Steve Zappe, WIPP Project Leader
Hazardous Waste Permits Program
Hazardous and Radioactive Materials Bureau
New Mexico Environmental Department
2044A Galisteo Street
Santa Fe, NM 87505

Subject: SUBMITTAL OF THE PANEL 2 CERTIFICATION OF CONSTRUCTION

Dear Mr. Zappe:

The purpose of this letter is to submit the Panel 2 Hazardous Waste Disposal Unit (HWDU) Professional Engineer Certification of Construction. Section I.E.11.b.i of the Hazardous Waste Facility Permit (HWFP), No. NM4890139088—TSDF, requires the submission of a letter signed by the Permittees and a New Mexico registered professional engineer stating that the facility has been constructed or modified in compliance with the Permit. The professional engineer certification was performed by Dr. Stanley J. Patchet, a New Mexico registered engineer, New Mexico Certificate No. 14139.

Also included in this submittal are associated Class 1 permit modification notifications. The modifications will be implemented upon agency approval of the Panel 2 HWDU. The Class 1 modification notices are:

Changes in the procedure WP 04-AU1007, *Underground Openings Inspection*
Change to multiple figures

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision according to a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the
possibility of fines and imprisonment for knowing violations.

Feel free to contact Mr. Jody Plum at (505) 234-7462, if you have any questions regarding the submittal of the Panel 2 HWDU Certification of Construction

Sincerely,

Dr. Inés R. Triay, Manager  
U.S. Department of Energy

Attachments

cc: w/attach

J. Bearzi, NMED  
J. Kieling, NMED  
M. Gerle, WID (Operating Record)

J. L. Epstein, General Manager  
Westinghouse Waste Isolation Division
Notice of RCRA Class 1 Permit Modification
in Accordance with 20 NMAC 4.1.900 (40 CFR Part 270)

Waste Isolation Pilot Plant
Carlsbad, New Mexico

September 14, 2000
Notice of RCRA Class 1 Permit Modification
in Accordance with 20 NMAC 4.1.900 (40 CFR Part 270)

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 is submitting to the New Mexico Environment Department (NMED) a notice of Class 1 modifications to the Hazardous Waste Facility 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)(1).

The modifications are listed in Table 1. Listed information includes a reference to the applicable section of the permit, a brief description of each item, and the class of the item, as identified in Appendix I to Section 270.42. The relevant permit modification category, as identified in Appendix I, is provided as well. A more complete description of the class 1 modifications are provided in Attachment A. Several of these modifications are the result of discussions with the NMED regarding Class 1 modifications that were previously submitted. The NMED requested that changes be made in several of the previous modifications to clarify the change or to resolve other difficulties identified by the NMED. Each is discussed separately in Attachment A.

The identified 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.
Table 1. Class 1 Hazardous Waste Facility Permit Modification

<table>
<thead>
<tr>
<th>No.</th>
<th>Affected Permit Section</th>
<th>Item</th>
<th>Category</th>
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<tr>
<td>1.</td>
<td>a. Figure F-3, F-5, F-9 b. Figure I-1, I2-1, I-6 c. Figure M2-1 d. D1, Underground Openings Inspection Checklist</td>
<td>Update applicable underground figures to add Panel II and revise the underground inspection form to include openings associated with Panel II that require inspection.</td>
<td>A.1</td>
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Attachment A

Descriptions of the Hazardous Waste Facility Class 1 Permit Modifications
Item 1

Description:
Revise several Figures and underground inspection form.

Basis:
The permit changes reflect the current underground facility. No requirements are reduced or removed.

Discussion:
The modified documents reflect the changes as a result of mining Panel II in accordance with the WIPP Hazardous Waste Facility Permit Module IV.E. Seven figures and the underground inspection form were updated. These updates are required to correspond with the recent completion of Panel II in the WIPP underground.

Revised Permit Text:

1.a. Revised Figures F-3, F-5, F-9 are included in Attachment B
1.b. Revised Figures I-1, I2-1, and I-6 are included in Attachment B
1.c. Revised Figure M2-1 is included in Attachment B
1.d. Revised D, Underground Openings Inspection Checklist is included in Attachment B
Item 1.a.
Revised Figure F-3, Figure F-5, Figure F-9,
Figure F-3
WIPP Underground Facilities

PERMIT ATTACHMENT F
Page F-81
Figure F-5
Underground Emergency Equipment Locations and Underground Evacuation Routes

PERMIT ATTACHMENT F
Page F-84
Figure F-9
Designated Underground Assembly Areas

PERMIT ATTACHMENT F
Page F-88
Item 1.b.
Figure I-1, Figure I2-1, and Figure I-6
Figure I-1
Location of Underground HWDUs and Anticipated Closure Locations
Figure 12-1
View of the WIPP Underground Facility
Figure I2-1
View of the WIPP Underground Facility

PERMIT ATTACHMENT I
Page I2-71
Borehole Depth (FT)

- ERDA-9 2276
- WFP-19 1038
- WFP-21 1049
- WFP-22 1450
- B-25 902
- H-1 848
- H-2c 795
- H-3b1 902
- H-6 801
- P-3 1676

Repository Depth: 2150 Feet

Figure I-6
Approximate Location of Boreholes in Relation to the WIPP Underground

PERMIT ATTACHMENT I
Page I-36
Item 1.c.
Figure M2-1
Figure M2-1
Repository Horizon

PERMIT ATTACHMENT M2
Page M2-25
Item 1.d.
Revised D1, Underground Openings Inspection Checklist
Attachment 1 - Underground Openings Inspection Checklist

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attachment 1 - underground openings inspection checklist

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Signature: ____________________________

Page 2 of 5
### Attachment 1 - Underground Openings Inspection Checklist

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SIGNATURE: ____________________________
## Attachment 1 - Underground Openings Inspection Checklist

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**ADDITIONAL INFORMATION**

**INSPECTION PERFORMED BY (PRINT NAME):**

**SIGNATURE:**
Mr. J. L. Epstein, General Manager
Westinghouse Government Environmental Services LLC
Waste Isolation Division
P. O. Box 2078
Carlsbad, NM 88221-2078

Dear Mr. Epstein:

Subject: CERTIFICATION OF CONSTRUCTION – PANEL 2 HAZARDOUS WASTE DISPOSAL UNIT

Waste Isolation Pilot Plant (WIPP)
EPA ID No 48901309088-TSDF
Hazardous Waste Facility Final Permit NM4890139088-TSDF, issued October 27, 1999

1. Introduction
   This letter certifies that the Panel 2 Hazardous Waste Disposal Unit (HWDU) identified in the Permit was constructed and commissioned in a manner such that it can be operated in compliance with the conditions of the Permit. I was on site during the planning, implementation, and completion of the work described and regularly visited the work in progress. I observed construction and commissioning activities while in progress and reviewed representative samples of related documentation.

1.1 Identification of Unit being Certified
   The unit certified as constructed in compliance with the Permit is the Panel 2 HWDU. This panel consists of 7 rooms and two entries from East 300 to Room 7. See Attachment 1, Drawing 51-W-214-W2 and Attachment 2, Figure M2-1 revised September 1, 2000.

1.2 Exclusions
   1.2.1 Main Entries/Panel 10
       In order to access Panel 2 it was necessary to excavate a portion of the access drifts which will eventually form Panel 10. These entries were excavated and completed in a manner to allow the operation of Panel 2, as allowed by Permit section IV.E.2. They are not certified as a HWDU at this time.

   1.2.2 Sub-System Design
       This certification does not certify the designs of the various sub-systems installed in Panel 2. It certifies that all sub-systems required in the Permit are installed and operate as required by the permit.

   1.2.3 General Systems
       This certification does not certify any systems that are not physically part of Panel 2, for example, waste handling equipment.
1.2.4 Closures
This certification does not certify that any other HWDU or portion of a HWDU has been closed in any manner.

2. General Description of Certification Process
The work associated with the construction and commissioning of the Panel 2 HWDU was performed using the appropriate WIPP procedures and processes. These ensure that work is performed in a safe and effective manner, and at an appropriate quality level. Applicable documentation, for example work packages and test results, is maintained according to a WIPP Records Inventory and Disposition Schedule, is available for inspection, and is included as part of this certification by this reference.

2.1 Identification of Applicable Items
The Permit was reviewed and those items likely to be involved in the certification process were identified. These are specifically noted in Section 3 below. The review and assessment of each item was performed with a knowledgeable individual cognizant of the item, its configuration, and required performance.

2.2 Physical Plant
2.2.1 Construction
The Panel 2 HWDU was planned and constructed using appropriate WIPP policies and procedures. Work packages contained appropriate hold and QA checkpoints. Excavation was performed using non-explosive continuous mining techniques. Work sequences and techniques were those commonly applied in the mining industry and previously used at the WIPP.

2.2.2 Commissioning and Testing
Sub-systems within the Panel 2 HWDU were commissioned and tested using the appropriate WIPP policies and procedures, and the tests were witnessed. The systems were examined for correct completion and integrated operation. For some systems, i.e. VOC, Radiation, and Attachment Q Monitoring, there is no benefit to human health and the environment by operating these systems until waste is disposed in Panel 2. In these cases, the systems will remain commissioned in place and their effective date of operation will be 14 days prior to the first emplacement of waste in Panel 2.

2.2.3 As-Built Documentation
Physical facilities in the Panel 2 HWDU will be documented using the appropriate WIPP policies and procedures.

2.2.4 Inspections
The Underground Openings Inspection Checklist is revised to reflect the construction of Panel 2. The revised form will be implemented as a Permit requirement on the date of NMED approval of the Panel 2 HWDU. No other inspections or record sheets require modification.

2.2.5 Training
The Training Program is process-orientated and does not contain any RCRA panel-specific contents. It does not require modification.
3. System Inspection and Certification
   3.1 Physical Plant
      3.1.1 Position and Dimensions
         3.1.1.1 Compliance with Drawing 51-W-214-W and Figure M2-1
         Attachment 1, Drawing 51-W-214-W2 is an as-built revision of Drawing
         51-W-214-W that shows the plan position and elevation of panel
         excavations and revised notes applicable to Panel 2. Drawing 51-W-
         214-W remains valid as the design base for future panels. Attachment 2,
         Figure M2-1 revised September 1, 2000, shows Panel 2 as an existing
         excavation. These drawings confirm that Panel 2 is constructed in the
         correct position and to the correct dimensions. Figure M2-1 revised
         September 1, 2000, is effective on the date of NMED approval of the
         Panel 2 HWDU.

         3.1.1.2 Geology
         The geology of Panel 2 is consistent with that described in the Permit.
         Units of the Salado Formation exposed during mining of Panel 2 are
         continuous from adjacent areas and display similar thicknesses,
         compositions, structures and features, with typical minor local variation.
         WID Geotechnical staff mapped the geology of Panel 2 and evaluated
         cores from holes drilled above and below the repository horizon. A
         consulting geologist with extensive WIPP area and Delaware Basin
         experience concurs that the geology of Panel 2 is consistent within the
         limits of local variability noted to date.

      3.1.2 Ventilation
         3.1.2.1 Bulkheads, Regulators, and Crossovers
         All necessary ventilation control structures are in place and operable.
         The Mine Ventilation Plan and related drawings are revised to reflect the
         addition of Panel 2.

         3.1.2.2 Attachment Q
         Attachment Q, WIPP Mine Ventilation Rate Monitoring Plan, was
         reviewed and assessed in terms of the construction and operation of
         Panel 2. Attachment Q can be applied to the operation of Panel 2 as a
         HWDU without modification and is adequate to ensure that flow rates are
         maintained in compliance with permit requirements. The effective date
         for the application of Attachment Q to Panel 2 is 14 days prior to the first
         emplacement of waste in Panel 2.

         3.1.2.3 Test and Balance
         A partial test and balance of ventilation flows was performed. The
         underground ventilation system was operating in Normal Mode and was
         configured to create waste disposal flow rates through Room 7 of both
         Panel 1 and Panel 2. Flow rates were measured using approved vendor
         procedures and instruments calibrated to traceable NIST standards.
         Under conservative conditions and configuration, the minimum required
         flow rate was simultaneously achieved in each room.
3.1.3 Traffic Separation
Traffic separation between the waste and construction circuits is primarily maintained by ventilation bulkheads without traffic doors. An airlock with normally closed traffic doors is provided in S1950 to permit movement between the circuits in the south end of the underground facility. The main entries south of S2520 have been stubbed so that future mining activities can be performed without entering the waste disposal circuit.

3.2 Monitoring
3.2.1 VOC Monitoring
3.2.1.1 Equipment
Station VOC B was installed as described and required in the Permit. This station is functionally identical to the two units currently monitoring Panel 1 and operating in E300 and S1950. The station is clean and certified by a qualified vendor. The station was installed using procedure WP12-VC1683, VOC Sampler Handling and Use.

3.2.1.2 Test Results
All gauges and pumps are certified against NIST traceable instruments. A canister was installed using procedure WP12-VC1620, VOC Sample Canister Handling and Sampling. The system was operated sufficiently to show electrical power to the pump and to verify flow controller operation. Further activities are considered operational in nature and are not covered by this certification. The effective date for initiating VOC monitoring of Panel 2 is 14 days prior to the first emplacement of waste in Panel 2.

3.2.2 Radiation Monitoring
3.2.2.1 Equipment
Continuous Air Monitor (CAM) skids 534-S-145 and 534-S-146 were installed as described and required in the permit. These skids are functionally identical to units currently monitoring Panel 1 and operating in S1600.

3.2.2.2 Test Results
The skids were calibrated and tested using appropriate WIPP procedures. Procedure WP04-VU1002 was used to demonstrate a correct automatic shift to filtration by both CAMs. The test also included an element to ensure that the operation of Panel 2 CAMs does not impact the continued correct operation of the CAMs in Panel 1 and vice versa. The effective date for initiating radiation monitoring of Panel 2 is 14 days prior to the emplacement of waste in Panel 2.

3.2.3 Geotechnical Monitoring
3.2.3.1 Equipment
Geotechnical monitoring instruments and inspection bore holes were installed in Panel 2 using materials and techniques as described and required in the Permit. Room convergence stations and extensometers measure rock mass deformation while inspection bore holes allow a qualitative assessment of separation and lateral movement. The installations are sufficient to detect any trends toward rock mass instability and failure.
3.2.3.2 Test Results
The computer software used to remotely poll the extensometers is controlled and was revised according to the appropriate WIPP procedures. This system was operated and the collection and display of data were demonstrated. The data are then handled using common procedures and programs. Manual room convergence instruments use WIPP procedures that are independent of instrument location and that do not require modification. Since this monitoring is required for worker safety, the system is in use and will be implemented as a Permit requirement on the date of NMED approval of the Panel 2 HWDU.

3.3 Hazard Prevention and Emergency Response

3.3.1 Preparedness and Prevention (Attachment E)
The evacuation alarm and communication system in Panel 2, consisting of mine pager phones and strobe lights, meet the requirements of 30 CFR 57 as required by Attachment E. Attachment E does not contain any panel-specific contents and does not require modification. Since these systems are required for worker safety, the systems are in use and will be implemented as a Permit requirement on the date of NMED approval of the Panel 2 HWDU.

3.3.2 Contingency Plan (Attachment F)
The Contingency Plan (Attachment F) does not contain any panel-specific contents and does not require modification.

3.3.3 Emergency Response and Evacuation Plan
The Underground Escape and Evacuation Plan, effective September 5, 2000, and the Underground Escape Map, effective 08/24/00, required by the Mine Safety and Health Administration (MSHA) and 30 CFR 57, reflect the current, final configuration of Panel 2. They are posted and are included in appropriate underground documents and MSHA-related training courses. All other emergency response services and facilities are unaffected by the completion of Panel 2.

3.4 Other

3.4.1 Ground Control
Construction ground control consisted of scaling, spot-bolting, and local removal as appropriate. Small, localized areas were excavated outside the nominal room envelope during trimming to final dimensions in order to give the best initial ground conditions. This was done in conformance with Notes 4, 5, and 9 on Drawing 51-W-214-W. Panel 2 is included in the existing ground control assessment processes, and appropriate ground control measures are available and can be implemented if necessary.

3.4.2 Quality Assurance Program Description
The Quality Assurance Program Description (QAPD), WP13-1, rev 18, adopts the graded approach and was used, as appropriate, for all Panel 2 activities. It does not contain any panel-specific contents and does not require modification.
4.0 Certification
I certify under penalty of law that this certification was prepared under my supervision for the Westinghouse Government Environmental Services LLC, Waste Isolation Division. Based on my personal observations and my inquiries of persons directly responsible, the information in this certification is, to the best of my knowledge and belief, true, accurate, and complete.

Stanley J. Patchet, PhD, PE
New Mexico Certificate No. 14139
Expires 31 December 2001