



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



JUL 22 2010

Mr. Clint Marshall
Ground Water Quality Bureau
New Mexico Environment Department
P.O. Box 26110
Santa Fe, NM 87502

Subject: Semi-Annual Discharge Monitoring Report for January 1, 2010 through
June 30, 2010

Dear Mr. Marshall:

The purpose of this letter is to transmit to you the Waste Isolation Pilot Plant Discharge Monitoring Report for the period of January 1, 2010 through June 30, 2010. This report is required by Discharge Permit 831.

Please contact me at (575) 234-8128 if you have any questions regarding this report.

Sincerely,

Daniel J. Ferguson
Site Regulatory Specialist

cc: w/o enclosure
J. Bearzi, NMED *ED
S. Zappe, NMED ED
M. Menetrey, NMED ED
*ED denotes electronic distribution



**WASTE ISOLATION PILOT PLANT (WIPP) SEMI-ANNUAL DISCHARGE
MONITORING REPORT FOR DISCHARGE PLAN DP-831**

January 1, 2010 through June 30, 2010

SPECIFIC REPORTING REQUIREMENTS OF DP-831

1.0 WIPP SEWAGE TREATMENT FACILITY AND H-19 EVAPORATION POND MONITORING AND REPORTING

Month	Volume (gallons)
January	150,810
February	201,400
March	457,940
April	556,100
May	486,460
June	800,600

Facultative Lagoon System Evaporation Pond B: None

Facultative Lagoon System Evaporation Pond C: None

Month	Volume (gallons)
January	1,200
February	1,666
March	3,850
April	5,325
May	11,950
June	28,761

Table 3 contains a summary of the analytical results for the Sewage Treatment System and the H-19 Evaporation Pond. Miscellaneous non-hazardous water disposed of in the H-19 Evaporation Pond was 700-Fan condensate, purged water from groundwater monitoring activities, Exhaust Shaft interception borehole water and rain water from a secondary containment structure at the 474 Area.

Analyte	Sample Date	Influent Pond 2A	Pond B	Pond C	H-19
Nitrate (mg/L)	2/16/10	0.61	NA	NA	NA
TKN (mg/L)	2/16/10	79	NA	NA	NA
TDS (mg/L)	2/16/10	490	89.0	307,000	178,000
Sulfate (mg/L)	2/16/10	58	4.8	22,000	390
Chloride (mg/L)	2/16/10	77	19	160,000	130,000

NA: Not analyzed, parameters not required

Bold: Concentration exceeds the standards listed in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply

During this reporting period the following activities were conducted as required by your letter dated December 22, 2005, Conditional Approval of the Corrective Action Plan based on the Sewage Lagoon Leak Testing Results and Liner Integrity Evaluation.

Approximately 160 cubic yards of Salt from Evaporation Pond C at the Sewage Treatment Facility was disposed of in accordance with the Waste Isolation Pilot Plant, Waste Water Treatment Plant Sludge Disposal Plan approved by the NMED, Solid Waste Bureau. As required by DP-831, the Waste Isolation Pilot Plant, Waste Water Treatment Plant Sludge Disposal Plan was developed in compliance with 20.9.1.709 NMAC, 20.6.2.3109 NMAC, and 40 CFR 503. Approximately 640 cubic yards remain to be disposed of to facilitate replacement of the liner in Evaporation Pond C by the end of fiscal year 2010.

2.0 INFILTRATION CONTROL ACTIVITIES

Construction of the Salt Storage Extension Basin II (SSEB-II) was completed in January and the installation of the culvert that joins the SSEB-I to the SSEB-II was completed in April. Approximately 5500 cubic yards of salt were removed from the SSEB-I in May, of this reporting period, to extend the life of the pond. Approximately one foot of salt was left in place in the SSEB-I to protect the liner from the heavy equipment used in the excavation.

The Salt Storage Area erosion controls described in the *Conceptual Design for Controlling Storm Water and Minimizing Erosion on the Covered Salt Pile* submitted on October 14, 2009, and approved by the Ground Water Quality Bureau on October 15, 2009, were completed during this reporting period. This project involved the installation of two additional run-off chutes, installing two culverts, installing additional berms, repairing the runoff drainage ditch, and regrading the surface to direct flow to the run-off chutes and culverts.

The berm on the Salt Pile Evaporation Pond (SPEP) was raised approximately two feet to provide additional storage capacity while maintaining one foot of freeboard in the pond in accordance with the Discharge Plan Amendment Approval dated October 15, 2009. As-Built drawings will be submitted to the Bureau in the near future to reflect the berm being raised two feet instead of the two and one-half feet anticipated in the conceptual design. In the September 30, 2009 *Corrected Amendment Request to Increase the Capacity of the Salt Pile Evaporation Pond*, DOE stated, "if the final as-built elevation of the new berm or pond capacity differs from the proposed elevation and capacity we will notify your office to revise this amendment request."

A contract has been established for the sale of salt from the Salt Storage Extension Area during this reporting period. An access road from the north and a ramp for entry into the Salt Storage Area has been constructed so that the removal of salt via truck will not interfere with WIPP facility salt haul trucks.

3.0 SUMMARY OF ACTIVITIES RELATED TO THE SHALLOW SUBSURFACE WATER (SSW) MONITORING AND SAMPLING PROGRAM

Water levels in the shallow wells (PZ-1 through PZ-15, C-2811, C-2505, C-2506, C-2507 and WQSP-6a), Figure 1, were obtained March 24-25 and June 8-10, 2010, and are included in Table 4. These were taken on the quarterly milestones outlined in the Ground Water Monitoring Schedule, in the September 9, 2008, DP-831 Modification. Total rainfall in the area of WIPP for this reporting period was 5.81 inches compared to 3.82 inches for the same time period in 2009, a difference of 1.99 inches more in 2010. Total rainfall in 2009, 12.53 inches, was less than the average annual rainfall for the region of 12.92 inches reported by the National Oceanic and Atmospheric Administration.

The largest decrease in water level over the reporting period was 0.35 feet identified in PZ-15, east of the Site and Preliminary Design Validation Salt Pile. An increase in PZ-8 (+0.27 feet) may be attributed to the lag time from rain fall in October of 2008. The average groundwater decrease around the lined ponds (PZ-10, PZ-12, PZ-7, PZ-11) was 0.16 feet for this reporting period. All SSW wells, except PZ-8, reported a decrease in water level elevation for this reporting period.

WQSP-6A was sampled in March 2010 as part of the WIPP Hazardous Waste Facility Permit Detection Monitoring Program. WQSP-6A data for that time are provided in Table 4.

Sulfate, chloride, and total dissolved solids (TDS) concentrations were detected in WQSP-6A samples at concentrations exceeding standards of 20.6.2.3103 NMAC, *Standards for Ground Water of 10,000 mg/L TDS*

Concentration or Less for Human Health and Domestic Water Supply. Although the concentrations were higher than the standards, they are less than background concentrations established in the *Waste Isolation Pilot Plant RCRA Background Groundwater Quality Baseline Report* (DOE/WIPP 98-2285). Total Kjeldahl nitrogen (TKN) was below the detection limit of 1 mg/L. The shallow subsurface water identified at the WIPP site has not impacted the Dewey Lake groundwater in WQSP-6A based on the consistency of analyzed parameters in WQSP-6A.

The SSW piezometers were sampled for field and general chemistry parameters in May 2010 as required by the September 9, 2008, modification to DP-831. Five piezometers were sampled on May 24, and six on May 25, 2010. Results for the field sampling parameters and laboratory analyses are presented in Table 4. Chloride concentrations exceeded values listed in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply in all shallow piezometers sampled. The maximum chloride concentration was 170,000 mg/L in PZ-13, while the minimum concentration was 370 mg/L in PZ-10. Total dissolved solids concentrations exceeded 20.6.2.3103 NMAC values for Human Health and Domestic Water Supply in all shallow piezometers sampled, with the maximum concentration of 240,000 mg/L in PZ-13. Sulfate concentrations exceeded 20.6.2.3103 NMAC values for Human Health and Domestic Water Supply in 9 of 11 piezometers sampled with a maximum concentration of 4,400 mg/L in PZ-9.

Figure 1
Map of Shallow Subsurface Monitoring Wells

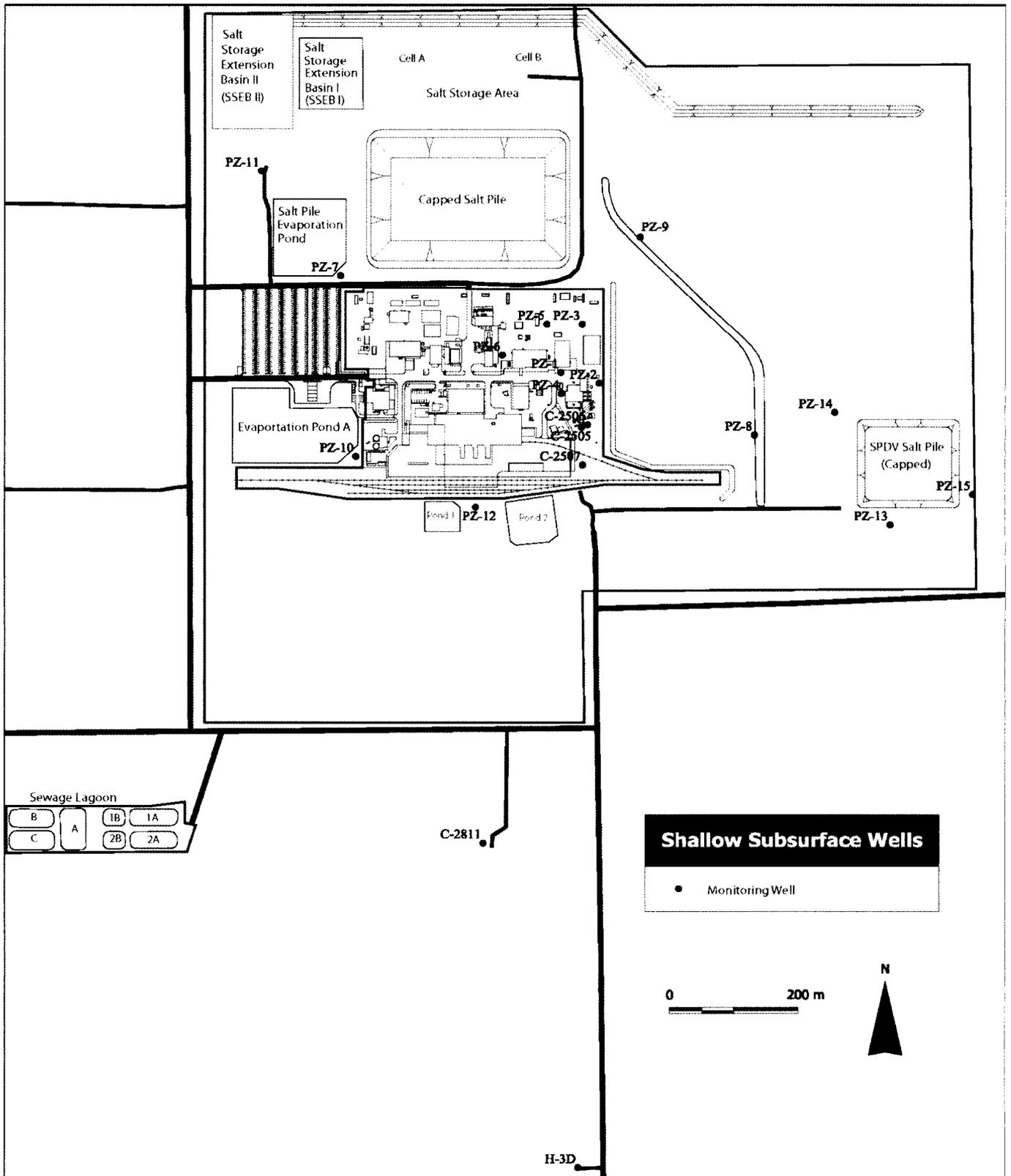


Table 4
SUMMARY OF SHALLOW SUBSURFACE WATER LEVELS, FIELD PARAMETERS, AND ANALYTICAL RESULTS

Monitoring Site	Water Level Monitoring (Ft AMSL)		Field Parameters			General Chemistry Parameters					Other
	3/24-25/2010	6/8-10/2010	pH (SU)	Temp. (°C)	Specific Conductivity @25 °C (µS/cm)	Sample Date	Nitrate (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	TDS (mg/L)	TKN (mg/L)
PZ-1	3371.11	3371.19	6.21	26.6	111,500	05/25/10	NS	2,200	53,000	92,800	NS
PZ-2	3370.66	3370.75	NS	NS	NS	NS	NS	NS	NS	NS	NS
PZ-3	3372.14	3372.25	NS	NS	NS	NS	NS	NS	NS	NS	NS
PZ-4	3365.60	3365.70	NS	NS	NS	NS	NS	NS	NS	NS	NS
PZ-5	3372.59	3372.70	6.72	25.8	32,540	05/25/10	NS	1,400	13,000	21,900	NS
PZ-6	3369.81	3369.93	6.39	27.2	107,000	05/25/10	NS	2,300	47,000	82,100	NS
PZ-7	3376.70	3376.93	6.04	25.2	124,500	05/24/10	NS	3,000	68,000	103,000	NS
PZ-8	3355.93	3356.07	NS	NS	NS	NS	NS	NS	NS	NS	NS
PZ-9	3363.90	3364.08	6.20	22.1	160,600	05/25/10	NS	4,400	94,000	144,000	NS
PZ-10	3368.00	3367.82	7.05	26.8	2,588	05/24/10	NS	500	370	1,680	NS
PZ-11	3374.04	3374.29	6.26	25.5	128,500	05/24/10	NS	2,500	69,000	107,000	NS
PZ-12	3357.12	3357.14	6.73	24.1	16,210	05/24/10	NS	990	5,500	10,100	NS
PZ-13	3356.87	3356.73	Bailed			05/24/10	NS	3,000	170,000	240,000	
PZ-14	3353.54	3353.44	NS	NS	NS	NS	NS	NS	NS	NS	NS
PZ-15	3383.75	3383.60	NS	NS	NS	NS	NS	NS	NS	NS	NS
C-2811	3346.04	3345.85	6.97	21.5	3,653	05/24/10	NS	340	920	2,090	NS
C-2505	3367.36	3367.36	NS	NS	NS	NS	NS	NS	NS	NS	NS
C-2506	3367.92	3367.90	NS	NS	NS	NS	NS	NS	NS	NS	NS
C-2507	3364.56	3364.58	6.83	25.4	10,700	05/25/10	NS	910	3,500	6,640	NS
WQSP-6a (Round 30)	3197.02	3196.80	7.27	22.1	3,800	03/03/10	6.55	2,145	330	3,545	<1.0

Explanation:

NS: Not Sampled, Not required by DP-831

"Bold" concentrations exceed standards listed in 20.6.2.3103 NMAC for Human Health and Domestic Water Supply