

GROUND WATER DISCHARGE PERMIT MODIFICATION
U.S. DEPARTMENT OF ENERGY, DP-831
WASTE ISOLATION PILOT PLANT
December 1, 2009 Draft

I. INTRODUCTION

The New Mexico Environment Department (NMED) issues this Discharge Permit Modification, DP-831, to the U.S. Department of Energy (DOE) pursuant to the New Mexico Water Quality Act (WQA), NMSA 1978 §§ 74-6-1 through 74-6-17, and the New Mexico Water Quality Control Commission (WQCC) Regulations, 20.6.2 NMAC.

The NMED's purpose in issuing this Discharge Permit Modification, and in imposing the requirements and conditions specified herein, is to control the discharge of water contaminants from the Waste Isolation Pilot Plant (WIPP) that may move directly or indirectly into ground and surface water, so as to protect ground and surface water for present and potential future use as domestic and agricultural water supply and other uses; to abate pollution of ground and surface water; and to protect public health. In issuing this Discharge Permit, NMED has determined that the requirements of 20.6.2.3109.C NMAC have been met.

Facility Description

The WIPP is a hazardous and radioactive waste disposal facility operated by the U.S. Department of Energy (DOE). The WIPP is constructed in a bedded salt formation 2,150 feet below ground surface. DP-831 covers the discharge of domestic effluent, storm water and miscellaneous process waters to various lined impoundments at the facility.

Domestic wastewater from the facility and industrial wastewaters from two compressed air systems are discharged to seven synthetically lined facultative sewage lagoons (Facultative Lagoon System) that include Evaporation Ponds A, B and C; Polishing Ponds 1B and 2B; and Settling Ponds 1A and 2A. Brine, purge waters and miscellaneous non-hazardous process waters are discharged to the H-19 Evaporation Pond and Evaporation Ponds B and C of the Facultative Lagoon System. Storm water runoff at the facility is collected in the synthetically lined Storm Water Infiltration Control (SWIC) Ponds A, 1 and 2.

Salt and other subsurface materials mined during construction as well as currently mined salt are stored on the surface in three stockpiles. The stockpiles include the Salt Storage Extension (SSE) Cells A and B that are being used to store salt currently, or in the future, as it is mined out from the underground panels at the WIPP. Storm water runoff from the SSE is collected in the synthetically lined Salt Storage Extension Basin (SSEB) and will hereby be referred to in the future as Salt Storage Extension Basin I (SSEB-I). The existing Salt Pile that was previously used has been capped with a synthetic liner and earthen cover. Storm water runoff from the Salt Pile is collected in synthetically lined diversion ditches and diverted to the synthetically lined Salt Pile Evaporation Pond (SPEP). The Site and Preliminary and Design Validation (SPDV)

material pile was constructed as the shafts were excavated when construction first began at the WIPP site. The SPDV material pile was closed in the year 2000 with a cover consisting of a geosynthetic liner installed on 6 inches of bedding material and covered with a minimum of two feet of earthen material.

Description of Permit Modification

The permit modification to DP-831 includes the expansion of the storm water runoff storage capacity from the SSE by constructing an additional storm water storage basin immediately west of SSEB-I, referred to as Salt Storage Extension Basin II (SSEB-II). The SSEB-II is synthetically double-lined with 60 mil high density polyethylene (HDPE) and a 200 mil geonet leak detection layer. The SSEB-II is connected by two overflow pipes from the SSEB-I, two feet above the SSEB-I basin floor. The maximum operating capacity of the new basin with one foot of freeboard is 17,489,456 gallons (2,338,000 cubic feet).

Location of Discharge

The newly constructed SSEB-II is located approximately 26 miles east of Carlsbad in Section 20, T22S, R31E, Eddy County.

Quantity, Quality, and Flow Characteristics of the Discharge

The designed discharge rate of storm water runoff to the interconnected SSEB-I and SSEB-II is 2,752,831 gallons per day (368,000 cubic feet per day) based on a 25 year/24 hour storm event (3.90 inches). The intended maximum operating elevation for both basins is approximately 3414 feet above mean sea level (msl) providing an operating capacity of 9,851,845 gallons (1,317,000 cubic feet). The basins receive storm water drained from the SSE Cells A and B, which cover approximately 26 acres. The storm water comes in contact with mined salt stored in the cells resulting in a discharge with contaminant concentrations that may exceed water quality standards set forth in WQCC Regulations 20.6.2.3103 NMAC for chloride, sulfate and total dissolved solids.

Characteristics of Ground Water

Regional ground water beneath the WIPP site exists in the Culebra and Magenta Members of the Rustler Formation at approximate depths of 483 feet and 357 feet below ground level, respectively. Ground water also exists in the Dewey Lake Formation in the southwest portion of the WIPP site at well WQSP-6A, and as discontinuous lenses in the region beneath and surrounding the WIPP Site (16 Sections of the WIPP Land Withdrawal Area). Depth to ground water in the Dewey Lake Formation in well WQSP-6A is approximately 164 feet below ground surface and contains a total dissolved solids concentration of approximately 3,400 mg/L. A zone of shallow anthropogenic subsurface water (SSW) located underneath the WIPP facility at a depth of approximately 60-80 feet below ground surface has a TDS concentration ranging from approximately 1,500 to 165,000 mg/L.

General

The DOE's Discharge Plan consists of letters and documents submitted by WIPP to NMED dated November 19, 2009 and May 28, 2009. In addition, the discharge plan includes, in part, information and materials submitted as part of the original discharge plan approved on January 16, 1992, amended on August 28, 1995, renewed on July 3, 1997, amended on June 12, 1998, amended on January 24, 2000, renewed on April 29, 2003, modified on December 22, 2003, modified on December 29, 2006, and renewed and modified on September 9, 2008. The discharges at this facility approved in this Discharge Permit Modification shall be managed in accordance with the Discharge Permit Modification Application dated November 19, 2009 as conditioned by this Discharge Permit Modification.

Pursuant to 20.6.2.3109.E NMAC, NMED reserves the right to modify permit requirements in the event NMED determines that the requirements of 20.6.2 NMAC are being, or may be, violated or standards of 20.6.2.3103 NMAC are being, or may be, violated. This may include a determination by NMED that operational practices approved under this Discharge Plan are not protective of ground and surface water quality, and that a modification is necessary to protect water quality or abate water pollution. Permit modifications may include but are not limited to lining or relining impoundments, changing discharge locations, changing waste management practices, expanding monitoring requirements and/or implementing abatement of water pollution.

Issuance of this Discharge Permit Modification does not relieve the DOE of its responsibility to comply with all conditions or requirements of the WQA, WQCC Regulations, and any other applicable federal, state, and/or local laws and regulations such as zoning requirements and nuisance orders.

II. FINDINGS

In issuing this Discharge Permit Modification, NMED finds:

1. The DOE is discharging effluent or impacted water at the WIPP Facility so that such effluent may move directly or indirectly into ground water within the meaning of 20.6.2.3104 NMAC.
2. Ground water (located at well WQSP 6A) in the Southwest portion of the WIPP Land Withdrawal Area has an existing concentration of 10,000 milligrams per liter or less of total dissolved solids within the meaning of 20.6.2.3101.A NMAC.
3. The discharges at the WIPP Facility are not subject to any of the exemptions of 20.6.2.3105 NMAC.
4. The WIPP Facility is located at a place of withdrawal of water for present or reasonable foreseeable future use within the meaning of 20.6.2.3101A NMAC.

III. PERMIT CONDITIONS

In addition to the conditions specified in the September 9, 2008 Discharge Permit Renewal and Modification, the DOE shall comply with the following conditions, which shall be added to DP-831 and are enforceable by NMED.

Permitted Discharge Flow Rate

1. The DOE is permitted to collect storm water runoff from the Salt Storage Extension to the Salt Storage Extension Basin II (SSEB II) at a designed flow of 2,752,831 gallons per day based on a 25 year/24 hour storm event (3.90 inches). The basin capacity is 17,489,456 gallons (2,338,000 cubic feet) allowing for one foot of freeboard. The combined capacities of the SSEB I and SSEB II are 22,254,547 gallons (2,975,000 cubic feet) allowing for one foot of freeboard. [20.6.2.3109 NMAC]

Operation and Maintenance

2. The DOE shall properly operate and maintain the hydraulically connected SSEB I and SSEB II to store and evaporate the maximum daily discharge volume allowed by this Discharge Permit Modification while maintaining a minimum of one foot of freeboard at all times. In the event that a minimum of one foot of freeboard can not be maintained at all times, the DOE shall submit a corrective action plan to manage discharge volumes to the NMED for approval. [20.6.2.3109 NMAC]

Monitoring and Reporting

3. The DOE shall measure the water depth monthly to the nearest tenth of a foot (0.1 ft) in the SSEB II and the approximate volume of storm water shall be calculated. The water levels and volume calculations shall be reported to NMED as required in Condition 14 of the September 9, 2008 Discharge Permit Renewal and Modification. [20.6.2.3107 NMAC]

IV. GENERAL TERMS AND CONDITIONS

In addition to any other requirements provided by law, approval of this Discharge Permit Modification is subject to the General Requirements as specified in the Discharge Permit Renewal and Modification approved on September 9, 2008. Refer to the Discharge Permit, DP-831, for specific information on the following General Requirements

Monitoring and Reporting
Record Keeping
Inspection and Entry
Duty to Provide Information
Spills, Leaks and Other Unauthorized Discharges
Retention of Records
Enforcement
Modification and/or Amendments

Compliance with Other Laws

4. Nothing in this Discharge Permit shall be construed in any way as relieving the DOE of its obligation to comply with all applicable Federal, State, and local laws, regulations, permits, or orders. [74-5-5.K WQA]

Liability

5. The approval of this Discharge Permit does not relieve the DOE of liability should the operation result in actual pollution of surface or ground water which may be actionable under other laws and/or regulations. [20.6.2.1220 NMAC]

Right to Appeal

6. The DOE may file a petition for a hearing before the WQCC on this Discharge Permit. Such petition must be made in writing to the WQCC within thirty (30) days after the DOE receives this Discharge Permit. Unless a timely petition for a hearing is made, the decision of NMED shall be final. [74-6-5.N WQA]

Transfer

7. Prior to any transfer of ownership, control, or possession of the permitted facility or any portion thereof, The DOE shall notify the proposed transferee in writing of the existence of this Discharge Permit and include a copy of this Permit with the notice. The DOE shall deliver or send by certified mail to the NMED a copy of the notification and proof that such notification has been received by the proposed transferee. [20.6.2.3111 NMAC]

Term

8. The effective date of this Discharge Permit Modification is the date it is issued and signed by the Chief of the Ground Water Quality Bureau. The term of this Discharge Permit Modification is the same as the September 9, 2008 Discharge Permit Renewal and Modification and will automatically expire on September 9, 2013. To renew this Discharge Permit, the DOE must submit an application for renewal at least 120 days before that date. [74-6-5.H and 20.6.2.3109.H NMAC]

Issued this ____ day of _____, 2009

William C. Olson, Chief
Ground Water Quality Bureau
New Mexico Environment Department

Under authority delegated by the Secretary of the New Mexico Environment
Department