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Department of Energy
Carlsbad Field Office
P. O. Box 3090
Carlsbad, New Mexico 88221

NOV 10 2008



Mr. James Bearzi, Chief
Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505-6303

Subject: Submittal of the Panel 5 Certification of Construction

Dear Mr. Bearzi:

The purpose of this letter is to submit the Panel 5 Hazardous Waste Disposal Unit (HWDU) Professional Engineer Certification of Construction as required by Module IV.E.2 of the Waste Isolation Pilot Plant Hazardous Waste Facility Permit (HWFP), Number NM4890139088-TSDF. This section requires the submission of a letter signed by the Permittees and New Mexico registered professional engineer stating that the facility has been constructed or modified in compliance with HWFP. Dr. Stanley J. Patchet, a New Mexico Registered Professional Engineer, New Mexico Certificate Number 14139, performed the certification. Please contact Mr. H. L. (Jody) Plum to schedule your inspection of Panel 5 at the number below.

We certify under penalty of law that this document and all attachments were prepared under our direction or supervision according to a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on our 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 our knowledge and belief, true, accurate, and complete. We are aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

If you have any questions regarding this submittal, please contact Mr. Plum at (575) 234-7488.

Sincerely,

David C. Moody, Manager
Carlsbad Field Office

M. F. Sharif, General Manager
Washington TRU Solutions LLC

Enclosure

cc: w/enclosure
S. Zappe, NMED *ED
C. Walker, Trinity Engineering ED

cc: w/o enclosure
J. Kieling, NMED ED
*ED denotes electronic distribution



INTER-OFFICE CORRESPONDENCE

DATE: October 27, 2008

FROM: S. J. Patchet

LOCATION: Mine Engineering

TO: M. F. Sharif

GSA-201

LOCATION: General Manager's Office

SUBJECT: CERTIFICATION OF CONSTRUCTION - PANEL 5 HAZARDOUS WASTE
DISPOSAL UNIT

Reference: Waste Isolation Pilot Plant (WIPP): EPA ID No 48901309088
Hazardous Waste Facility Permit NM4890139088-TSDF, issued October 27, 1999
and as subsequently modified (hereafter, the Permit)

1. Introduction

This letter certifies that the Panel 5 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 5 HWDU. This panel consists of 7 rooms connected by two entries running from West 170 to Room 7. See Attachment 1, Drawing 51-W-214-W5 and Attachment 2, Permit Attachment M2, Figure M2-1 revised.

1.2. Exclusions

1.2.1. Main Entries/Panel 9

Access to Panel 5 is through excavations that will eventually form Panels 9 and 10. These entries were excavated and completed in a manner allowed by the Permit, Condition IV.E.2.a. These entries are not certified as HWDUs at this time.

1.2.2. Sub-System Design

This certification does not certify the designs of the various sub-systems installed in Panel 5. It certifies that sub-systems required in the Permit are installed and operate as required by the Permit.

1.2.3. Material Specification

This certification does not certify the specifications of the materials used in the installed system. It certifies that the materials used are of the types and capacities specified in the Permit.

1.2.4. General Systems

This certification does not certify any systems that are not physically part of Panel 5, for example waste handling equipment.

1.2.5. Condition of Other Areas

This certification applies to Panel 5 only and does not certify the condition or status of any other area, HWDU, or portion of a HWDU.

1.2.6. Operations During Waste Emplacement

This certification applies to the as-built condition of Panel 5 and does not certify operational activities of any kind.

2. General Description of Certification Process

The work associated with the construction and commissioning of the Panel 5 HWDU was performed using the appropriate WIPP Project 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 Project 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 5 HWDU was planned and constructed using appropriate WIPP Project policies and procedures. Work packages contained appropriate hold and Quality Assurance (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 facility.

2.2.2. Commissioning and Testing

Sub-systems within the Panel 5 HWDU were commissioned and tested using the appropriate WIPP Project policies and procedures and the tests were witnessed. The systems were examined for correct completion and integrated operation.

2.2.3. As-Built Documentation

Physical facilities in the Panel 5 HWDU are documented using the appropriate WIPP Project policies and procedures.

2.2.4. Inspections

The "Underground Openings Inspection Checklist," Attachment 1 of procedure WP 04-AU1007, is revised to reflect the construction of Panel 5. The revised form will be implemented as a Permit requirement on the date of NMED approval of the Panel 5 HWDU. No other inspections or record sheets require modification.

2.2.5. Training

The Training Program is process-orientated and does not contain any 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 (Permit Attachment M3) and Permit Attachment M2, Figure M2-1

Previous experience in HWDUs known as Panels 1, 2, 3, and 4 indicates that it is desirable to take room roof to floor closure into account at construction time, since this would minimize, and possibly eliminate, remedial floor work in the active waste disposal panel. Using available geomechanical data, the anticipated amount of closure for each room was estimated and added to the minimum operational height to determine the actual excavated height.

Attachment 1, Drawing 51-W-214-W5, is an as-built revision of Drawing 51-W-214-W4 that shows the plan position and elevation of panel excavations and revised notes applicable to Panel 5. Drawing 51-W-214-W remains valid as the design base for future panels. Attachment 2, Permit Attachment M2, Figure M2-1 revised shows Panel 5 as an existing excavation. Permit Attachment M2, Figure M2-1 revised is effective on the date of NMED approval of the Panel 5 HWDU. These drawings confirm that Panel 5 is constructed in the correct position and to the correct dimensions.

3.1.1.2. Geology

The geology of Panel 5 is consistent with that described in the Permit. Units of the Salado Formation exposed during mining of Panel 5 are continuous from adjacent areas and display similar thicknesses, compositions, structures and features, with typical minor local variation.

Washington TRU Solutions (WTS) Geotechnical Engineering staff mapped the geology of Panel 5, evaluated cores from holes drilled above and below the repository horizon, and confirmed that the geology of Panel 5 is consistent within the limits of local variability noted to date.

3.1.2. Ventilation

3.1.2.1. Bulkheads, Regulators, and Crossovers

Appropriate ventilation control structures are in place and operable. Revision 25 of the Mine Ventilation Plan reflects the addition of Panel 5 to the waste disposal circuit.

3.1.2.2. Attachment Q

The WIPP Mine Ventilation Rate Monitoring Plan (Attachment Q) was reviewed and assessed in terms of the construction and operation of Panel 5. Attachment Q can be applied to the operation of Panel 5 as a HWDU without modification and is adequate to ensure that flow rates are maintained in compliance with Permit requirements.

3.1.2.3. Test and Balance

A test and balance of the underground ventilation system was performed in March, 2008. During this test and balance, the underground was configured to have three rooms at 42,000 cfm. Panel 5, still in the construction circuit, then had about 58,000 cfm coursing through it.

The underground ventilation system was configured to create waste disposal flow rates through Room 7 of Panel 5 and Rooms 1 and 2 of Panel 4 and was operated in normal mode. Flow rates were measured using approved procedures and instruments calibrated to standards traceable to the National Institute of Standards and Technology (NIST). Under this configuration, the minimum required flow rate was simultaneously achieved in each room.

3.1.3. Traffic Separation

Traffic separation between the waste disposal circuit and the construction circuit is maintained by ventilation control structures. Panel 6 mining activities can be performed without entering the waste disposal circuit.

3.1.4. Remote Handled Waste Boreholes

No boreholes for the disposal of remote handled waste, as described in Permit Attachment M2, are in Panel 5 at this time.

3.2. Monitoring

3.2.1. Volatile Organic Chemical (VOC) Monitoring

Permit Condition IV.D.2, Determination of VOC Room-Based Limits, requires that Attachment N, Volatile Organic Compound Monitoring Plan, be used and that monitoring of VOCs be conducted in accordance with the Conditions in Permit Module IV.F.2.

The conditions in Permit Module IV.F.2, Repository Volatile Organic Compound Monitoring, and Permit Module IV.F.3, Disposal Room Volatile Organic Compound Monitoring, require implementation of Permit Attachment N. The VOC monitoring plan in Permit Attachment N consists of two programs: 1, Repository VOC Monitoring, and 2, Disposal Room VOC Monitoring.

3.2.1.1. Repository VOC Monitoring

Station VOC B is installed in the intake to the waste disposal area (S-3650/E-140) as described and required in the Permit. The sampling point is located so that it captures intake air for both Panel 4 and Panel 5. The station is in regular use and is operated and maintained using appropriate procedures.

3.2.1.2. Disposal Room VOC Monitoring

Permit Attachment N, Figure N-3, Disposal Room VOC Monitoring, shows the location, in general terms, of the exhaust and inlet sampling points. Sampling heads are put into service sequentially, exhaust then intake, as rooms are filled. At this time a sampling head is installed and ready for activation at the exhaust point of Panel 5, Room 7 and the configuration of sample heads generally conforms to the configuration shown on Permit Attachment N, Figure N-4, VOC Sample Head Arrangement.

Sample collection equipment is installed as described in Permit Attachment N-3c, Sampling and Analysis Methods and is functionally and operationally identical to the units currently in use for repository monitoring. The sample collection equipment is clean and certified by a qualified vendor and was installed using procedure WP12-VC1684, "VOC Sampling Operations."

Sample collection tubing is installed to the current sampling location in the exhaust of Room 7. Collection tubing is passivated as required by Permit Attachment N-4a (3), Sample Tubing. Fittings (e.g. tee's, unions, etc.) are stainless steel. Six-liter, stainless steel canisters with SUMMA (copyright) or equivalent passivated interiors are available and in use as required by Permit Attachment N-4a (1), SUMMA (copyright) Canisters.

The disposal room monitoring system was examined for correct configuration and integrated operation. Gauges and pumps are certified against NIST traceable instruments. The system was operated sufficiently to show electrical power to the pump and to verify flow controller operation.

3.2.2. Radiation Monitoring

3.2.2.1. Equipment

Continuous Air Monitors 534-CAM-001-151 and 534-CAM-001-152 are installed in walk-in enclosure 534-S-149 located in a cutout in the exhaust drift of Panel 5 at W-170, S-3310. This configuration avoids the need to move these monitors each time a room is closed, the instruments are better-protected against salt dust, and are easier to maintain.

3.2.2.2. Test Results

The CAMs were tested using a standard work package and appropriate WIPP procedures. These procedures are independent of CAM location and do not require modification. Both CAMs have current calibration stickers. The system was operated sufficiently to show, for each CAM, that the signal indications were correctly received in the Central Monitoring Room and that an automatic shift to filtration was correctly performed.

3.2.3. Geotechnical Monitoring

3.2.3.1. Equipment

Geotechnical monitoring instrumentation is installed in Panel 5 at locations prescribed by the Permit. Instruments and inspection boreholes were installed using materials and techniques as described and required in the Permit. Room convergence stations and extensometers measure rock mass deformation, rock bolt load cells assess the behavior of rock, and inspection boreholes allow a qualitative assessment of separation and lateral movement. The installations are sufficient to detect trends toward rock mass instability and failure.

3.2.3.2. Test Results

The system was operated to demonstrate remote polling of room extensometers and the checking and visual display of the polled data. Computer software used is controlled and revised according to the appropriate WIPP procedures. 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 5 HWDU.

3.3. Hazard Prevention and Emergency Response

3.3.1. Preparedness and Prevention (Permit Attachment E)

The evacuation alarm and communication system in Panel 5, consisting of mine pager phones and strobe lights, meet the requirements of Title 30 of the Code of Federal Regulations, Section 57 (30 CFR 57) as required by Permit Attachment E. Permit 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 5 HWDU.

3.3.2. Contingency Plan (Permit Attachment F)

The Contingency Plan (Permit 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 October 15, 2008 and the Underground Escape Map, effective October 15, 2008, required by the Mine Safety and Health Administration (MSHA) reflect the current configuration of Panel 5. They are posted and are included in appropriate underground documents and training courses. Other emergency response services and facilities are unaffected by the completion of Panel 5.

3.4. Other

3.4.1. Ground Control

Construction ground control consisted of scaling, rock-bolting, and local removal as appropriate. Based on roof behaviors noted in Panels 3 and 4, an active approach involving early roof bolting was adopted for Panel 5. This more aggressive approach led to significantly reduced separations on the shallow anhydrite stringers in the immediate roof. Ground control activities are done in conformance with Notes 4, 5, and 9 on Drawing 51-W-214-W. Panel 5 is included in the existing ground control assessment process; appropriate ground control measures are available and are being implemented as necessary.

3.4.2. Quality Assurance Program Description

Document WP13-1, "Quality Assurance Program Description", adopts the graded approach and was used, as appropriate, for Panel 5 activities. It does not contain any panel-specific contents and does not require modification.

4. Certification

I certify under penalty of law that this certification was prepared under my supervision for Washington TRU Solutions, LLC. 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.

If you have any questions or concerns please contact me at Extension 8370.

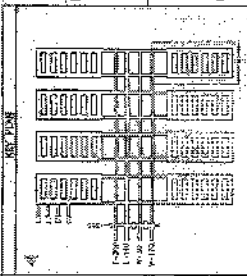


Stanley J Patchet, Ph D, P E
New Mexico Certificate No 14139
Expires 31 December 2009

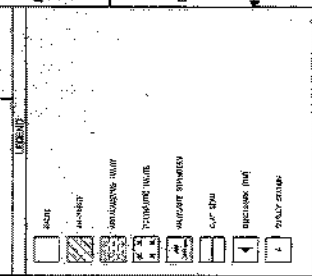
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Attachments (2)

51-W-214-W5

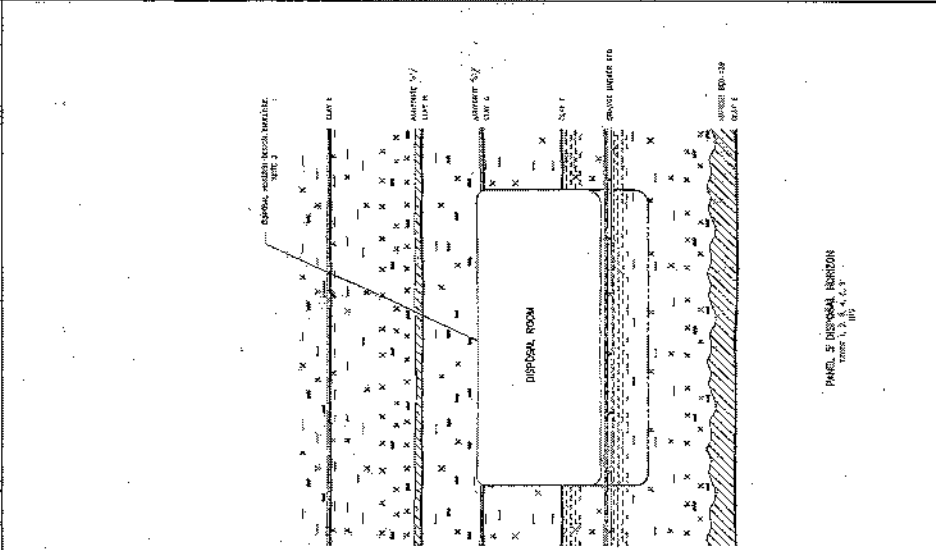


REFERENCES FOR INFORMATION ONLY
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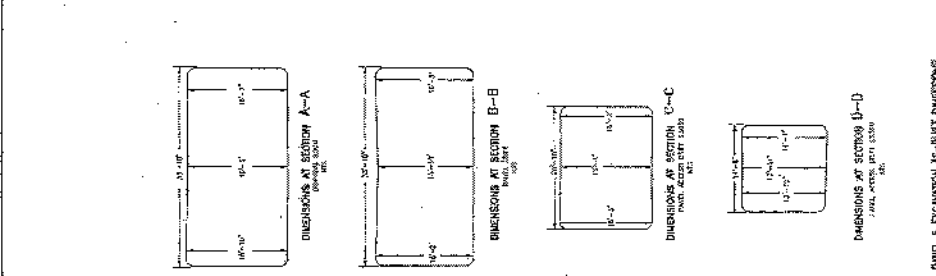


NOTES
1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST EDITIONS OF THE U.S. DEPARTMENT OF ENERGY REGULATIONS FOR RADIOACTIVE MATERIALS.
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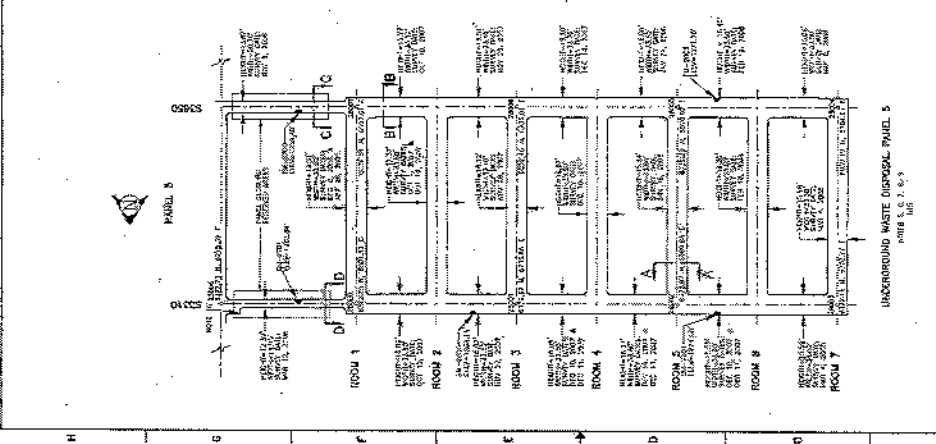
U.S. DEPARTMENT OF ENERGY
Washington, D.C. 20545
PROJECT: 51-W-214-W5
DRAWING: DISPOSITION PANEL 5
DATE: 10/15/78
BY: [Signature]



ENGINEER'S CERTIFICATION
I, [Name], a duly Licensed Professional Engineer in the State of Maryland, certify that I am the author of the above drawing and that it was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer in the State of Maryland.
DATE: 10/15/78
BY: [Signature]



DISPOSAL ROOM
SECTION A-A
SECTION B-B
SECTION C-C
SECTION D-D



UNDERGROUND WASTE DISPOSAL PANEL 5
ROOM 1: 10'-0" x 10'-0"
ROOM 2: 10'-0" x 10'-0"
ROOM 3: 10'-0" x 10'-0"
ROOM 4: 10'-0" x 10'-0"
ROOM 5: 10'-0" x 10'-0"
ROOM 6: 10'-0" x 10'-0"
ROOM 7: 10'-0" x 10'-0"
ROOM 8: 10'-0" x 10'-0"

51-W-214-W5
DISPOSITION PANEL 5
10/15/78

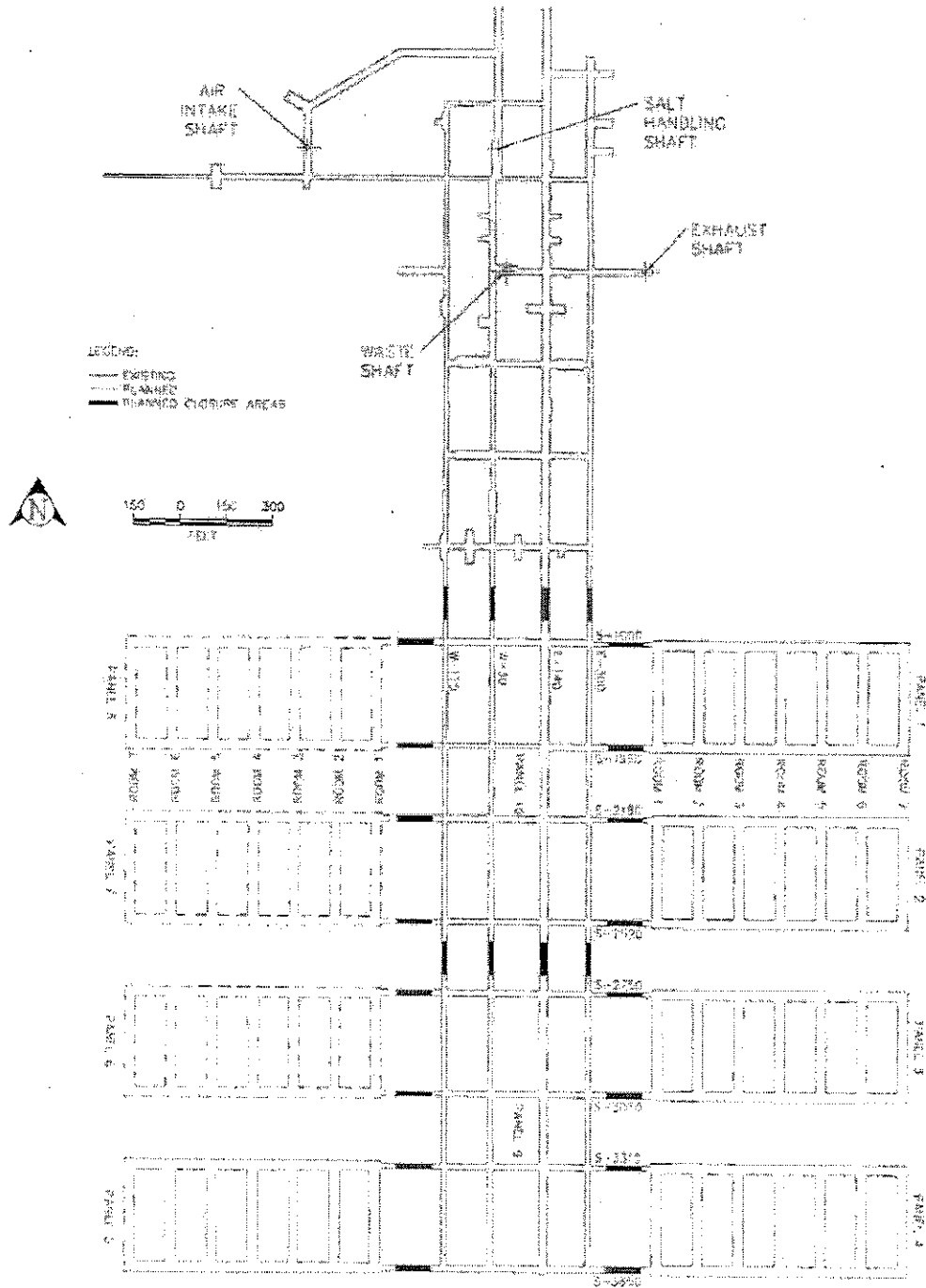


Figure M2-1
Repository Horizon

Effective upon NMED
Approval of Panel 5 HWDU

PERMIT ATTACHMENT M2
Page M2-27 of 46

