TRU mixed waste container storage area which will be located above ground within a portion of the Waste Handling Building (WHB Unit). The second unit is also a TRU mixed waste container storage area located in the parking area south of the Waste Handling Building (Parking Area Unit). The third, fourth, and fifth units are the Underground HWDUs, which consist of Panels 1 through 3 of the underground excavated openings.

#### *1. WHB Unit*

The Permit will allow the Permittees to store TRU mixed waste within designated portions of the Waste Handling Building (WHB) and the parking area south of the WHB, under specific conditions cited within the Permit. The WHB consists of a totally enclosed area of approximately 84,000 square feet. The permitted WHB Unit comprises approximately 33,000 square feet within the WHB CH Bay, which is further divided into four distinct areas where the Permittees may manage and store TRU mixed waste. The areas are: (1) the TRUDOCK Storage Area, approximately 4,700 square feet; (2) the NE Storage Area, approximately 2,900 square feet; (3) the SE (Shielded) Storage Area, approximately 300 square feet; and (4) the Derived Waste Storage Area, approximately 50 square feet. The Permittees will use these areas to temporarily store TRU mixed waste received from off-site generator/storage sites, and "derived" wastes which may

be generated during disposal activities and during closure. The maximum TRU mixed waste capacity of the WHB Unit is 2718 cubic feet at any time, which is equivalent to 41 Standard Waste Boxes (SWBs), 287 55-gallon drums, or any other combination of approved containers of TRU mixed waste which does not exceed 2718 cubic feet.

## 2. Parking Area Unit

The Parking Area Unit is an asphalt and concrete surface of approximately 115,000 square feet extending from the fence north of the rail siding to the WHB, within the designated Radiological Control Area, and is totally enclosed by a chain-link fence. The Permittees may store and manage TRU mixed waste containers anywhere within the Parking Area Unit, as long as the containers remain within sealed TRUPACT-II shipping containers. The maximum capacity of the Parking Area Unit is 1591 cubic feet, which is equivalent to the volume of waste contained within 12 TRUPACT-II shipping containers.

## 3. Underground HWDUs

The Permit will also allow the Permittees to dispose TRU mixed waste in Underground HWDUs designated as Panel 1, Panel 2, and Panel 3. To date, only Panel 1 has been excavated, while Panels 2 and 3 will be excavated during the term of the Permit. The Underground HWDUs are classified as miscellaneous hazardous waste management units under 20 NMAC 4.1.500 (incorporating 40 CFR §264 Subpart X), since geologic repositories such as WIPP do not have specific technical standards prescribed by regulation. The Underground HWDUs are located within the bedded salt of the Salado Formation, approximately 2150 feet below the surface. An Underground HWDU is a single excavated panel, consisting of seven rooms and two access drifts, designated for disposal of TRU mixed waste. Each room has nominal dimensions of 13 feet high, 33 feet wide and 300 feet long, and the entire panel has an approximate floor area of 124,150 square feet. The Permittees will dispose of TRU mixed waste in approved containers within the Underground HWDUs. The maximum capacity of an Underground HWDU is 636,000 cubic feet, which is equivalent to approximately 86,500 55-gallon drums of TRU mixed waste.

The Permit requires the Permittees to limit releases to the air of VOCs to levels which are protective of human health and the environment. VOC concentrations are specified in the Permit as room-based concentration limits. The Permit imposes no container-specific limits. That is, individual containers may exceed these VOC concentration limits as long as the average measured concentration of VOCs in the headspace gas of all containers within a room remain below the room-based limits. These limits are verified by performing VOC monitoring in the underground and by using VOC

headspace gas sampling data as reported in the WIPP Waste Information System (WWIS) database.

## Issues and Major Permit Conditions:

This section of the fact sheet addresses issues and major permit conditions which may be of widespread public interest. In order to facilitate public review, the following is a summary of issues and major permit conditions discussed by permit module.

### Module I

Module I of the Permit contains standard language similar to all other hazardous waste facility permits. The term for the Permit is ten (10) years, but because WIPP is a disposal facility, the regulations require NMED to review the Permit every five (5) years to ensure incorporation of any newly promulgated regulations. Other standard conditions provide NMED with inspection and entry rights to ensure the Permittees continue to comply with all requirements and conditions of the Permit, and requirements for the Permittees to orally report any noncompliance with the Permit which may endanger human health or the environment to NMED within twenty four hours of discovery, and follow up with a written notification within five (5) calendar days.

### Module II

Module II addresses waste sources and waste analysis plan requirements, as well as facility security, general inspection requirements, personnel training, preparedness and prevention, the facility contingency plan, general closure and financial assurance requirements

#### 1. Modification for approval of the WAP

The previous Draft Permit provided that the Permittees may only receive TRU mixed waste from DOE facilities within the United States which were approved by NMED through a subsequent modification to the Permit. In other words, the previous Draft Permit initially allowed no off-site TRU mixed waste to be accepted at WIPP until NMED approved a Permit modification. The revised Draft Permit has eliminated this condition. NMED has determined that a permit modification is unnecessary because the WAP approves a process which, if implemented, is adequate to meet the requirements of 20 NMAC 4.1.500 (incorporating 40 CFR §264.13). The Permit provides that the Permittees may only receive TRU mixed waste from those generator/storage sites which the Permittees demonstrate comply with, and fully implement, the requirements of the Permit and applicable provisions of the approved WAP.

## 2. Conditions for approval of the WAP

The WAP is approved subject to numerous conditions specified in the Permit. The Permittees will require generator/storage sites to implement the WAP, use certain approved waste characterization sampling methods and analytical techniques, as well as use statistical methods for selecting containers for representative sampling. Sites shall also comply with quality assurance objectives (QAOs) for waste characterization.

The Permittees will use acceptable knowledge as an overall waste characterization process that is confirmed through radiography, visual examination, headspace gas, and solids/soils sampling and analysis. Acceptable knowledge uses documentation of the waste generating process and the results of sampling and analysis of the waste to delineate waste streams, identify wastes which may exhibit a toxicity characteristic, and identify "listed" wastes. Although all waste streams are required to have acceptable knowledge documentation, it is essential for heterogeneous debris waste because no sampling and analysis of this debris waste will be performed.

## 3. Requirement to summarize WAP non-conformances

NMED requires the Permittees to submit monthly summaries of certain non-conformances to applicable WAP requirements identified at the generator/storage site Project Manager level. NMED imposed this requirement to ensure that the Permittees are notified of significant issues that arise at generator/storage sites affecting data quality objectives and accuracy of waste analyses, and to ensure that no waste is managed, stored, or disposed at WIPP which fails to meet data quality objectives.

## 4. Requirement to provide NMED access to WWIS database

NMED has imposed a requirement to allow NMED direct access to the WWIS, which contains extensive, detailed waste characterization data supplied by the generator/storage sites to the WIPP facility. This access is necessary to allow NMED to verify compliance with the applicable characterization requirements of the WAP and the VOC limits in Underground HWDUs specified in Module IV.

## 5. Requirement to audit and obtain NMED approval

NMED is requiring the Permittees to fulfill the following conditions prior to management, storage, or disposal of TRU mixed waste at WIPP: (a) the Permittees conduct audits of generator/storage sites, using an audit checklist specified by NMED, to demonstrate implementation of and compliance with applicable provisions of the WAP as required under 20 NMAC 4.1.500 (incorporating 40 CFR §264.13); and (b) NMED approves a final audit report as

necessary to verify implementation of the WAP. NMED may observe audits as necessary to validate implementation of and compliance with the WAP.

## 6. Prohibition on RH-TRU mixed waste

NMED is imposing a condition prohibiting RH-TRU mixed waste. NMED has determined that, based upon consideration of the environment under which sampling and analysis are likely to occur, RH-TRU mixed waste characterization using CH-TRU mixed waste characterization methods is not possible without modification to the information presented in the Permittees' application. As such, the Permittees' description of RH-TRU mixed waste analysis procedures are inadequate to meet waste analysis requirements under 20 NMAC 4.1.500 (incorporating 40 CFR §264.13).

## 7. Financial assurance

Finally, Module II of the Permit requires WID to demonstrate financial assurance for facility closure and post-closure. While DOE is exempt from financial assurance requirements due to its status as a Federal agency, WID as an operator and a private contractor is not exempt under State law. The Permit includes WID's estimate of costs to close the facility and provide for required post-closure care.

## Module III

Module III of the Permit provides conditions for the design and operation of the WHB Unit and the Parking Area Unit. Several of the permit conditions may be of particular interest to the public. Storage time limits are imposed for both units. Sealed TRUPACT-II shipping containers are prohibited from storage for longer than fifty-nine (59) days after the inner containment vessel of the TRUPACT-II was sealed at the generator/storage site, due to Nuclear Regulatory Commission restrictions. Sealed TRUPACT-II shipping containers provide secondary containment for storage in the Parking Area Unit, while placement of waste containers on facility pallets and an impermeable coating on the floor of the WHB provide secondary containment in the WHB Unit.

## Module IV

Module IV provides permit conditions for the design and operation of the Underground HWDUs (panels) within the subsurface. The Permittees are prohibited from disposing non-mixed TRU waste in any Underground HWDU unless such waste is characterized in compliance with applicable provisions of the Permit. The purpose for this permit condition is briefly summarized above.

Numerous comments requested that NMED either prohibit or condition the use of Panel 1 for disposal due to concerns about the panel's stability. While mine



stability and safety issues are regulated by the Mine Safety and Health Administration, NMED's concern is focused on the impact of a potential roof collapse to the release of hazardous constituents (primarily to the air) which may adversely impact human health. NMED established permit limits for average concentration of VOCs in any single room to ensure protection of human health in the event of acute exposure during a roof fall as well as to chronic (long-term) exposure to VOC emissions from the Underground HWDUs. NMED used standard risk assessment methodology to establish limits which meet EPA standards for environmental exposure and OSHA standards for occupational exposure. During this assessment, NMED also determined that the Permittees' proposed limits failed to adequately protect human health. NMED's methodology is available for public review in the administrative record.

The Permittees compliance with these limits will be determined by VOC confirmatory monitoring and data contained in the WWIS. Besides imposing notification requirements for VOC exceedances, the Permit requires the Permittees to cease disposal operations in a room and install ventilation barriers if the annual average concentration for a VOC exceeds the specified limit. Likewise, if the annual average concentration for a VOC exceed the specified limit for six consecutive months, the Permittees will close the affected Underground HWDU. NMED is requiring that VOC confirmatory monitoring continue after closure of Panel 1 because the risk assessment assumes there are measurable releases from closed panels, and the absence of data to the contrary did not justify discontinuing monitoring six months after closure of Panel 1.

The Permit also specifies operational requirements, such as minimum mine exhaust and active room ventilation rates and a geomechanical monitoring program to observe the creep and failure properties of the Salado in the Underground HWDUs. Finally, Module IV of the Permit specifies the standards for panel closure, repository closure, and repository post-closure care.

#### Module V

NMED is requiring the Permittees to implement a detection monitoring program (DMP) for ground water during the term of the Permit. Although the Permittees submitted information in their application supporting their belief that there will be no migration of hazardous wastes from the Underground HWDUs, NMED is imposing this permit condition to ensure compliance with the environmental performance standards specified in 20 NMAC 4.1.500 (incorporating 40 CFR §264.601(a)).

In its comments, the Permittees stated that the "point of compliance" for ground-water monitoring should encompass the waste management area, which includes any barriers (such as the Salado formation) within the

WIPP withdrawal area. NMED disagrees with the Permittees' interpretation of the "point of compliance", and will retain the location specified in the revised Draft Permit ("... the vertical surface located at the hydraulically downgradient limit of the Underground HWDUs that extends to the Culebra Member of the Rustler Formation"). This condition is necessary to ensure consistency with the definition in 20 NMAC 4.1.500 (incorporating 40 CFR §264.95).

Seven (7) detection monitoring wells (DMWs) will be sampled semiannually for selected parameters and constituents to detect statistically significant evidence of contamination in the Culebra Member of the Rustler Formation overlying the Underground HWDUs. In a typical landfill, the uppermost aquifer below the landfill is the closest groundwater release pathway and is therefore monitored. At WIPP, however, the closest aquifer to the repository, and to which contaminants are likely to migrate, is above (i.e., the Culebra) rather than below the disposal unit. If contamination is detected in the Culebra, the Permittees must notify NMED, immediately determine the concentrations of all constituents specified in 40 CFR §264 Appendix IX, and may be required to submit an application for a Permit modification to establish a compliance monitoring program. NMED has added several hazardous constituents to the list of required monitoring constituents due to the Permittee's identification of them as being present in the TRU mixed waste streams proposed for disposal at WIPP.

#### Module VI

Module VI addresses requirements for post-closure care. The post-closure care plan is implemented upon closure of the first Underground HWDU and continues until thirty (30) years after certification of final repository closure. Post-closure care includes requirements for routine inspection and maintenance of panel closure systems, and underground air monitoring. Active institutional controls implemented after final repository closure include fencing and warning signs, inspections, maintenance, continued monitoring of ground water, and control and cleanup of any releases.

#### Module VII

Module VII implements the corrective action requirements imposed by the HWA for releases of hazardous wastes and constituents from SWMUs. Conditions include requirements for waste minimization, land disposal restrictions, and corrective action to investigate possible releases from SWMUs.

SWMUs are waste units that contain hazardous waste constituents, such as barium, chromium, lead, thallium, etc. The facility must determine the full nature, rate, and extent of contamination for each SWMU identified in Module VII, Table 2 of the Permit. Some SWMUs may



require cleanup and/or remediation. In addition, the Permit requires the Permittees to notify NMED of newly identified SWMUs and newly identified releases from SWMUs at WIPP.

NMED revised its approach to evaluating the Permittees' requests for No Further Action (NFA) at SWMUs where the Permittees had conducted a voluntary release assessment. Further information regarding NMED's approach to evaluating NFA requests and decisions to include or exclude specific SWMUs from Module VII are in the Technical Support Document which accompanies the revised Draft Permit.

**Availability of the Revised Draft Permit and Other Documents:**

The administrative record for this proposed action consists of this fact sheet, a legal notice, the permit application, a Technical Support Document for Corrective Action, and related correspondence and documents. The revised Draft Permit and other documents may be reviewed during normal business hours at:

NMED Hazardous and Radioactive Materials Bureau  
P.O. Box 26110  
2044-A Galisteo Street  
Santa Fe, NM 87502  
Ph (505) 827-1560, x1013  
Attn: Mr. Steve Zappe

The fact sheet, revised Draft Permit, and Technical Support Document may also be reviewed at the locations listed below:

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(505) 624-6046

**Las Cruces**

Mr. Ken Smith  
NMED District III Office  
1001 North Solano Drive  
Las Cruces, NM 88001  
(505) 524-6300

Please contact the location of your choice listed above for hours when these documents are available for public review.

The text of the revised Draft Permit and the Technical Support Document are also available for downloading on the NMED Web Page at <http://www.nmenv.state.nm.us/wipp/>. An electronic version in WordPerfect 5.2 format for viewing on a personal computer is also available from NMED (specify Macintosh or PC format). Send two (2) HD floppy disks and a return mailer with sufficient postage to:

Mr. Steve Zappe  
Hazardous and Radioactive Materials Bureau  
2044-A Galisteo Street  
Santa Fe, New Mexico 87505

**Public Hearing:**

The NMED Secretary has determined to hold a public hearing to accept oral public comment as specified in the public notice. All persons who seek to participate in the public hearing should refer to the public notice for specific details regarding participation and requirements for submittal of oral technical comment and general, non-technical public comment.

**Comment Period and Regulatory Contact:**

All persons who wish to provide written public comment on the revised Draft Permit are required to file such comment on or before January 18, 1999 as set forth in the public notice. Written public comment and any other requests should be in writing and filed below:

Hearing Clerk  
WIPP Draft Permit  
New Mexico Environment Department  
Room N-4071  
P.O. Box 26110  
1190 St. Francis Drive  
Santa Fe, N.M. 87502-6110

**Permit Decision:**

The Department will respond in writing to public comments prior to proposing a final decision to the Secretary. The Secretary will issue a final permit decision and response to comments which shall (a) specify which provisions, if any, of the revised Draft Permit have been changed in the final permit decision, and the reasons for the change; and (b) briefly describe and respond to all public comments on the revised Draft Permit or the permit application raised during the public comment period and public hearing. The Secretary will make the final permit decision publicly available and shall notify the Permittees by certified mail; all persons presenting written public comment, who filed an Entry of Appearance or requested notification in writing shall be notified of the decision by first class regular mail. The Secretary's decision shall constitute a final agency decision and may be appealed as provided by the HWA.

## LEGAL NOTICE

### NEW MEXICO ENVIRONMENT DEPARTMENT HAZARDOUS AND RADIOACTIVE MATERIALS BUREAU SANTA FE, NM 87502

DECEMBER 8, 1998

#### SUPPLEMENTAL FACT SHEET AND CORRECTION REGARDING ISSUANCE OF A FINAL PERMIT FOR THE WASTE ISOLATION PILOT PLANT USEPA NO. NM4890139088

The New Mexico Environment Department (**Department**) provided a November 13, 1998 public notice regarding the public hearing and the opportunity for public comment on issuance of a final permit for the Waste Isolation Pilot Plant (**WIPP**). The Department's November 13, 1998 public notice also announced the availability of the revised draft permit for public comment and the availability of a fact sheet for public review.

The Department proposes to issue a final permit for the storage and disposal of transuranic mixed waste at the Waste Isolation Pilot Project (WIPP) pursuant to the New Mexico Hazardous Waste Act, NMSA 1978 §§74-4-1 *et seq.* (Repl. Pamp. 1992). The permit applicants are the owner and co-operator of the WIPP, the U.S. Department of Energy (**DOE**), Carlsbad Area Office, P.O. Box 3090, Carlsbad, New Mexico 88221, and the co-operator of the WIPP, Westinghouse Electric Company Waste Isolation Division (**WID**), P.O. Box 2078, Carlsbad, New Mexico 88221.

The Department today announces the availability of a supplemental fact sheet for public review. The fact sheet referenced in the November 13, 1998 notice by the Department briefly sets forth, pursuant to 20 NMAC 4.1.901.D.1, the significant factual, legal, methodological and policy questions considered in preparing the draft permit and also meets the requirements of 20 NMAC 4.1.901.D.2. The fact sheet announced in today's notice is intended to further facilitate public review of the revised draft permit and supplement certain portions of the original fact sheet with respect to administrative and regulatory background and conditions proposed by Department in the revised draft permit.

The fact sheet, supplemental fact sheet, revised draft permit and the permit application are available for review at the locations listed below. Additionally, a copy of any of these documents may be obtained according to the directions listed below.

The Department also provides notice of two errors contained in the revised draft permit. In Permit Attachment B4, page B4-2, lines 22-23, the following redline phrase should be deleted after "supplemental information": "to acquire the required information". In Permit Attachment B4, page B4-3, lines 32-34, the following phrase should be inserted in ~~strikeout~~ after the fifth bulleted paragraph of section B4-2b, ending on page B4-3, line 31: "Any retrievably stored heterogenous Debris Waste stream (Summary Category S5000) shall be reclassified and managed as a newly generated waste stream if all required acceptable knowledge information is not available".

These errors do not occur in the revised draft permit available since November 13, 1998 on the Department's web page at <http://www/nmenv.state.nm.us/wipp/>. Copies of the revised draft permit available for review at the locations listed below contain the two errors. Corrected pages have been sent to these addresses for insertion into the revised draft permit.

#### LOCATIONS TO REVIEW THE SUPPLEMENTAL FACT SHEET, FACT SHEET, REVISED DRAFT PERMIT AND PERMIT APPLICATION

##### SANTA FE

New Mexico Environment Department  
Hazardous and Radioactive Materials Bureau  
2044-A Galisteo Street  
P.O. Box 26110  
Santa Fe, New Mexico 87502-6110  
(505) 827-1560 x1013  
Attn: Mr. Steve Zappe

New Mexico Environment Department  
NMED Library  
1190 St. Francis Drive  
P.O. Box 26110  
Santa Fe, New Mexico 87502-6110  
(505) 827-2633  
Attn: Ann Baumgarn

Santa Fe Community College Library  
6401 Richards Avenue  
P.O. Box 4187  
Santa Fe, New Mexico 87502  
(505) 438-1352  
Attn: Ms. Monica Villaire-Garcia

New Mexico State Library  
1209 Camino Carlos Rey  
Santa Fe, New Mexico 87505  
(505) 476-9790  
Attn: Ms. Norma McCallum

**CARLSBAD**

Carlsbad Public Library  
101 S. Halaguero St.  
Carlsbad, New Mexico 88220  
(505) 885-6776  
Attn: Ms. Lori Mitchell

**HOBBS**

Pannell Library, Gov't Documents  
New Mexico Junior College  
5317 Lovington Highway  
Hobbs, New Mexico 88240  
Attn: Mr. Earl Dye

**ALBUQUERQUE**

New Mexico Environment Department  
District I Office  
4131 Montgomery Blvd., NE  
Albuquerque, New Mexico 87109  
(505) 841-9450  
Attn: Mr. Bill Bartels

Zimmerman Library  
Government Publications Dept.  
University of New Mexico  
Albuquerque, New Mexico  
(505) 277-8960  
Attn: Mr. Robert Wiberg

**LAS CRUCES**

New Mexico Environment Department  
District III Office  
P.O. Box 965  
1001 North Solano Drive  
Las Cruces, New Mexico 88001  
(505) 524-6300  
Attn: Mr. Ken Smith

**ROSWELL**

New Mexico Environment Department  
District IV Office  
1914 West Second  
Roswell, New Mexico 88201  
(505) 624-6046  
Attn: Mr. Gary McCaslin

**LOCATIONS TO RECEIVE FURTHER INFORMATION  
AND INFORMATION FOR PERSONS WITH A  
DISABILITY**

**A. Location of Further Information Regarding the  
Supplemental Fact Sheet, Revised Draft Permit and  
Copies:**

Any person who seeks additional information or would like to arrange for copies of the supplemental fact sheet, the revised draft permit, or of the two corrected pages, at 35 cents a page, may contact Mr. Steve Zappe at the Hazardous and Radioactive Materials Bureau, 2044-A Galisteo Street, P.O. Box 26110, Santa Fe, New Mexico 87502-6110 ((505) 827-1560 x1013).

**B. Information for Persons With Disability:**

Any person with a disability requiring assistance or auxiliary aid to participate in this process should contact Cliff Hawley by January 22, 1999, at the following address:

New Mexico Environment Department  
Room N-4071  
P.O. Box 26110  
1190 St. Francis Drive  
Santa Fe, New Mexico 87502-6110  
(505) 827-2850

TDD or TDY users please access Mr. Hawley's number via the New Mexico Relay Network. Albuquerque TDD users may access Mr. Hawley's number at (505) 275-7333 or 800-659-1779.

A copy of the revised draft Permit, fact sheet, supplemental fact sheet and this public notice may be reviewed at the Department's web page at <http://www.nmenv.state.nm.us/wipp/>.

## SUPPLEMENTAL FACT SHEET

### Intent to Issue a Permit for the Operation of A Hazardous Waste Storage and Disposal Facility under the New Mexico Hazardous Waste Act

Waste Isolation Pilot Plant  
Carlsbad, New Mexico

**Facility Name:** Waste Isolation Pilot Plant (WIPP)

**EPA ID Number:** NM4890139088

**Location:** The facility is located north of Jal Highway (State Highway 128) in Eddy County, New Mexico. The facility consists of 16 sections of Federal land in Township 22 South, Range 31 East. The WIPP site is located approximately 20 miles east of Loving, and 26 miles east of Carlsbad.

**Owner:** U.S. Department of Energy

**Operators:** U.S. Department of Energy  
Westinghouse Electric Company, Waste Isolation Division

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#### INTRODUCTION

The U.S. Department of Energy (DOE) and the Waste Isolation Division (WID) of Westinghouse Electric Company are required to obtain a final permit from the New Mexico Environment Department (NMED) to manage, store and dispose radioactive transuranic (TRU) mixed waste at the Waste Isolation Pilot Plant (WIPP) pursuant to the New Mexico Hazardous Waste Act (HWA) and the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976 (RCRA)(42 U.S.C. §§6901 *et seq.*). Prior to issuing a final permit, NMED is required by law to issue a draft permit for public comment. 20 NMAC 4.1.901.A.3. NMED issued a draft permit on May 15, 1998 for a ninety (90) day public comment period. On November 13, 1998, NMED issued a revised draft permit for written public comment to be received prior to January 18, 1999. The revised draft permit incorporates public comment and notes all revisions to the prior draft in redline-strikeout. In addition, a public hearing is scheduled to receive oral public comment on February 22, 1999. This fact sheet supplements the previously published fact sheet regarding the revised draft permit and is intended to facilitate public review of the revised draft permit.

#### LEGISLATIVE BACKGROUND

In 1980, Congress authorized withdrawal of the WIPP site "for the express purpose of providing a research and development facility to demonstrate the safe disposal of

radioactive wastes resulting from defense activities and programs of the United States." Department of Energy National Security and Military Applications of Nuclear Energy Authorization Act of 1980, Pub. 96-164, Section 213. In 1992, Congress authorized disposal at the WIPP facility of TRU waste in the WIPP Land Withdrawal Act. (LWA) Public Law 102-579, 106 Stat. 4777, as amended by the 1996 LWA Amendments, Public Law 104-201. In 1996, Congress amended the LWA to provide DOE an exemption from treatment standards and land disposal prohibitions promulgated under Section 3004(m) of the Solid Waste Disposal Act and land disposal prohibitions under that Act. Public Law 102-579, as amended.

The LWA provides a comprehensive environmental regulatory scheme for the operational and disposal phase of WIPP. The LWA requires DOE to: (1) obtain a State permit under RCRA prior to management, storage or disposal of radioactive mixed waste at WIPP and; (2) to comply with the U.S. Environmental Protection Agency's (EPA) compliance criteria for disposal of transuranic waste at WIPP.

#### *1. New Mexico's Environmental Regulatory Role at WIPP - The New Mexico Hazardous Waste Act and the Resource Conservation and Recovery Act*

The State of New Mexico's authority to regulate the WIPP facility for protection of human health and the environment is governed under the HWA and RCRA. Under RCRA, State programs are authorized to operate in lieu of EPA;

EPA does not regulate radioactive mixed wastes in those States with an authorized program. New Mexico is authorized by EPA to issue and enforce RCRA hazardous waste facility permits. 50 FR 1515 (Jan. 11, 1985). New Mexico implements this authority under the HWA, Sections 74-4-1 *et seq* (Repl. Pamp. 1992). On January 2, 1996, New Mexico received final authorization to implement federal requirements under the Hazardous and Solid Waste Amendments of 1984 (HSWA). 61 FR 2450 (January 26, 1996).

## 2. Summary of External Environmental Protection Provided Under the HWA and RCRA For WIPP

Subtitle C of RCRA provides a broad spectrum of external environmental protection for the WIPP facility from "cradle to grave" for the management, storage and disposal of radioactive mixed waste at WIPP. United States v. New Mexico, 1992 WL 437983 (D. N.M., Aug. 13, 1992 No. Civ. 90-276 SC), *aff'd U.S. v. State of New Mexico*, 32 F.3d 494 (10<sup>th</sup> Cir., Aug. 18, 1994). These requirements are applicable from the moment waste is received at WIPP until the facility is closed through a post-closure period. See 40 CFR §§264 and 270. There are a wide range of general and specific environmental requirements applicable to the surface and the underground during operation and closure at WIPP.

The following is a summary of general standards imposed upon DOE and WID at WIPP under the HWA and RCRA: general waste analysis (40 CFR §264.13); security and inspection (40 CFR §§264.14 and .15); training and requirements for ignitable, reactive or incompatible wastes (40 CFR §§264.16 and .17); standards for preparedness and prevention to ensure the facility is designed, constructed, maintained and operated to minimize the possibility of fire, explosion or unplanned sudden or non-sudden releases of hazardous wastes into the environment, including testing of equipment (40 CFR §264.30 *et seq*); contingency and emergency procedures (40 CFR §264.50 *et seq*); record-keeping and reporting (40 CFR §§264.70 *et seq*); requirements to limit volatile organic concentrations (VOC) emissions in the air to a level which is safe and will not endanger human health or the environment (40 CFR §264.601); ground water monitoring requirements such as requirements for detection monitoring to detect the presence and concentration, if any, of hazardous constituents; compliance monitoring which is applicable after detecting statistically significant evidence of ground water contamination; and a corrective action program to treat ground water contamination exceeding concentration limits set in the permit. (See 40 CFR §§264.98 - .100). Finally, RCRA imposes requirements for clean-up and corrective action for releases to the environment as well as financial assurance. (40 CFR §§264.101 and 264.140). These requirements have been summarized in the May 15, 1998 and November 13, 1998 fact sheets for WIPP.

## 3. EPA's Regulatory Role at WIPP - Disposal Regulations and Compliance Criteria

Under the LWA, EPA's "primary responsibility is to determine whether the WIPP facility will comply with EPA's disposal regulations, located at Subparts B and C of 40 CFR 191." Emphasis added. See EPA Fact Sheet, Proposed Certification Decision for WIPP's Compliance with EPA's Radioactive Waste Disposal Standards. Congress required EPA to develop, by rulemaking, criteria to implement and interpret the disposal regulations for WIPP as "WIPP Compliance Criteria" under 40 CFR Part 194. Id. In 1993, EPA issued final radioactive disposal regulations. In February 1996, EPA issued its final Compliance Criteria which implemented the general radiation disposal standards at WIPP and required DOE to provide EPA with its "compliance certification application" (CCA). Id.

EPA's disposal regulations and criteria provide comprehensive regulatory protection from the "time period beginning at disposal and ending 10,000 years after disposal." 40 CFR §194.2 (defining the "regulatory time frame"). The term "disposal" is defined as "the permanent isolation of spent nuclear fuel or radioactive waste from accessible environment with no intent of recovery... For example, disposal of waste in a geologic repository occurs when all the shafts to the repository are backfilled and sealed." 40 CFR §191.02.m.

EPA's regulatory requirements during the operational phase of the WIPP facility are set forth under 40 CFR 191, Subpart A. Subpart A limits radiation doses to members of the public from the management and storage of TRU waste at WIPP. Subpart A does not contain any other specific requirements and is not duplicative of the HWA or RCRA.

Under these regulatory schemes, EPA and NMED together provide comprehensive external environmental regulation to ensure that the storage and disposal of mixed radioactive waste at WIPP will be protective of human health and the environment.

## REGULATORY BACKGROUND OF THE WIPP RCRA APPLICATION

NMED, by and through its Secretary, is responsible for the administration and enforcement of the HWA. The HWA requires each person owning or operating (or both) an existing facility or planning to construct a new facility for the treatment, storage or disposal of hazardous waste identified or listed under law to have a permit. NMED adopted pertinent sections of the federal code of regulations (40 CFR Parts 260 through 270 and 273) under which it administers its hazardous waste treatment, storage, and disposal facility permitting program, as codified in the New Mexico Hazardous Waste Management Regulations 20 NMAC 4.1. Thus, the NMED

Secretary has the authority to administer the issuance of a hazardous waste facility permit for WIPP.

**General Permit Application Requirements** - NMED followed the same regulatory procedure for the WIPP permit application as it does for other facilities seeking a HWA permit. Owners or operators of hazardous waste management facilities are required to submit a comprehensive permit application covering all aspects of design, operation, maintenance, and closure of the facility. This permit application is divided into two parts: A and B.

Part A is a short, standard form that summarizes general information about a facility, including the name of the owner/operator, a list of the types of wastes managed at the facility, a facility layout diagram, and the activities requiring a permit.

Part B is a much more extensive document, submitted in a narrative, tabular, and schematic format, that describes the facility operations in detail. This information is to include, but not limited to: a general description of the facility; a waste analysis plan; information on the design and operation of all hazardous waste management units; procedures to prevent hazards; a contingency plan; and special information where applicable (such as a description of the groundwater monitoring program).

Because there is no standard form for Part B, applicants may refer to the regulations (20 NMAC 4.1, Subparts V and IX, 40 CFR §§264 and 270) and checklists provided by NMED to determine what to include in this part of the application. In addition to the general Part B information required of all applicants, there are unique information requirements tied to the type of facility seeking a permit. For example, since WIPP is a geologic repository, its application must demonstrate compliance with the environmental performance standards contained in §§264.600 through 264.603 for what are known as "miscellaneous units" or "Subpart X units." These technical standards require that the units be located, designed, constructed, operated, maintained, and closed in a manner that ensures protection of human health and the environment.

**Test Phase** - On August 27, 1990, the NMED Secretary required DOE to "submit... the Part B permit application for the management of hazardous waste as required by the HWA." 40 CFR §270.1(b). DOE and WID subsequently submitted the Part A application on January 22, 1991, and the initial Part B application on February 26, 1991. This application for "Test Phase" activities sought to designate a hazardous waste container storage area within the Waste Handling Building and to operate two miscellaneous hazardous waste management units within part of the subsurface repository, located in the salt beds of the Salado formation 2150 feet below the

surface. Disposal of waste was not proposed in the Test Phase.

DOE and WID subsequently revised the application two more times before NMED determined, in February 1993, that the application was complete and proceeded to write the draft permit for the WIPP Test Phase. NMED completed the draft permit and gave public notice on August 30, 1993, requesting public review and comment within a sixty-day period. At the request of DOE and WID, NMED extended the public comment period twice and finally closed it on January 14, 1994.

**End of Test Phase** - DOE announced on October 23, 1993 that they would not conduct tests involving radioactive wastes at WIPP. They further clarified on November 30, 1993 that they no longer intended to conduct mixed waste testing during a Test Phase at WIPP. This change resulted in a draft permit no longer applicable to DOE's new plan to conduct laboratory tests and proceed directly with the Disposal Phase at WIPP. The NMED Secretary considered all comments received during the public comment period. These comments ranged from withdrawing the entire application and ceasing all activities at WIPP, to allowing DOE to update their current application to reflect Disposal Phase activities.

**Secretary's Order** - The NMED Secretary issued an order on September 2, 1994, requiring (among other things) the DOE and WID to submit a complete revised permit application that more accurately reflected future WIPP activities; submit within twenty-one calendar days a schedule of milestones of anticipated progress of submissions on the revised application; and within one month, hold a stakeholders meeting to explain its schedule and permit (application) revisions. The Secretary's order also remanded the Test Phase draft permit to NMED's Hazardous and Radioactive Materials Bureau. DOE/WID submitted the revised application (Revision 5) to NMED on May 26, 1995, in which they proposed to store and dispose wastes listed as hazardous in the HWA and 20 NMAC 4.1 at WIPP.

Following receipt of DOE/WID's permit application, NMED issued public notice on June 15, 1995, that the department had received the application. The public notice contained a brief description of the application and identified locations where copies were available for public review.

On June 20, 1995, the NMED Secretary closed the September 2, 1994 order, finding that all requirements of the order had been met.

**Disposal Phase Application, Revision 5 Requests for Information** - In November of 1995, NMED determined that Revision 5 of the WIPP permit application contained numerous technical and administrative deficiencies, and issued numerous requests to the applicants to remedy those deficiencies. These comments, contained in nearly



150 pages, stated that the permit application chapters generally "... lack necessary and important detailed information required for the development of the draft permit." In particular, the comments emphasized that the waste analysis chapter seriously lacked necessary detail, and identified "specific concerns regarding waste sampling/analysis, acceptable knowledge, RH waste characterization, and verification procedures ...." NMED also identified a serious lack of necessary detail concerning the design and operation of the Waste Handling Building (WHB) Hazardous Waste Management Unit (HWMU); the design and operation of the Underground Hazardous Waste Disposal Units (HWDUs); the design and operation of the ground control and geomechanical monitoring programs for the Underground HWDUs; the assumptions and risk assessment calculations used to demonstrate compliance with miscellaneous unit environmental performance standards; the design and construction of the repository panel seals and repository shaft seals; many of the requirements for closure of HWMUs; and inconsistent information within the chapters' narratives, as well as between the narrative, tables and appendices of various chapters.

DOE and WID responded to these requests from December 4, 1995 until January 17, 1996, when they submitted Revision 5.2 of the permit application.

**Disposal Phase Application, Revision 5.2 Notice of Deficiency** - NMED issues a Notice of Deficiency (NOD) when the department determines that an application is incomplete. NODs can be issued numerous times during the permit revision process. Each time NMED receives information, it reviews the content and, if necessary, issues another NOD until the application is complete.

On March 14, 1996, NMED issued DOE and WID a NOD after it determined that Revision 5.2 of the WIPP permit application (submitted in response to the Requests for Information described above) contained numerous technical and administrative deficiencies. The NOD, nearly 80 pages long, contained numerous requests for specific information from most chapters of the application. Areas of significant deficiency included:

- *Waste characterization* - clarify contact-handled waste characterization procedures; provide extensive, detailed information on remote-handled waste characterization procedures.
- *Risk assessment* - re-evaluate the point of compliance based on maximally exposed individuals or populations at risk; assess the impacts of a major RCRA constituent release at the point of compliance; provide more specific information describing ground control and geomechanical monitoring programs.
- *Monitoring plans* - provide plans for monitoring potential air releases of RCRA constituents during disposal operations; provide plans for monitoring potential groundwater releases of RCRA constituents during post-

closure; ensure both air and groundwater monitoring programs include provisions to establish background levels of RCRA constituents to be disposed at WIPP.

- *Closure plans* - clarify some aspects of the closure plan, such as contingency closure; submit final shaft seal designs.

NMED received information from DOE and WID in response to this NOD in submittals on April 12, 1996 (Revision 6 of the permit application) and September 30, 1996 (Shaft Seal Design Report).

Upon receipt and review of Revision 6, NMED identified deficiencies which had still not been satisfactorily addressed (e.g., remote-handled waste characterization procedures). However, NMED decided to stop the cycle -- *[submit information - review - issue NOD - revise - submit information]* -- at this point and develop the draft permit based upon the information provided in the permit application, with the exceptions noted below.

**Submittals Subsequent to Revision 6** - After DOE and WID submitted Revision 6 of the permit application, they continued to submit additional information to modify the application, either on their own initiative or at the request of NMED. NMED specifically requested information from DOE and WID, based upon continued review of the permit application, regarding Solid Waste Management Units (SWMUs); revised ground water monitoring plan; and disclosure and financial assurance.

NMED received substantial information from DOE and WID in response to each of these requests and notices, as well as voluntary submittals, from May 29, 1996 until November 20, 1997. DOE/WID submitted approximately 11,400 pages of material in approximately 17 separate submittals during this time period.

NMED requested a revised ground water monitoring plan from DOE/WID after WID notified NMED that the plan as submitted in Revision 6 was insufficient for their purposes. Likewise, while some of the information received from DOE and WID related to SWMUs resulted from the ongoing voluntary release assessment conducted by the applicants, NMED requested some information upon discovering that the applicants had used inappropriate analytical methods to characterize releases to the environment at the WIPP site.

NMED also requested additional information from DOE and WID because of changes to relevant laws after submittal of Revision 6 of the permit application. On September 23, 1996, Congress amended the LWA by exempting all WIPP-designated transuranic mixed waste from treatment standards and land disposal prohibitions promulgated pursuant to the Solid Waste Disposal Act. The permit application directly relied upon technical data and assumptions which were presumably substantiated in DOE and WID's No-Migration Variance Petition submitted

to EPA's Office of Solid Waste. However, EPA would not evaluate the Petition as a result of the LWA amendment, and the required information was not included in sufficient detail in the permit application. The information submitted in response to NMED's request was substantial (seven 3" binders, approximately 7300 pages).

Revision 6.3 was submitted voluntarily by DOE and WID, to clarify, modify, or supplement material previously found in the permit application. However, NMED identified numerous inconsistencies between the redline/strikeout pages which purported to indicate text that had been changed, the "clean" replacement pages, and the corresponding WordPerfect files. NMED recognized that while the paper version of the application was the only official submittal, the corresponding WordPerfect files were crucial in preparing the draft permit. It took DOE/WID three attempts before accurate information was submitted.

**Completeness Determination** - 20 NMAC 4.1.900 (incorporating 40 CFR §270.10) requires the Secretary to issue a completeness determination when the Secretary receives an application form and any supplemental information which are completed to his satisfaction. After the completeness determination, the permitting agency prepares a draft permit. NMED issued a final completeness determination on June 27, 1996.

On September 26, 1997, NMED rescinded this completeness determination when it was evident that WID had failed to provide necessary disclosure and financial assurance information as required under the HWA and regulations. Further, NMED also noted that although the applicants had submitted numerous modifications to Revision 6 of the application, the certification required by 20 NMAC 4.1.900 (incorporating 40 CFR §270.11(d)) did not address any of these changes. DOE and WID submitted the necessary information as Revision 6.5, and NMED issued a new completeness determination on January 5, 1998.

**Draft Permit - May 15, 1998 and Revised Draft Permit - November 13, 1998.** On May 15, 1998, NMED public noticed the availability of the draft permit and a public comment period which would extend for ninety days until August 14, 1998. During the public comment period, NMED received input from 30 commentators totaling approximately 3300 pages. NMED revised the draft permit to incorporate appropriate public comments and published a revised draft permit on November 13, 1998.

#### **NMED-PROPOSED REVISED DRAFT PERMIT CONDITIONS**

This section provides supplemental information concerning major permit conditions in the revised draft permit. Discussion of this supplemental information is

provided by permit module and is intended to further facilitate public review of the revised draft permit.

#### Module I

Module I of the revised draft permit contains standard language similar to all other hazardous waste facility permits and does not contain any NMED-proposed permit conditions.

#### Module II

Module II addresses waste sources and waste analysis plan requirements, as well as facility security, general inspection requirements, personnel training, preparedness and prevention, the facility contingency plan, general closure and financial assurance requirements.

#### *1. Requirement to summarize Waste Analysis Plan (WAP) non-conformances*

NMED has proposed that the Permittees submit monthly summaries of certain non-conformances to applicable WAP requirements identified at the generator/storage site (**site**) Project Manager level. Identifying a problem at this level is an indication that the review process is not functioning properly and that there is an increased likelihood of discrepant data entering the WIPP Waste Information System (**WWIS**) database. NMED imposed this requirement to further ensure that the Permittees and NMED are notified of significant issues that arise at any site affecting data quality objectives and accuracy of waste analyses, and to ensure that no waste is managed, stored, or disposed at WIPP which fails to meet data quality objectives.

#### *2. Requirement to provide NMED access to WWIS database*

NMED has imposed a requirement to allow NMED direct access to the WWIS, a computer accessed database which contains extensive, detailed waste characterization data supplied by the sites to the WIPP facility. This access is necessary to allow NMED to verify compliance with the applicable characterization requirements of the WAP and the VOC limits in Underground HWDUs specified in Module IV.

NMED regards the WWIS database as "records and results of waste analyses and waste determinations" as specified in 20 NMAC 4.1.500 (incorporating 40 CFR §264.73(b)(3)) and therefore, as part of the facility operating record required by 20 NMAC 4.1.500 (incorporating 40 CFR §264.73), it is subject to the "access to records" requirement imposed in Permit Condition I.D.9.b and specified in 20 NMAC 4.1.900 (incorporating 40 CFR §270.30(i)(2)). The Permittees' proposed WAP, as contained in latest revision of the permit application, describes the data transmittal procedure

(Chapter C, page C-35, lines 1+). "Data will be transmitted by hard copy or electronically... from the data generation level to the generator site TRU mixed waste characterization project level... These data will also be input electronically into the WWS... Summarized characterization information will be reported on a waste stream basis and transmitted by hard copy or electronically to the WIPP Waste Operations when requested." Although other records, such as the Waste Stream Profile Form, will be used to summarize waste characterization results, the WWS database is the principal record which fulfills the requirements of 40 CFR §264.73(b)(3).

Under the general waste analysis requirements of 20 NMAC 4.1.500 (incorporating 40 CFR §264.13(a)(1)), the Permittees "... must obtain a detailed chemical and physical analysis of a representative sample of the wastes. At a minimum, the analysis must contain all the information which must be known to treat, store, or dispose of the waste ..." The WWS contains information and records which are necessary for the storage and disposal of waste at WIPP. Full access to appropriate modules and functions of the WWS database is therefore necessary to ensure compliance with the WAP, the permit and the requirements of 40 CFR §264.13.

### 3. Requirement to audit and obtain NMED approval

NMED is requiring the Permittees to fulfill the following conditions prior to management, storage, or disposal of TRU mixed waste at WIPP: (a) the Permittees conduct audits of generator/storage sites, using an audit checklist specified by NMED, to demonstrate implementation of and compliance with applicable provisions of the WAP as required under 20 NMAC 4.1.500 (incorporating 40 CFR §264.13); and (b) NMED approves a final audit report as necessary to verify implementation of the WAP. NMED may observe audits as necessary to validate implementation of and compliance with the WAP.

Site audits are necessary in order to demonstrate that the Permittees ensures WAP compliance at its generator/storage sites. The Permittees have not provided a detailed physical and chemical analysis of waste intended for WIPP, nor do the Permittees intend to perform waste "fingerprint" characterization at the WIPP. Instead, the Permittees will ensure the collection of detailed analytical information at the sites, and continued waste "fingerprinting" through ongoing characterization at the sites.

Each site will be audited to ensure that they have implemented and are in compliance with applicable provisions of the WAP; and the Permittee will be responsible for ensuring compliance with those requirements. The audit checklists included in Permit Attachment B6 directly reflect waste characterization requirements presented in the permit and are required for

the audit of each site. NMED recognizes that audits may not address all elements of the checklist and has therefore provided appropriate flexibility in the use of the checklist during an audit. For example, the revised draft permit states that some checklists used in an audit may not be applicable to specific processes within a given facility due to the scope of the audit, or the types of waste (waste summary category groups) being generated at that facility.

### 4. Prohibition on RH TRU mixed waste

NMED has proposed a permit condition prohibiting the storage and disposal of remote-handled (**RH**) TRU mixed waste at WIPP. This determination was made because the Permittees did not provide adequate waste characterization information specific to RH TRU mixed waste as requested by the NMED, and the information provided by the Permittees did not sufficiently indicate that applicable portions of the WAP dealing with contact-handled (**CH**) TRU mixed waste would be pertinent to RH TRU mixed waste.

The WIPP RCRA Part B permit application, Revision 5 stated (page C-4) that "waste characterization methods [for RH TRU mixed waste] may differ from those currently implemented by the TRU Waste Characterization Quality Assurance Program Plan (**QAPP**) [and included in the WAP] for CH TRU waste due to the more radioactive nature of the waste. Specific RH-waste analysis methods will be included in the Methods Manual as they are approved by WIPP facility personnel". The QAPP (DOE, 1995a) explicitly stated that it applied only to CH TRU waste, and the Transuranic Waste Characterization Sampling and Analysis Methods Manual (**Methods Manual**)(DOE, 1995b) was devised to support the QAPP, indicating that methods in the Methods Manual also did not apply to RH TRU mixed waste. NMED concluded that additional information regarding RH TRU mixed waste characterization should be provided by the Permittees.

NMED's issued a request for information to the Permittees in November of 1995 requested them to include or reference complete characterization requirements for RH TRU mixed waste. The Permittees responded in December of 1995, stating: "At this time, detailed information on RH TRU waste characterization methods is not available". The Permittees subsequently provided an inadequate response to the NOD.

NMED has numerous concerns which have not been adequately addressed regarding the application of CH TRU mixed waste characterization techniques to the characterization of RH TRU mixed waste. These concerns include the following:

- Radiographic analysis of shielded RH containers may not be viable, but the Permittees have committed to 100% radiography of all retrievably stored debris waste;

- Applicability of core technology to RH TRU mixed waste is of question and has not been addressed by the Permittees;
- Sampling and analysis modifications associated with use of gloveboxes and/or hot cells or the use of remote machinery are not discussed, and the Permittees have not presented any information supporting the assertion that CH techniques can be applied to RH TRU mixed waste;
- Analytical laboratory availability with ability to perform analyses on RH TRU mixed waste, particularly waste samples with high amounts of gamma and beta emitting radionuclides, is of question;
- Potential problems with RCRA analytical methods as applied to RH TRU mixed waste in terms of interferences or method limitations due to the extremely high amounts of radioactivity (gas generation problems) are not addressed;
- Acquisition of representative samples of RH TRU mixed waste has not been addressed, given the radiation protection requirements for personnel handling the samples (i.e, how waste samples will be obtained, the sample size required, and how minimizing the number of samples collected will impact the final decision of hazardous waste constituent concentrations); and
- The permit application does not include RH TRU-specific sampling and analysis QA/QC requirements (i.e., how accuracy and precision will be addressed while minimizing sample collection and analysis requirements for ALARA purposes) and what QC criteria will be applied to the data based on sampling and analytical methodology limitations.

NMED found that the permit application did not provide sufficient information to ensure that the Permittees can characterize RH TRU mixed waste in the same manner as CH TRU mixed waste. Although the Permittees have indicated that they will revise characterization techniques, if necessary, NMED cannot issue a permit premised by assurances that techniques will work for RH TRU mixed waste characterization without additional evidence of applicability. Further, the Permittees have failed to demonstrate that the WAP (and QAPP) provides specific sampling and analytical methods along with all of the associated QA/QC parameter information to show that compliance of RH TRU mixed waste with the WAP can be achieved. NMED's conclusion to prohibit RH TRU mixed waste is also supported by DOE's own documentation and publicly available information such as

the internet, library and Appendix C of DOE's "Remote-Handled Transuranic System Assessment" (DOE/CAO, 95-1143).

#### Module III

Module III of the revised draft permit provides conditions for the design and operation of the WHB Unit and the Parking Area Unit. For this module, a major permit condition concerns the use of the RH Bay of the Waste Handling Building. NMED authorizes use only of the CH Bay of the Building. See Permit Condition III.A.1, p. III-1 of Module III. Thus, no RCRA-associated use of the RH Bay is authorized in the revised draft permit. NMED has not authorized use of the RH Bay because of the general prohibition on management and disposal of RH TRU mixed waste at WIPP. See the discussion under Module II, above, for further information on the RH TRU mixed waste prohibition.

In addition, the description of the management and storage of RH TRU mixed waste included in the redline/strikeout version of Permit Attachment M1, submitted by the Permittees on August 14, 1998 (during the public comment period on the draft permit), is substantially different from the information provided in Chapter D of the latest revision of the WIPP RCRA Part B permit application. Any modification to the design of the RH Bay of the WHB will require review and approval by NMED. The information detailing the revision of the design of the RH Bay would have to be approved through a permit modification.

#### Module IV

Module IV provides permit conditions for the design and operation of the Underground HWDUs (panels) within the subsurface. NMED has proposed two major permit conditions within this module.

First, NMED has proposed room-based limits, within a disposal panel, for volatile organic compounds (VOCs). NMED established permit limits for average concentration of VOCs in any single room to ensure protection of human health in the event of acute exposure during a roof fall as well as to chronic (long-term) exposure to VOC emissions from the Underground HWDUs. NMED used standard risk assessment methodology to establish limits which meet EPA standards for environmental exposure and OSHA standards for occupational exposure. During this assessment, NMED also determined that the Permittees' proposed limits failed to adequately protect human health. NMED's methodology is available for public review in the administrative record.

The VOC Room-Based Concentration Limits in Module IV were modified in the revised draft permit from previously proposed limits based on the following criteria. For potentially carcinogenic VOCs, the Room-Based Limits are based on ensuring that the total individual risk associated

with exposures to potential carcinogens in the exhaust air from the WIPP repository (assuming a minimum overall mine ventilation rate of 260,000 cubic feet per minute) do not exceed target levels. The target level for a non waste surface worker at the ground surface at WIPP is a total excess cancer risk for all compounds of one in 100,000, and the target level for a resident living at the LWA Boundary is an excess cancer risk of one in 1,000,000.

For the non-carcinogenic VOCs chlorobenzene and toluene, the VOC Room-Based Concentration Limits were set to ensure that the concentrations of VOCs in the air of a closed disposal room did not exceed the Lower Explosive Limit (LEL) for the compounds. For the potential carcinogen methylene chloride, the VOC Room-Based Concentration Limit was set below the target levels and the LEL since the Permittees had explicitly requested a limit that was below target levels and the LEL. For the non-carcinogenic VOC 1,1,1-trichloroethane (and the potential carcinogen 1,2-dichloroethane), the VOC Room-Based Concentration Limit was set to ensure that the concentration of the constituent in the air of an Underground HWDU immediately after a roof fall does not exceed the NIOSH immediately dangerous to life and health concentration. Thus, the revised VOC Room-Based Concentration Limits are based on appropriate rationale for protecting human health and the environment.

In addition, the VOC Room-Based Concentration Limits proposed in Module IV of the draft permit were at least one order of magnitude higher than the "weighted average" headspace concentrations that the Permittees indicated would be representative of the waste throughout the DOE complex for the purposes of determining the modeling parameters (Section D-9b(4)(c), page D-52, lines 32-35, of the WIPP RCRA Part B permit application). NMED's evaluation of the analysis provided by the Permittees in Appendix D9 of the WIPP RCRA Part B permit application found that the analysis contained several major errors which rendered the maximum allowable average VOC concentrations that were proposed in the application inappropriate.

First, the maximum allowable average VOC concentration limits proposed by the Permittees were calculated using assumptions from Revision 5.2 of the permit application, assumptions which were subsequently changed in Revision 6 of the application. These assumptions include the number of open panels in the underground and the air dispersion factor. Thus the actual values for the maximum allowable average VOC concentration limits proposed in Table C-5 and Table D9-7 of the permit application were inappropriate. The most significant concern with the Permittees' evaluation of potential human health risk due to exposure to exhaust air from the repository is that the Permittees did not take into account the total excess cancer risk to an individual due to exposure to multiple potentially carcinogenic

compounds. EPA guidance requires that evaluation of human health risk be based on total individual cancer risk. For the non-carcinogenic VOCs chlorobenzene, toluene and 1,1,1-trichloroethane, the maximum allowable average VOC concentration limits proposed by the Permittees were based on incorrect averaging times for exposure and did not take into account the fact that the proposed limits could result in the concentrations of these constituents in the air of a closed room with ventilation barriers in-place exceeding the lower explosive limits for these compounds.

The NMED concurs that the Permittees demonstrated that the maximum allowable average VOC concentration limits proposed by the Permittees would result in concentrations of these constituents in the air of an open disposal room that were below the OSHA 8-hour time weighted averages for both normal operations and potential roof fall events. However, NMED notes that for potential roof fall events, the proposed concentration limits for 1,2-dichloroethane and 1,1,1-trichloroethane would result in exceedances of the NIOSH immediately dangerous to life and health concentrations in the air of an open room immediately after a roof fall in a closed room. NMED has thus revised the VOC Room-Based Concentrations in Module IV accordingly.

The second permit condition proposed by NMED with respect to Module IV concerns confirmatory monitoring of VOC room-based limits. The Permittees compliance with these limits will be determined by VOC confirmatory monitoring and data contained in the WWIS. Besides imposing notification requirements for VOC exceedances, the draft permit requires the Permittees to cease disposal operations in a room and install ventilation barriers if the annual average concentration for a VOC exceeds the specified limit. Likewise, if the annual average concentration for a VOC exceed the specified limit for six consecutive months, the Permittees will close the affected Underground HWDU. NMED is requiring that VOC confirmatory monitoring continue after closure of Panel 1 because the risk assessment assumes there are measurable releases from closed panels, and the absence of data to the contrary did not justify discontinuing monitoring six months after closure of Panel 1.

Confirmatory monitoring is required because the permit application did not demonstrate that, under worst-case scenario, public exposure to VOCs will never be more than one order of magnitude below acceptable levels for the following reasons: 1) The maximum allowable average VOC headspace concentrations proposed by the Permittees were based on not exceeding a one in 1,000,000 or a one in 100,000 excess cancer risk target level for each individual VOC and were not an order of magnitude lower than the target levels as stated in the comment. 2) The derivation of the maximum allowable VOC headspace concentrations proposed by the Permittees did not take into account the total individual excess cancer risk associated with exposure to multiple

potential carcinogens, which is not in conformance with EPA guidance. Thus, the demonstration provided by the Permittees that was referenced in their August 14, 1998 comments on the draft permit was not completely appropriate. In order to derive the Module IV human health risk-based VOC Room-Based Concentration Limits for the potential carcinogenic VOCs to be emplaced at the WIPP, NMED used the Permittees equations and assumptions. The NMED Target Level was a total individual excess cancer risk associated with exposure to the VOCs in the exhaust air of the repository (assuming an overall mine ventilation rate of 260,000 cubic feet per minute) not exceeding 1 in 100,000 for the non-waste involved surface worker, and not exceeding 1 in 1,000,000 for a resident living at the LWA Boundary. Thus, the potential maximum concentration of potentially carcinogenic VOCs in the exhaust air will not be an order of magnitude below acceptable levels, which demonstrates that detection monitoring is appropriate.

#### Module V

NMED is requiring the Permittees to implement a detection monitoring program (DMP). Ground-water detection monitoring is a necessary tool for determining whether a release from the facility has occurred. While the Permittees submitted information in the application supporting their belief that there will be no migration of hazardous wastes from the Underground HWDUs, NMED is imposing this permit condition to demonstrate and ensure compliance with the environmental performance standards specified in 20 NMAC 4.1.500 (incorporating 40 CFR §264.601(a)). Furthermore, monitoring will provide useful information in demonstrating the adequacy of WIPP site characterization and design, and will provide useful information concerning ground water for closure and post-closure repository performance.

An additional condition proposed by NMED concerns the point of compliance for ground-water monitoring. In their August 14, 1998 comments, the Permittees stated that the point of compliance for ground-water monitoring should encompass the waste management area, which includes any barriers (such as the Salado formation) within the WIPP land withdrawal area. The Permittees also commented that, in their opinion, setting the point of compliance at the LWA Boundary would be consistent with a previous EPA interpretation. However, NMED will retain the location specified in the revised draft permit for the point of compliance as "... the vertical surface located at the hydraulically downgradient limit of the Underground HWDUs that extends to the Culebra Member of the Rustler Formation".

NMED's interpretation concerning the point of compliance takes into account the containment capabilities of the Salado Formation and is consistent with the HWA and RCRA regarding protection of human health and the

environment. RCRA does not limit the point of compliance to being the facility boundary, i.e. the LWA Boundary.

Clearly, if NMED were to adopt the LWA Boundary as a point of compliance for releases to the Culebra, this would afford no detection prior to release of hazardous constituents from the facility boundary. Additionally, monitoring releases from the EPA's Office of Solid Waste interpretation of "disposal unit" would require installation of wells through the Salado to monitor lateral releases from the unit, as well as the Culebra to monitor vertical (and then lateral) migration of releases. This monitoring is a costly, unnecessary burden given the potential time involved with natural lateral migration of wastes within the Salado from the WIPP repository during the operational period, and may pose an unnecessary risk in compromising repository performance.

The point of compliance established by the NMED is consistent with regulation, and is protective of human health and the environment in accordance with the requirements of 20 NMAC 4.1.500 (incorporating 40 CFR 264.601) because it affords detection of releases well before these releases would reach the LWA Boundary.

#### Module VI

Module VI addresses requirements for post-closure care and does not contain any NMED-proposed conditions. Please refer to the November 13, 1998 fact sheet for an overview of Module VI, or refer directly to the language contained in the revised draft permit.

#### Module VII

Module VII implements the corrective action requirements imposed by the HWA for releases of hazardous wastes and constituents from SWMUs. Conditions include requirements for waste minimization, land disposal restrictions, and corrective action to investigate possible releases from SWMUs. Further information regarding these conditions and NMED's approach to evaluating no further action requests and decisions to include or exclude specific SWMUs from Module VII are in the Technical Support Document which accompanies the revised draft permit.



## ATTACHMENT B4 TRU ~~MIXED~~ WASTE CHARACTERIZATION USING ACCEPTABLE KNOWLEDGE

### 1 B4-1 Introduction

2 The Resource Conservation and Recovery Act (RCRA) regulations codified in 40 CFR Parts  
3 260 through 265, 268, and 270, and the New Mexico Hazardous Waste Management  
4 Regulations in Title 20 New Mexico Administrative Code, Chapter 4, Part 1, (20 NMAC 4.1)  
5 Subparts I through VI, Subpart VIII, and Subpart IX, authorize the use of acceptable  
6 knowledge (AK) ~~as a method which can be used~~ in appropriate circumstances by waste  
7 generators, or treatment, storage, or disposal facilities to ~~make characterize~~ hazardous waste  
8 determinations. Acceptable knowledge is described in *Waste Analysis: EPA Guidance Manual*  
9 *for Facilities That Generate, Treat, Store and Dispose of Hazardous Waste* (EPA, 1994).  
10 Acceptable knowledge, as an alternative to sampling and analysis, can be used to meet all or  
11 part of the waste characterization requirements under the RCRA (EPA, 1994).

12 Acceptable knowledge ~~includes is one of~~ a number of techniques used to characterize  
13 transuranic (TRU) mixed waste, ~~such as process knowledge, records of analysis acquired~~  
14 ~~prior to RCRA, and other supplemental sampling and analysis data (EPA, 1994). It is used in~~  
15 ~~conjunction with Radiography and/or visual examination, headspace gas sampling and~~  
16 ~~analysis, and solidified waste sampling and analysis (specified in Permit Attachment B1) are~~  
17 ~~used to acquire supplemental sampling and analysis data to meet the requirements of the~~  
18 Waste Analysis Plan (WAP) specified in Permit Attachment B. Acceptable knowledge is used  
19 in TRU mixed waste characterization activities in three ways:

- 20 • To delineate TRU mixed waste streams
- 21 • To ~~assess~~ determine if TRU mixed heterogeneous debris wastes exhibit a  
22 toxicity characteristic (20 NMAC 4.1.200, incorporating 40 CFR §261.24)
- 23 • To ~~assess~~ determine if TRU mixed wastes are listed (20 NMAC 4.1.200,  
24 incorporating 40 CFR §261.31)

25 ~~Acceptable knowledge is confirmed using nondestructive techniques, and sampling and~~  
26 ~~analysis. Sampling and analysis shall be performed to confirm acceptable knowledge and to~~  
27 ~~update and modify initial AK assessments. Sampling and analysis includes radiography, visual~~  
28 ~~examination, headspace gas, and solids/soil sampling and analysis. TRU mixed waste~~  
29 ~~streams shall undergo applicable provisions of the acceptable knowledge process prior to~~  
30 ~~management, storage, or disposal by the Permittees at WIPP.~~

### 31 B4-2 Acceptable Knowledge Documentation

32 The Permittees shall obtain from each Department of Energy (DOE) TRU mixed waste  
33 generator/storage site (site) a logical sequence of acceptable knowledge information that  
34 progresses from general facility information (TRU Mixed Waste Management Program



1 Information) to more detailed waste-specific information (TRU Mixed Waste Stream  
2 Information). Traceability of acceptable knowledge information for a select drum in the audited  
3 Waste Summary Category Group(s) will be examined during the Permittees' audit of a site  
4 (Section B4-3f). The consistent presentation of acceptable knowledge documentation among  
5 sites in auditable records<sup>1</sup> will allow Waste Isolation Pilot Plant (WIPP) personnel to verify the  
6 completeness and adequacy of acceptable knowledge for TRU mixed waste characterization  
7 during the audit process. The Permittees shall implement the acceptable knowledge process  
8 as specified in this Permit to characterize TRU mixed wastes. NMED may independently  
9 validate the implementation of and compliance with applicable provisions of the WAP at each  
10 generator/storage site by participation in the Permittees' Audit and Surveillance Program  
11 (Permit Attachment B6). The Permittees shall provide NMED with current audit schedules and  
12 notify NMED in writing no later than forty-five (45) calendar days prior to each audit. NMED  
13 may choose to accompany the Permittees on any audit of the WAP implementation. NMED  
14 will participate in the audit process specified in Permit Attachment B6 to validate the  
15 implementation of acceptable knowledge.

16  
17 The following sections include the required information the Permittees will require for that each  
18 site shall have to characterize TRU mixed waste using acceptable knowledge. Because waste  
19 generating processes are site-specific, sites shall, as necessary, supplement the required  
20 acceptable knowledge records with additional information (see Section B4-2c, Supplemental  
21 Acceptable Knowledge Information). If the required information is not available for a particular  
22 heterogeneous Debris Waste (Summary Category S5000), then this waste, supplemental  
23 information shall be obtained and the waste will not be accepted for management, storage, or  
24 disposal at the WIPP facility as a retrievably stored waste (i.e., the waste will be characterized  
25 as specified in Permit Attachment B, Section B-3d(1)).

#### 26 B4-2a Required TRU Mixed Waste Management Program Information

27 TRU mixed waste management program information shall clearly define waste categorization  
28 schemes and terminology, provide a breakdown of the types and quantities of TRU mixed  
29 waste that are generated and stored at the site, and describe how waste is tracked and  
30 managed at the site, including historical and current operations. Information related to TRU  
31 mixed waste certification procedures and the types of documentation (e.g., waste profile  
32 forms) used to summarize acceptable knowledge shall also be provided. The following  
33 information shall be included as part of the acceptable knowledge written record:

- 34 • Map of the site with the areas and facilities involved in TRU mixed waste  
35 generation, treatment, and storage identified
  
- 36 • Facility mission description as related to TRU mixed waste generation and  
37 management (e.g., nuclear weapons research may involve metallurgy,  
38 radiochemistry, and nuclear physics operations that result in specific waste  
39 streams)

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

- 1 • Description of the operations that generate TRU mixed waste at the site (e.g.,  
2 plutonium recovery, weapons design, or weapons fabrication)
- 3 • Waste identification or categorization schemes used at the facility (e.g., item  
4 description codes, content codes)
- 5
- 6 • Types and quantities of TRU mixed waste generated, including historical  
7 generation through future projections
- 8 • Correlation of waste streams generated from the same building and process, as  
9 appropriate (e.g., sludge, combustibles, metals, and glass)
- 10 • Waste certification procedures for retrievably stored and newly generated  
11 wastes to be sent to the WIPP facility

12 **B4-2b Required TRU Mixed Waste Stream Information**

13 The Permittees may use acceptable knowledge to delineate site-specific waste streams. For  
14 each TRU mixed waste stream, ~~the Permittees shall require sites shall to~~ compile all process  
15 information and data that support the acceptable knowledge used to characterize that waste  
16 stream. The type and quantity of supporting documentation will vary by waste stream,  
17 depending on the process generating the waste and site-specific requirements imposed by the  
18 Permittees. At a minimum, the waste process information shall include the following written  
19 information:

- 20 • Area(s) and/or building(s) from which the waste stream was or is generated
- 21 • Waste stream volume and time period of generation (e.g., 100 standard waste  
22 boxes of retrievable stored waste generated from June 1977 through December  
23 1977)
- 24 • Waste generating process described for each building (e.g., batch waste stream  
25 generated during decommissioning operations of glove boxes)
- 26 • Process flow diagrams (e.g., a diagram illustrating glove boxes from a specific  
27 building to a size reduction facility to a container storage area)
- 28 • Material inputs or other information that identifies the chemical and radionuclide  
29 content of the waste stream and the physical waste form (e.g., glove box  
30 materials and chemicals and radionuclides handled during glove box  
31 operations, if applicable)

32 ~~Any retrievably stored heterogeneous Debris Waste stream (Summary Category S5000) shall~~  
33 ~~be reclassified and managed as a newly generated waste stream if all required acceptable~~  
34 ~~knowledge information is not available.~~

1 The acceptable knowledge written record shall include a summary that identifies all sources of  
2 waste characterization information used to delineate the waste stream. The basis and  
3 rationale for delineating each waste stream, based on the parameters of interest, shall be  
4 clearly summarized and traceable to referenced documents. Assumptions made in delineating  
5 each waste stream also shall be identified and justified. If discrepancies exist between  
6 required information, then sites shall apply all hazardous waste codes indicated by the  
7 information to the subject waste stream ~~unless the sites choose to justify an alternative~~  
8 ~~assignment and document the justification in the auditable record.~~ The Permittees shall obtain  
9 from each site, at a minimum, procedures that comply with the following acceptable  
10 knowledge requirements:

- 11 • Procedures for identifying and assigning the physical waste form of the waste
- 12 • Procedures for ~~delineating waste streams and~~ assigning a Waste Matrix Codes  
13 ~~to waste streams~~
- 14 • ~~Procedures for determining waste material parameters (i.e., physical waste form~~  
15 ~~and properties) present in a waste stream~~
- 16 • Procedures for resolving inconsistencies in acceptable knowledge  
17 documentation
- 18 • Procedures for confirming acceptable knowledge information through  
19 headspace gas sampling and analysis, ~~visual examination and/or radiography,~~  
20 and solidified waste sampling and analysis
- 21 • Procedures describing management controls used to ensure prohibited items  
22 (specified in the WAP, Permit Attachment B) are documented and managed as  
23 ~~nonconforming items as specified in Permit Attachment B3~~
- 24 • Procedures to ensure radiography and visual examination ~~procedures~~ include a  
25 list of prohibited items that the operator shall verify are not present in each  
26 container of waste (corrosives, ignitables, reactives, and incompatible wastes)
- 27 • Procedures to document how changes to Waste Matrix Codes, waste stream  
28 assignment, and associated EPA hazardous waste numbers based on material  
29 composition are documented for any waste
- 30 • Procedures for newly ~~characterized~~ ~~generated~~ waste shall describe how  
31 acceptable knowledge is confirmed using visual examination ~~prior to waste~~  
32 ~~packaging~~

#### 33 B4-2c Supplemental Acceptable Knowledge Information

34 The Permittees shall obtain supplemental acceptable knowledge information from the sites,  
35 and ~~shall~~ ~~may~~ use this information to compile the acceptable knowledge written record.