

**Notice of RCRA Permit Modification
in Accordance with 20 NMAC 4.1.900
(40 CFR Part 270)**

**Waste Isolation Pilot Plant
Carlsbad, New Mexico**

November 10, 1999

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Consistent with requirements of 20 New Mexico Administrative Code (NMAC) 4.1.900 (hereafter referred to as Part 270 or Section 270.XX), the U.S. Department of Energy, Carlsbad Area Office (CAO) is submitting to the New Mexico Environment Department (NMED) a notice of class 1 modifications to the Resource Conservation and Recovery Act (RCRA) operating permit (#NM4890139088-TSDF) for the Waste Isolation Pilot Plant (WIPP). Specifically, this information is provided to comply with the requirements of Section 270.42(a)(i).

Requested modifications are listed in Table 1. Listed information includes a reference to the applicable section of the permit, a brief description of the item and the relevant permit modification category as identified in Appendix I. More complete descriptions of the class 1 modifications are provided in Attachment 1.

All of the identified changes are minor in nature and serve to keep the permit current with facility operations. The changes do not substantially alter the permit conditions or reduce the capacity of the facility to protect human health or the environment and the modified permit is no less stringent than the current permit. This submittal does not contain class 1 modifications requiring approval prior to implementation.

Table 1. Class 1 RCRA Permit Modification

No.	Affected Permit Section	Item	Category	Attachment 1 Page #
1.	B1	Changes to Attachment B1 that provide clarifications regarding waste characterization	A.1	A-1
2.	B3	Changes to Attachment B3 that provide clarifications regarding the quality assurance objectives and data validations techniques for waste characterization sampling and analytical methods.	A.1	A-5
3.	H	Revise course descriptions and qualification cards to be current with actual descriptions.	B.5.b	A-7
4.	Module III M1 E	Change to Attachment M1 to avoid confusion regarding the use of filter vents and to allow direct loading of waste into a ten-drum overpack (TDOP) and 85-gallon drum.	A.1	A-9

Attachment 1

Descriptions of RCRA Permit Modification

Item - 1

Description:

- A. Delete the bullet beginning “Coring tools shall have an air-lock mechanism that opens . . .” on page B1-14. See strikeout of the final permit below.
- B. Delete the bullet that begins “The leading edge of the coring tools shall be . . .” on page B1-14. See strikeout of final permit below.
- C. Modify text in section B1-1a(3)(ii), 8th bullet, to clarify use of flow indicator. See redline/strikeout of final permit below.
- D. Insert the words “except for Waste Material Type II.2 packaged in a metal container” in section B1-1a, page B1-1. See redline/strikeout of final permit below.
- E. Modify footnote c on Table B1-4 to replace “septum” with “airtight”.
- F. Modify the text to allow the use of non-glass containers.

Basis:

- A. This item removes a requirement in the permit that is not necessary, and in fact increases the risk to human health and the environment. The specification for an air lock mechanism was initially provided (in 1992 when Argonne-West was developing the core sampling method) as a means to assist in keeping the core material from falling out when the core barrel is removed from the bore hole. However, during developmental testing, the air lock mechanism did not make any difference in the performance of the coring and removal operation. The air lock mechanism was removed from the system used in actual operations because it created an unnecessary component that would potentially require maintenance in a contaminated environment. Minimizing such components reduces risk to the health and safety of the workers, the public, and the environment. Coring operations have been conducted effectively and reliably, and quality assurance objectives have been met, at both Argonne-West and at Los Alamos National Laboratory without the air lock mechanism. The requirements for waste sampling and analyses are unchanged by this modification.
- B. This item removes a requirement in the permit that is not necessary, and in fact has been demonstrated to be ineffective for its intended use. The specification for sharpening and tapering was initially provided (in 1992 when Argonne-West was developing the core sampling method and equipment for the bin program) as a means to reduce the drag of the material being sampled against the inner surface of the liner. However, during developmental testing, the tapered and sharpened auger did not work for sludges with a harder consistency. The design was changed to an auger with carbide teeth so that hard monoliths could be effectively cored and the disturbance to the core could be minimized. Without this design change, the quality assurance objectives for core recovery could not have been met. Coring operations have been conducted effectively and reliably, and quality assurance objectives have been met without the sharpened and tapered auger design. The requirements for

waste sampling and analyses are unchanged by this modification.

- C. This change to the permit makes the language in this section consistent with the language referenced in B1-1a(a).
- D. Revision 17 to the TRUPACT-II SAR, Section 2.8.1 states that these containers are allowed. This change makes this permit consistent with the requirement.
- E. In practice the septum cap serves to accommodate expansion/contraction of liquid samples in full VOA vials. This is not the case with solid samples. Further, standard VOA vials are made of glass. Glass vials are more hazardous to use than sealed metal containers because of the risk of glass vial breakage. This poses an unacceptable risk to analyst who would be exposed to radioactive dust if a vial was dropped (a likely occurrence) and broke releasing the dry sample.
- F. As stated in E above, glass is inappropriate for handling radioactive materials.

Discussion:

The items above are Class 1 permit modifications under Section 270.42, Appendix I, A.1. These changes to the permit are most appropriately classified as administrative and informational changes. They are minor changes to the permit necessary to keep it current with facility operations. The items neither substantially alter the permit conditions or reduce the capacity of the facility to protect human health or the environment and are no less stringent than the existing permit requirements.

A. Section B1, page B1-14

~~C. Coring tools shall have an air-lock mechanism that opens to allow air inside the liners to escape as the tool is pressed into the waste (e.g., ball check valve). This air-lock mechanism shall also close when the core is removed from the waste container.~~

Section B1, page B1-15

B1-2a(2) Sample Collection

Sampling of cores shall be conducted in accordance with the following requirements:

- C Sampling shall be conducted as soon as possible after core collection. If a substantial delay (i.e., more than 60 minutes) is expected between core collection and sampling, the core shall remain in the liner and the liner shall be capped at each end. If the liner containing the core is not extruded from the coring tool and capped, then two alternatives are permissible: 1) the liner shall be left in the coring tool and the coring tool shall be capped at each end, or 2) the coring tool shall remain in the waste container ~~with the air-lock mechanism attached.~~

B. Section B1, page B1-14

- C All surfaces of the coring tool that have the potential to contact the sample core or sample

media shall be cleaned in accordance with the requirements in Section B1-2(b) prior to use.

~~C The leading edge of the coring tools shall be sharpened and tapered to a diameter equivalent to, or slightly smaller than, the inner diameter of the liner to reduce the drag of the homogenous solids and soil/gravel against the internal surfaces of the liner, thereby enhancing sample recovery.~~

C. Section B1, page 8

C While sampling through the drum lid using manifold sampling, ~~A~~ a flow-indicating device or pressure regulator to verify ~~excess~~ flow of ~~QC~~ gases ~~(for system purge)~~ shall be pneumatically connected to the drum punch sampling assembly and operated in the same manner as the flow-indicating device described above is Section B1-1a(1).

D. Section B1, page B1-1

B1-1a Method Requirements

The Permittees shall require all headspace-gas sampling be performed in an appropriate radiation containment area on waste containers that are in compliance with the container equilibrium requirements (i.e. 72 hours at 18E C or higher). All waste containers designated as summary category S5000 (Debris waste) shall be sampled for headspace gas a minimum of 142 days after packaging and all waste containers designated as summary categories S3000 (Homogenous solids) and S4000 (Soil/gravel) shall be sampled a minimum of 225 days after packaging. This drum age criteria is to ensure that the drum contents have reached 90 percent of steady state concentration within each layer of confinement (Lockheed, 1995). The equilibrium time and drum age of all containers will be documented in headspace gas sampling documents. All waste containers with unvented rigid containers greater than 4 liters, except for Waste Material Type II.2 packaged in a metal container, shall be subject to innermost layer of containment sampling or shall be vented prior to initiating drum age and equilibrium criteria. The configuration of the containment area and remote-handling equipment at each sampling facility are expected to differ. Headspace-gas samples will be analyzed for the analytes listed in Table B3-2 of Permit Attachment B3.

E. Table B1-4, page B1-34

~~c~~ 40-ml VOA vial or other appropriate containers shall have ~~septum~~ an airtight cap.

F. Table B1-4, page B1-34

~~c~~ ~~Opaque glass container,~~ Appropriate containers should be used and should have ~~shall have~~ Teflon® lined caps ~~(example, amber jar).~~

Section B1-2a(2), page B1-15

C Samples of homogenous solids and soil/gravel for VOC analyses shall be collected prior to extruding the core from the liner. Three sub-samples will be collected from the vertical core to form a single 15-gram composite sample. Smaller sample sizes may be used if method PRQL requirements are met for all analytes. The sampling

locations shall be randomly selected within three equal-length subsections of the core ~~one~~ along the long axis of the liner and access to the waste shall be gained by making a perpendicular cut through the liner and the core. The Permittees shall require sites to develop documented procedures to select, and record the selection, of random sampling locations. True random sampling involves the proper use of random numbers for identifying sampling locations. The procedures used to select the random sampling locations will be subject to review as part of annual audits by the Permittees. A sampling device such as the metal coring cylinder described in EPA's SW-846 Manual (1996), or equivalent, shall be immediately used to collect the sample once the core has been exposed to air. Immediately after sample collection, the sample shall be ~~extruded into 40-ml volatile organics analysis (VOA) vials (or other containers specified in appropriate SW-846 methods)~~ placed in an airtight sample container for VOA analysis, the top rim of the ~~vial~~ container visually inspected and wiped clean of any waste residue, and the ~~vial~~ cap secured. Sample handling requirements are outlined in Table B1-4. Additional guidance for this type of sampling can be found in SW-846 (EPA 1996).

Item - 2

Description:

- A. Revise language in permit to allow tables to be referenced in the checklists discussed in section B3-10. See redline of permit below.
- B. Change the word “must” to the word “should” in the bullet list under the heading “Identification of Tentatively Identified Compounds” and correct the reference to SW-846 in the last bullet of section B3-1 on page B3-5.
- C. Change the word “more” to “less” in section B3-10. See redline/strikeout of final permit below.

Basis:

- A. Inclusion of the discussed tables in these checklists would make the checklists burdensome to the reader. As these tables are included in other documentation it is appropriate to provide references to the location of the table(s). The change does not change the type of information presented in the checklists only the manner in which it is presented.
- B. Changing of the word “must” to “should” makes the permit consistent with the wording in the referenced SW-846. Leaving the word “must” in virtually makes the requirements technically infeasible and defeats the use of automated software. The item changing the SW-846 Method 8410 to 8450 is a correction of a typographical error.
- C. Without this change the permit is inconsistent. This item makes the permit internally consistent.

Discussion:

The item above is a Class 1 permit modification under Section 270.42, Appendix I, A.1. This change to the permit is most appropriately classified as an administrative and informational change. It is a minor change to the permit necessary to keep it current with facility operations. The change neither substantially alters the permit conditions or reduces the capacity of the facility to protect human health or the environment.

A. Section B3, page 22

Data review, validation, and verification at this level involves scrutiny and signature release from qualified independent technical reviewer(s), technical supervisors(s), and a QA representative, as specified below. Individuals conducting this data review, validation, and verification must use checklists that address all of the items included in this section. Checklists must contain or reference tables showing the results of sampling, analytical or on-line batch QC samples, if applicable. Checklists must reflect review of all QC samples and quality assurance objective categories in accordance with criteria established in Tables B3-2 through B3-9 (as applicable to the methods validated). Completed checklists must be forwarded with testing, sampling, analytical and on-line batch data reports to the project level.

B. Section B3, page B3-5

Identification of Tentatively Identified Compounds

In accordance with SW-846 convention, identification of compounds detected by gas chromatography/mass spectrometry methods that are not on the list of target analytes shall be reported. Headspace gas, volatile analysis (TCLP/Totals), and semi-volatile (TCLP/Totals) shall be subject to tentatively identified compound (TIC) reporting. These TICs for GC/MS Methods are identified in accordance with the following SW-846 criteria:

- ! Relative intensities of major ions in the reference spectrum (ions greater than 10% of the most abundant ion) ~~must~~ should be present in the sample spectrum. |
- ! The relative intensities of the major ions ~~must~~ should agree within ± 20 percent. |
- ! Molecular ions present in the reference spectrum ~~must~~ should be present in the sample spectrum |
- ! Ions present in the sample spectrum but not in the reference spectrum should be reviewed for possible background contamination or presence of coeluting compounds
- ! Ions present in the reference spectrum but not in the sample spectrum should be reviewed for possible subtraction from the sample spectrum because of background contamination or coeluting peaks.
- ! TICs for headspace gas analyses that are performed through FTIR analyses shall be identified in accordance with the specifications of SW-846 Method ~~8410~~8450. |

C. Section B3-10, page B3-25

Radiography tapes have been reviewed on a waste container basis at a minimum of once per testing batch or once per day of operation, whichever is ~~more~~ frequent. The radiography tape will be reviewed against the data reported on the radiography form to ensure that the data are correct and complete. |

Item - 3

Description:

Revise course description for Hazardous Waste Responder, Refresher (HWR-101A) on page H2-22. See redline strikeout of final permit below.

Basis:

This is an editorial revision to the course description that provides a more accurate reflection of the actual course. No changes have been made regarding the type or amount of training given in this course to appropriate employees.

Discussion:

The item discussed above is a Class 1 permit modification under Section 270.42, Appendix I, B.5.b. This change to the permit is most appropriately classified as other changes to the training plan as it does not “affect the type or decrease the amount of training given to an employee”. This change provides minor clarifications and/or corrections. It is a minor change to the permit necessary to keep it current with facility operations. It does not substantially alter the permit conditions or reduce the capacity of the facility to protect human health or the environment.

Section H2, page H2-22

Course Description for HWR-101A, Hazardous Waste Responder, Refresher (pertinent sections)

COURSE: HWR-101A - Hazardous Waste Responder, Refresher

DURATION: . 8 hours

PREREQUISITES: HWR-101

OBJECTIVES: Upon Completion of this course, the student will be able to respond to hazardous materials emergencies at the WIPP site.

Mastery of the terminal objective will be demonstrated by ~~scoring 80 percent or higher on the post-course examination,~~ satisfactory performance on the job performance measure for donning and doffing ~~level-a~~ Personal Protective Equipment (PPE), and successfully participate as a team in the final practical

REFRESHER: Annually

COURSE DESCRIPTION ~~(by module)~~

1. Review of HWR-101
. 2 hours
2. Changes in Regulations, procedures, and polices
. 2 hours
3. Lessons Learned
. 2 hours
4. Conclusion and Exam
. 2 hours

All times are approximate and do not reflect additional time spent on topics that arise from class participation, student breaks, class size and/or practical exercises (i.e., Job Performance Measures)

Item - 4

Description:

- A. Revise description of filters for containers in Attachment M1 of the permit. Revise permit text to allow the direct loading of waste into ten-drum overpacks. See redline/strikeout of final permit below.
- B. Revise permit text to allow the direct loading of waste into 85-gallon (322-liter) drums. See redline/strikeout of final permit below.

Basis:

- A. This change to the permit provides for a consistent reference to section M1-1d(1) of the permit. Previous language in the permit may have been interpreted to limit the use of filter vents and limited placement of filter vents. Where appropriate, multiple filter vents should be allowed and placement should not be restricted to the drum lid.

Current language in the permit states that the ten-drum overpack (TDOP) may contain ten standard drums or a standard waste box (SWB). This change allows TDOPs to be directly loaded with waste. This item would allow the generators to avoid, where appropriate, the disassembly/handling of large items such as gloveboxes that could be directly loaded into a TDOP. As the TDOP is a metal container, that meets DOE specification 7A, this change merely provides for more flexibility in the use of already approved containers.

- B. Current language in the permit states that the standard waste box (SWB) and that an 85-gallon (322-liter) drum may be used for overpacking contaminated 55-gallon drums or site-derived waste. This change allows 85-gallon (322-liter) drums to be direct loaded with waste. This change would allow the generators to avoid, where appropriate, the disassembly/handling of large items that could be directly loaded into a 85-gallon (322-liter) drum. As the 85-gallon (322-liter) drum is a metal container, that meets DOE specification 7A, this change merely provides for more flexibility in the use of already approved containers.

Discussion:

The items above are Class 1 permit modifications under Section 270.42, Appendix I, A.1. These changes to the permit are most appropriately classified as administrative and informational changes. They are minor changes to the permit necessary to keep it current with facility operations. The changes neither substantially alter the permit conditions or reduce the capacity of the facility to protect human health or the environment.

- A. Section M1, Page M1-2

Standard 55-Gallon Drums

Standard 55-gal (208-L) drums meet the requirements for U.S. Department of Transportation (DOT) specification 7A regulations.

A standard 55-gal (208-L) drum has a gross internal volume of 7.4 cubic feet (ft³) (0.210 cubic meters (m³)). Figure M1-3 shows a standard TRU mixed waste drum. One or more filtered vents (as described in Section M1-1d(1)) will be installed in the drum lid or body to prevent the escape of any radioactive particulates and to eliminate any potential of pressurization.

Standard 55-gal (208-L) drums are constructed of mild steel and may also contain rigid, molded polyethylene (or other compatible material) liners. These liners are procured to a specification describing the functional requirements of fitting inside the drum, material thickness and tolerances, and quality controls and required testing. A quality assurance surveillance program is applied to all procurements to verify that the liners meet the specification.

Standard 55-gal (208-L) drums may be used to collect derived waste.

Standard Waste Boxes

The SWBs meet all the requirements of DOT specification 7A regulations.

~~The SWBs will be fitted at the generator sites with a filter vent (as described in Section M1-1d(1)) as required for shipment in a Transuranic Package Transporter, Type II (TRUPACT-II) and for safety during TRU mixed waste storage.~~ One or more filtered vents (as described in Section M1-1d(1)) will be installed in the standard waste box lid or body to prevent the escape of any radioactive particulates and to eliminate any potential of pressurization. They have an internal volume of 66.3 ft³ (1.88 m³). Figure M1-4 shows a SWB.

The SWB is the largest container that may be used to collect derived waste.

Ten-Drum Overpack

The TDOP is a metal container, similar to a SWB, that meets DOT specification 7A and is certified to be noncombustible and to meet all applicable requirements for Type A packaging. The TDOP is a welded-steel, right circular cylinder, approximately 74 inches (in.) (1.9 meters (m)) high and 71 in. (1.8 m) in diameter (Figure M1-5). The maximum loaded weight of a TDOP is 6,700 pounds (lbs) (3,040 kilograms (kg)). A bolted lid on one end is removable; sealing is accomplished by clamping a neoprene gasket between the lid and the body. Filter ports are located near the top of the TDOP. ~~Each TDOP will contain filter vents as described in Section M1-1d(1).~~ One or more filtered vents (as described in Section M1-1d(1)) will be installed in the ten-drum overpack lid or body to prevent the escape of any radioactive particulates and to eliminate any potential of pressurization. A TDOP may contain up to ten standard 55-gal (208-L) drums or one SWB. TDOPs may be used to overpack drums or SWBs containing CH TRU mixed waste. The TDOP may also be direct loaded with waste items (other than derived) that are too large to fit into either the standard 55-gal (208-L) drum or the SWB.

Eighty-Five Gallon Drum Overpack

The 85-gal (321-L) drums meet the requirements for DOT specification 7A regulations. ~~These drums will also be equipped with filter vents (as described in Section M1-1d(1)).~~ One or more filtered vents (as

described in Section M1-1d(1)) will be installed in the eighty-five gallon drum overpack lid or body to prevent the escape of any radioactive particulates and to eliminate any potential of pressurization.

The 85-gal (321-L) drum overpack, which is shown in Figure M1-6, will be used primarily for overpacking contaminated 55-gal (208 L) drums at the WIPP facility.

85-gal (321-L) drums may be used to collect derived waste.

B. Section M1, page 3

Eighty-Five Gallon Drum Overpack

The 85-gal (321-L) drums meet the requirements for DOT specification 7A regulations. These drums will also be equipped with filter vents (as described in Section M1-1d(1)).

The 85-gal (321-L) drum overpack, which is shown in Figure M1-6, will be used primarily for overpacking contaminated 55-gal (208 L) drums at the WIPP facility.

85-gal (321-L) drums may be direct loaded with CH TRU/CH TRU-mixed waste and may be used to collect derived waste.

Module III, page 5

III.C.1.a Standard 55-gallon (208-liter) drum - with a gross internal volume of 7.3 ft³ (0.21 m³).

III.C.1.b Standard waste box (SWB) - with a gross internal volume of 66.3 ft³ (1.88 m³).

III.C.1.c Ten-drum overpack (TDOP) - with a capacity to be direct loaded with CH-TRU/CH TRU-mixed waste, or to contain up to ten standard 55-gallon drums or one SWB. ~~TDOPs may be used to overpack drums or SWBs containing CH TRU mixed waste.~~

III.C.1.d 85-gallon (322-liter) drum overpack - with a gross internal volume of 11.3 ft³ (0.32 m³). 85-gallon drums may be direct loaded with CH TRU/CH TRU-mixed waste or ~~overpacks~~ may be used for overpacking contaminated 55-gallons drums containing CH TRU mixed waste ~~and~~ for collecting and storing derived waste.

Section E, page E-5

At all times, written procedures ensure that loaded TRUPACT-II containers, facility pallets, 7-packs, SWBs, 85-gallon ~~overpacks~~, TDOPs, or canisters are managed in the WHB Unit in a manner to prevent obstructing the movement of personnel, fire-protection equipment, spill-control equipment, and decontamination equipment. An aisle space of 44 in. (1.1 m) between loaded facility pallets will be maintained in all waste storage areas of the WHB Unit, and a minimum of 4 ft of isle space will be maintained between TRUPACT-IIs in the outdoor Parking Area Unit.