

APPENDIX I

FACILITY LEVEL  
GEOLOGIC CORE HOLE LOGS



CONTENTS

<u>Table No.</u>	<u>Title/Description</u>
I-1	Summary of Core Hole Data

Core Hole Logs

See Table I-1 for listing of enclosed logs.



Table I-1

## SUMMARY OF CORE HOLE DATA

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Core Hole No.	Direction	Collar Elevation (Ft-MSL)	Approximate Station (Ft)		Facility Coordinates (Ft)		Depth/Penetration (Ft)	Instrument Designation
MB-139-1	Down	1264.1	N79	W6	N9766	E6888	10.0	None
MB-139-2	Down	1251.2	S410	E150	N9277	E7044	15.7	None
MB-139-3	Down	1260.5	S101	E157	N9586	E7051	16.0	None
MB-139-4	Down	1258.7	S99	W17	N9588	E6877	16.2	None
DH-01	Up	1318.2	N1424	E439.5	N11110.9	E7335.5	50.8	None
DH-02(1)	Down		N1424	E440	N11110.9	E7336.06	50.2	None
DH-02A(1)	Down		N1424	E435	N11110.9	E7331.29	49.2	None
DH-02B	Down	1306.3	N1424	E442	N11110.9	E7331.29	53.0	None
DH-03	Up	1318.1	N1112	E444	N10799.2	E7335.4	48.8	None
DH-03A	Up	1317.4	N1112	E450.5	N10779.2	E7341.92	49.9	None
DH-04	Down	1309.6	N1112.5	E444	N10799.2	E7335.4	45.8	None
DH-04A(1)	Down	1309.6	N1113	E446			11.2	None
DH-04B	Down	1309.7	N1112	E450.5	N10799.70	E7341.85	51.4	None
DH-05	Up	1329.9	N1463	E972	N11149.6	E7865.0	51.0	None
DH-06	Down	1317.9	N1463	E972	N11149.7	E7864.9	49.75	None
DH-07	Up	1326.7	N1112	E976.5	N10799.3	E7870.8	49.8	None
DH-08	Down	1318.8	N1112	E976.5	N10799.4	E7870.9	38.3	None
DH-08A(1)	Down	1318.7	N1112	E975			50.7	None
DH-08B	Down	1318.0	N1112	E979.5	N10799.47	E7866.66	51.4	None
DH-09	Up	1324.5	N1432	E1332.5	N11108.71	E8227.11	51.1	None
DH-10	Down	1312.1	N1432	E1332.5	N11108.70	E8227.09	52.0	None
DH-11	Up	1320.5	N1112	E1332.5	N10799.8	E8227.3	50.9	None
DH-12	Down	1311.1	N1112	E1332.5	N10799.4	E8227.2	51.3	None
DH-13	Up	1311.4	N1424	E1690	N11112	E8585	13.8	None
DH-13A	Up	1311.5	N1424.5	E1691	N11112	E8586	49.0	None
DH-13B	Up	1311.4	N1425	E1695	N11112.6	E8590.1	21.0	None
DH-14	Down	1299.5	N1425	E1695	N11112.6	E8590.1	49.1	None
DH-15	Up	1308.9	N1104	E1688.5	N10793.26	E8589.96	51.0	None
DH-16	Down	1300.3	N1104	E1688	N10792.89	E8589.39	51.0	None
DH-17	Up	1316.5	N1427	E178	N11114.2	E7071.8	52.0	None
DH-18	Down	1305.1	N1429	E181	N11114.2	E7071.8	50.8	None
DH-19	Up	1314.7	N1107	E206.5	N10794.2	E7101.7	51.6	None
DH-20	Down	1306.2	N1109	E206	N10794.2	E7101.7	51.1	None
DH-21	Up	1331.0	N1421	E786	N11109.1	E7680.9	50.4	None
DH-22	Down	1318.8	N1421.5	E785.5	N11109.2	E7680.9	51.0	None
DH-23	Up	1328.0	N1112	E781	N10799.2	E7679.9	51.0	None
DH-24	Down	1319.5	N1112	E781	N10799.2	E7679.8	49.4	None
DH-24A	Down	1319.5	N1112	E780	N10799.08	E7678.59	50.4	None
DH-25	Up	1318.8	N1422	E1510	N11109.7	E8403.8	51.8	None
DH-26	Down	1307.2	N1427	E1510	N11114.3	E8403.8	53.0	None
DH-27	Up	1300.8	N1107	W682	N10793.7	E6218.4	50.5	None
DH-28	Down	1289.9	N1107	W682	N10793.8	E6218.3	50.5	None
DH-29	Up	1298.3	N1099	W982	N10785.4	E5932.4	50.4	None
DH-29A	Up	1298.1	N1099	W987	N10786.1	E5927.3	35.0	None
DH-30	Down	1289.2	N1099	W982	N10785.5	E5932.2	50.1	None
DH-31	Up	1298.5	N1099	W1282	N10784.9	E5632.3	50.5	None
DH-31A	Up	1298.5	N1099	W1280	N10784.8	E5630.5	49.2	None
DH-31B	Up	1298.5±	N1099	W1261	N10786.7	E5652.2	4.9	None
DH-32	Down	1289.6	N1099	W1282	N10784.9	E5632.2	50.0	None
DH-32A	Down	1289.5	N1099	W1261	N10786.7	E5652.2	5.5	None
DH-33	Up	1298.6	N1099	W1582	N10786.0	E5331.1	50.5	None
DH-33A	Up	1297.4	N1099	W1570	N10786.8	E5342.0	4.1	None
DH-34	Down	1289.4	N1099	W1582	N10786.5	E5331.7	51.5	None
DH-34A	Down	1289.2	N1099	W1570	N10786.8	E5341.9	3.6	None
DH-35	Up	1294.4	N1102	W1882	N10789.4	E5032.2	52.0	None
DH-36	Down	1284.6	N1102	W1882	N10789.4	E5032.2	51.5	None
DH-37	Up	1297.4	N1101	W2182	N10788.9	E4732.0	51.5	None
DH-38	Down	1287.0	N1101	W2182	N10788.8	E4731.9	47.5	None
DH-39	Up	1296.0	N1101	W2482	N10789.2	E4430.7	50.7	None
DH-40	Down	1286.1	N1101	W2482	N10789.2	E4431.0	51.0	None
DH-41	Up	1295.8	N1101	W2782	N10789.0	E4132.6	49.9	None
DH-42	Down	1285.9	N1101	W2782	N10789.0	E4132.4	51.2	None
DH-42A	Down	1285.7	N1101	W2789	N10789.2	E4125.5	40.5	None

(1) Survey data not available.

Table I-1 (continued)

## SUMMARY OF CORE HOLE DATA

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Core Hole No.	Direction	Collar Elevation (Ft-MSL)	Approximate Station (Ft)		Facility Coordinates (Ft)		Depth/Penetration (Ft)	Instrument Designation
DH-207	Up	1259.8	S697	E155	N8989.7	E7049.1	53.0	GE-246
DH-208	Down	1251.6	S698	E150	N8988.8	E7044.0	49.2	None
DH-211	Up	1270.5	S1320	E163	N8366.5	E7057.1	50.0	None
DH-212	Down	1261.7	S1320	E163	N8366.5	E7057.1	52.1	None
DH-215	Up	1272.0	S1960	E153	N7727.2	E7046.9	52.0	GE-247
DH-216	Down	1262.6	S1960	E153	N7727.2	E7046.9	54.2	GE-248
DH-219	Up	1266.3	S2422	E162	N7264.9	E7056.6	51.0	None
DH-219A	Up	1266.1	S2418	E162	N7268.5	E7056.2	11.3	None
DH-220	Down	1257.4	S2421	E162	N7265.5	E7055.9	51.8	None
DH-223	Up	1255.1	S3079	E154	N6607.2	E7048.5	52.6	GE-249
DH-224	Down	1246.6	S3079	E154	N6607.5	E7048.5	52.5	None
DH-227	Up	1247.0	S3656	E147	N6030.7	E7041.2	51.7	None
DH-228	Down	1237.8	S3656	E147	N6030.7	E7041.2	50.4	None
DH-301	Up	1276.9	N150	W170	N9830.5	E6724.5	50.75	None
DH-302	Down	1264.9	N150	W170	N9830.5	E6724.5	50.6	None
DH-303	Up	1267.2	S400	W170	N9282.3	E6726.1	51.4	None
DH-304	Down	1254.3	S400	W170	N9282.5	E6726.1	50.5	None
DH-306	Down	1244.1	S400	E140	N9287.3	E7049.9	52.0	None
DH-306A	Down	1244.0	S400	E125	N9287.9	E7034.6	8.5	None
DH-307	Up	1262.6	S400	E300	N9286.7	E7194.2	52.0	GE-263
DH-309	Up	1259.8	S700	E220	N8987.1	E7123.0	52.3	GE-265
DH-311	Up	1264.4	S1000	E300	N8686.3	E7194.9	52.0	GE-264
DH-313	Up	1270.6	S1300	E300	N8385.9	E7190.6	19.6	None
DH-313A	Up	1270.9	S1300	E299	N8386.6	E7189.5	50.2	None
DH-314	Down	1258.3	S1300	E300	N8386.5	E7189.5	50.75	None
DH-315	Up	1272.1	S1300	W170	N8387.3	E6725.5	50.3	None
DH-316	Down	1259.9	S1300	W170	N8387.2	E6725.3	50.1	None
DH-317	Up	1271.3	S1600	W33	N8077.4	E6875.9	50.1	None
DH-317A	Up	1271.2	S1600	W30	N8077.5	E6879.5	5.0	None
DH-317B	Up	1271.2	S1597	W30	N8080.3	E6881.0	51.0	None
DH-318	Down	1258.5	S1600	W30	N8077.3	E6876.1	50.0	None
DH-319	Up	1260.0	S700	E300	N8988.1	E7191.6	51.05	None
DH-321	Up	1261.4	S400	E0	N9792.0	E6891.8	52.0	GE-268
DH-323	Up	1261.2	S400	E55	N9291.7	E6952.5	52.5	GE-267
DO-45	Up	1285.5	N254	E147	N9941.0	E7041.3	52.4	GE-230
DO-46	Down	1276.5±	N254	E147	N9941.0	E7041.3	51.5	None
DO-52	Up	1280.4	N146	W4	N9832.5	E6890.5	51.6	GE-226
DO-53	Down	1266.6	N146	W4	N9832.5	E6890.5	49.2	None
DO-56	Up	1296.8	N621	E0	N10311.8	E6892.3	52.1	GE-234
DO-57	Down	1288.1	N621	E0	N10311.8	E6892.4	52.1	None
DO-63	Up	1310.6	N1110	E0	N10796.0	E6891.9	52.8	GE-243
DO-64	Down	1301.5	N1110	E0	N10796.0	E6891.6	52.8	GE-221
DO-67	Down	1296.8	N1265	W231.5	N10952.1	E6662.9	51.7	GE-220
DO-69	Up	1310.1	N1265	W231.5	N10951.9	E6662.5	51.4	GE-218
DO-77	Down	1294.6	N1270	W364.5	N10962.5	E6529.6	53.4	GE-216
DO-79	Up	1307.7	N1270	W364.5	N10962.6	E6529.5	51.8	GE-214
DO-88	Up	1305.9	N1265	W497.5	N10952.8	E6396.5	52.7	GE-212
DO-90	Down	1292.1	N1265	W497.5	N10952.6	E6396.4	53.6	GE-210
DO-91	Down	1292.1	N1275	W630.5	N10961.5	E6263.9	51.8	GE-209
DO-93	Up	1304.9	N1275	W630.5	N10961.1	E6263.9	52.0	GE-207
DO-201	Up	1262.2	S406	W19	N9280.6	E6874.9	51.7	None
DO-202	Down	1248.6	S406	W19	N9280.6	E6874.9	51.4	None
DO-203	Up	1298.2	N624	E140	N10308.6	E7041.7	52.0	GE-235
DO-204	Down	1290.5	N640	E140	N10308.5	E7041.5	51.6	None
DO-205	Up	1316.5	N1410	E0	N11095	E6892	50.7	None
DO-206	Down	1308.0	N1410	E0	N11095	E6892	50.6	None
DO-229	Up	1259.8	S401	E153	N9287	E7049	50.6	None
OH-9	Up	1310	N1433	W231.5	N11125.6	E6662.9	15.4	None
OH-11	Up	1308	N1433	W364.5	N11125.6	E6529.6	19.7	None
OH-13	Down	1298	N1433	W231.5	N11125.6	E6662.9	9.5	None
OH-14	Down	1296	N1433	W364.5	N11125.6	E6529.6	9.7	None

# WIPP-SPDV

# ROCK CORING LOG



WASTE ISOLATION PILOT PLANT

BORING NO. MB-139-1 INSTRUMENT TYPE & NUMBER None HOLE SIZE NX  
 LOCATION 0 East Drift, 79' N of Exploratory Shaft centerline, midspan

STATION N79,W6 COLLAR ELEV. 1264.1' DIRECTION OF DRILLING Vertical Down  
 MINE COORDINATES N9766, E6888 DEPTH OF BOREHOLE 10.0'  
 DRILLING METHOD Air & Brine DRILL MAKE/MODEL Longyear 38  
 PREPARED BY RLB/TSC//DGK/Bechtel DATE 1/26/83 SHEET 1 OF 1

RUN NUMBER	DEPTH (ft)	RECOVERY(ft)	% RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS
1	0	15	100	-	X		Hole was cored on 27 October 1982.
2	0.8	24		-	X	0.0' - 4.4' HALITE: clear halite, coarsely crystalline, 1-2X moderate reddish-orange (10R 6/6) polyhalite, 1-2X brown clay, ~1X gray clay, all in discrete blebs.	The first 5' interval was drilled with air. Recovery was poor, and the core was covered with oil. At 5', drilling with brine commenced and continued to 10'. At 10', the water pump failed and the rods became stuck in the hole. Rods were pulled and drilling halted at 10'.
3	5	10	100	-	X X X	4.4' - 6.8' POLYHALITIC HALITE: clear to moderate reddish-orange (10R 6/6) halite, coarsely crystalline, 5X polyhalite in blebs above 6.0', in blebs and disseminated below 6.0', clay absent, 10-50X anhydrite from 6.7'-6.8'.	
4	3.5	88		-	X X X	6.8' - 8.6' ANHYDRITE: (Marker Bed 139) light gray (N7), microcrystalline anhydrite, 5-50X polyhalitic halite from 6.8'-8.1' decreasing downward, gray clay parting at 8.6'.	
	10			-	X	8.6' - 9.5' HALITE: clear to moderate reddish-orange (10R 6/6) halite, medium to coarsely crystalline, 1-2X mostly disseminated polyhalite, ~1X gray clay.	Total depth = 10.0'.



# WIPP-SPDV

# ROCK CORING LOG



WASTE ISOLATION PILOT PLANT

BORING NO. MB-139-2 INSTRUMENT TYPE & NUMBER None HOLE SIZE NX

LOCATION Intersection of South 400 and East 140 Drifts, 14.5' N of S rib of South 400 Drift, 18' W of E rib of East 140 Drift

STATION S410, E150 COLLAR ELEV. 1251.2' DIRECTION OF DRILLING Vertical Down

MINE COORDINATES N9277, E7044 DEPTH OF BOREHOLE 15.7'

DRILLING METHOD Air and Brine DRILL MAKE/MODEL Longyear D-65

PREPARED BY RMB/Bechtel DATE 11/27/82 SHEET 1 OF 1

RUN NUMBER	DEPTH (ft.)	RECOVERY(ft)	% RECOVERED	ROD	PROFILE	DESCRIPTION	REMARKS
1	0	1.6	89	-	X	0.0' - 1.1' HALITE: clear halite, medium to coarsely crystalline, trace polyhalite, gray clay break at 0.4'.	Coring started at 12:00 hours on 27 November 1982.
2	1.9	90	-	X	1.1' - 2.8' HALITE: medium reddish-orange (IOR 5/6), translucent halite, medium crystalline, moderately hard, 2 - 5% clay, ~5% polyhalite, gray clay parting at 1.1', brown clay parting at 1.4'.		
3	5	0.6	27	-	X	2.8' - 6.5' HALITE: predominantly clear halite, coarsely crystalline, trace polyhalite in places, trace gray clay blebs in places.	
4	1.3	100	-	-	X	6.5' - 8.1' HALITE: medium reddish-orange (IOR 5/6), translucent halite, medium crystalline, ~2% polyhalite, trace gray clay blebs in places, polyhalite absent from 7.4' - 8.1'.	
5	1.3	100	-	-	X	8.1' - 9.7' POLYHALITIC HALITE: medium reddish-orange (IOR 5/6), translucent halite, medium to coarsely crystalline, moderately hard, 20 - 25% polyhalite.	
6	10	4.9	98	-	X	9.7' - 12.9' ANHYDRITE: (Marker Bed 139) medium light (N6) to very light gray (N8) to light brownish-gray (SYR 6/1) anhydrite, hard, dense, up to 50% halite from 9.7' - 10.5' in "mesh" network with anhydrite, some halite from 10.5' - 12.9', polyhalite band 9.7' - 9.75', 10.5' - 12.9' mostly broken into "poker chips".	
						At ~11'-12', brine drilling fluid started bubbling back out of hole. Hit trace pressurized gas.	
7	15	1.9	95	-	X	12.9' - 13.7' HALITE: light gray (N7) mottled with medium reddish-orange (IOR 5/6) translucent halite, clay occurs predominantly as closely-spaced breaks, 1" gray clay seam at 12.9', gray clay breaks at 13.1', 13.2', and 13.3'.	
						13.7' - 15.7' HALITE: brownish-gray and medium reddish-orange (IOR 5/6) translucent halite, medium to coarsely crystalline, ~1% gray clay, trace polyhalite in places, especially 15.3' - 15.7', gray clay breaks at 13.9', 14.3', and 14.7'.	
							Finished coring at 14:15 hours, gas still evident in hole.  Total depth = 15.7'.



# WIPP-SPDV

# ROCK CORING LOG



WASTE ISOLATION PILOT PLANT

BORING NO. MB-139-3 INSTRUMENT TYPE & NUMBER None HOLE SIZE NX

LOCATION Intersection of South 90 and East 140 Drifts, 1' N of S rib of the South 90 Drift, 14.5' E of W rib of the East 140 Drift

STATION S101,E157 COLLAR ELEV. 1260.5' DIRECTION OF DRILLING Vertical Down

MINE COORDINATES N9586, E7051 DEPTH OF BOREHOLE 16.0'

DRILLING METHOD Wet (brine) DRILL MAKE/MODEL Joy 12B

PREPARED BY JAK,RLB/TSC DATE 1/26/83 SHEET 1 OF 1

RUN NUMBER	DEPTH (ft.)	RECOVERY (ft.)	% RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS
1	0	1.1	49	-	X	0.0' - 7.9' HALITE: clear to moderate reddish-orange (10R 6/6) to moderate brown (5YR 5/4) halite, medium to coarsely crystalline, 1-5X polyhalite, 1-3X gray clay predominantly at top, 1-3X brown clay predominantly at bottom, 0.0'-0.6' has <1X polyhalite, ~1X disseminated polyhalite and no clay from 4.2'-4.8', otherwise polyhalite is in discrete blebs.	Hole cored on 28 December 1982.
2	0.75	45	-	X			
3	5	1.2	39	-	X		
4	1.8	83	-	-	X X	7.9' - 9.6' POLYHALITIC HALITE: clear to moderate reddish-orange (10R 6/6) halite, 2-5X polyhalite disseminated and in blebs, <1X gray clay, brown clay absent.	Gas encountered while drilling through MB 139.
5	10	4.6	92	-	X	9.6' - 11.9' ANHYDRITE: (Marker Bed 139) light gray (N7) microcrystalline anhydrite, trace halite from 9.6'-11.2', gray clay seam at 11.9'.	
6	15	1.8	100	-	X X	11.9' - 16.0' HALITE: clear to moderate reddish-brown (10R 4/6) halite, finely to coarsely crystalline, 1-2X disseminated polyhalite, 1-2X gray clay above 14.3', 1-3X brown clay below 14.8', clay absent elsewhere, 14.3'-14.8' is relatively pure halite.	
	20				X		Total depth = 16.0'.



# WIPP-SPDV

# ROCK CORING LOG



WASTE ISOLATION PILOT PLANT

BORING NO. MB-139-4 INSTRUMENT TYPE & NUMBER None HOLE SIZE NX

LOCATION Intersection of 0 East and South 90 Drifts, 5' E of W rib of 0 East Drift, 3' N of S rib of South 90 Drift

STATION S99,W17 COLLAR ELEV. 1258.7' DIRECTION OF DRILLING Vertical Down

MINE COORDINATES N9588, E6877 DEPTH OF BOREHOLE 16.2'

DRILLING METHOD Wet (brine) DRILL MAKE/MODEL Joy 12B

PREPARED BY RLB/TSC//DGK/Bechtel DATE 1/26/83 SHEET

1 OF 1

RUN NUMBER	DEPTH (ft)	RECOVERY (ft)	% RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS
1	0	0.5	25	-	X		Hole cored on 29 November 1982.
2	3.5	95	-	-	X X X X	0.0' - 5.6' HALITE: mottled white to clear to dark reddish-brown (IOR 3/4) halite, coarsely crystalline, 1 - 5% polyhalite and 1 - 5% brown clay, both concentrated in discrete blebs within otherwise clear halite.	Run 1 recovery seems to be from bottom of run.
3	3.5	95	-	-	X X X X X X X X	5.6' - 8.5' POLYHALITIC HALITE: clear halite, coarsely crystalline, 5 - 10% moderate reddish-brown (IOR 5/6) polyhalite in discrete blebs, <1% gray clay.	
4	4.6	97	-	-	X X X X	8.5' - 11.9' ANHYDRITE: (Marker Bed 139) light gray (N7) anhydrite, 30 - 40% halite from 8.5' - 10.7', 5 - 10% halite from 10.7' - 11.1', gray clay seam at 11.9'.	Drilled with solution of vent shaft water and added salt.
5	15	21	100	-	X X X X	11.9' - 16.2' HALITE: clear to moderate reddish-brown (IOR 4/6) to light gray (N7) halite, finely to coarsely crystalline, 1 - 5% polyhalite and 1 - 2% gray clay in bands, ~1% brown clay.	Most core shows signs of dissolution by drilling fluid. Smooth, rounded features of halite, polyhalite and clay stand out in relief.
	20						total depth = 16.2'.





# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE/SIZE NX CORE \_\_\_\_\_ BORING NO. DH-01

LOCATION N 1420 DRIFT: ROOF

STATION N 1424 ± E 439.5 ± COLLAR ELEV. 1318.2 DIRECTION OF DRILLING VERTICAL-UP

MINE COORDINATES N 11,110.9 E 7335.5 DEPTH OF BOREHOLE 50.8 FT

DRILLING METHOD ROTARY/AIR DRILL MAKE/MODEL WATSON

DATE STARTED 2/9/84 (SWING) DATE COMPLETED 2/10/84 (SWING) SHEET

LOGGED BY: J.E. GALLERANI DATE: 3/5/84 1 OF 2

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
1	0.0 - 3.2	3.2	3.2	100	X	0.0'-4.4' HALITE: Clear with scattered moderate reddish orange (10R 6/6) polyhalite, coarsely crystalline with some fine to medium locally. (1,2)	Watson drill; AW rods, NX double tube core barrel.  Run 1. Broken zone 2.5'-2.8' ±.
2	3.2 - 8.0	4.8	4.8	100	X	4.4'-7.05' HALITE: Clear to light gray (N7) medium to coarsely crystalline. ≤ 1% gray clay and < 1/2% polyhalite. (11)	Drilling Time: 7 hrs ±.
					X	7.05'-7.2' ANHYDRITE b: Light gray (N7) to medium gray (N5) microcrystalline. ≤ 3/16" gray clay at 7.05'.	No gas; dry hole  Run 2. Broken up last 15" ± of run 2.
3	8.0 - 12.0	4.0	4.0	100	X	7.2'-11.8' HALITE: Clear, fine to coarsely crystalline to 8', then predominantly clear, coarsely crystalline. Slight moderate reddish orange color to 8'. (1,2)	Run 3. Broken last 6".
4	12.0 - 13.0	1.0	1.0	100	X	11.8'-13.25' HALITE: Clear with some light moderate reddish brown (10R 4/6) and light gray (N7) medium to coarsely crystalline with fine locally. < 1/2% gray clay and dispersed polyhalite. (9)	
5	13.0 - 17.2	4.2	4.2	100	X	13.25'-13.85' ANHYDRITE a: White to medium gray (N5) microcrystalline. Scattered halite growths especially from 13.5'. Trace of gray clay at 13.25': Some core grinding noted here.	Run 5. Broken up 16.0'-16.8' ±.
6	17.2 - 22.0	4.8	4.8	100	X	13.85'-17.6' HALITE: Clear to moderate reddish orange (10R 6/6) coarsely crystalline. < 1 to 2% locally, polyhalite blebs. (2,3)	Run 6. Broken up last 4" of run.
					X	17.6'-22.9' HALITE: Clear, some light gray (N7); medium to coarsely crystalline. < 1% gray intercrystalline clay. Break at 20.1'. Gray clay break, trace of anhydrite at 22.9'. (1,9)	
7	22.0 - 25.0	5.3	4.9	92.5	X	22.9'-27.3' HALITE: Clear, coarsely crystalline, some medium. Scattered white anhydrite/magnesite? stringers. (1)	Run 7. Broken zones from 25'-27.3' within core.

BORING NO. DH-01



# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE/SIZE NX CORE BORING NO. DH-02

LOCATION N1420 DRIFT - FLOOR

STATION N1424 ± E440 ± COLLAR ELEV. \_\_\_\_\_ DIRECTION OF DRILLING VERTICAL - DOWN

MINE COORDINATES N11.110.9 E7336.06 DEPTH OF BOREHOLE 50.2'

DRILLING METHOD ROTARY/AIR DRILL MAKE/MODEL WATSON

DATE STARTED 2/7/84 (SWING) DATE COMPLETED 2/8/84 (SWING) SHEET

LOGGED BY: J. E. GALLERANI DATE: 3/5/84 1 OF 2

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
0.0	0						
1		4.5	4.5	100	X -	0.0'-4.8' HALITE: Clear with some light gray (N7); coarsely crystalline, some medium. < 1% gray intercrystalline clay and < 1/2% polyhalite blebs.	Watson drill NX double tube barrel, AW rods. Total time: 3-1/2 hours. Had to bolt machine to floor. Vibration of track boom is considerable.  No gas; dry hole.  Contacts below run 2 not able to be determined accurately due to core loss.  Run 2. Core loss probably upper 1-1/2'.
4.5					- X	4.8'-5.3' POLYHALITIC HALITE: Clear to moderate reddish orange; coarsely crystalline. < 1 to 3% polyhalite.	
	5				X X X		
2		5.0	4.5	90	X X X	5.3'-8.5' MB-139: Moderate reddish orange anhydrite mixed with halite to 5.4', then predominantly white to medium light gray (N6) anhydrite. Some "swallowtail" pattern in upper part. Scattered halite growths throughout. Abundant polyhalitic halite mixed with the anhydrite from 7.25'-8.0'. < 1/4" gray clay at 8.5'.	
9.5					-		
3	10	5.3	4.6	86.8	X -	8.5'-11.8' HALITE: Clear, medium to coarsely crystalline. < 1% gray clay and polyhalite.	
14.8					X -		
4	15	5.2	3.3	63.5	X -	11.8'-15.7' HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline. < 1 to 2% polyhalite. < 1/2% gray clay. Some anhydrite at 15.5 to 15.7'. Gray clay parting at 15.7'.	
					X -	15.7'-16.4' HALITE: Clear, medium to coarsely crystalline. < 1% gray clay and dispersed polyhalite.	
20.0					X	16.4'-25.0' ± POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6); coarsely crystalline. < 1 to 3% polyhalite. < 1/2% gray clay below 22.5' ±.	
5	20	5.0	4.0	80	X	25.0'-30.0' ± HALITE: Clear, fine to coarsely crystalline. < 1/2% clay and polyhalite.	
					X -		
25.0	25				X X		

BORING NO. DH-02

# WIPP

WASTE ISOLATION PILOT PLANT

SHEET

2 OF 2 BORING NO. DH-02

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
25.0	25						
6	25.0 - 30.0	5.0	2.7	54	X	30.0'-33.9' ± HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline. < 1/2% dispersed polyhalite. 1/2" anhydrite layer at 30'.	Run 7. Poor core recovery. Run 8. Poor core recovery.  Took apart core barrel. Air ports were plugged. Cleaned up but still poor recovery.
30.0	30				X	33.9'-45.8' ± HALITE: Clear to light gray (N7) and medium light gray (N6); medium to coarsely crystalline, some fine. < 1% clay and < 1/2% dispersed polyhalite.	
7	30.0 - 33.9	3.9	1.0	25.6	X	45.8'-50.2' HALITE: Clear, medium to coarsely crystalline. None to < 1% gray clay. < 1/2% polyhalite from 49.3' to 50.2'.	
33.9	35						
8	33.9 - 39.5	5.6	1.2	21.4	X	Note: Core recovery from 4.5' is below 95%. Unable to accurately determine contacts. Hole was redrilled twice. Refer to logs for DH-02A and DH-02B.	
39.5	40						
9	39.5 - 44.6	5.1	1.2	23.5	X		
44.6	45						
10	44.6 - 50.2	5.6	4.5	80.4	X		
50.2	50						



# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE/SIZE NX CORE BORING NO. DH-02A

LOCATION N1420 DRIFT FLOOR

STATION N1424 ± E435 ± COLLAR ELEV. \_\_\_\_\_ DIRECTION OF DRILLING VERTICAL - DOWN

MINE COORDINATES N11.110.9 E7331.29 DEPTH OF BOREHOLE 49.2'

DRILLING METHOD ROTARY/AIR DRILL MAKE/MODEL WATSON

DATE STARTED 2/8/84 (SWING) DATE COMPLETED 2/9/84 (DAY) SHEET

LOGGED BY: J. E. GALLERANI DATE: 3/5/84 1 OF 2

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
1	0.0 - 5.0	5.0	5.0	100	X	0.0'-2.75' HALITE: Clear to light gray (N7) coarsely crystalline. <1% gray clay. <1/2% polyhalite.	Watson drill with NX double tube barrel. AW rods. Drilling time: 6 hours and 45 minutes.  No gas/brine.  Run 2. Loss appears to be at top of run.  Run 4. Core looks good in run; loss possibly throughout.
					-	2.75'-5.6' HALITE: Clear with some moderate reddish orange (10R 6/6); coarsely crystalline. <1% polyhalite.	
2	5.0 - 10.0	5.0	4.3	86	X	5.6'-8.2' MB-139: "Swallowtail" pattern of halite and anhydrite from 5.6' to 7.5'. 1" layer of clear halite at 7.2'. From 7.5' to 8.2' predominantly light gray anhydrite with scattered halite growths. Some irregular laminated present. No clay at 8.2' but core grinding evident.	
					▨	8.2'-11.8' HALITE: Clear with some light moderate reddish orange and light gray (N7). Medium to coarsely crystalline. <1% gray clay. Breaks at 10.75' to 11.05'.	
3	10.0 - 14.8	4.8	4.7	97.9	-	11.8'-13.0' HALITE: Clear, coarsely crystalline. <1% polyhalite. <1/2% gray clay.	
					X	13.0'-17.2' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6); coarsely crystalline. <1 to 3% polyhalite. 1-1/2" anhydrite layer at 17'±. Core loss makes contacts ±8".	
4	14.8 - 20.1	5.3	3.8	71.7	X	17.2'-20.1' HALITE: Clear to moderate reddish orange (10R 6/6); medium to coarsely crystalline. <1% dispersed polyhalite. <1/2% gray clay.	
					X	20.1'-25.0' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6); coarsely crystalline, some medium. <1 to 3% polyhalite. <1% gray intercrystalline clay at 22.4' to 25'.	
5	20.1 - 25.0	4.9	4.9	100	X	25.0'-28.6' HALITE: Clear, medium to coarsely crystalline. None to <1/2% dispersed polyhalite and gray clay.	
					X		



BORING NO. DH-02A

# WIPP

WASTE ISOLATION PILOT PLANT

SHEET 2 OF 2

BORING NO. DH-02A

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
25.0	25						
6	28.6	5.0	5.0	100	X	28.6'-33.6' HALITE: Clear to moderate reddish orange; coarsely crystalline. <1 to 2% polyhalite. Scattered anhydrite stringers. <1/2% gray clay locally.	Run 8. Broken zone 37.4'-37.7' ±
					X		Run 10. Broken up last 8" of Run 10. Core loss probably here.
30.0	30				X	33.6'-34.3' HALITE: Clear, coarsely crystalline. None to < 1/2% polyhalite.	
					X		Beyond 35', core is more broken up with evidence of more vibration damage.
7	34.3	5.0	5.0	100	X	34.3'-34.6' ANHYDRITE: V. light (N8) to medium light gray (N6) anhydrite. Faintly laminated scattered halite growths. Clay break at 34.6'.	Contacts at 5.6', 17.2'; 41.4' and 45.9' are approximate due to core loss.
					X		
35.0	35				X	34.6'-41.4' HALITE: Clear, some light to medium light gray (N7 to N6); coarsely crystalline. <1% gray clay. Core loss Runs 8, 9 make contact at 41.4' approximate.	
					X		
8	41.4	4.2	1.5	35.7	-	41.4'-45.9' HALITE: Clear to moderate brown some fine. <1 to 3" brown clay, intercrystalline and scattered breaks. Contacts approximate, due to core loss.	
39.2	40				-	45.9'-49.2' HALITE: Clear with some light gray (N7) and medium light gray (N6); medium to coarsely crystalline, some fine. <1% gray clay.	
9	45.9	5.0	3.8	76	-		
					-		
44.2	45				-	Note: Average core recovery for hole is less than 95% Some contacts not able to be determined accurately. Replacement hole DH-28 drilled. Refer to log for this hole.	
					-		
10	49.2	5.0	4.2	84	-		
					-		
49.2	50				-		



# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE/SIZE NX CORE BORING NO. DH-02B

LOCATION N1420 DRIFT - FLOOR

STATION N1424 ± F442 ± COLLAR ELEV. 1306.3 DIRECTION OF DRILLING VERTICAL DOWN

MINE COORDINATES N11110.9 E7331.29 DEPTH OF BOREHOLE 53.0'

DRILLING METHOD ROTARY/AIR DRILL MAKE/MODEL WATSON

DATE STARTED 3/22/84 (SWING) DATE COMPLETED 3/23/84 (SWING) SHEET

LOGGED BY: J. E. GALLERANI DATE: 3/30/84 1 OF 2

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
0.0	0						
1		2.1	2.1	100	-	0.0'-2.7' HALITE: Clear, trace of light gray (N7); coarsely crystalline. <1/2% gray clay and scattered polyhalite blebs. [1, 2]	Watson post mounted drill MW split tube barrel. AW rods. Drilling time: 5 hours
2.1		1.5	1.4	93	X		
3.6		1.7	0.4	24	-	2.7'-5.7' HALITE: Clear to moderate reddish orange (10R 6/6); coarsely crystalline, some medium. 1/22 gray clay locally. <1% polyhalite. (2-4)	Core condition fair. Some discing and vibration damage noted.
5.3	5	1.3	1.3	100	X		
6.6		1.5	1.5	100	▨	5.7'-8.3' MB-139: From 5.7' to 6.5' is a mixture of halite and anhydrite. Some "Swallowtail" pattern present. Below 6.5' mostly light gray (N7) to medium light gray (N6) anhydrite. Scattered halite growths. 3/16" halite layer at 8.15'. 3/8" hard gray clay at lower contact.	
8.1					-		
10		4.7	4.7	100	X	8.3'-11.7' HALITE: Clear to medium light gray (N6) and moderate reddish orange (10R 6/6); medium to coarsely crystalline <1% gray clay and <1/2% dispersed polyhalite. (2, 9)	
12.8					X		
15		5.1	5.1	100	X	11.7'-16.4' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6); coarsely crystalline. <1% to 3% polyhalite. Scattered anhydrite. 1/2" anhydrite layer with irregular gray clay parting at 16.35-16.4'. [3, 4, 7]	
17.9					X		
20					-	16.4'-20.3' HALITE: Clear to light gray (N7) and light bluish gray (5B 7/1); trace of moderate reddish orange. Coarsely crystalline, some medium <1% gray clay and <1% polyhalite grades into unit below. [2, 9]	
22.9		5.0	5.0	100	X	20.3'-24.0' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6); coarsely crystalline, some medium. <1 to 3% polyhalitic. <1% gray clay locally. [2-4, 7]	
25					X		
					X	24.0'-27.9' HALITE: Clear to light moderate reddish orange (10R 6/6); medium to coarsely crystalline. <1/2% dispersed polyhalite and light gray clay. Break at 24.05'. [2, 9]	

BORING NO. DH-02B

# WIPP

WASTE ISOLATION PILOT PLANT

SHEET  
2 OF 2

BORING NO. DH-02B

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
9	25	5.0	4.9	98	X -	27.9'-33.9' HALITE: Clear to moderate reddish orange (10R 6/6); coarsely crystalline. <1 to 2% polyhalite blebs and patches. Scattered anhydrite from 31'. Predominantly anhydrite at 33.05 to 33.2' with dark gray along core break in anhydrite. [2, 4]	
10	30	5.0	5.0	100	X X	33.9'-34.3' ANHYDRITE: White to medium light gray (N6) microcrystalline. Scattered halite growths. Trace of gray clay at 34.4'.	
11	35	5.0	5.0	100	X X /	34.3'-41.2' HALITE: Clear with some medium light gray (N6), light bluish gray (5B 7/1) and moderate reddish orange (10R 6/6). Medium to coarsely crystalline. <1% gray intercrystalline clay. <1/2% dispersed polyhalite. [2, 9, 11]	
12	40	5.0	5.0	100	X -	41.2'-44.75' HALITE: Clear to moderate brown (5YR 4/4) and moderate reddish brown (10R 4/6). Medium to coarsely crystalline. <1 to 2% brown clay, trace of gray. <1/2% dispersed polyhalite. [13, 17]	
13	45	5.0	5.0	100	X -	44.75'-47.9' HALITE: Clear, some medium light gray (N6); coarsely crystalline. ≤1% gray clay. <1/2% polyhalite. [2, 11]	
14	50	5.1	5.0	98	X -	47.9'-49.6' HALITE: Clear, coarsely crystalline. <1/2% gray clay at 48.9' ±. [1]	
	53.0				X -	49.6'-53.0' HALITE: Clear to light moderate reddish orange (10R 6/6); coarse, some medium crystalline. ≤1% polyhalite. <1/2% gray clay to 52.4', then increases to 1% clay. [2, 9 from 52.4'-53.0']	



BORING NO. DH-02B



# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE/SIZE \_\_\_\_\_ NX CORE \_\_\_\_\_ BORING NO. DH-03

LOCATION N1100 DRIET - FLOOR

STATION N 1112 ± E 444 ± COLLAR ELEV. 1318.14 DIRECTION OF DRILLING UP-VERTICAL

MINE COORDINATES N 10,799.2 E 7335.4 DEPTH OF BOREHOLE 48.8 FT.

DRILLING METHOD ROTARY/AIR DRILL MAKE/MODEL CP-65

DATE STARTED 2/6/84 (DAY) DATE COMPLETED 2/7/84 (DAY 11AM) SHEET

LOGGED BY: J. E. GALLERANI DATE: 3/5/84 1 OF 2

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
0.0	0						
1		1.3	1.3	100		0.0'-4.5' HALITE: Clear, coarsely crystalline, some medium from 3.9 to 4.5'. < 1% polyhalite blebs.	CP-65 drill, EW rods.
1.3					X		No gas or brine.
2		1.4	1.0	71			Run 1. 6" diameter core from 0-0 to 1.3'.
2.7							
3		1.2	1.1	92	X	4.5'-8.2' HALITE: Clear to light gray medium to coarsely crystalline. ≤ 1% gray intercrystalline clay. < 1/2% polyhalite.	
3.9							
4	5	2.7	2.1	78	X	8.2'-8.4' ANHYDRITE b: white to light gray (N7) microcrystalline anhydrite with scattered halite growths. Trace of gray clay at 8.2'. < 1/2" halite layer, then trace of gray clay at 8.4'.	Because of poor core recovery, contacts at 4.8'; 22.9'; 26.0'; 30.75'; and 44.9' are approximate only.
6.6					X		
5		4.1	4.1	100	X	8.4'-12.0' HALITE: Clear, coarsely crystalline. Scattered white anhydrite/magnesite? Stringers.	
10.7	10						
6		5.1	4.9	96	X	12.0'-13.6' HALITE: Clear, some light moderate reddish orange, fine to medium, some coarsely crystalline. < 1% dispersed polyhalite and < 1/2% gray intercrystalline clay.	Run 6. Core broken up below anhydrite zone.
15.8	15				X	13.6'-14.3' ANHYDRITE a: White to light gray (N7) microcrystalline anhydrite. Scattered halite growths, especially common 13.95'-14.3'. Thin halite layer at 13.85'-13.9'. Trace of gray clay at 13.6'. Core grinding evident.	
7		5.2	4.9	94	X	14.3'-18.4' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6) coarsely crystalline. < 1 to 3% polyhalite.	Run 8. Broken core zones.
21.0	20				X	18.4'-22.9' HALITE: Clear with local zones of medium brown (5YR 3/4) medium to coarsely crystalline. 1% predominantly brown clay. Local zones of ≤ 2% clay at 19.8'-20.7'±; 21.0'-21.4'± < 1/2% polyhalite. Brown clay break at 22.9'±. No anhydrite.	
8		5.0	3.1	62			
25	25						



BORING NO. DH-03



# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE/SIZE NX CORE BORING NO. DH-03A

LOCATION N1100 DRIET - ROOF

STATION N1112± E450.5± COLLAR ELEV. 1317.4 DIRECTION OF DRILLING VERTICAL-UP

MINE COORDINATES N10.779.20 E7341.92 DEPTH OF BOREHOLE 49.9 FT.

DRILLING METHOD ROTARY/AIR DRILL MAKE/MODEL WATSON

DATE STARTED 3-10-84 (SWING) DATE COMPLETED 3-12-84 (SWING) SHEET

LOGGED BY: J. E. GALLERANI DATE: 3-12-84 1 OF 2

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
1	0.0 - 2.1	2.1	2.1	100	X	0.0'-4.9' HALITE: Clear, coarsely crystalline, some medium. < 1% polyhalite. [2]	Watson drill post mounted. AW rods. Used 2' double tube barrel to start hole. NW split tube core barrel from Run 2.
2	2.1 - 5.6	3.5	3.5	100	X	4.9'-7.3' HALITE: Clear to light gray (N7) and light bluish gray (SB 7/1); medium to coarsely crystalline < 1% gray clay. < 1% polyhalite at 6.6'-7.3'. [9, 11]	Drill time: 6 hours.
3	5.6 - 10.0	4.4	4.4	100	X	7.3'-7.55' ANHYDRITE b - White to light gray (N7) anhydrite with growths of halite trace of gray clay at 7.3'. Upper contact irregular tightly welded.	Run 3. Broken up 7.6'-10'. Run 4. Broken core.
4	10.0 - 10.9	0.9	0.9	100	X	7.55'-12.8' HALITE: Clear, coarsely crystalline. ≤ 1% polyhalite at 11.8'-12.8'. [1, 2]	
5	10.9 - 15.5	4.6	4.6	100	X	12.8'-13.7' HALITE: Clear to light gray (N7), some moderate reddish orange (10R 6/6) and moderate brown (5YR 4/4). Medium crystalline, some coarse. < 1% polyhalite and gray clay. [9]	Used piece of foam rubber in barrel to keep core from falling down in barrel. Drill has jerky motion.
6	15.5 - 20.5	5.0	5.0	100	X	13.7'-14.3' ANHYDRITE a: White to light gray (N7) anhydrite. Faintly laminated. Couple of very thin anhydrite layers at 13.9'-14'. Scattered halite growths increasing from 14.0'-14.3'. Trace of gray clay at 13.7'.	Core broken up. Vibration damage evident. Discing and broken up zones. Jerky drill motion is cause of core damage. No gas; dry hole.
7	20.5 - 24.9	4.4	4.4	100	X	14.3'-18.65' POLYHALITIC HALITE: Clear to moderate reddish orange/brown (10R 6/6; 4/6). Coarsely crystalline. < 1 to 3% polyhalite. Scattered white anhydrite stringers. [3, 4, 7]	Run 5. Broken zone 14.3'-15'.
					X	18.65'-23.4' HALITE: Clear some light brownish gray (5YR 6/1); moderate reddish orange (10R 6/6) and moderate brown (5YR 4/4) fine to coarsely crystalline. < 1% brown clay, some gray. < 1/2% polyhalite. Brown clay at 23.35' with anhydrite layer above it. [13, 17]	
					X	23.4'-27.7' HALITE: Clear, coarsely crystalline. < 1% brown clay from 27.0'. [1]	Run 8. Broken up measured core in run rods.

BORING NO. DH-03A

# WIPP

WASTE ISOLATION PILOT PLANT

SHEET

2

OF

2

BORING NO. DH-03A

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
	25						
27.6	27.7	2.7	2.7	100	—	27.7'-28.9' ARGILLACEOUS HALITE: Clear to moderate brown (SYR 4/4); medium to coarsely crystalline. < 1 to 3% brown clay. Scattered breaks. Parting at 28.85'. [12]	Run 9. Core broken up recovery difficult to measure.
31.6	28.9	4.0	4.0	100	—	28.9'-35.05' HALITE: Clear to moderate brown (SYR 4/4); coarsely crystalline. ≤ 1% brown clay, both intra and intercrystalline. Locally argillaceous. Scattered breaks. Clear halite at 34.7' to 35.05'. [1, 10]	Run 10. Broken zones of core.
35.1	35.05	3.5	3.5	100	—	35.05'-35.95' ANHYDRITE: White to light gray (N7), partially laminated. Scattered growths of halite 35.1' to 35.6' ±. Then becomes a mixture of anhydrite and polyhalitic halite grading upwards to less amount of anhydrite. 1/2" ± brown clay at 35.05'.	Run 11. Broken core last 3' of run. Run 12. Broken up last 2' of run.
40.0	35.95	4.9	4.9	100	X	35.95'-40.0' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6); coarsely crystalline. < 1 to 3% polyhalite scattered white anhydrite to 37.3'. [2-4, 7]	
44.9	40.0	4.9	4.9	100	X	40.0'-43.1' HALITE: Clear to moderate brown (SYR 4/4), some moderate reddish orange. Medium to coarsely crystalline, some fine ≤ 1% brown clay and < 1/2% dispersed polyhalite. [7]	Run 13. Some broken core.
49.9	43.1	4.9	4.9	100	X X	43.1'-43.6' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6) coarsely crystalline. < 1 to 3% polyhalite. [3, 4, 7]	
	43.6				—	43.6'-46.1' HALITE: Clear, some moderate brown (SYR 4/4). Coarsely crystalline. ≤ 1% brown clay blebs and patches. [8]	
	46.1	5.0	5.0	100	—	46.1'-48.9' ARGILLACEOUS HALITE: Clear to moderate brown (SYR 4/4) to moderate red (5R 4/6) and light moderate reddish orange (10R 6/6). Fine to coarsely crystalline. < 1 to 3% brown clay. Clear halite at 47.4'-47.7' ± 1" brown clay seam at 48.7'. Halite crystals within. [10, 12]	
	48.9				X X	48.9'-49.9' POLYHALITIC HALITE: Clear to moderate reddish orange/brown (10R 6/6; 4/6). Coarsely crystalline. < 1 to 3% polyhalite. [3, 4]	
	55						



BORING NO. DH-03A

# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE/SIZE NX CORE BORING NO. DH-04

LOCATION N1100 DRIFT - FLOOR

STATION N1112.5 ± E444 ± COLLAR ELEV. 1309.56 DIRECTION OF DRILLING VERTICAL - DOWN

MINE COORDINATES N10,799.2 E7335.4 DEPTH OF BOREHOLE 45.8'

DRILLING METHOD ROTARY/AIR DRILL MAKE/MODEL CP-65

DATE STARTED 2/2/84 (DAY) DATE COMPLETED 2/4/84 (DAY) SHEET

LOGGED BY: J. E. GALLERANI DATE: 3/5/84 1 OF 2

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
	0.0						
1	1.0	1.0	1.0	100	—	0.0'–4.5' HALITE: Clear to light gray (N7) coarsely crystalline. ≤ 1% gray intercrystalline clay. < 1/2% polyhalite.	SW drill rods. 2' lengths. No gas. Dry hole.
2	1.8	1.8	1.8	100	X		Good core to 33.8' Then core recovery poor. Quality not good. Grinding, broken up core. Core barrel problems and rod chatter during drilling.
3	2.0	2.0	2.0	100	—	4.5'–8.1' HALITE: Clear, medium to coarsely crystalline. < 1/2% polyhalite blebs and < 1/2% gray clay locally.	
4	2.0	2.0	2.0	100	X	8.1'–9.25' POLYHALITIC HALITE: Clear to mod. reddish orange (10R 6/6) coarsely blebs and patches.	Run 1. 6" single tube 0.0' to 1.0' because 8-1/2' back of drift too low to start with NX barrel.
5	2.0	2.0	2.0	100	X		
6	5.0	5.0	5.0	100	X X X	9.25'–11.65' MB-139: Mixture of moderate reddish orange polyhalitic halite and anhydrite to 9.85'. Then predominantly white to light gray, microcrystalline anhydrite. Scattered halite growths. Some laminae in anhydrite. Up to 3/4" hard, dry gray clay at lower contact.	
7	5.0	5.0	5.0	100	X X X	11.65'–13.6' HALITE: Clear to moderate reddish orange (10R 6/6) and some moderate brown (5YR 3/4), fine to coarsely crystalline. ≤ 1% brown clay and dispersed polyhalite.	
8	5.0	5.0	5.0	100	X X X	13.6'–15.35' HALITE: Clear to light gray (N7), some moderate reddish orange, fine to coarsely crystalline. ≤ 1% gray intercrystalline clay. Breaks at 14.1; 15.35'. < 1/2% polyhalite.	
9	5.0	5.0	5.0	100	X X X	15.35'–19.9' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline. 1 to 3% polyhalitic. Scattered anhydrite in core mixture of anhydrite and halite at 19.75'–19.9'. Trace of gray clay at 19.9'.	
9	5.0	5.0	5.0	100	X X X	19.9'–21.1' HALITE: Clear to moderate reddish orange (10R 6/6), fine to medium crystalline. < 1/2% dispersed polyhalite.	Run 9. Broken zones within polyhalitic halite. Core barrel stuck at 27' ± from 11:30 am to 2:10 pm. broken up 23.8'–26.3'.

BORING NO. DH-04

# WIPP

WASTE ISOLATION PILOT PLANT

SHEET

2 OF 2

BORING NO. DH-04

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
	25						
9		5.0	5.0	100	X X X X X	21.1'-27.6' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline. < 1 to 3% polyhalite. Clay break at 21.55'. < 1/2% gray intercrystalline clay from 25'-27.6'.	
10	30	5.0	4.9	98	X X X X X X X	27.6'-30.2' HALITE: Clear to light gray (N7) to moderate reddish orange (10R 6/6), fine to coarsely crystalline. ≤ 1% gray clay. Breaks at 28.2', 28.45'. < 1/2% polyhalite.  30.2'-35.0' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6) coarsely crystalline. < 1 to 3% polyhalite.	Run 10. Core grinding.  Run 11. Core grinding throughout run. 0.8' of core left in hole at end of run.  Runs 12, 13, 14. Broken up core.
11	35	4.2	2.5	60	X X X	35.0'-35.6' ANHYDRITE: Moderate reddish orange to medium gray from 35'-35.3'. Then very light to medium gray. No clay at lower contact but core grinding evident.	Contacts from 35' are approximate due to core loss.  Note: Hole beyond 33' not able to be logged accurately because of poor core recovery and quality. Replacement hole DH-04B drilled at later date. Refer to log for hole DH-04B.
12	40	5.0	1.4	28	X	35.6'-43' HALITE: Clear mottled with some light gray (N7) and moderate reddish orange, medium to coarsely crystalline. < 1/2% gray clay and polyhalite.  43.0'- 45.8': Not able to classify due to poor quality and poor recovery of core.	
13	43.0	1.8	0.4	22	NO LOG		
14	44.8	1.0	0.3	30	NO LOG		
	45.8						
	50						



BORING NO. DH-04

# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE/SIZE        NX CORE \_\_\_\_\_ BORING NO. DH-4A

LOCATION N1100 DRIFT; FLOOR

STATION N1113 ± E446 ± COLLAR ELEV. 1309.6± DIRECTION OF DRILLING VERTICAL DOWN

MINE COORDINATES \_\_\_\_\_ DEPTH OF BOREHOLE 11.2 FT.

DRILLING METHOD ROTARY/AIR DRILL MAKE/MODEL BOYLES JVA

DATE STARTED 3-8-84 (SWING) DATE COMPLETED 3-9-84 (SWING) SHEET \_\_\_\_\_

LOGGED BY: J. E. GALLERANI DATE: 3-9-84 1 OF 1

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
0	0.0					0.0' - 7.0' HALITE: Clear to moderate reddish orange; coarsely crystalline. < 1% polyhalite. < 1% gray clay.	Used Boyles JVA screw feed drill.
1	0.6	1.7	1.5	88	X		Used roller bit to 0.6', then NX double tube core barrel.
2	2.3	1.8	1.5	83	X	7.0' - 8.6' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6) to light brown (5YR 5/6). Coarsely crystalline. < 1 to 3% polyhalite.	No gas. Dry hole.
3	4.1	2.3	2.3	100	X	8.6' - 11.2' MB-139: From 8.6 to 9.6', mixture of halite and anhydrite. "Swallowtail" patterns. Then predominantly medium gray to very light gray (NS) anhydrite with scattered halite growths.	Driller stopped hole at 11.2' because of core loss. Drilled replacement hole DH-4B using Watson drill. Refer to log for DH-4B.
4	6.4	4.8	3.5	73	X X X X		
	10						
	11.2						



BORING NO. DH-4A

# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE/SIZE NX CORE \_\_\_\_\_ BORING NO. DH-04B

LOCATION N1100 DRIFT; FLOOR

STATION N1112 ± E450.5 ± COLLAR ELEV. 1309.7 DIRECTION OF DRILLING VERTICAL DOWN

MINE COORDINATES N10,799.70 E7341.85 DEPTH OF BOREHOLE 51.4 FT

DRILLING METHOD ROTARY/AIR DRILL MAKE/MODEL WATSON

DATE STARTED 3-9-84 (SWING) DATE COMPLETED 3-10-84 (SWING) SHEET

LOGGED BY: J. E. GALLERANI DATE: 3-24-84 1 OF 2

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
1	0.0 - 2.0	2.0	2.0	100	X	0.0'-7.9' HALITE: Clear, some moderate reddish orange (10R 6/6) and medium bluish gray (5B 3/1) coarsely crystalline. < 1% gray clay and polyhalite blebs. [2, some 9]	Watson drill. Post mounted NW split tube core barrel. AW rods.  Drilling time: 3-1/2 hours.
2	2.0 - 5.2	3.2	3.2	100	X	7.9'-8.55' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline. < 1 to 2% polyhalite. [3, 7]	No brine or gas. Core coming out good.
3	5.2 - 7.9	2.7	1.0	37	X	8.55'-11.6' NB-139: From 8.55' to 9.85'± is a mixture of halite and anhydrite. From 9.85' is predominantly white to light gray (N7) anhydrite with growths of halite. Anhydrite is irregularly laminated. Upper contact is tightly closed and dips 25'±. Several tightly closed hairline fractures at 10.9' to 11.0'±. Gray clay at 11.6'.	NW core barrel has stepped diamond bit. Barrel made by Christensen.  No gas; dry hole.
4	7.9 - 11.0	3.1	3.1	100	X X X	11.6'-15.45' HALITE: Clear to light gray (N7), moderate brown (5YR 4/4) and moderate reddish orange (10R 6/6); medium to coarsely crystalline; some fine. ≤ 1% gray clay, trace of brown. < 1% polyhalite. Gray clay breaks at 12.5', 14.35', 14.6". [9]	
5	11.0 - 11.7	0.7	0.7	100	X	15.45'-19.85' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6) and brown (10R 4/6); coarsely crystalline. < 1 to 3% polyhalite. < 1/2% gray intercrystalline clay to 15.9'. Moderate reddish orange/brown anhydrite and some halite at 19.75' to 19.85'. Gray clay parting at 19.85'. [7]	
6	11.7 - 16.0	4.3	4.3	100	X X	19.85'-21.0' HALITE: Clear to moderate reddish orange (10R 6/6); medium to coarsely crystalline. < 1% polyhalite and < 1% gray clay. [5, 9]	
7	16.0 - 21.0	5.0	5.0	100	X X	21.0'-26.1' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), moderate reddish brown (10R 4/6); coarsely crystalline, some medium. < 1 to 3% polyhalite. < 1% brown clay at 21.0-21.6'. < 1/2% gray clay locally below 21.6'. [7]	
8	21.0 - 25.0	5.1	5.1	100	X X		

BORING NO. DH-04B



# WIPP

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
	25						
26.1	8	5.1	5.1	100	X X	26.1'-27.8' HALITE: Clear with some light gray (N7) and moderate reddish orange (10R 6/6); coarsely crystalline with some medium. <1/2% polyhalite. <1% gray clay. Some of clay is medium plastic, moist. [9]	
	9	5.1	5.1	100	X - X -		
	30				-	27.8'-29.3' HALITE: Clear to moderate reddish orange (10R 6/6), brownish gray (5YR 4/1) and moderate brown (5YR 3/4). Medium to coarsely crystalline. <1 to 2% brown clay, trace gray. Break at 28.95'. <1% polyhalite. [12]	
31.2					X		
	10	5.0	5.0	100	X X X X X	29.3'-31.6' HALITE: Clear to moderate reddish orange (10R 6/6); medium to coarsely crystalline. <1% gray clay and polyhalite. Break at 29.55'. [9, 17]	
	35				X	31.6'-36.1' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6); coarsely crystalline. <1 to 3% polyhalite. Scattered anhydrite stringers. [3, 4, 7]	
36.2					X		
	11	5.0	5.0	100	X - X	36.1'-36.8' HALITE: Clear, some moderate reddish orange; medium to coarsely crystalline. <1/2% polyhalite. Anhydrite stringers from 36.55' to 36.8'. [1]	
	40				X	36.8'-37.0' ANHYDRITE: Very light (NS) to light gray (N7) anhydrite. Scattered halite growths, especially last 0.5'. Trace gray clay at 37.0'. Core grinding evident here. [8]	
41.2					X		
	12	5.1	5.1	100	X - -	37.0'-49.35' HALITE: Clear with light bluish gray (5B 7/1), light gray (N7), moderate brown (5YR 4/4) and moderate reddish orange/brown (10R 6/6-10R 4/6). Medium to coarsely crystalline. ≤1% brown and gray clay. <1% polyhalite. Clear halite at 41.2' to 41.9'. Predominantly brown clay (≤1%) from 44.3' to 45.3' and 47.0' to 48.5'. [9, 11, 17]	
	45				-		
46.3					X		
	13	5.1	5.1	100	X - -	49.35'-51.4' HALITE: Clear, coarsely crystalline <1/2% gray clay locally. [1, 8]	Several pieces in Run 13 are up to 1-1/2' long before taking out of tube.
	50				-		
51.4					-		
	55				-		

# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE/SIZE 4" CORE BORING NO. DH-05

LOCATION N1420 DRIFT IN ALCOVE AT RM. B INTERSECTION

STATION N1463 E972 COLLAR ELEV. 1329.9 DIRECTION OF DRILLING VERTICAL - UP

MINE COORDINATES N11149.6 E7865.0 DEPTH OF BOREHOLE 51.0'

DRILLING METHOD ROTARY/AIR DRILL MAKE/MODEL LONGYEAR 65

DATE STARTED 3/3/84 (DAY) DATE COMPLETED 3/9/84 (DAY) SHEET

LOGGED BY: J. E. GALLERANI DATE: 3/14/84 1 OF 2

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
1	0.0 - 3.3	3.3	3.2	97	X X X	0.0'-0.35' HALITE: Clear, some light moderate reddish orange (10R 6/6), medium-coarsely crystalline. < 1/2% dispersed polyhalite.	Hole drilled by SML. Long-year 65 drill with 4" dia. masonry single this wall core barrel. Diamond bit.
2	3.3 - 5.0	3.35	3.35	100	X	0.35'-1.25' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline < 1 to 2% polyhalite.	Run 2. Core grinding at anhydrite-clay layer.  Some difficulty removing core from barrel. Possibly due to moisture in air line. This occurred to 23'-2-
3	5.0 - 6.65	2.70	2.4	89		1.25'-5.05' HALITE: Clear to light gray (N7), medium-coarsely crystalline. ≤ 1% intercrystalline gray clay. < 1/2% dispersed polyhalite. Breaks at 1.35', 4.8'. Very light gray anhydrite stringer at 2.6', 1/2" anhydrite, trace of clay at 5.0'. Some core grinding noted.	Core trays hit by passing muck truck. Core partly disturbed in Runs 3, 4, 5.
4	6.65 - 9.35	3.65	3.65	100		5.05' -9.3' HALITE: Clear, coarsely crystalline. Scattered white magnesite? stringers.	Run 5. Loss at 13'-14', some grinding.
5	9.35 - 13.0	4.15	3.95	95		9.3'-9.95' HALITE: Clear with some light gray intercrystalline clay (≤ 1%). Medium-coarsely crystalline.	
6	13.0 - 17.15	4.0	4.0	100	X	9.95'-11.0' ARGILLACEOUS HALITE: Clear to medium brown (5YR 3/4) to moderate reddish orange (10R 6/6), fine-medium, some coarsely crystalline. < 1 to 3% brown clay. < 1/2% dispersed polyhalite coloration. Gray clay along tightly closed irregular upper contact.	
7	17.15 - 21.15	3.15	3.10	98	X	11.0'-14.1' HALITE: Clear, coarsely crystalline. No clay to 12.9'. From 12.9'-14.1'; < 1/2% gray and brown clay.	Core quality improves beyond 10' depth; some grinding on ends of core pieces.
	21.15 - 24.3				X	14.1'-17.15' ARGILLACEOUS HALITE: Clear to moderate reddish orange (10R 6/6) medium brown, fine to medium, some coarsely crystalline. < 1 to 4% brown clay, trace of gray. Irregular break at 16.35'.	



BORING NO. DH-05

# WIPP

WASTE ISOLATION PILOT PLANT

SHEET

2

OF

2

BORING NO. DH-05

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
26.6	8	2.3	2.3	100	X	17.15'-17.75' ANHYDRITE: Very light (N8) to light gray (N7) anhydrite to 17.4'. Then mixed with growths of halite. Tight welded irregular upper contact. Brown clay along lower contact. Core grinding evident here.	Run 8. Some grinding on core ends.
30.5	9	3.9	3.6	92	X	17.75'-22.7' HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline. <1% dispersed polyhalite and scattered blebs. White very light gray anhydrite stringer up to 1/2" thick at 19.25'.	
33.7	10	3.2	3.2	100	X X X X	22.7'-26.6' HALITE: Clear, some moderate reddish brown (10R 4/6), coarsely crystalline with zones of fine-medium. <1% polyhalite. ≤ 1% brown clay. Breaks at 23.15', 24.3', 26.1. Some core grinding evident.	Broken core 24' -25'.
36.9	11	3.2	3.2	100	X X	26.6'-28.8' ARGILLACEOUS HALITE: Clear to medium brown (5YR 3/4), coarsely crystalline. <1 to 3% brown clay. Core broken 26.6'-27.9'.	Core barrel plugged off with clay at 26.6'. Driller stopped hole here on 3/8/84 continued with 4-1/2" Ø roller bit to 26.6'. Then continued coring with 4" barrel.
40.6	12	3.7	3.7	100	X X	28.8'-30.1' HALITE: Clear, coarsely crystalline. <1/2% polyhalite.	
44.0	13	3.4	3.4	100	X	30.1'-32.5' POLYHALITIC HALITE: Clear mottled with moderate reddish orange (10R 6/6) coarsely crystalline. <1 to 3% polyhalite. <1/2% gray clay.	
47.75	14	3.75	3.75	100	X	32.5'-35.4' HALITE: Clear mottled with moderate brown (5YR 3/4) to dark reddish brown, coarsely crystalline. <1 to 2% patches of brown clay. <1/2% polyhalite. Parting at 35.4' ± dipping 30° ±.	
51.0	15	3.25	3.25	100	X	35.4'-36.8' HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline. <1 to 2%, locally of dispersed polyhalite.	
					X	38.6'-40.9' HALITE: Clear, some moderate reddish orange (10R 6/6), coarsely crystalline ≤ 1% polyhalite. Moderate reddish brown, polyhalitic at 38.6'-39.0'. Anhydrite stringers at 38.7'-38.8'.	
						40.9'-51.0' HALITE: Clear to moderate reddish brown (10R 4/6) to medium brown (5YR 3/4) medium-coarsely crystalline. <1 to 3% brown clay, intergranular and in patches. <1/2% polyhalite. Breaks at 41.85', 44.0'-44.2'.	



# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE/SIZE 4 INCH CORE BORING NO. DH-06

LOCATION I-3 ALCOVE - FLOOR

STATION N 1463 ± E 972 COLLAR ELEV. 1317.9 DIRECTION OF DRILLING VERTICAL DOWN

MINE COORDINATES N 11,149.7 E 7864.9 DEPTH OF BOREHOLE 49.75 FT

DRILLING METHOD ROTARY/AIR DRILL MAKE/MODEL LONGYEAR 65

DATE STARTED 3-4-84 (DAY) DATE COMPLETED 3-7-84 (DAY) SHEET

LOGGED BY: J. F. GALLERANT DATE: 3-10-84 1 OF 2

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
0.0	0						
1		2.1	2.1	100		0.0'-4.2' HALITE: Clear, coarsely crystalline. < 1/2% polyhalite from 3.4' ±.	Longyear 65 drill, EW rods; 4" diameter, 2' long core barrel with core catcher used.
2.1							
2		2.05	2.05	100	X	4.2'-5.6' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6); coarsely crystalline. < 1 to 2% polyhalite.	Some grinding noted on ends of core in most runs. Lengths of core pieces generally 1" to 11". Average 3" ±.
4.15					X		
3	5	2.1	2.1	100	X	5.6'-7.8' HALITE: Clear with trace of light gray (N7). Coarsely crystalline. < 1/2% gray intercrystalline clay. < 1/2% polyhalite.	
6.25					X		
4		1.75	1.75	100	—		Run 4. Grinding on some core ends.
8.0					—		
5		1.85	1.85	100	—	7.8'-9.0' HALITE: Clear to light gray (N7); medium to coarsely crystalline, trace fine. ≤ 1% gray intercrystalline clay. ≤ 1/4" gray clay seam at 7.8' and 1/8" clay seam at 8.45' ±.	Run 5. Some grinding at 9.3'.
9.85					—		
6	10	2.1	2.1	100	X	9.0'-10.8' HALITE: Clear, coarsely crystalline locally some medium. < 1/2% gray clay and polyhalite.	
11.95					X		
7		1.65	1.65	100	X		
13.6					X		
8		1.6	1.6	100	—	10.8'-13.6' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6); coarsely crystalline. < 1 to 3% polyhalite. No clay to 12.35'; then < 1% gray clay.	
15.2					X		
9	15	1.65	1.65	100	—	13.6'-18.65' HALITE: Clear to light gray (N7); coarsely crystalline. ≤ 1% gray intercrystalline clay. None to < 1% polyhalite.	
16.85					—		
10		1.8	1.8	100	X		Run 10, 11, 12. Some grinding on core ends.
18.65					X		
11		1.85	1.85	100	X	18.65'-20.6' HALITE: Clear, some moderate reddish orange (10R 6/6); coarsely crystalline. ≤ 1% polyhalite. < 1/2% gray clay.	No gas; dry hole.
20.5					X		
12	20	2.5	2.5	100	X	20.6'-22.3' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6); coarsely crystalline ≤ 1% to 3% polyhalite. < 1/2% gray clay.	
23.0					X		
13		2.0	1.9	95			
25.0	25						

BORING NO. DH-06

# WIPP

WASTE ISOLATION PILOT PLANT

SHEET

2

OF

2

BORING NO. DH-06

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
14	25	1.2	1.2	100		22.3'-26.1' HB-139: "Swallowtail" pattern of halite and anhydrite from 22.3' to 24.2'. Then predominantly very light (M8) to light gray (M7) and some moderate reddish orange (10R 6/6) anhydrite mixed with growths of halite. No clay at lower contact but some core grinding on ends of core throughout HB-139.	
15		1.3	1.3	100	X		
16		1.6	1.6	100	-	26.1'-29.4' HALITE: Clear to light moderate reddish orange (10R 6/6); medium to coarsely crystalline. < 1% dispersed polyhalite and < 1/2% gray clay.	
17	30	1.9	1.9	100	X X		
18		2.0	2.0	100	X X	29.4'-33.5' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6); coarsely crystalline. < 1 to 3% polyhalite, Anhydrite mixed with halite at 33.2'-33.5'. Gray clay at 33.5'.	
19		2.0	2.0	100	-		
20	35	1.7	1.7	100	X X	33.5'-35.6' HALITE: Clear to light gray (M7) and moderate reddish orange (10R 6/6); medium to coarsely crystalline. ≤ 1% gray clay and < 1/2% dispersed polyhalite.	
21		1.8	1.8	100	X X		
22		1.5	1.5	100	X X	35.6'-39.1' POLYHALITIC HALITE: Clear to moderate reddish orange/brown (10R 6/6; 4/6); coarsely crystalline. < 1 to 4% polyhalite.	
23	40	2.0	2.0	100	-		
24		3.0	0	0	- X	39.1'-46.2' HALITE: Clear to moderate reddish orange/brown (10R 6/6; 4/6) and grayish brown (5YR 3/2). Medium to coarsely crystalline. ≤ 1% brown clay, some gray, < 1% polyhalite. Core loss 42'-45'.	
25	45	2.0	2.0	100	X		
26		2.75	2.75	100	X X	46.2'-49.75' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6); coarsely crystalline. < 1 to 3% polyhalite. Scattered white stringers of anhydrite/magnesite.	
					X X		



# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE/SIZE \_\_\_\_\_ NX CORE \_\_\_\_\_ BORING NO. DH-07

LOCATION N1100 DRIFT AT RM, B INTERSECTION; ROOF

STATION N1112 E976.5 COLLAR ELEV. 1326.7 DIRECTION OF DRILLING VERTICAL - UP

MINE COORDINATES N10,799.3 E7870.8 DEPTH OF BOREHOLE 49.8'

DRILLING METHOD ROTARY/AIR DRILL MAKE/MODEL WATSON

DATE STARTED 2/21/84 (SWING) DATE COMPLETED 2/22/84 (SWING) SHEET

LOGGED BY: J. E. GALLERANI DATE: 3/4/84 1 OF 2

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
1	0.0 - 0.9	0.9	0.9	100	X	0.0'-4.6' HALITE: Clear to moderate reddish orange (10R 6/6) coarsely crystalline ≤ 1% polyhalite blebs and patches. Up to 2% polyhalite from 3.1'-4.6'. [1,3]	Watson drill. AW rods. NX double tube core barrel. Drill Time: 9 hours ±.
2	0.9 - 2.9	2.0	2.0	100	X		
3	2.9 - 5.8	2.9	2.9	100	X	4.6'-9.0' HALITE: Clear to light gray (N7), some moderate reddish orange (10R 6/6). Medium to coarsely crystalline, some fine. ≤ 1% gray clay. < 1/2% polyhalite. 1/2" gray clay at 8.85'. Anhydrite and halite 8.9'-9.0'. [9, 11]	Run 2. Some discing. No gas. Dry hole.
4	5.8 - 10.8	5.0	5.0	100	X		
5	10.8 - 15.1	4.3	4.3	100	-	9.0'-13.2' HALITE: Clear, coarsely crystalline, none to < 1/2% intercrystalline gray clay. [1]	Run 5. Broken up last 0.4'.
6	15.1 - 19.6	4.5	4.5	100	-	13.2'-14.7' HALITE: Clear to moderate brown (5YR 3/4; 4/4). Medium-coarsely crystalline, some fine. < 1 to 3% brown clay. Locally zones of argillaceous halite. [12, 17]	Run 7. Broken zones in clear halite.
7	19.6 - 24.0	4.4	4.4	100	X	14.7'-16.5' HALITE: Clear with some moderate brown (5YR 4/4); coarsely crystalline. None to ≤ 1% brown clay. [1, 8]	
					-	16.5'-20.85' ARGILLACEOUS HALITE: Clear to moderate brown, medium to coarsely crystalline. < 1 to 4% brown intercrystalline clay, trace of gray. Breaks at 20.0', 20.5'. [10, 15]	Run 8. Broken zones last 1.5'.
					-	20.85'-21.55' ANHYDRITE: White to light gray (N8), microcrystalline anhydrite with scattered halite growths. Up to 3/4" brown clay at 20.85'.	
					-	21.55'-24.9' HALITE: Clear, coarsely crystalline, < 1% polyhalite. [1]	Runs 9-11. Discing of core throughout. Discs 3/8-1" size.
					X	24.9'-26.4' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline. < 1% intercrystalline clay. < 1 to 3% polyhalite. [4,5]	

BORING NO. DH-07

# WIPP

WASTE ISOLATION PILOT PLANT

2 SHEET OF 2

BORING NO. DH-07

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	%RECOVERED	PROFILE	DESCRIPTION	REMARKS
8	28.6	4.6	4.6	100	X X X X	26.4'-27.5' HALITE: Clear to moderate brown (5YR 4/4); medium-coarsely crystalline. < 1 to 3% brown clay. Break at 27.2' ±. [17]	<p>Run 12. Broken and discing entire run.</p> <p>Core quality to 27' is fair. Able to determine depth to clay/anhydrite at 8.85' accurately. Below 27', core is in discs 3/8 to 1" size. Scattered broken zones. Difficult to measure recovery accurately.</p> <p>Run 13. Longest piece is 2".</p>
9	30	4.0	4.0	100	X	27.5'-29.35' HALITE: Clear mottled with moderate reddish orange (10R 6/6) polyhalite blebs, coarsely crystalline. ≤ 1% polyhalite. [1-3]	
10	32.6	4.5	4.5	100	X	29.35'-30.85' HALITE: Clear mottled with moderate brown (5YR 4/4); coarsely crystalline. ≤ 1% brown intercrystalline, intracrystalline blebs, pockets of brown clay. [8, 10]	
11	37.1	4.0	4.0	100	X	30.85'-32.3' ARGILLACEOUS HALITE: Clear to moderate brown (5YR 4/4) coarsely crystalline. Brown clay < 1 to 5%, locally. 3/4" brown clay seam at 32.25'. [10, 15]	
12	41.1	4.3	4.3	100	X	32.3'-45.0' HALITE: Clear mottled with moderate reddish orange/brown (10R 6/6; 4/6) and moderate brown (5YR 3/4; 4/4). Coarsely crystalline. Core varies from zones containing mostly blebs and patches of moderate reddish orange polyhalite, < 1 to 3%, to zones containing blebs and patches of brown clay < 1 to 2%. Reddish orange color, in part, probably due to iron staining. [3, 4, 10]	
13	45.4	4.4	4.4	100	X	45.0'-47.8' ARGILLACEOUS HALITE: Clear to moderate brown (5YR 4/4); medium-coarsely crystalline. < 1 to 3% intercrystalline brown clay. Breaks at 45.6'; 46.4'. [15]	
	49.8					47.8'-49.8' HALITE: Clear with some moderate brown (10R 4/6); medium to coarsely crystalline. ≤ 1% brown clay, trace of gray. [17]	
	55						



BORING NO. DH-07

# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE/SIZE NX CORE BORING NO. DH-08

LOCATION N1100 DRIFT AT RM. B INTERSECTION - FLOOR

STATION N1112 ± E976.5 ± COLLAR ELEV. 1318.80 DIRECTION OF DRILLING DOWN-VERTICAL

MINE COORDINATES N10,799.4 E 7870.9 DEPTH OF BOREHOLE 38.3 FT.

DRILLING METHOD ROTARY/AIR DRILL MAKE/MODEL WATSON

DATE STARTED 2/22/84 (SWING) DATE COMPLETED 2/23/84 (SWING) SHEET

LOGGED BY: J. E. GALLERANI DATE: 3/6/84 1 OF 2

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
0.0	0						
1	2.2	2.2	2.2	100	X	0.0'-2.6' HALITE: Clear to light gray (N7) coarsely crystalline. < 1% intergranular gray clay. < 1/2% polyhalite blebs locally.	Watson post mounted, air drill; AW rods.  NX double tube core barrel.
2.2							Drilling time: 8 hours and 15 minutes. Mining while drilling.
2	2.4	2.4	2.4	100	X	2.6'-5.85' HALITE: Clear, some moderate reddish orange (10R 6/6), coarsely crystalline. < 1% polyhalite blebs and dispersed polyhalite.	Core condition is pretty good. Only a few broken up zones.
4.6	5	1.1	1.0	90.9	X		Run 4. Loss throughout. Core grinding bottom of run.
5.7							
4	3.3	2.0	2.0	60.6	X	5.85'-10.1' HALITE: Clear to light gray (N7) medium to coarsely crystalline. ≤ 1% intergranular gray clay. < 1% polyhalite blebs.	
9.0							
5	10	1.8	1.7	94.4	X	10.1'-12.8' HALITE: Clear, some moderate reddish orange (10R 6/6), coarsely crystalline, some fine to medium. < 1% polyhalite except 12.3'-12.5' where core is polyhalitic, up to 3% polyhalite. Contact at 12.8' approximate due to core loss.	
10.8							
6	5.0	4.5	4.5	90	X X	12.8'-19.5' HALITE: Clear to light bluish gray (5B 7/1), light gray (N7) and light moderate reddish orange (10R 6/6). Medium to coarsely crystalline. ≤ 1% gray clay. Break at 14.7'.	Run 6. Broken up about 12.4' in run. Loss possibly here
15.8	15						
7	4.7	4.7	4.7	100		19.5'-23.0' HALITE: Clear mottled with some moderate reddish orange (10R 6/6) < 1% polyhalite. < 1/2% gray clay 23.0' contact measured from bottom of run 8.	
20.5	20						
8	4.7	3.8	3.8	80.9	X	23.0'-26.6' MB-139: Upper 1.5' of MB-139 shows "swallowtail" pattern, a mixture of anhydrite and halite. Below this is light gray to white anhydrite with scattered halite growths. Some laminae within. Hairline, tightly closed low angle fractures. Trace gray clay at 26.6'.	Run 7. Broken top of run and at 18.5'-19.5'.
25.2	25						
							Run 8. Some grinding, broken up top of run. Most lost probably here. Some grinding at top and bottom of MB-139 also.

BORING NO. DH-08



# WIPP

WASTE ISOLATION PILOT PLANT

SHEET

2

OF

2

BORING NO. DH-08

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
25.2	25						
9	26.6 - 30.4	5.2	4.1	78.8	X	26.6'-30.4' HALITE: Clear to moderate reddish orange (10R 6/6, some light gray, medium to coarsely crystalline. <1% dispersed polyhalite and gray clay.	Run 9. Grinding at top of run.
30.4	30.4 - 33.4				X	30.4'-33.4' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), some light gray, medium to coarsely crystalline. <1 to 3% polyhalite.	
10	33.4 - 35.8	3.0	3.0	100	X X	33.4'-35.8' HALITE: Clear to light gray (N7), medium to coarsely crystalline. ≤ 1% gray clay, < 1/2% dispersed polyhalite. Clay break at 34.6' ±.	
33.4	35.8 - 38.3				X	35.8'-38.3' HALITE: Clear to moderate reddish orange (10R 6/6) coarsely crystalline, some medium. ≤ 1% polyhalite. < 1/2% gray clay. Polyhalitic ( 1 to 3%) from 36.8'-38.3' ±.	Run 11. Loss throughout. Some grinding at top of run.
38.3	38.3				X X	Note: Hole stopped at 38.3' due to core loss. Replacement holes DH-8A and DH-8B drilled in same vicinity. Refer to these drill logs.	Following contacts are approximate due to core loss: 12.8' 23.0' -measured from bottom of run 8. 26.6' -assumed most loss was in MB-139. 35.8'-is ± 0.5'.



BORING NO. DH-08

# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE/SIZE \_\_\_\_\_ NX CORE \_\_\_\_\_ BORING NO. DH-08A

LOCATION N 1100 DRIFT; FLOOR

STATION N1112 ± E 975 ± COLLAR ELEV. 1318.7± DIRECTION OF DRILLING DOWN - VERTICAL

MINE COORDINATES \_\_\_\_\_ DEPTH OF BOREHOLE 50.7 FT

DRILLING METHOD ROTARY/AIR DRILL MAKE/MODEL WATSON

DATE STARTED 2/24/84 (SWING) DATE COMPLETED 2/29/84 (SWING) SHEET

LOGGED BY: J.E. GALLERANI DATE: 3/6/84 1 OF 2

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
0.0							
1	1.6	1.6	1.6	100	-	0.0'-6.6'± 0.4' HALITE: Clear to light (N7) gray coarsely crystalline. None to < 1% gray clay. < 1/2% polyhalite locally. Clear 3.4'-4.2'. Gray clay break at 6.6'.	Watson post mounted. AW rods. NX double tube core barrel.  Drilling Time: 10 hours.
2	2.1	0.5	0.3	60	X		
3	4.2	2.1	2.1	100	-	6.6'-9.65' HALITE: Clear to light bluish gray (SB 7/1) and light gray (N7), medium-coarsely crystalline. ≤ 1% intergranular gray clay. < 1/2% dispersed polyhalite.	No gas; dry hole.
4	5	3.6	2.8	78	X		
5	7.8	2.9	2.9	100	-	9.65'-13.1' HALITE: Clear with some light moderate reddish orange (10R 6/6), coarsely crystalline. < 1% polyhalite. < 1/2% gray clay.	
6	10.7	4.6	4.6	100	X		
7	15.3	4.9	4.7	96	-	13.1'-15.8' HALITE: Clear to light gray (N7), coarsely crystalline. ≤ 1% gray intergranular clay and < 1% polyhalite blebs.	
8	20.2	4.9	4.9	100	X		
					X	15.8'-20.95' HALITE: Clear to light bluish gray (SB 7/1) and light moderate, reddish orange (10R 6/6) medium-coarsely crystalline; scattered fine. < 1/2% intergranular gray clay and < 1/2% dispersed polyhalite. Clay break at 20.8'.	
					X		
					X	20.95'-23.15' HALITE: Clear, coarsely crystalline. < 1% polyhalite blebs.	
					X		
					X	23.15'-26.4' MB-139: Very light gray (N7) to white anhydrite mixed with halite growths to 25.6'. Then mostly microcrystalline anhydrite partially laminated. Gray clay ≤ 1/8" at 26.4'.	Run 7. Loss probably top of run.
					X		
25.1	25						

BORING NO. DH-08A

# WIPP

WASTE ISOLATION PILOT PLANT

SHEET

2

OF

2

BORING NO. DH-08A

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
25.1	25						
9		5.1	5.1	100	X	26.4'-29.5' HALITE: Clear to light bluish gray (SB 7/1) and light gray, medium to coarsely crystalline. < 1% dispersed gray clay. < 1/2% dispersed polyhalite. Break at 29.05'.	Overall core condition is fair. Scattered broken zones and discing shows vibration stress.  Contact at 33.6' is $\pm 0.35'$ due to core loss.  Run 13. Broken up at top.  Contact at 40.1' is $\pm 0.5'$ due to core loss.  Run 15. Discing in run 15.
30.2	30				X X	29.5'-33.6' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline. < 1 to 3% polyhalite. Anhydrite mixed with halite from 33.4'-33.6'. Gray clay break at 33.6'.	
10		1.7	1.0	59	X X		
31.9					X X	33.6'-35.6' HALITE: Clear, some moderate reddish orange (10R 6/6), coarsely crystalline. < 1/2% gray clay. < 1% polyhalite.	
11		3.7	3.0	81	X X		
35.6	35				X	35.6'-40.1' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline. < 1 to 3% polyhalite.	
12		3.3	3.0	91	X X	40.1'-44.5' HALITE: Clear with some moderate reddish orange and light gray (N7), medium to coarsely crystalline. $\leq 1\%$ polyhalite and gray clay.	
38.9					X X		
13	40	2.1	1.1	52	X X	44.5'-48.75' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline. < 1 to 3% polyhalite.	
41.0					X		
14		4.7	4.7	100	X	48.75'-50.0' HALITE: Clear coarsely crystalline. < 1/2% polyhalite.	
45.7	45				X X	50.0'-50.3' ANHYDRITE: Very light (N8) to medium light gray (N6) to white microcrystalline anhydrite with scattered halite growths. Up to 1/2" halite layer at 50.1'. No clay at lower contact but possibly ground up.	
15		5.0	5.0	100	X X	50.3'-50.7' HALITE: Clear to light gray (N7), medium to coarsely crystalline. < 1% gray intercrystalline clay.	
50.7	50				X	Note: Core recovery is below 95%. Replacement hole DR-08B drilled later. Refer to log for DR-08B.	

BORING NO. DH-08A

# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE/SIZE \_\_\_\_\_ NX CORE \_\_\_\_\_ BORING NO. DH-08B

LOCATION N1100 DRIFT - FLOOR

STATION N1112± E979.5± COLLAR ELEV. 1318.00 DIRECTION OF DRILLING VERTICAL-DOWN

MINE COORDINATES N 10,799.47 E 7866.66 DEPTH OF BOREHOLE 51.4 FT.

DRILLING METHOD ROTARY/AIR DRILL MAKE/MODEL WATSON

DATE STARTED 3-16-84 (SWING) DATE COMPLETED 3-17-84 (SWING) SHEET

LOGGED BY: J. E. GALLERANI DATE: 3-23-84 1 OF 2

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
0.0	0.0						
0.9		0.9	0.0	0	-		
1.3		0.4	0.3	75	X	0.0'-6.4' HALITE: Clear; medium to coarsely crystalline. <1/2% polyhalite blebs and <1/2% gray clay locally. (1,2)	Watson drill: post mounted. AW rods. MW split tube barrel.
		2.7	2.7	100	-		Drilling time: 6 hours ±.
4.0		0.9	0.6	67	-	6.4'-11.4' HALITE: Clear to medium bluish gray (5B 5/1) and medium gray (N5). Coarsely crystalline, some medium ≤1% gray clay. 1/4" ± gray clay seam at 8.9'. (11)	Core is fair. Some discing of coarse crystalline polyhalitic halite and chipping of outer surface of core due to vibration but pieces tend to fit together fairly well in barrel.
4.9	5	1.5	1.5	100	X		
6.4		2.8	2.8	100	-	11.4'-13.15' HALITE: Clear, some moderate reddish orange (10R 6/6); coarsely crystalline. <1 to 2% polyhalite blebs and dispersed. (2,3)	Run 0. Salt loose and broke up, cased to 0.9'. No core.
9.2					-	13.15'-21.75' HALITE: Clear to medium bluish gray (5B 5/1) and some moderate reddish orange (10R 6/6). Medium to coarsely crystalline. <1/2% dispersed polyhalite. ≤1% gray intercrystalline clay. (9)	Runs 2 & 3. Some discing of core.
	10	5.0	5.0	100	X		
					X	21.75'-23.75' HALITE: Clear, coarsely crystalline. None increasing to <1% polyhalite with depth. (1,2,)	
14.2					-	23.75'-26.9' MB-139: "Swallowtail" pattern of halite and anhydrite to 24.55'. Then predominantly very light (N8) to light gray (N7) to white, partially laminated, anhydrite with scattered halite growths. Several tightly closed hairline fractures at 26.7' to 26.9'. <1/8" gray clay along lower contact.	Run 7. Some chipping of outer surface of core due to vibration last 3' of the run.
	15	5.0	5.0	100	X		
19.2					-		
	20	5.1	5.1	100	X		
24.3					-		
	25				X		


BORING NO. DH-08B

# WIPP

WASTE ISOLATION PILOT PLANT

2 SHEET OF 2

BORING NO. DH-08B

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS	
	25							
26.9	9	2.6	2.6	100		26.9'-29.6' HALITE: Clear to light gray (N7); light bluish gray (5B 7/1), and moderate reddish orange (10R 6/8). Medium to coarsely crystalline ≤ 1% gray clay and < 1/2% dispersed. ( 9 )	Runs 10 thru 12. Discing in polyhalitic halite.	
	10	4.5	4.5	100	X —	29.6'-33.8' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6). Coarsely crystalline with some fine to 30.15'. < 1 to 3% polyhalite. Anhydrite with halite from 33.75 to 33.8'. Clay break at 33.8'. ( 2-5,7 )		
31.4	11	5.0	5.0	100	X X X X	33.8'-35.8' HALITE: Clear to light gray (N7) and light bluish gray (5B 7/1). Medium to coarsely crystalline. < 1% gray clay. < 1/2% polyhalite. ( 9 )		
36.4	12	5.0	5.0	100	X — X X	35.8'-39.0' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6) and some moderate reddish brown (10R 4/6). Coarsely crystalline. < 1 to 3% polyhalite. ( 3,4,7 )		
41.4	13	5.0	5.0	100	X — X X	39.0'-45.2' HALITE: Clear to moderate reddish orange (10R 6/6); light gray (N7) and light bluish gray (5B 7/1). Medium to coarsely crystalline. ≤ 1% gray clay and < 1 to 2% polyhalite. ( 2,9 )		
46.4	14	5.0	5.0	100	X — X X	45.2'-50.2' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6); coarsely crystalline. < 1 to 3% polyhalite 1" anhydrite/halite layer at 49.7'. ( 3,4,7 )		
51.4	14	5.0	5.0	100	X — X X	50.2'-50.5' HALITE: Clear, coarsely crystalline, some medium. Scattered white anhydrite stringers at 50.2'-50.25' ±. ( 1 )		
	14	5.0	5.0	100	X — X X	50.5'-50.8' ANHYDRITE: Very light gray (NS) to white anhydrite with scattered halite growths. ≤ 3/8" gray clay at 50.8'.		
	14	5.0	5.0	100	X — X X	50.8'-51.4' HALITE: Clear to light gray (N7) and light bluish gray (5B 7/1) with some moderate reddish orange (10R 6/6). Medium to coarsely crystalline. < 1/2% dispersed polyhalite. ≤ 1% gray clay. Break at 51.1'. ( 9 )		
	55							



# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE/SIZE \_\_\_\_\_ NX CORE \_\_\_\_\_ BORING NO. DH-09

LOCATION N1420 DRIFT; ROOF

STATION N1432± E1332.5± COLLAR ELEV. 1324.5 DIRECTION OF DRILLING VERTICAL-UP

MINE COORDINATES N11,108.71 E8227.11 DEPTH OF BOREHOLE 51.1'

DRILLING METHOD ROTARY/AIR DRILL MAKE/MODEL WATSON

DATE STARTED 3-14-84 (SWING) DATE COMPLETED 3/14/84 (SWING) SHEET

LOGGED BY: J. E. GALLERANI DATE: 3-15-84 1 OF 3

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
0.0	0.0						
1	2.75	2.75	2.75	100	X	0.0'-4.1' HALITE: Clear to light gray (N7) and medium light gray (N6), medium to coarsely crystalline. ≤ 1% gray clay. < 1/2% polyhalite. 3/8" gray clay at 4.1'. Trace of anhydrite associated. [9,11]	Watson drill. AW rods. NW split tube barrel.  Drill Time: 7 hours ±.
2	5.5	2.75	2.65	96	X	4.1'-7.7' HALITE: Clear, coarsely crystalline. Trace anhydrite at 4.6'. Scattered white stringers. [1]	No gas; dry hole.
3	8.4	2.9	2.2	76		7.7'-9.1' HALITE: Clear to light gray (N7); medium light gray (N6). Coarsely crystalline. ≤ 1% gray clay, trace brown. [11]	All core shows varying degrees of vibration damage. Jerky drill feed is cause for such of this.
4	13.0	4.6	3.8	83		9.1'-10.3' HALITE: Clear to moderate brown (5YR 4/4); medium to coarsely crystalline. < 1 to 3% brown clay. [13, 14]	Run 3. Much of core broken up.
5	16.1	3.1	3.1	100		10.3'-12.3' HALITE: Clear, some light gray (N7) coarsely crystalline. None to < 1% gray, some brown clay. [1, some 9]	Run 4. Broken up badly last 2' ±.
6	20.4	4.3	3.8	88	X X	12.3'-16.1' ARGILLACEOUS HALITE: Clear to moderate brown (5YR 4/4); medium to coarsely crystalline. < 1 to 4% brown clay. Intercrystalline and scattered breaks. Parting at 14.75'. 1/2" brown clay seam at 16.05'. [14]	Run 6. Core loss probably above anhydrite.
7	25.2	4.8	4.8	100	X X	16.1'-16.75' ANHYDRITE: White to light gray anhydrite mixed with halite to 16.45'. Then mostly laminated anhydrite.	Run 7 thru 13. Broken zones and discing especially in the coarsely crystalline, polyhalitic halite.
					X X	16.75'-20.9' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6); coarsely crystalline. < 1 to 3% polyhalite. < 1% from 18.4'-20.4'. [2-4,7]	
					X	20.9'-21.9' HALITE: Clear to light gray (N7); coarsely crystalline. ≤ 1% gray clay. [11]	

BORING NO. DH-09



# WIPP

WASTE ISOLATION PILOT PLANT

3 SHEET OF 3

BORING NO. DH-09

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
						<p>45.1-48.6' HALITE: Clear mottled with moderate brown (5YR 4/4), coarsely crystalline <math>\leq</math> 1% brown clay, trace gray. Locally up to 2% clay. Scattered breaks last 1". [10, 12].</p> <hr/> <p>48.6'-51.1' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6) and moderate reddish brown (10R 4/6); coarsely crystalline. &lt; 1 to 3% polyhalite. [3, 4, 7]</p>	



BORING NO. DH-09



# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE/SIZE \_\_\_\_\_ NX CORE \_\_\_\_\_ BORING NO. DH-10

LOCATION N1420 DRIFT - FLOOR

STATION N1432<sup>±</sup> E1332.5<sup>±</sup> COLLAR ELEV. 1312.1 DIRECTION OF DRILLING DOWN VERTICAL

MINE COORDINATES N 11,108.70 E 8227.09 DEPTH OF BOREHOLE 52.0 FT.

DRILLING METHOD ROTARY/AIR DRILL MAKE/MODEL WATSON

DATE STARTED 3-15-84 (SWING) DATE COMPLETED 3-15-84 (SWING) SHEET

LOGGED BY: J. E. GALLERANI DATE: 3-17-84 1 OF 2

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
1	0.0	0.5	0.5	100	-	0.0'-6.1' HALITE: Clear; coarsely crystalline, some fine. < 1% gray clay and 1/2% polyhalite locally. [1]	Watson drill. AW rods. 2' barrel for 1st run, then 5' NW split tube barrel used. No gas; dry hole.
2	3.6	3.1	3.1	100	-	6.1'-10.6' HALITE: Clear mottled with medium dark gray (N4); coarsely crystalline, some medium locally. ≤ 1% gray clay. Dark gray clay break at 8.0'. < 1/2% polyhalite. [11]	Drill time: 5-1/2 hours
3	5	4.6	4.6	100	X	10.6'-13.5' POLYHALITIC HALITE: Clear mottled with moderate reddish orange (10R 6/6). Coarsely crystalline. < 1 to 2% polyhalite blebs and patches. < 1/2% gray clay. [3, 4, 7]	Core is brittle and will break with low hand pressure into smaller discs and pieces. Jerky, surging feed on drill. Core shows chipping on surface.
4	8.2	5.1	5.1	100	-	13.5'-19.4' HALITE: Clear, some light gray (N7) and medium light gray (N6). Medium to coarsely crystalline. ≤ 1% gray intercrystalline clay. Breaks at 15.2'-15.3'. < 1/2% polyhalite. [2, 11]	Runs 2, 3. Some broken core, discing, vibration fractures.
5	13.3	2.6	2.6	100	X X	19.4'-22.6' HALITE: Clear mottled with some moderate reddish orange (10R 6/6); coarsely crystalline; some medium. ≤ 1% polyhalite blebs and patches. < 1/2% gray clay. [2, 5]	Run 4. Good core.
6	15.9	5.0	5.0	100	X X	22.6'-24.0' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6); coarsely crystalline. < 1 to 3% polyhalite. [3, 4]	
7	20.9	5.2	5.2	100	-	24.0'-26.65' MB-139: Moderate reddish orange (10R 6/6) to white anhydrite mixed with halite to 25.4'. Then predominantly light gray (N7) to white anhydrite with scattered halite growths faintly laminated. 1/2" clay seam at lower contact.	Runs 2, 3. Some broken core, discing, vibration fractures. Run 4. Good core.
	20.9				X	26.65'-29.3' HALITE: Clear to medium light gray (N6) and moderate reddish orange (10R 6/6) medium to coarsely crystalline. ≤ 1% gray clay and dispersed polyhalite. Clay break at 27.95' and 29.3'. [2, 11]	
	25				X X		

BORING NO. DH-10

# WIPP

WASTE ISOLATION PILOT PLANT



SHEET

2

OF

2

BORING NO. DH-10

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
	25						
26.1	7	5.2	5.2	100		29.3' -34.8' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6); coarsely crystalline line. < 1 to 3% polyhalite. 1/2" anhydrite with gray clay break at 34.75'-34.8'. [3-5, 7]	Run 8. Barrel plugged because of clay seam.  Run 9 thru 13. Core quality fair. Discing in some runs.
26.8	8	0.7	0.7	100			
	9	4.7	4.7	100	X —	34.8'-37.0' HALITE: Clear to moderate reddish orange (10R 6/6); some light gray (N7) and light bluish gray (5B 7/1). Medium to coarsely crystalline. ≤ 1% gray clay. < 1 to 2% polyhalite. [2, 11]	
	30				X X		
31.5	10	5.1	5.1	100	X X X X	37.0'-42.5' POLYHALITIC HALITE: Clear to moderate reddish orange/brown (10R 6/6; 4/6) coarsely crystalline. < 1 to 3% polyhalite. Trace brown and gray clay locally. [2-5]	
	35				X X		
36.6	11	5.2	5.2	100	X X X X X	42.5'-46.75' HALITE: Clear to moderate reddish orange/brown (10R 6/6; 4/6) with some medium light-gray (N6). Medium to coarsely crystalline. Up to 2% brown clay with some gray clay and polyhalite to 43.3'. Below this is < 1% clay and polyhalite. [1, 17]	
	40				X X X X		
41.8	12	5.1	5.1	100	X X X X	46.75'-51.8' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6); coarsely crystalline. < 1 to 3% polyhalite. Moderate reddish orange anhydrite at 51.5' to 51.6' ±. [2-4, 7]	
	45				X X		
46.9	13	5.1	5.1	100	X X X X	51.8'-52.0' HALITE: Clear, coarsely crystalline. [1]	
	50				X X		
52.0							
	55						



BORING NO. DH-10

# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE/SIZE NX CORE BORING NO. DH-11

LOCATION N1100 DRIFT AT ROOM A-2 CENTERLINE; ROOF

STATION N1112<sup>±</sup> E1332.5<sup>±</sup> COLLAR ELEV. 1320.5 DIRECTION OF DRILLING UP-VERTICAL

MINE COORDINATES N10,799.8 E8227.3 DEPTH OF BOREHOLE 50.9 FT

DRILLING METHOD ROTARY/AIR DRILL MAKE/MODEL WATSON

DATE STARTED 3/5/84 (SWING) DATE COMPLETED 3/6/84 (SWING) SHEET

LOGGED BY: J. E. GALLERANI DATE: 3/6/84 1 OF 2

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
0.0	0						
0.4	1	0.4	0.4	100	X		
1.9	2	1.5	1.5	100	X X	0.0'-0.5' HALITE: Clear, trace of moderate reddish orange. Coarsely crystalline. <1/2% polyhalite. [2]	Watson drill. AW rods NX double tube core barrel.  Drilling Time: 7 hours. ±
3.8	3	1.9	1.7	90	X X X	0.5'-4.1' POLYHALITIC HALITE: Clear to moderate reddish orange; coarsely crystalline. <1 to 3% polyhalite. [3]	Throughout hole much discing and broken core. Quality poor.
5.7	4	1.9	1.9	100	-		No gas; dry hole.
10.2	5					4.1'-8.8' HALITE: Clear to light gray (N7) and medium light gray (N6), some moderate brown (5YR 4/4) medium to coarsely crystalline, some fine. ≤ 1% clay. [2,9]	
12.3	6	2.1	2.1	100	-	8.8'-13.1' HALITE: Clear, coarsely crystalline. 1/2" ± gray anhydrite layer at 9.3' with trace of gray clay anhydrite stringers to 10.5' ±. [1]	
15.6	7	3.3	3.0	91	---	13.1'-15.2' ARGILLACEOUS HALITE: Clear to moderate brown (5YR 4/4); fine to medium, some coarsely crystalline. <1 to 3% brown clay. [12]	
17.1	8	1.5	1.5	100	-	15.2'-17.0' HALITE: Clear, trace of light brown (5YR 6/4). Coarsely crystalline. [1]	
20.6	9	3.5	3.5	100	---	17.0'-20.6' ARGILLACEOUS HALITE: Clear to moderate brown (5YR 4/4); medium to coarsely crystalline. <1 to 3% brown clay, intercrystalline and breaks. ≥10% clay at 20.5'-20.6'. [10, 15]	
21.7	10	1.1	1.1	100	X	20.6'-21.2' ANHYDRITE: White to light gray (N7) microcrystalline, partially laminated anhydrite. Scattered halite growths. 1/2" brown clay seam at 20.6'.	Run 10. Some core grinding evident here.
23.8	11	2.1	2.1	100	X		
	25						

BORING NO. DH-11

# WIPP

WASTE ISOLATION PILOT PLANT

SHEET

2

OF

2

BORING NO. DH-11

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
	25						
12	27.2	3.4	3.4	100	—	21.2'-24.9' HALITE: Clear, some light moderate reddish orange; coarsely crystalline. ≤ 1% polyhalite. [1,3]	
13	29.7	2.5	2.5	100	X	24.9'-30.7' HALITE: Clear, some moderate brown (5YR 4/4); coarsely crystalline except medium at 25.5' to 26.1'. < 1 to 2%, locally, brown clay. < 1/2% dispersed polyhalite. [2, 10]	
14	32.1	2.4	2.4	100	—	30.7'-33.5' ARGILLACEOUS HALITE: Clear to moderate brown (5YR 4/4); medium to coarsely crystalline. < 1 to 3% brown clay. Breaks at 31.5', 32.8'. [12, 14]	
15	36.0	3.9	3.9	100	X	33.5'-50.9' HALITE: Clear to moderate brown (5YR 3/4; 4/4) and mottled with moderate reddish orange/brown (10R 6/6; 4/6). Coarsely crystalline. < 1 to 3% brown clay with trace of gray. < 1 to 2% polyhalite blebs and patches. Core varies from zones containing polyhalite blebs with no clay to zones with mixed clay and polyhalite and zones containing only patches of clay. [5, 10]	
16	40.5	4.5	4.5	100	X	Zones with polyhalite blebs and patches and only trace of clay are the following approximate depths: 33.5' -33.7', 40.4' -41.3', 43.1' -44.9', 49.2' -49.7'.	
17	42.9	2.4	2.4	100	X		
18	47.6	4.7	4.7	100	X		
19	50.9	3.3	3.3	100	X		

M

# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE/SIZE NX CORE BORING NO. DH-12

LOCATION N1100 DRIFT AT ROOM A-2 INTERSECTION, FLOOR

STATION N1112 ± E1332.5 ± COLLAR ELEV. 1311.1 DIRECTION OF DRILLING VERTICAL - DOWN

MINE COORDINATES N10,799.4 E 8227.2 DEPTH OF BOREHOLE 51.3'

DRILLING METHOD ROTARY/AIR DRILL MAKE/MODEL WATSON

DATE STARTED 3-7-84 (SWING) DATE COMPLETED 3-7-84 (SWING) SHEET

LOGGED BY: J. E. GALLERANI DATE: 3-24-84 1 OF 2

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
0.0	0.0						
1	1.8	1.8	1.8	100	X	0.0-4.25' HALITE: Clear to light gray (N7) and light bluish gray (5B 7/1); coarsely crystalline. <1% gray intercrystalline clay. <1/2% polyhalite. [11]	Watson Drill. NW split tube core barrel.  AW rods.  Drill Time: 6-1/2 hours ±.
2	4.0	4.0	4.0	100	X	4.25'-5.55' HALITE: Clear to moderate reddish orange (10R 6/6); coarsely crystalline. <1% polyhalite. [3]	
3	5.3	5.3	5.3	100	X	5.55'-10.0' HALITE: Clear to light gray (N7) and medium light gray (N6); some moderate reddish orange and brown. Coarsely crystalline, some medium. <1% gray clay. Partings at 7.4' and 8.55'. <1% polyhalite. [11,2]	Core quality shows significant improvement over previously drilled core.
4	10.0				X	10.0'-12.65' HALITE: Clear to moderate reddish orange, (10R 6/6) coarsely crystalline. ≤1% polyhalite. Gray clay break at 12.25'. [2]	
5	11.1				X	12.65'-19.8' HALITE: Clear to light bluish gray (5B 7/1) and moderate reddish orange (10R 6/6) medium to coarsely crystalline. 5% gray clay; trace brown <1% polyhalite. [11,2]	
6	15.0				X	19.8'-20.9' HALITE: Clear, some moderate reddish orange (10R 6/6). Coarsely crystalline. <1% polyhalite. [1]	
7	16.1				X	20.9'-21.45' HALITE: Clear to light gray (N7) medium to coarsely crystalline. ≤1% gray clay. [11]	
8	20.0				X	21.45'-27.75' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6); coarsely crystalline <1 to 2% polyhalite blebs and patches. [1-3]	
9	21.2	5.1	5.1	100	X		
10	25.0				X		



BORING NO. DH-12

# WIPP

WASTE ISOLATION PILOT PLANT

SHEET

2

OF

2

BORING NO.

DH-12

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
26.3	25				X	22.75'-25.9' MB-139: From 22.75' to 23.85' is a "swallowtail" pattern of halite and anhydrite. Below this is predominantly white to light gray (N7) to medium light gray (N6) microcrystalline anhydrite with scattered halite growths. Anhydrite is partially laminated. < 1/2" moist gray clay at lower contact.	
7		5.0	5.0	100	X		
31.3	30				X	25.9'-29.0' HALITE: Clear to moderate reddish orange (10R 6/6) and light gray (N7). Medium to coarsely crystalline. ≤ 1% gray clay and < 1% dispersed polyhalite. [9,11]	
8		5.0	5.0	100	X	29.0'-32.2' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6); coarsely crystalline. < 1 to 4% polyhalite. None to < 1% gray clay. [4-6]	
36.3	35				X	33.2'-35.35' HALITE: Clear to moderate reddish orange (10R 6/6); medium to coarsely crystalline. < 1% gray clay and dispersed polyhalite. [1,2]	
9		5.0	5.0	100	X	35.35'-39.9' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6); coarsely crystalline. < 1 to 3% polyhalite blebs and patches. < 1/2% gray clay locally. [2-4]	
41.3	40				X	39.9'-44.8' HALITE: Clear, some moderate reddish orange (10R 6/6), coarsely crystalline, some medium. ≤ 1% gray clay and ≤ 1% polyhalite, locally up to 2%. [1, 10]	
10		5.0	5.0	100	X	44.8'-49.5' POLYHALITIC HALITE: Clear to moderate reddish orange/brown (10R 6/6; 4/6); coarsely crystalline. < 1 to 4% polyhalite average ≤ 1 to 2%. < 1% gray clay. Moderate reddish orange/brown microcrystalline anhydrite/polyhalite at 49.1' to 49.3'. Lower surface is irregular and slightly polished. [2-4, 7]	
46.3	45				X		
11		5.0	5.0	100	X	49.5'-49.8' ANHYDRITE: White to light gray (N7); microcrystalline, faintly laminated anhydrite. Scattered halite growths. Trace of gray clay at 49.8'.	
51.3	50				X	49.8'-51.3' HALITE: Clear, some light bluish gray (5B 7/1) and moderate reddish orange (10R 6/6). Medium to coarsely crystalline. ≤ 1% gray clay. < 1/2% polyhalite. [9, locally 2]	
	55				X		

BORING NO. DH-12

# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE/SIZE NX CORE BORING NO. DH-13

LOCATION N1420 DRIET @ ROOM D INTERSECTION

STATION N 1424, E1690 COLLAR ELEV. 1311.4 DIRECTION OF DRILLING VERTICAL

MINE COORDINATES N11 112, E8585 DEPTH OF BOREHOLE 13.8 FT.

DRILLING METHOD ROTARY/AIR DRILL MAKE/MODEL WATSON MODEL 750

DATE STARTED 3/28/84 (SWING) DATE COMPLETED 3/28/84 (SWING) SHEET

LOGGED BY: J. E. GALLERANT DATE: 3/30/84 1 OF 1

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
1	0.0 - 2.4	2.4	2.4	100	X	0.0'-3.9' HALITE: Clear to moderate reddish orange (10R 6/6); medium to coarsely crystalline. <1% dispersed polyhalite. <1/2% gray clay. 1/2" anhydrite at 3.9'. Gray clay below.	Watson drill, AW rods, NW split-tube barrel. Set-up time: 7 hrs. Drilling time: 2-1/2 hrs.
	2.4 - 5.5				X	3.9'-8.7' HALITE: Clear, coarsely crystalline. None to <1% gray clay.	No gas. Dry hole.
2	5.5 - 7.9	5.5	3.6	65.5	-	8.7'-9.4' HALITE: Clear to moderate brown (5YR 4/4); some light gray (N7). Medium to coarsely crystalline. <1% brown and gray clay.	Contacts approximate due to core loss.
	7.9 - 8.7				-	9.4'-13.8' HALITE: Clear, some light gray (N7); coarsely crystalline. <1% dispersed gray clay.	Run 2. Core broken-up much of run.
3	8.7 - 10.0	0.8	0.8	100	-	Note: This hole was stopped at 13.8' due to core loss. Refer to drill logs for replacement holes DH-13A and DH-13B.	
4	10.0 - 13.8	5.1	4.1	80.4	-		



BORING NO. DH-13

# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE / SIZE NX CORE BORING NO. DH-13A

LOCATION 6" N.E. OF DH-13; N1420 DRIFT AT ROOM D INTERSECTION

STATION N 1424.5, E1691 COLLAR ELEV. 1311.5± DIRECTION OF DRILLING VERTICAL UP

MINE COORDINATES N1112, E8586 DEPTH OF BOREHOLE 49.0 FT.

DRILLING METHOD ROTARY/AIR DRILL MAKE / MODEL WATSON MODEL 750

DATE STARTED 3/28/84 (SWING) DATE COMPLETED 3/29/84 (SWING) SHEET

LOGGED BY: J. E. GALLERANI DATE: 3/30/84 1 OF 2

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
0.0	0						
1		2.5	2.5	100	X	0.0'-4.25' HALITE: Clear, some light gray (N7), medium to coarsely crystalline. <1% dispersed gray clay. <1/2% dispersed polyhalite. Break at 4.25'.	Watson drill, AW rods. Used NW double-tube barrel and split-tube barrel.
2.5		0.7	0.65	93	X	4.25'-6.3' HALITE: Clear, coarsely crystalline. Scattered white anhydrite stringers. 1/4" anhydrite layer at 4.55'.	Drilling time: 5 hrs. ± Run 2. Barrel plugged.
3.2		2.9	2.9	100		6.3'-10.6' HALITE: Clear to light moderate reddish orange (10R 6/6); some light bluish gray (5B 7/1). Medium to coarsely crystalline. <1/2% dispersed polyhalite and gray clay.	Contacts at 6.3' and 10.6' are approximate due to core loss.
5						10.6'-13.4' HALITE: Clear to light gray (N7) and medium light gray (N6). Coarsely crystalline. None to <1% gray clay. Upper 12" of recovered core is clear.	
6.1		2.8	0.6	21	X	13.4'-16.55' ARGILLACEOUS HALITE: Clear to medium brown (5YR 4/4); medium to coarsely crystalline. <1 to 3% brown clay. Scattered breaks.	
8.9		2.0	2.0	100		16.55'-17.25' ANHYDRITE: Light gray, microcrystalline; faintly laminated. Scattered halite growths, especially 16.75'-16.95'±. 2-1/2" gray clay seam at 16.55'-16.75', medium plastic. Contains scattered halite crystals.	Run 6. Much of core broken-up. Run 7. Tried 3' NX double-tube barrel. Core OK.
10.9		2.0	1.0	50		17.25'-22.2' HALITE: Clear to moderate reddish orange (10R 6/6); coarsely crystalline. <1 to 2% polyhalite. Scattered anhydrite.	Run 8. NW split-tube plugged-off at clay seam.
12.9		2.2	2.2	100		22.2'-24.5' HALITE: Clear to moderate brown (5YR 4/4); medium to coarsely crystalline. <1 to 2% brown clay. Breaks at 22.4' and 23.25'. [12,17]	Run 9. Core broken-up in polyhalitic halite.
15.1		1.6	1.6	100		24.5'-26.7' HALITE: Clear mottled with some moderate reddish orange (10R 6/6); coarsely crystalline. <1/2% gray clay and <1% polyhalite. [2-4, some 9]	
16.7						26.7'-28.3' HALITE: Clear to moderate brown (5YR 4/4); medium to coarsely crystalline. <1 to 2% brown clay. [8, 10]	Runs 10-15. Used Sprague and Henwood double-tube core barrel. A piece of foam rubber was used inside barrel to prevent core from falling in barrel.
20.7		3.3	3.3	100	X		
24.0		5.0	5.0	100	X		

BORING NO. DH-13A





# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT \_\_\_\_\_ HOLE TYPE/SIZE NX CORE BORING NO. DH-13B  
 TYPE & NUMBER \_\_\_\_\_

LOCATION N1420 DRIFT; ROOF AT RM. D INTERSECTION

STATION N1425, F1695 COLLAR ELEV. 1311.4 DIRECTION OF DRILLING VERTICAL UP

MINE COORDINATES N11112.62, E8590.14 DEPTH OF BOREHOLE 21.0 FT.

DRILLING METHOD ROTARY/AIR DRILL MAKE/MODEL WATSON MODEL 750

DATE STARTED 4-5-84 (SWING) DATE COMPLETED 4-5-84 (SWING) SHEET

LOGGED BY: L. E. GALLERANT DATE: 4-5-84 1 OF 1

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
1	0.0 - 2.7	2.7	2.7	100	—	0.0'-2.7' HALITE: Clear to medium light gray (N6) and some light moderate reddish orange (10R 6/6). Coarsely crystalline. ≤ 1% gray clay. [9]	AW rods, S&H NX double-tube core barrel.  Drilling time: 1 hr. ±
2	2.7 - 5.5	4.8	4.8	100	—	2.7'-5.5' HALITE: Clear, coarsely crystalline. Scattered white anhydrite stringers. < 1/4" gray clay seam at 5.5' with some anhydrite just above. [1]	
	5.5 - 9.9				5.5'-9.9' HALITE: Clear, trace of light gray (N7), medium to coarsely crystalline. < 1/2% clay. [1, 9]		
3	9.9 - 7.5	4.9	4.9	100	—	9.9'-12.1' HALITE: Clear, coarsely crystalline. [1]	
	7.5 - 12.4				12.1'-15.8' HALITE: Clear with some medium light gray (N6) and medium brown (5YR 4/4). Medium to coarsely crystalline, trace fine locally. < 1/2% dispersed polyhalite and ≤ 1% gray clay, some brown. Scattered discontinuous breaks. [9, 17]		
4	12.4 - 16.9	4.5	4.5	100	X	15.8'-16.8' HALITE: Clear, coarsely crystalline. [1]	
	16.9 - 21.0				16.8'-17.5' ANHYDRITE: Light gray (N7) to medium light gray (N6) microcrystalline anhydrite with scattered halite growths. Partially laminated. 1/2" layer of mostly halite at 17.4'. Tightly closed upper contact. Up to 1-1/4" hard gray clay at 16.8'-16.95'. [1]		
5	21.0 - 25.0	4.1	4.1	100	X	17.5'-18.3' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline. < 1 to 3% polyhalite. [7]	
					X	18.3'-21.0' HALITE: Clear with some moderate reddish orange. < 1% polyhalite locally. ≤ 1/2" white anhydrite layer at 18.9'±. [1, 2]	



BORING NO. DH-13B

# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE/SIZE NX CORE BORING NO. DH-14

LOCATION N1420 DRIFT, FLOOR AT INTERSECTION OF RM. D

STATION N 1425, E 1695 COLLAR ELEV. 1299.5 DIRECTION OF DRILLING VERTICAL DOWN

MINE COORDINATES N11112.62, E8590.14 DEPTH OF BOREHOLE 49.1 FT.

DRILLING METHOD ROTARY/AIR DRILL MAKE/MODEL WATSON MODEL 750

DATE STARTED 4/6/84 DATE COMPLETED 4/6/84 SHEET

LOGGED BY: J. E. GALLERANI DATE: 4/27/84 1 OF 2

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
	0.0						
1		3.2	3.2	100	- X	0.0'-5.8' HALITE: Clear with some light gray (N7), coarsely crystalline. < 1% gray clay and polyhalite. [1, 11]	Watson drill, AW rods, NX double-tube core barrel.
	3.2						
2	5	4.9	4.9	100	- X	5.8'-13.15' HALITE: Clear to medium light gray (N6), coarsely crystalline, some medium. ≤ 1% gray clay. < 1/2% dispersed polyhalite. [9, 11]	No gas. Dry hole. Core shows some discing and surface vibration damage.
	8.1						
3	10	5.0	5.0	100	- X	13.15'-16.2' HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline. < 1% polyhalite. [1-3]	
	13.1						
4	15	5.0	5.0	100	- X	16.2'-21.3' HALITE: Clear to light moderate reddish orange (10R 6/6) and light gray (N7), medium to coarsely crystalline. < 1/2% dispersed polyhalite. < 1% gray clay. [9, 11]	
	18.1						
5	20	5.0	5.0	100	- X	21.3'-23.7' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), medium to coarsely crystalline. < 1 to 2% polyhalite. Scattered anhydrite. [3, 7]	
	23.1						
6	25	5.0	5.0	100	- X X X X	23.7'-26.45' MB-139: Light gray to moderate reddish orange mixture of predominantly anhydrite with some polyhalitic halite to 25.55'. Then light gray anhydrite with scattered halite growths and laminae. Trace of gray clay at 26.45'. 26.45'-29.5' HALITE: Clear to moderate reddish orange (10R 6/6) and some light gray (N7). Medium to coarsely crystalline. < 1/2% dispersed polyhalite and < 1% gray clay. [9] 29.5'-33.9' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline. < 1 to 3% polyhalite. Anhydrite mixed with some halite from 33.75'-33.9'. Gray clay at 33.9'. [7]	

BORING NO. DH-14

# WIPP

WASTE ISOLATION PILOT PLANT


SHEET

2

OF

2

BORING NO. DH-14

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
	25						
6		5.0	5.0	100		36.25'-41.1' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline. < 1 to 3% polyhalite. < 1/2% gray clay with up to 1% clay at 39.5'-40.3'. Break at 39.5'. [3, 4, 7]	
28.1					X		
					-		
	30				X		
7		5.0	5.0	100	X X	41.1'-44.7' HALITE: Clear to moderate reddish orange (10R 6/6) and some light gray (N7). Medium to coarsely crystalline, some fine. < 1/2% dispersed polyhalite. < 1% gray clay. [9]	
					X X		
33.1					X X		
					X		
	35				-		
8		5.0	5.0	100	X	44.7'-49.1' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline. < 1 to 3% polyhalite. [3, 7]	
					X		
					X X		
38.1					X X		
					X X		
	40				X X		
9		5.0	5.0	100	-		
					X X		
					-		
43.1					X		
					-		
	45				X		
10		5.0	5.0	100	X X		
					X X		
					X X		
48.1					X X		
					X X		
49.1		1.0	1.0	100	X		
	50						
	55						



BORING NO. DH-14

# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE/SIZE NX CORE \_\_\_\_\_ BORING NO. DH-15

LOCATION N1100 DRIFT; ROOF \_\_\_\_\_

STATION N1104± E1688.5± COLLAR ELEV. 1308.9 DIRECTION OF DRILLING VERTICAL - UP

MINE COORDINATES N10,793.26 E8589.96 DEPTH OF BOREHOLE 51.0'

DRILLING METHOD ROTARY/AIR DRILL MAKE/MODEL WATSON

DATE STARTED 3/20/84 (SWING) DATE COMPLETED 3/21/84 (SWING) SHEET

LOGGED BY: J. E. GALLERANI DATE: 3/25/84 1 OF 2

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
0.0	0.0						
1	2.4	2.4	2.4	100	X	0.0'-4.5' HALITE: Clear, coarsely crystalline. < 1% polyhalite from 3.7'-4.5' ±. Scattered white anhydrite/magnesite? Stringers. [1, 2]	Watson post mounted drill. AW rods.
2	5	3.9	3.9	100	X	4.5'-9.2' HALITE: Clear to light gray (N7) medium to coarsely crystalline. ≤ 1% gray clay. < 1/8" clay seam at 9.1'. From 9.1' to 9.2' anhydrite mixed with halite. [2,11]	NW split tube barrel. Drilling Time: 6-1/2 hours.
3	6.3	1.2	1.2	100	—	9.2'-13.0' HALITE: Clear, coarsely crystalline. Scattered white stringers. [1]	Core generally all together in split tube. Tends to break up some when put in box.
4	7.5	4.2	4.2	100	—	13.0'-14.7' HALITE: Clear to light gray (N7) and moderate brown (5YR 4/4); medium to coarsely crystalline, some fine. < 1% brown clay with trace gray. Sugary texture 14.1'-14.7'. [9,17]	Run 4. Dicing of core in clear halite.
5	11.7	4.9	4.9	100	—	14.7'-18.1' HALITE: Clear, coarsely crystalline none to ≤ 1% gray clay. [1, some 11]	Run 5. Some broken core.
6	16.6	4.3	4.3	100	—	18.1'-20.85' ARGILLACEOUS HALITE: Clear to moderate brown (5YR 4/4) and grayish red (10R 4/2) medium to coarsely crystalline. < 1 to 3% brown clay. 1/2" ± brown clay seam at 19.6'. (12,16)	
7	20.9	4.5	4.5	100	—	20.85'-21.35' ANHYDRITE: Light (N7) to medium gray (N5) to white anhydrite. Scattered halite growths up to 1/2" brown clay seam at 20.85'. 21.35'-26.0' HALITE: Clear, coarsely crystalline. Stringers of anhydrite mixed with halite 21.35'-21.75'. Scattered white stringers throughout core. [1,2]	
25.4	25						

BORING NO. DH-15

# WIPP

WASTE ISOLATION PILOT PLANT

2 SHEET OF 2

BORING NO. DH-15

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
25.4	25						
8		4.5	4.5	100	—	26.0'-31.2' HALITE: Clear to dark reddish brown and moderate brown (5YR 4/4). Predominantly coarse with zones of fine-medium from 26.5'-26.9' ± and 28.0'-28.5' ±. < 1 to 2% brown clay. [8, 10, 12]	
29.9	30				—	31.2'-34.75' ARGILLACEOUS HALITE: Clear to moderate brown (5YR 4/4) and moderate reddish brown (10R 4/6); medium to coarsely crystalline. < 1 to 5% brown clay intercrystalline and breaks. From 34.45' to 34.65' clay ≥ 10%. (10,12)	
9		4.9	4.9	100	—	34.75'-43.2' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6); coarsely crystalline. < 1 to 3% polyhalite. 1" anhydrite layer at 37.25'. < 1 to 3% brown clay at 40.25' -41.45. [3, 4, 7]	
34.8	35				X X	43.2'-44.1' HALITE: Clear mottled with dark reddish brown and moderate brown (5YR 4/4). Coarsely crystalline. ≤ 1% brown clay. [8, 10]	Run 10. Some discing of core.
10		5.0	5.0	100	X X	44.1"-44.6' ARGILLACEOUS HALITE: Clear to moderate brown (5YR 4/4); fine to medium crystalline, some coarse. < 1 to 3% brown clay, intercrystalline and breaks. Anhydrite/halite at 44.4'-44.6'. [12, 17]	
39.8	40				X X	44.6'-47.1' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6); coarsely crystalline. < 1 to 3% polyhalite. [3, 4, 7]	
11		4.8	4.8	100	X X	47.1'-51.0' ARGILLACEOUS HALITE: Clear to moderate brown (5YR 3/4); medium to coarsely crystalline. < 1 to 3% brown clay. [10, 12]	
44.6	45				X X		
12		1.4	1.4	100	X X		
46.0					X X X		
13		5.0	5.0	100	—		
51.0	50				—		
	55						

BORING NO. DH-15

# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE/SIZE NX CORE BORING NO. DH-16

LOCATION N1100 DRIFT - FLOOR

STATION N1104 ± E1588 ± COLLAR ELEV. 1300.3 DIRECTION OF DRILLING VERTICAL DOWN

MINE COORDINATES N10792.89 E8589.39 DEPTH OF BOREHOLE 51.0'

DRILLING METHOD ROTARY/AIR DRILL MAKE/MODEL WATSON

DATE STARTED 3/19/84 (SWING) DATE COMPLETED 3/19/84 (SWING) SHEET

LOGGED BY: J. E. GALLERANI DATE: 3/20/84 1 OF 2

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
	0.0						
1		2.0	2.0	100	-	0.0'-6.1' HALITE: Clear, coarsely crystalline, some medium. < 1/2% polyhalite and gray clay. [1, 2]	Watson drill. Post mounted AW rods.
2	2.0	0.3	0.3	33	X		MW split tube barrel.
3	2.3	1.1	1.1	100	-		Drilling Time: 4-1/2 hours.
4	3.4				X	6.1'-10.4' HALITE: Clear to light gray (N7); coarsely crystalline, some medium. ≤ 1% gray clay. < 1/2% dispersed polyhalite. [11]	No gas. Dry hole.
5	5	2.6	2.5	96	-		
6	6.0				X	10.4'-12.35' HALITE: Clear to moderate reddish orange (10R 6/6); coarsely crystalline, some medium. < 1 to 2% polyhalite. < 1% gray clay at 11.85'-11.95'. [1-3]	Overall core quality is satisfactory. Can fit ends together fairly well. Some discing of core, especially in coarsely crystalline material.
		5.1	5.1	100	-		
	10				X	12.35'-16.0' HALITE: Clear to light gray (N7); light bluish gray (5B-7/1) and moderate reddish orange (10R 6/6) medium to coarsely crystalline. ≤ 1% polyhalite and gray clay. [9]	Runs 4 and 5.
	11.1				X		Some discing of core.
6		4.9	4.9	100	-	16.0'-20.1' HALITE: Clear to light bluish gray (5B 7/1) and light gray (N7); coarsely crystalline. ≤ 1% gray clay. [11]	
	15				X		
	16.0				X	20.1'-21.5' HALITE: Clear, scattered moderate reddish orange polyhalite blebs. Coarsely crystalline. < 1/2% polyhalite. [2, 3]	
7		5.1	5.1	100	-	21.5'-25.2' MB-139: Mixture of halite and anhydrite in "swallowtail" pattern from 21.5'-23.6'. From 23.6', predominantly anhydrite with some halite growths. Some laminae, especially noted from 24.5'. 1/2" ± clay at lower contact.	
	20				X		
	21.1				X	25.2'-29.6' HALITE: Clear, some moderate reddish orange (10R 6/6) and light gray (N7). Medium to coarsely crystalline. < 1/2% polyhalite and gray clay. Coarsely crystalline with no clay from 29.2-29.6'. [9]	
8		4.9	4.9	100			
	25						

BORING NO. DH-16

# WIPP

WASTE ISOLATION PILOT PLANT

2 SHEET  
OF 2

BORING NO. DH-16

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
26.0	25						
8		4.9	4.9	100	X		
					—	29.6'-33.05' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6); coarsely crystalline. <1 to 3% polyhalite. 1/2" hard gray clay. Seam at lower contact. [3, 4, 7]	
9		5.0	5.0	100	X		
	30				X X	33.05'-34.9' HALITE: Clear mottled with some moderate reddish orange polyhalite blebs. Coarsely crystalline, some medium. <1/2% polyhalite and gray clay. [2]	
31.0					X X		
					X X	34.9'-40.35' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6); coarsely crystalline except some medium at 39.65' to 40.35'. <1 to 3% polyhalite <1/2% gray clay. [2-5, 9]	
10		5.0	5.0	100	X		
	35				—		
36.0					X	40.35'-42.1' HALITE: Clear, coarsely crystalline. None to 1% gray clay and <1/2% dispersed polyhalite. [1, 2]	
					X		
					X	42.1'-46.3' HALITE: Clear to moderate reddish orange/brown (10R 6/6; 4/6) with some light gray (N7). Coarsely crystalline. ≤1% gray intercrystalline clay. <1 to 2% polyhalite. Locally polynalitic. [9]	
11		5.0	5.0	100	X		
	40				X		
41.0					—		
					X	46.3'-49.15' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6); coarsely crystalline. <1 to 3% polyhalite. Moderate reddish orange anhydrite mixed with some halite at 48.95'-49.05' ±. [2-4, 7]	
12		5.1	5.1	100	—		
	45				X	49.15'-49.45' ANHYDRITE: White to light gray (N7), microcrystalline. Scattered halite growths. ≤1/16" gray clay at 49.45'.	
36.1					X		
					X	49.45'-51.0' HALITE: Clear, medium to coarsely crystalline. <1/2% clay at 50.8' to 51.0'. [2]	
13		4.9	4.9	100	X		
	50				X		
51.0					—		
	55				—		



BORING NO. DH-16



# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE/SIZE \_\_\_\_\_ NX CORE \_\_\_\_\_ BORING NO. DH-17

LOCATION N 1420 DRIFT; ROOF

STATION N1427 ± E178 ± COLLAR ELEV. 1316.45 DIRECTION OF DRILLING UP-VERTICAL

MINE COORDINATES N11114.2 E7071.8 DEPTH OF BOREHOLE 52.0 FT

DRILLING METHOD ROTARY/AIR DRILL MAKE/MODEL WATSON

DATE STARTED 1/18/84 (DAY) DATE COMPLETED 1/19/84 (DAY) SHEET

LOGGED BY: J.E. GALLERANI DATE: 3/6/84 1 OF 3

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
0.0	0.0						
1	3.7	3.7	3.7	100	X	0.0'-4.2' HALITE: Clear to moderate reddish orange (10R 6/6) coarsely crystalline, some medium. Scattered polyhalite < 1%. < 1/2% gray clay. [3,9]	Watson drill. AW rods. NX double tube core barrel.
2	5.0	5.0	5.0	100	X	4.2'-7.2' HALITE: Clear to light gray (N7) coarsely crystalline. ≤ 1% gray intercrystalline clay. < 1/2% polyhalite. [9,11]	Drilling time: 5 hours. Dry hole; no gas.
3	8.7	4.9	4.9	100	X	7.2'-7.4' ANHYDRITE b: Very light (N8) to light gray (N7) microcrystalline anhydrite. Trace of dry gray clay at 7.2'. Some core grinding noted. Tightly closed irregular upper contact. Some halite growths 7.3'-7.4'. 7.4'-12.8' HALITE: Clear, coarsely crystalline. Scattered white anhydrite stringers. ≤ 1% polyhalite 7.3'-7.7' and 12.0'-12.6'. [1,2]	Overall core condition good. Only several small broken up zones.
4	13.6	4.8	4.8	100	X X	12.8'-14.1' HALITE: Clear to light bluish gray (5B 7/1), fine to medium crystalline. ≤ 1% gray intercrystalline clay. Trace of dispersed polyhalite. (9) 14.1'-14.8' ANHYDRITE a: White to medium light (N6) and very light (N8) gray microcrystalline anhydrite some laminae. Growths of halite present. < 1/32" halite laminate at 14.4'. Trace of gray clay at 14.1'.	Run 4. Core broken up last 6" of run.
5	18.4	5.0	5.0	100	X X	14.8'-19.0' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6) coarsely crystalline. < 1 to 3% polyhalite blebs, patches. [3,4,7]	
23.4	23.4				X	19.0'-21.0' HALITE: Clear to light gray (N7), fine to medium crystalline with some coarse. < 1 to 2% gray clay. < 1/2% dispersed polyhalite. [1,2,9]	

BORING NO. DH-17

# WIPP

WASTE ISOLATION PILOT PLANT

SHEET

2

OF

3

BORING NO. DH-17

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
	25						
6	28.2	4.8	4.8	100		21.0'-23.6' HALITE: Clear, coarsely crystalline. Trace < 1% gray clay. fine-medium crystalline 22.4'-22.9'. < 1/2% polyhalite blebs. Clay parting at 23.5'. 3/4" anhydrite layer above this. (2,9)	
7	30	5.0	5.0	100		23.6'-28.3' HALITE: Clear, coarsely crystalline. Scattered white anhydrite/magnesite stringers from 23.6'-25.6'. (1)	Run 7. Core broken up zone 32.2'-32.7' ±
	33.2					28.3'-29.6' ARGILLACEOUS HALITE: Clear to grayish brown, fine to medium crystalline. < 1 to 2% brown and gray clay. Scattered breaks. (12,15)	
8	35	4.0	4.0	100		29.6'-32.0' HALITE: Clear, coarsely crystalline. (1,8)	Run 8. Bit plugged off went only 4' and pulled barrel.
	37.2					32.0'-36.3' HALITE: Clear to moderate brown (5YR 4/4) and grayish brown, coarsely crystalline, some medium. < 1% brown and gray clay to 33.1' ±. Core is argillaceous, 1 to 3% brown clay, from 32.9-35.2'. Clear from 35.8'-36.3'. (8,10)	
9	40	5.0	5.0	100	X	36.3'-37.2' ANHYDRITE: Very light (N8) to light gray (N7) microcrystalline anhydrite. Halite growths within 1" brown clay seam at 36.2'. Slightly plastic. low moisture.	
	42.2					37.2'-40.7' HALITE: Clear mottled with moderate reddish orange (10R 6/6), coarsely crystalline. < 1% polyhalite blebs anhydrite mixed with halite from 37.2' to 37.6'. (2-4)	
10	45	4.8	4.8	100	X	40.7'-41.5 HALITE: Clear to moderate brown (5YR 4/4) coarsely crystalline. ≤ 1% brown intercrystalline clay (2,8)	
	47.0					41.5'-43.4' ARGILLACEOUS HALITE: Clear to moderate brown (5YR 4/4) coarsely crystalline. < 1 to 3% brown intercrystalline clay. Trace of Gray. Breaks at 41.5', 42.2'. (10,16)	
11	50	5.0	5.0	100	X	43.4'-45.4' HALITE: Clear, coarsely crystalline. 1% polyhalite at 43.4'-44.0'. (2)	
	52.0						
	55						

BORING NO. DH-17

# WIPP

WASTE ISOLATION PILOT PLANT

SHEET

3

OF

3

BORING NO. DH-17

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
						<p>45.4'-47.05' HALITE: Clear, coarsely crystalline. &lt; 1% brown intercrystalline clay. &lt; 1/2% polyhalite blebs. (8)</p> <hr/> <p>47.05'-50.3' ARGILLACROUS HALITE: Clear to moderate brown (5YR 4/4) medium to coarsely crystalline. &lt; 1 to 5% brown clay, intercrystalline and breaks. 1" brown clay mixed with halite crystals at 50.2'. (16)</p> <hr/> <p>50.3'-52.0 POLYHALITIC HALITE: Clear mottled with moderate reddish orange (10R 6/6) coarsely crystalline. &lt; 1%, locally 2% polyhalite. &lt; 1/2% gray clay. (4, 7)</p>	



BORING NO. DH-17



# WIPP

WASTE ISOLATION PILOT PLANT

SHEET

2

OF

2

BORING NO.

DH-18

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
6	25	5.2	5.2	100	X X	27.9'-33.7' HALITE: Clear mottled with moderate reddish orange, coarsely crystalline. < 1 to 2% polyhalite with most concentration at 27.9' to 30.0'. 1" anhydrite layer at 33.0'. [7, 1]	
7	30	4.8	4.8	100	X X	33.7'-34.05' ANHYDRITE: Very light (NS) to medium gray (MS) microcrystalline anhydrite with scattered halite growths. Trace of dry gray clay at 34.05'.	
8	35	5.0	5.0	100	X X	34.05'-41.2' HALITE: Clear mottled with some light gray, fine to coarsely crystalline. ≤ 1% gray intercrystalline clay and polyhalite. Clear, fine to medium crystalline from 35.2' to 36.1'. [9, 4]	
9	40	5.0	5.0	100	X X	41.2'-44.6' HALITE: Clear to medium brown (5AR 4/4) to grayish brown (5YR 3/2) medium to coarsely crystalline. < 1 to 2% brown, trace gray. [10]	Run 9. Small broken zone. 38.1'-38.4' ±.
10	45	4.6	4.6	100	X X	44.6'-47.2' HALITE: Clear to light gray (N7) coarsely crystalline. < 1% gray intercrystalline clay. < 1/2% dispersed polyhalite. [11]	Run 10-11. Time to put rods in hole, drill, and come out of hole and empty barrel and put rods back in hole: 43 minutes.
11	50	3.1	3.1	100	X X	47.2'-50.1' HALITE: Clear, coarsely crystalline. 1/2% gray clay at 48.6' to 48.7'. < 1% dispersed polyhalite at 48.7' to 50.1'. [2]	
					X X	50.1'-50.8' HALITE: Clear, with some light gray (N7), coarsely crystalline. < 1% gray intercrystalline clay. Break at 50.5'. [11]	



# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE/SIZE NX CORE \_\_\_\_\_ BORING NO. DH-19

LOCATION NI100 DRIFT - ROOF

STATION N 1107 ± E 206.5 ± COLLAR ELEV. 1314.7 DIRECTION OF DRILLING UP-VERTICAL

MINE COORDINATES N 10,794.2 E 7101.7 DEPTH OF BOREHOLE 51.6 FT.

DRILLING METHOD ROTARY/AIR DRILL MAKE/MODEL WATSON

DATE STARTED 1/20/83 (DAY) DATE COMPLETED 1/21/84 (DAY) SHEET

LOGGED BY: J. E. GALLERANI DATE: 3/5/84 1 OF 3

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
1	0	0.6	0.6	100	-	0.0'-4.0' HALITE: Clear, coarsely crystalline. < 1/2% gray intercrystalline clay and < 1% polyhalite blebs. (2)	Watson drill.
2	4.4	4.4	4.4	100	X	4.0'-7.55' HALITE: Clear with some light gray (N7), medium to coarse crystalline. ≤ 1% gray, intercrystalline clay < 1/2% dispersed polyhalite. (2,9)	AW Rods; MW double tube barrel 6" diameter barrel used to start hole. Roof only 8-1/2' high so unable to get MX core barrel on drill.
3	5	4.6	4.6	100	X	7.55'-7.75' ANHYDRITE b: Very light (N8) to medium gray (N5) microcrystalline anhydrite. Scattered halite growths. Several near-horizontal hairline fractures with anhydrite. Trace clay at 7.55'.	Drill Time: 7-1/2 hours. Dry hole; no gas.
4	9.6	3.6	3.6	100	X	7.75'-8.2' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline. 1 to 2% polyhalite. (7)	
5	13.2	3.8	3.8	100	X	8.2'-12.1' HALITE: Clear, coarsely crystalline. < 1/2% dispersed polyhalite locally. Very clear at 8.2' to 8.7' ±. (1)	
6	17.0	4.6	4.6	100	X	12.1'-13.9' HALITE: Clear to light gray (N7) coarsely crystalline to 13'; then fine to medium < 1% gray intercrystalline clay. < 1% polyhalite to 13'. (2,9)	Run 5. Core broken in discs from 14.5 to 17' ±.
7	21.6	4.4	4.4	100	X	13.9'-14.5' ANHYDRITE a: Very light (N8) to medium gray (N5) microcrystalline anhydrite. Scattered halite growths. Thin, irregular halite layer at 14.3' ±.	
	25				X	14.5'-18.5' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6); coarsely crystalline. Scattered anhydrite to 16' ±. < 1 to 3% polyhalite, dispersed and blebs. (3,4,7)	Run 7. Core broken up last 2' of run in clear halite.

BORING NO. DH-19

# WIPP

WASTE ISOLATION PILOT PLANT

SHEET

2 OF 3

BORING NO. DH-19

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
	25						
26.0	7	4.4	4.4	100		18.5'-23.8' HALITE: Clear to grayish brown (5YR 3/2) fine to coarsely crystalline. ≤ 1% clay, predominantly brown with some gray. Brown break at 19.8' ±. Coarse crystalline from 22.9', 3/4" anhydrite layer with grayish-brown clay break at 23.2'. Trace of dispersed polyhalite. ( 17 )	Run 8. Broken up last 3".
	8	4.4	4.4	100	X	23.8'-27.5' HALITE: Clear, coarsely crystalline. Scattered irregular anhydrite laminae. ( 1, 8 )	
30.4						27.5'-29.2' ARGILLACEOUS HALITE: Clear to medium brown (5YR 4/4) fine to coarsely crystalline. < 1 to 3% brown intercrystalline clay. < 1/2% dispersed polyhalite. Trace of gray clay. ( 12 )	Run 9. Core broken up last 2' of run but within one unit.
	9	4.7	4.7	100		29.2'-31.4' HALITE: Clear, coarsely crystalline. ( 1 )	
35.1						31.4'-32.4' HALITE: Clear with some moderate brown (5YR 4/4, 3/4) coarsely crystalline < 1% brown clay. ( 8 )	Run 10 & 11. Core broken up 38'-39.6'± all in clear halite.
	10	4.2	4.2	100	X	32.4'-35.3' ARGILLACEOUS HALITE: Clear to moderate brown (5YR 4/4; 3/4) medium to coarsely crystalline. < 1 to 4% brown clay. ( 10,16 )	
39.3						35.3'-36.4' HALITE: Clear to moderate reddish orange 10R 6/6 and light gray (N7) fine to medium crystalline < 1/2% dispersed polyhalite and < 1% gray clay. ( 9 )	
	11	4.8	4.8	100	X	36.4'-37.1' ANHYDRITE: Very light to light gray microcrystalline anhydrite. Scattered halite growths. Some horizontal laminae 1/2" brown clay seam at 36.4'.	Run 12. Some broken core last 1.5'.
44.1						37.1'-40.6' HALITE: Clear mottled with moderate reddish orange (10R 6/6) coarsely crystalline. ≤ 1% polyhalite blebs. Scattered white very light gray anhydrite/magnesite? (.1,2)	
	12	3.0	3.0	100	X	40.6'-43.0' HALITE: Clear with some moderate brown (5YR 3/4; 4/4) and mottled with moderate reddish orange (10R 6/6) fine to coarsely crystalline. < 1% polyhalite. < 1% clay. ( 2,17 )	
47.1							
	13	4.5	4.5	100			
51.6							
	55						

BORING NO. DH-19

# WIPP

WASTE ISOLATION PILOT PLANT

SHEET

3

OF

3

BORING NO. DH-19

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
						<p>43.0'-44.4' ARGILLACEOUS HALITE: Clear to moderate brown (5YR 3/4; 4/4) coarsely crystalline. &lt;1 to 3% brown intercrystalline clay. ( 10 )</p> <hr/> <p>44.4'-46.0' HALITE: Clear, coarsely crystalline. &lt; 1% polyhalite blebs. ( 2 )</p> <hr/> <p>46.0'-51.35' ARGILLACEOUS HALITE: Clear to moderate brown (5YR 3/4; 4/4) fine to coarsely crystalline. &lt;1 to 3% brown clay, intercrystalline and scattered breaks. 3/8" brown clay seam at 51.0'. ( 12,16 )</p> <hr/> <p>51.35'-51.6' HALITE: Clear, coarsely crystalline. ≤1% polyhalite blebs. ( 2 )</p>	





# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE/SIZE NX CORE \_\_\_\_\_ BORING NO. DH-20

LOCATION N1100 DRIFT, FLOOR \_\_\_\_\_

STATION N1109± E206± COLLAR ELEV. 1306.2 DIRECTION OF DRILLING VERTICAL DOWN

MINE COORDINATES N10,794.2 E7101.7 DEPTH OF BOREHOLE 51.1'

DRILLING METHOD ROTARY/AIR DRILL MAKE/MODEL WATSON

DATE STARTED 1/31/84 (DAY) DATE COMPLETED 1/31/84 (DAY) SHEET

LOGGED BY: J. E. GALLERANI DATE: 3/5/84 1 OF 2

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
0.0	0.0						
1	2.3	2.3	2.3	100	---	0.0'-2.05' ARGILLACEOUS HALITE: Clear to moderate brown (5YR 4/4), medium to coarsely crystalline. < 1 to 4% brown clay, intercrystalline. Break at 0.7'. [10]	Watson Drill. AW Rods. 3' single tube barrel to start hole from 0.0' to 4.6'. Then 5' NX double tube barrel.
2	4.6	2.3	2.3	100	X	2.05'-8.15' HALITE: Clear, medium to coarsely crystalline. ≤ 1% clay. Brown clay to 2.4', then gray. < 1/2% polyhalite. [2, 8]	Drill time: 5 hours. Dry; No gas.
3	8.6	4.0	4.0	100	X	8.15'-10.4' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline. < 1 to 4% polyhalite. [7]	
4	13.6	5.0	5.0	100	X X X X X X	10.4'-13.0' MB-139: From 10.4'-11.15' mixture of moderate reddish orange halite and anhydrite. From 11.15', predominantly white to light gray (N7) to medium gray (N5) microcrystalline anhydrite, some halite intergrowths. Tightly welded upper contact. Up to 1/2" gray, hard clay at lower contact dipping 15° ±. Halite laminae just above clay. Anhydrite is laminated. Near-horizontal, irregular tightly closed hairline fractures in core 12.2'-12.5'.	Core locally, broken up, disturbed due to drilling.
5	18.0	4.4	4.1	93.2	X	13.0'-17.15' HALITE: Clear to moderate reddish orange (10R 6/6) medium to coarsely crystalline. ≤ 1% polyhalite ≤ 1% gray and some brown clay. Break at 15.3'. [9, 17]	
6	22.9	4.9	4.5	91.8	X X X X X X	17.15'-20.7' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6) coarsely crystalline. < 1 to 4% polyhalite increasing content 18.0'-20.7'. Gray clay < 1/16" at 20.7'. Some anhydrite mixed with halite 20.4'-20.7'. [3, 4, 7]	
7	25	5.0	4.9	98	X X X X	20.7'-22.85' HALITE: Clear mottled with moderate reddish orange and gray medium to coarsely crystalline. ≤ 1% polyhalite. ≤ 1% gray intercrystalline clay. Clear from 21.5'-21.9'. [9]	

BORING NO. DH-20

# WIPP

WASTE ISOLATION PILOT PLANT

SHEET

2

2

BORING NO.

DH-20

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
	25						
7	27.9	5.0	4.9	98	X X X X X X	22.85'-29.0' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6) coarsely crystalline. < 1 to 3% polyhalite. < 1% gray intercrystalline clay. Some anhydrite 28.35'-28.55'±. [3, 4, 7]	
8	30	4.9	4.9	100	X	29.0'-32.2' HALITE: Clear with some moderate reddish orange (10R 6/6) medium to coarsely crystalline. < 1/2% gray intercrystalline clay. < 1/2% dispersed polyhalite. [2,9]	
32.8					X X	32.2'-36.8' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6) coarsely crystalline. < 1 to 3% polyhalite. < 1% polyhalite from 34'-35.05'. Scattered anhydrite stringers below 35'. [3, 4, 7]	
9	35	4.8	4.8	100	X X X X X	36.8'-37.8' HALITE: Clear, coarsely crystalline. ≤ 1% polyhalite. Scattered anhydrite stringers. Mixture of halite and some anhydrite at 37.1' to 37.25'. [2]	
37.6					X	37.8'-38.3' ANHYDRITE: White to light gray (N7), microcrystalline. Growths of halite especially common to 37.95'. Hard gray clay parting at 38.3'.	
10	40	5.0	5.0	100	X	38.3'-42.6' HALITE: Clear, some light gray (N7) to medium with some coarsely crystalline. ≤ 1% gray clay, locally up to 2%. Some brown clay present. Gray break at 39.25'. Brown colored break at 39.8'. [9, 11]	
42.6					X	42.6'-45.8' HALITE: Clear, coarsely crystalline. < 1/2% gray intercrystalline clay and polyhalite blebs. Break at 45.45'. [2, 11]	
11	45	5.0	5.0	100	X	45.8'-47.6' HALITE: Clear to grayish brown, medium to coarsely crystalline. ≤ 1% brown clay, trace of gray. < 1% polyhalitic. [17]	
47.6					X	47.6'-51.1' HALITE: Clear medium to coarsely crystalline. ≤ 1% dispersed gray clay and polyhalite. [9]	
12	50	3.5	3.5	100	X		
51.1							
	55						

BORING NO. DH-20

# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE/SIZE \_\_\_\_\_ NX CORE \_\_\_\_\_ BORING NO. DH-21

LOCATION N1420 DRIFT; ROOF

STATION N1421± E786± COLLAR ELEV. 1331.0 DIRECTION OF DRILLING VERTICAL-UP

MINE COORDINATES N11,109.1 E7680.9 DEPTH OF BOREHOLE 50.4'

DRILLING METHOD ROTARY/AIR DRILL MAKE/MODEL WATSON

DATE STARTED 2/26/84 (SWING) DATE COMPLETED 2/27/84 (SWING) SHEET

LOGGED BY: J. E. GALLERANI DATE: 3/6/84 1 OF 2

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
0.0	0.0						
1	2.3	2.3	2.3	100	X	0.0'-6.7' HALITE: Clear with some moderate reddish orange (10R 6/6); medium to coarsely crystalline. < 1% polyhalite and < 1/2% intercrystalline gray clay. 1/2" gray clay seam at 6.7'. [3, 9]	Watson drill: AW rods; NX double tube core barrel. Drilling time: 8 hrs±  No gas. Dry hole.
2	5	4.7	4.6	98	X	6.7'-11.0' HALITE: Clear, coarsely crystalline. Scattered white stringers of anhydrite/magnesite. [1]	Core shows discing, broken zones throughout.
3	10	4.6	4.3	94	X	11.0'-11.8' HALITE: Clear to light gray (N7) coarsely crystalline, < 1% intercrystalline gray clay. [11]	Run 2. Some broken core.
4	15	4.1	4.1	100	X	11.8'-13.1' HALITE: Clear, medium to coarsely crystalline. < 1/2% dispersed polyhalite and gray clay. [1, 9]	Run 3. Broken core, discing.
5	20	3.0	2.7	90	X	13.1'-17.9' HALITE: Clear to light gray (N7) and locally grayish brown. Coarsely crystalline. None to ≤ 1% intercrystalline gray clay. Trace brown clay at 17.3'-17.5'±; Clear halite at 13.1'-14.4' and 17.7'-17.9' ±. [11]	Run 4. Discing throughout. Run 5. Broken core much of run.
6	25	4.6	4.6	100	X	17.9'-19.2' ARGILLACEOUS HALITE: Clear to moderate brown (5YR 4/4), medium to coarsely crystalline. < 1 to 3% intercrystalline brown clay, trace of gray. Break at 18.95'. [12, 17]	Run 6. Discing below anhydrite in this run.
					X	19.2'-19.8' ANHYDRITE: White to light gray (N7) microcrystalline anhydrite to 19.6'. Then mixture of polyhalitic halite and anhydrite. Irregular laminae in some of the anhydrite. Up to 3/4" hard brown clay at 19.2'. Some core grinding noted.	
					X	19.8'-26.0' POLYHALITIC HALITE: Clear to moderate reddish orange/brown (10R 6/6 ; 10R 4/6). Coarsely crystalline. < 1/2% clay and anhydrite locally. [3-5, 7]	Contact at 26.0' is approximate due to broken up core.
					X		
					X		

BORING NO. DH-21



# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE/SIZE \_\_\_\_\_ NX CORE \_\_\_\_\_ BORING NO. DH-22

LOCATION N1420 DRIFT - FLOOR

STATION N 1421.5 ± E 785.5 COLLAR ELEV. 1318.8 DIRECTION OF DRILLING VERTICAL - DOWN

MINE COORDINATES N 11.109.2 E 7680.9 DEPTH OF BOREHOLE 51.0'

DRILLING METHOD ROTARY/AIR DRILL MAKE/MODEL WATSON

DATE STARTED 2/27/84 (SWING) DATE COMPLETED 2/29/84 (SWING) SHEET

LOGGED BY: J. E. GALLERANI DATE: 3/6/84 1 OF 2

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
1	0.0 - 4.8	4.8	4.8	100	X	0.0'-5.1' HALITE: Clear, coarsely crystalline. <1% gray intercrystalline clay locally. <1/2% polyhalite. [ 1 ]	Watson drill AW rods. NX double tube core barrel.  Drilling time: 8-1/2 hours ±  Overall core quality is good. Only a couple of broken zones.  No gas. Dry hole.  Run 4. Broken up top 0.2' of run.  Run 5. Core spring worn out. Left 3' of core in hole.  Run 6. Broken up 17.5' - 18.5'.
2	4.8 - 8.8	4.0	4.0	100	X	5.1'-9.5' HALITE: Clear to light and medium gray (N7, N5) coarsely crystalline. ≤1% gray intercrystalline clay. Steeply dipping, irregular break at 7.65'-7.8'. [ 11 ]	
3	8.8 - 10.5	1.7	1.7	100	X	9.5'-11.7' HALITE: Clear to light moderate reddish orange (10R 6/6), coarsely crystalline. ≤1% polyhalite, blebs and dispersed. [ 3 ]	
4	10.5 - 15.1	4.6	4.6	100	X	11.7'-15.0' HALITE: Clear to light gray (N7), some moderate reddish orange (10R 6/6), coarsely crystalline. ≤1% gray intercrystalline clay and <1/2% dispersed polyhalite. [ 9 ]	
5	15.1 - 17.1	2.0	2.0	100	X	15.0'-21.55' HALITE: Clear, coarsely crystalline. None to <1% polyhalite blebs. <1/2% gray intercrystalline clay locally. [ 1.2 ]	
6	17.1 - 21.0	3.9	3.1	79	X	21.55'-24.3' MB-139: From 21.55' to 23.10' core shows "swallowtail" pattern a mixture of anhydrite and halite. Slight trace of gray clay on upper contact which dips 35°±. Predominantly halite from 23.10'-23.2'. Then mostly it gray (N7) to white anhydrite with scattered halite growths irregular laminae. Several hairline, tightly closed fractures at 23.9'-24.15' ±. Horizontal halite laminae at 23.2' ±. Trace of gray clay at 24.3'.	
7	21.0 - 25.1	4.1	4.1	100	X	24.3'-28.0' HALITE: Clear to light gray (N7), medium to coarsely crystalline. ≤1% gray intercrystalline clay. <1/2% polyhalite. Break at 25.2'. [ 9 ]	

BORING NO. DH-22

# WIPP

WASTE ISOLATION PILOT PLANT

SHEET

2

OF

2

BORING NO.

DH-22

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
25.1					X		
8		4.7	4.7	100	—	28.0'-32.25' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6) coarsely crystalline. <1 to 3% polyhalite. Anhydrite mixed with halite at 32.0'-32.25'. ( 7 )	
29.8	30				X X X X	32.25'-34.5' HALITE: Clear with some light gray (N7), coarsely crystalline. ≤1% gray clay. Breaks at 33.85', 34.3'. ( 9,11 )	
9		4.7	4.7	100	X X —	34.5'-40.5' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline. <1% gray intercrystalline clay. Breaks at 38.0', 38.25'. <1 to 3% polyhalite. ( 3,4,7 )	
34.5	35				—	40.5'-43.7' HALITE: Clear, medium to coarsely crystalline. <1% gray clay and <1/2% dispersed polyhalite. Break at 41.3'. ( 9 )	
10		4.1	4.1	100	X X — X X X	43.7'-47.85' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6) coarsely crystalline. <1 to 4% polyhalite. <1/2% gray clay locally. ( 7 )	
38.6	40				X X X X	47.85'-48.4' ANHYDRITE: mixed halite and moderate reddish brown (10R 4/6) anhydrite to 48.1'. From 48.1', mostly very light gray (N8) to white and moderate reddish brown (10R 4/6) anhydrite with scattered halite growths. <1/8" clay seam at 48.4'.	
11		5.1	5.1	100	— X	48.4'-50.0' HALITE: Clear, coarsely crystalline. <1% gray intercrystalline clay. Break at 49.75'. ( 11 )	
43.7	45				X X — X X X		
12		2.0	2.0	100	X X — X X X		
45.7					X X — X X X		
13		4.3	4.3	100	X X — X X X		Run 13. Broken up upper part of run.
50.0	50				—		

# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE/SIZE NX CORE BORING NO. DH-23

LOCATION N1100 DRIFT; ROOF

STATION N1112<sup>±</sup> E781<sup>±</sup> COLLAR ELEV. 1328.03 DIRECTION OF DRILLING VERTICAL UP

MINE COORDINATES N10,799.2 E7679.9 DEPTH OF BOREHOLE 51.0'

DRILLING METHOD ROTARY/AIR DRILL MAKE/MODEL WATSON

DATE STARTED 2/13/84 (SWING) DATE COMPLETED 2/15/84 (SWING) SHEET

LOGGED BY: J. E. GALLERANI DATE: 3/5/84 1 OF 2

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
0.0	0.0						
1	2.1	2.1	2.1	100	—	0.0'-1.2' HALITE: Clear to light moderate reddish orange (10R 6/6), fine to coarsely crystalline. <1/2% gray clay. Break at 0.25'. [2, 9]	NX Double tube core barrel. AW Rods. Watson drill mounted on single post jacked to floor/roof. Drilling time: 7 hours ±.
2.1					X X		
2	4.3	2.2	2.2	100	X X	1.2'-1.9' ANHYDRITE a: White to medium light gray (N6) microcrystalline anhydrite. Growths of halite within. Gray clay seam <1/16" at 1.2'.	No gas. Dry hole.
4.3					X X		
3	5	2.0	2.0	100	X X		
6.3					—	1.9'-6.25' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline. <1 to 3% polyhalite. [3]	Core recovery difficult to measure because core is sometimes broken up into 1/2" to 1-1/2" discs and gravel size pieces.
8.0					—		
4	8.0	1.7	1.7	100	—		
9.75					—	6.25'-11.05' HALITE: Clear, some moderate brown (5YR 4/4), coarsely crystalline, some fine to medium. Brown and gray clay <1%. Brown clay seam ≤1/16" with some anhydrite at 11.05'. [9, 17]	Run 2. Broken up last 0.6'.
11.05					—		
6	11.05	4.5	4.5	100	—	11.05'-14.25' HALITE: Clear, coarsely crystalline. Scattered white stringers of anhydrite/magnesite?. [1]	Run 3. Broken up some/dicing. Run 6. Broken up 12-14'±.
14.25					—		
7	14.25	1.45	1.45	100	—	14.25'-19.3' HALITE: Clear to moderate brown (5YR 4/4), medium to coarsely crystalline. None to 2% brown clay. <1 to 2% clay from 14.25-15.7' and 18.5-19.3'. Clear from 17.0-18.5'. [8, 10]	Run 7. Zones of broken core. Run 8. Broken up last 0.6' of run.
15.7					—		
8	15.7	2.0	2.0	100	—		
17.7					—	19.3'-23.5' ARGILLACEOUS HALITE: Clear to moderate brown (5YR 4/4), coarsely crystalline. Some fine to medium. <1 to 4% brown clay. [8, 10]	Run 10. Some broken zones above and below anhydrite.
20.7					—		
9	20.7	3.0	3.0	100	—	23.5'-24.4' ANHYDRITE: White to very light gray (N8) microcrystalline anhydrite. Scattered polyhalitic halite growths, especially common 24-24.4'±. 3/4" brown clay seam at 23.5'.	
25					—		
10	25	4.75	4.75	100	—		

BORING NO. DH-23

# WIPP

WASTE ISOLATION PILOT PLANT

2 SHEET OF 2

BORING NO. DH-23

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
25.45	25	4.75	4.75	100	X	24.4'-28.15' HALITE: Clear, some moderate reddish orange, coarsely crystalline. <1% polyhalite blebs. 1/2" white anhydrite layer at 25.1'±. Up to 3% polyhalite with trace gray clay at 27.45-27.95'. [2]	Run 11. Broken zones beyond 26.7'.  Run 15. Broken up last 12"± of run.
11		4.3	4.3	100	X -	28.15'-31.45' HALITE: Clear to moderate brown (5YR 4/4) and moderate reddish orange (10R 6/6), coarsely crystalline, some fine. Brown clay <1 to 2%, locally. <1 to 2% polyhalite blebs and patches. [17]	Contact at 28.15 is approximate due to broken core in Run 11.
29.75	30				X	31.45'-33.2' HALITE: Clear, coarsely crystalline. < 1% brown clay blebs. [8]	
12		4.25	4.25	100	X	33.2'-36.5' ARGILLACEOUS HALITE: Clear to moderate brown (5YR 4/4) and some moderate reddish orange (10R 6/6). Coarsely crystalline. < 1 to 3% brown clay, intercrystalline and breaks. 1/4"± brown clay seam at 33.8'±. ≤ 1/16" clay partings at 35.4' and 36.5'. [10]	
34.0	35				X	36.5'-38.1' HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline. ≤ 1% polyhalite blebs and patches. Scattered anhydrite stringers. [2, 3]	
38.4	40				X - X	38.1'-41.65' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline. < 1 to 3% polyhalite blebs and patches. < 1/2% gray clay. Trace brown clay at 41.65'. [4, 5]	
14		5.0	4.9	98	X -	41.65'-42.9' ARGILLACEOUS HALITE: Clear to moderate brown (5YR 4/4), coarsely crystalline, some medium. < 1 to 5% brown clay. 1" brown clay seam with some halite at 42.7'. [12, 17]	
43.4	45				X X	42.9'-44.3' ANHYDRITE: Clear, some moderate reddish orange (10R 6/6), coarsely crystalline. ≤ 1% polyhalite. [2, 5]	
15		4.4	4.4	100	X -	44.3'-46.2' HALITE: Clear to moderate reddish orange (10R 6/6) and moderate brown (5YR 4/4). Coarsely crystalline to 44.9', then fine to medium. ≤ 1% brown and gray clay. < 1% dispersed polyhalite. < 1/4" brown clay seam at 46.05'. Anhydrite at 46.05-46.2'. [9, 17]	
47.8	50				X	46.2'-48.25' HALITE: Clear, coarsely crystalline. < 1% moderate reddish orange polyhalite blebs. [1]	
16		3.2	3.2	100	X	48.25'-51.0' HALITE: Clear to moderate reddish brown (10R 4/6) coarsely crystalline. < 1 to 2% brown clay and ≤ 1% polyhalite blebs. [8, 10]	
51.0	55						



# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE/SIZE NX CORE BORING NO. DH-24

LOCATION N1100 DRIFT; FLOOR

STATION N 1112 ± E 781 ± COLLAR ELEV. 1319.51 DIRECTION OF DRILLING DOWN - VERTICAL

MINE COORDINATES N10.799.2 E7679.8 DEPTH OF BOREHOLE 49.4'

DRILLING METHOD ROTARY/AIR DRILL MAKE/MODEL WATSON

DATE STARTED 2/15/84 (SWING) DATE COMPLETED 2/16/84 (DAY) SHEET

LOGGED BY: J.E. GALLERANI DATE: 3/5/84 1 OF 2

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
0.0		0.0					
1	1.6	1.6	1.5	94	X	0.0'-3.3' HALITE: Clear, coarsely crystalline. < 1/2% polyhalite blebs.	Watson drill. AM rods. NX double tube core barrel mounted on post jacked to floor/roof. Still vibration from drill motor, but post is stable.  Run 5. Several broken zones in core. Loss throughout. Contacts at 10.7'; 12.6' approximate only.
2	3.1	1.5	1.5	100	X	3.3'-5.2' HALITE: Clear, coarsely crystalline. < 1/2% gray clay and polyhalite blebs.	
3	5.0	2.9	2.9	100	X	5.2'-7.15' HALITE: Clear to light gray (N7) medium to coarsely crystalline. ≤ 1% gray clay, locally up to 2%. Breaks and intercrystalline. Breaks at 6.05'; 6.85'. < 1/2% polyhalite.	
4	10.5	4.5	4.5	100	X	7.15'-10.7' HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline < 1% to 2% polyhalite blebs and dispersed increasing content from 9.1' to 10.7'. Gray clay break at 10.35'.	
5	15.8	5.3	3.6	68	X	10.7'-12.6' HALITE: Clear to light gray (N7) and light bluish gray (5B 7/1) medium to coarsely crystalline. ≤ 1% gray intercrystalline clay. Break at 10.9'.	
6	20.8	5.0	5.0	100	X	12.6'-20.8' HALITE: Clear, coarsely crystalline. 1/2% polyhalite blebs. None to < 1% gray intercrystalline clay. Break at 20.75'.	
7	25.0	5.0	5.0	100	X	20.8'-24.0' MB-139: From 20.8' to 22.4' is mixture of anhydrite and halite. "Swallowtail" pattern. From 22.4' to 24.0' is white to medium gray (N5) microcrystalline anhydrite. Scattered halite growths. Irregular laminae in core. Tightly closed hairline fractures in core from 23.5' to 24.0'. Up to 3/4" gray clay.	
					X	24.0'-28.3' HALITE: Clear with some moderate reddish orange (10R 6/6) and light gray (N7), medium to coarsely crystalline, some fine. < 1/2% dispersed polyhalite and < 1% gray intercrystalline clay. Breaks at 24.4'; 24.8'.	



BORING NO. DH-24

# WIPP

WASTE ISOLATION PILOT PLANT

2 SHEET OF 2

BORING NO. DH-24

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
	25						
25.8	7	5.0	5.0	100	—	28.3'-31.8' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline. < 1 to 3% polyhalite. Up to 1" anhydrite layer in core.	Run 9. Broken up last 1/2 of core. Probable loss from 32.1'-34.2'.
	8	4.9	4.9	100	—		
	30				X X	31.8'-34.2' HALITE: Clear with some light gray (N7), medium to coarsely crystalline < 1% gray intercrystalline clay. < 1/2% dispersed polyhalite. Core broken up in this section. Some core loss.	
30.7					X X		
					X		
	9	3.5	3.5	100	—	34.2'-35.2' HALITE: Clear, coarsely crystalline. < 1% polyhalite blebs.	
					X		
34.2					X	35.2'-38.4' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), some medium light gray (N6), coarsely crystalline. < 1 to 3%, locally to 5%, polyhalite. < 1/2% gray clay.	
	35				X X		
					X —		
	10	5.2	5.2	100	X X	38.4'-43.0' HALITE: Clear with some light moderate reddish orange (10R 6/6) fine to coarsely crystalline. < 2/2% dispersed polyhalite and gray clay. 0.5' core loss within this zone.	
					X		
39.4					X	43.0'-44.4' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6) coarsely crystalline. < 1 to 5% polyhalite.	
	40	3.0	2.5	83			
					X		
42.4					X X	44.4'-48.25' HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline. ≤ 1% polyhalite blebs, patches and dispersed. Predominantly polyhalite 47.35'-47.45'.	
					X X X		
	45	5.3	5.3	100	X	48.25'-48.6' ANHYDRITE: Very light gray (N8) to medium light gray (N6) microcrystalline anhydrite. Scattered halite growths. Up to 1" clear, coarsely crystalline halite from 48.3'-48.4' ±. < 1/16" gray clay at 48.6'. Some core grinding evident.	
					X		
47.7					X		
	13	1.7	1.7	100	—		
49.4					—	48.6'-49.4' HALITE: Clear to light gray (N7); medium to coarsely crystalline. < 1 to 2% gray clay. Breaks at 48.7' and 49.0'.	
	50						
	55						

Note: Overall recovery below 95%. Replacement hole DH-24A drilled later. Refer to the drill log for DH-24A.

# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE/SIZE \_\_\_\_\_ NX CORE \_\_\_\_\_ BORING NO. DH-24A

LOCATION N1100 DRIFT - FLOOR

STATION N1112 ± E780 ± COLLAR ELEV. 1319.49 DIRECTION OF DRILLING VERTICAL - DOWN

MINE COORDINATES N10799.08 E7678.59 DEPTH OF BOREHOLE 50.4'

DRILLING METHOD ROTARY/AIR DRILL MAKE/MODEL WATSON

DATE STARTED 3/21/84 (SWING) DATE COMPLETED 3/22/84 (SWING) SHEET

LOGGED BY: J. E. GALLERANI DATE: 3/23/84 1 OF 2

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
0.0	0						
1	2.2	2.2	2.0	91	X	0.0'-0.1' FILL:	Watson Drill AW rods.
2.2						0.1'-3.3' HALITE: Clear to light moderate reddish orange (10R 6/6); coarsely crystalline. < 1/2% dispersed polyhalite. [1, 2]	Run 1. Used 3' double tube barrel first run to start hole.
	2.8	2.8	2.8	100	—		NW split tube barrel used after first run.
5.0	5					3.3'-7.4' HALITE: Clear to medium gray (N5); coarsely crystalline. ≤ 1% gray clay. [1, 11]	Drill Time: 5 hours ±.
						7.4'-10.2' HALITE: Clear to moderate reddish orange (10R 6/6); coarsely crystalline. ≤ 1% polyhalite, increasing content 9.2' to 10.2'. [2, 3]	
	5.1	5.1	5.1	100	X		
					X		
10.1	10					10.2'-15.9' HALITE: Clear to medium light gray (6); light bluish gray (58-7/1) and light moderate reddish orange (10R 6/6). Medium to coarsely crystalline. ≤ 1% gray clay. Breaks at 10.95'; 11.85'. < 1/2% polyhalite. [11]	
					X		
	5.1	5.1	5.1	100	—	15.9'-21.3' HALITE: Clear with some light moderate reddish orange; coarsely crystalline, some medium. < 1/2% gray clay and polyhalite. [2]	
					X		
15.2	15					21.3'-23.95' MB-139: From 21.3' to 22.5' is mixture of anhydrite and halite partially in a "swallowtail" pattern. Upper contact dips 20° ± with tightly closed fracture along base. Below 22.5' is white to light gray (N7) to moderate reddish orange anhydrite scattered halite growths. 1/2" gray clay at lower contact.	
					—		
	5.1	4.9	96		X		
					—		
20.3	20					23.95'-28.6' HALITE: Clear to light moderate reddish orange 10R 6/6 and trace of light gray (N7) medium to coarsely crystalline. < 1% dispersed polyhalite and < 1/2% gray clay. [2, 3, 9]	
					—		
	5.1	5.1	100		X		
					—		
25.4	25						

BORING NO. DH-24A

# WIPP

WASTE ISOLATION PILOT PLANT

SHEET

2

OF

2

BORING NO. DH-24A

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
25.4	25						
7		5.0	5.0	100	X —	28.6'-32.1' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline. < 1 to 3% polyhalite. Irregular gray clay break at 32.1'. [2, 4, 7]	
30.4	30				X X X	32.1'-34.4' HALITE: Clear to medium light gray (N6) and light moderate reddish orange (10R 6/6). Medium to coarsely crystalline. < 1/2% dispersed polyhalite and < 1/2% gray clay. [9]	
8		5.0	5.0	100	X X X X	34.4'-40.5' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline with some medium. None to 3% polyhalite. < 1/2% gray clay locally. [2-5, 7]	
35.4	35				X X X X X X	40.5'-43.7' HALITE: Clear to medium light gray (N6) and some light moderate reddish orange (10R 6/6). Medium to coarsely crystalline. < 1% gray intercrystalline clay and < 1/2% dispersed polyhalite. [9]	
9		5.0	3.0	60	X X X X X X X X	43.7'-48.55' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6); coarsely crystalline. < 1 to 3% polyhalite. < 1/2% gray clay locally. [3, 4, 7]	
40.4	40				X X —	48.55'-49.2' HALITE: Clear, coarsely crystalline, some medium. Scattered white anhydrite stringers. [1, 2]	
10		4.9	4.9	100	X —	49.2'-49.5' ANHYDRITE: White to medium light gray (N6), microcrystalline. Scattered halite growths. Trace of gray clay at 49.5'.	
45.3	45				X X X X X X	49.5'-50.4' HALITE: Clear with some moderate reddish orange (10R 6/6); medium to coarsely crystalline. < 1% polyhalite. < 1/2% gray clay. [1, 9]	
11		5.1	5.1	100	X X X X		
50.4	50				X —		
	55						

Run 9. Driller increased RPM's on last 2' of run.



BORING NO. DH-24A

# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE / SIZE NX BORING NO. DH-25

LOCATION N1420 Drift at Room C-2 Intersection

STATION N 1422, E 1510 COLLAR ELEV. 1318.8 DIRECTION OF DRILLING Vertical Up

MINE COORDINATES N 11109.72, E 8403.78 DEPTH OF BOREHOLE 51.8'

DRILLING METHOD Rotary/Air DRILL MAKE/MODEL Watson Model 750

DATE STARTED 3/29/84 (swing) DATE COMPLETED 3/30/84 (swing) SHEET

LOGGED BY: J. E. Galleroni DATE: 4/18/84 1 OF 2

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
1	0 - 2.5	2.5	2.5	100	—	0.0'-4.6' HALITE: Clear to light gray (N7) and light moderate reddish orange (10R 6/6), medium to coarsely crystalline. < 1% gray clay. < 1/2% dispersed polyhalite. [1, 9]	Watson drill, post-mounted, AW rods, S&H NX double-tube.  Drilling time: 5 hrs. ±
2	2.5 - 5	4.4	4.4	100	X	4.6'-7.0' HALITE: Clear, coarsely crystalline. Scattered white anhydrite stringers. 1/2" gray anhydrite layer at 4.85'. Trace of gray clay at 4.85'. [1]	
	5 - 6.9				—	7.0'-9.3' HALITE: Clear to light gray (N7) and some moderate brown (5YR 4/4). Fine to coarsely crystalline. ≤ 1% gray clay. ≤ 1% brown clay from 8.5'-8.85'. Clay break at 8.6'. [11]	
3	6.9 - 10	4.0	4.0	100	—	9.3'-12.4' HALITE: Clear, coarsely crystalline. [1]	
4	10 - 15	5.0	5.0	100	—	12.4'-15.4' HALITE: Clear to light gray (N7), medium light gray (N6), and locally some moderate reddish orange (10R 6/6). Medium to coarsely crystalline. < 1% gray clay. 1/2" clay and halite seam at 15'. < 1/2% dispersed polyhalite. [11]	
	15 - 15.9				X	15.4'-16.9' ARGILLACEOUS HALITE: Clear to moderate brown (5YR 4/4), medium to coarsely crystalline. < 1 to 3% brown clay, trace gray. [12, 16]	
5	15.9 - 16.9	1.0	1.0	100	—	16.9'-17.4' HALITE: Clear, coarsely crystalline. < 1/2% dispersed polyhalite. [2]	
6	16.9 - 20	3.6	3.6	100	X	17.4'-18.15' ANHYDRITE: White to medium light gray (N6), microcrystalline anhydrite. Faintly laminated. Growths of halite within. Trace of brown clay at 17.4'. Some polyhalite along upper contact.	Run 6: Broken-up last 12" of run.
7	20 - 25	5.4	5.4	100	X	18.15'-21.6' HALITE: Clear mottled with moderate reddish orange (10R 6/6), coarsely crystalline. None to 2% polyhalite. [1, 2]	Run 7. Discing of core.

BORING NO. DH-25

# WIPP

WASTE ISOLATION PILOT PLANT

SHEET

2

OF

2

BORING NO. DH-25

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
25.9	25						
7		5.4	5.4	100	—	21.6'-27.4' HALITE: Clear to moderate brown (SYR 4/4), fine to coarsely crystalline. < 1 to 2% brown clay, locally argillaceous. Breaks at 21.8'±, 23.6'±, 24.0'±. Brown clay seam at 24.05'. Coarsely crystalline 24.1'-27.4'. [8, 10, 12]	
8		5.0	5.0	100	—	27.4'-29.6' ARGILLACEOUS HALITE: Clear to moderate brown (SYR 4/4), medium to coarsely crystalline, some fine. < 1 to 4% brown clay, intergranular and scattered breaks. [12]	
30.9	30				X X	29.6'-34.3' POLYHALITIC HALITE: Clear to moderate reddish orange, coarsely crystalline. < 1 to 3% polyhalite. Average < 2%. [3, 4]	Run 9. Broken-up core, discing.
9		4.4	4.4	100	X X	34.3'-35.3' HALITE: Clear, coarsely crystalline. < 1/2% polyhalite blebs. [1]	
35.3	35				X	35.3'-48.5' HALITE: Clear with patches of moderate brown (SYR 3/4; 4/4) and traces of moderate reddish orange (10R 6/6). Coarsely crystalline, some medium to 36.4'. < 1 to 2% brown clay. 1/2" brown clay seam with some halite at 36.25'. Mostly brown clay mixed with halite from 38.9-39.2'. > 30% clay here. ≤ 1% polyhalite blebs and patches. Clay breaks at 46.6'±, 46.8'±, 47.2'±, 48.5'. Argillaceous halite at 46.35'-47.2'. [1, 8, 10]	Run 10. Broken-up core.
36.2		0.9	0.9	100	X	48.5'-49.7' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline. < 1 to 3% polyhalite. [3, 4]	
40.8	40				X	49.7'-51.8' HALITE: Clear with some light gray (N7) and moderate reddish orange (10R 6/6). Coarsely crystalline. ≤ 1% gray clay and polyhalite blebs and patches. [9, 11]	Run 12. Broken-up core.
42.1		1.3	1.3	100	—		
46.8	45				X		
13		4.7	4.7	100	X		
14	50	5.0	5.0	100	X X		
51.8					X		

BORING NO. DH-25

# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE/SIZE NX-Core BORING NO. DH-26

LOCATION N1420 Drift at Room C-2 Intersection


STATION N 1427, E 1510 COLLAR ELEV. 1307.2 DIRECTION OF DRILLING Vertical Down

MINE COORDINATES N 11114.32, E 8403.78 DEPTH OF BOREHOLE 53.0 Ft.

DRILLING METHOD Rotary/Air DRILL MAKE/MODEL Watson Model 750

DATE STARTED 3/30/84 (swing) DATE COMPLETED 3/30/84 (swing) SHEET

LOGGED BY: J. E. Gallerani DATE: 4/18/84 1 OF 2

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
0.0	0						
1	4.2	4.2	4.2	100	X	0.0'-6.2' HALITE: Clear, coarsely crystalline, some medium. < 1/2% gray intercrystalline clay. < 1/2% polyhalite. [1, 2]	Watson drill, AW rods, NX double-tube core barrel, except run 4 where NW split-tube barrel was used.  Drill time: 4 hrs.  No gas. Dry hole.
2	5				X	6.2'-9.8' HALITE: Clear to medium light gray (N6), coarsely crystalline. ≤ 1% gray clay. Breaks at 7.75', 8.1', 9.6'. [11]	
3	9.8	3.3	3.3	100	X	9.8'-12.5' HALITE: Clear to light moderate reddish orange (10R 6/6), coarsely crystalline. ≤ 1% polyhalite [1, 2]	Overall core is fair with some broken zones and discing.  Run 2. Discing of core.
4	12.1				X	12.5'-19.3' HALITE: Clear to medium light gray (N6) and light moderate reddish orange (10R 6/6). Fine to coarsely crystalline. ≤ 1% gray clay. < 1/2% polyhalite. [1, 9]	
5	13.5	4.6	4.6	100	X	19.3'-21.8' HALITE: Clear with some moderate reddish orange (10R 6/6), coarsely crystalline. None to < 1% polyhalite. [1, 2]	Run 4. Tried split-tube core barrel but barrel plugged-off while drilling.
6	18.2				X	21.8'-23.3' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline. < 1 to 3% polyhalite. Scattered anhydrite. < 1/2% gray clay. [4, 6]	
7	23.2	1.4	0.85	61	X	23.3'-25.9' MB-139: Very light gray (N8) to medium light gray (N6) anhydrite with scattered halite growths. Anhydrite is partly laminated. 1-1/2" hard gray clay seam at lower contact.	
8	25	4.7	4.7	100	X	25.9'-29.8' HALITE: Clear to moderate reddish orange (10R 6/6) and light gray (N7). Medium to coarsely crystalline. ≤ 1% gray clay and < 1% polyhalite. [2, 9]	
9	29.8				X	29.8'-33.3' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline. < 1 to 3% polyhalite. Gray clay break at 33.3'. Anhydrite mixed with halite from 33.05'-33.3'. [7]	
10	33.3	5.0	5.0	100	X	33.3'-36.0' HALITE: Clear with some moderate reddish orange (10R 6/6) and light gray (N7). Medium to coarsely crystalline. < 1/2% dispersed polyhalite. < 1% gray intercrystalline clay. [9]	
11	23.2				X		

# WIPP

WASTE ISOLATION PILOT PLANT

SHEET  
OF

2

2

BORING NO. DH-26

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
	25						
7	28.2	5.0	5.0	100	X	36.0'-41.0' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline to 39.6', then medium to coarse. < 1 to 3% polyhalite blebs and dispersed. < 1/2% gray clay locally. Scattered anhydrite 39.6'-40.0'±. [3, 7]	
8	30	4.8	4.8	100	X X X X X	41.0'-44.0' HALITE: Clear to light bluish gray (5B 7/1) and light gray (N7) and some moderate reddish orange, medium to coarsely crystalline. ≤ 1/4" gray clay seams at 36.1'± and 41.7'±. ≤ 1% clay. [9]	
	33.0					44.0'-48.8' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline. < 1 to 3% polyhalite. [7]	
9	35	5.0	5.0	100	X	48.8'-49.6' ANHYDRITE: Moderate reddish orange anhydrite to 49'. Then halite with some anhydrite from 49'-49.1'. Then medium light gray (N6) to light gray (N7) anhydrite. Trace of gray clay at 49.6'.	
	38.0					49.6'-53.0' HALITE: Clear to medium light gray (N6), medium to coarsely crystalline. ≤ 1% gray clay. < 1/2% dispersed polyhalite. [1, 9]	
10	40	5.0	5.0	100	X X X X X X		
	43.0						
11	45	5.0	3.6	72	X X X X X X		Run 11. Discing of core.
	48.0						Run 12. Broken-up in upper one foot. Considerable chipping of core surface below the anhydrite.
12	50	5.0	5.0	100	X		
	53.0						
	55						



# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE/SIZE \_\_\_\_\_ NC CORE \_\_\_\_\_ BORING NO. DH-27

LOCATION ROOM G ACCESS DRIFT - ROOF


STATION N1107, W682 COLLAR ELEV. 1300.8 DIRECTION OF DRILLING VERTICAL UP

MINE COORDINATES N10,793.7, E6218.4 DEPTH OF BOREHOLE 50.5'

DRILLING METHOD ROTARY AIR DRILL MAKE/MODEL CP-65

DATE STARTED 7-26-84 DATE COMPLETED 7-27-84 SHEET

LOGGED BY: J. GALLERANI DATE: 7-28-84 1 OF 2

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
1	0.0 - 3.0	3.0	2.8	93	X	0.0'-4.5' HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline, <1% polyhalite. [1, 2]	NC double tube wireline core barrel. NC rods.  Note: Drilled 0.0-3.0' with 2-5/8" inside diameter single tube core barrel. Total drilling time: 13 hrs.
2	3.0 - 6.3	3.3	3.3	100	X	4.5'-5.8' HALITE: Clear to moderate brown (5YR 3/4), coarsely crystalline, some medium <1% to 2% locally, brown clay. Parting @ 5.5'. [8, 10]	
3	6.3 - 8.5	2.2	2.2	100	X	5.8'-6.95' HALITE: Clear to moderate reddish brown (10R 4/6), grayish red (10R 4/2), medium to coarsely crystalline, some fine <1% to 2% dispersed polyhalite and <1% gray and brown clay.	
4	8.5 - 13.0	4.5	4.5	100	X	6.95'-7.20' ANHYDRITE b: Light (#7) to medium light gray (#6), microcrystalline anhydrite. Halite growths within, most common in middle of unit.	
5	13.0 - 18.0	5.0	5.0	100	X	7.20'-12.95' HALITE: Clear, coarsely crystalline, scattered white stringers of anhydrite. <1/2% polyhalite. Trace of gray clay @ 12.3'. [1]	
6	18.0 - 21.2	3.2	3.2	100	X	12.95'-13.95' HALITE: Clear to moderate reddish orange (10R 6/6), fine to coarsely crystalline. <1% polyhalite and <1% gray clay. [9]	
7	21.2 - 25.0	4.8	4.3	90	X	13.95'-14.55' ANHYDRITE a: Very light (#8) to medium light gray (#6), microcrystalline anhydrite, irregular laminae. Scattered halite growths most common from 14.25 to 14.55'. Pinkish gray color here. Trace of gray clay @ 13.95'.	
					X	14.55'-18.4' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline, <1% to 3% polyhalite. [4, 7]	  Runs 7-12: Broken core zones in coarsely crystalline, clear halite.
					X	18.4'-23.9' HALITE: Clear to moderate brown (10R 4/6), some moderate reddish orange (10R 6/6), coarsely crystalline, some medium. None to 2% brown clay. <1% polyhalite from 22.1'-22.9' ±. Scattered anhydrite to 19.4' [8, 10]. 3/8" brown clay seam at 23.7'. 1/2" anhydrite above @ 23.85'.	
					X	23.9'-28.6' HALITE: Clear, coarsely crystalline, trace brown clay from 27.2' ± and some medium crystalline. [1] [8 from 27.2']	

BORING NO. DH-27

# WIPP

WASTE ISOLATION PILOT PLANT

SHEET

2

OF

2

BORING NO.

DH-27

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
	25						
26.0	7	4.8	4.3	90	—	28.6'-30.5' ARGILLACEOUS HALITE: Clear to moderate brown (5YR 3/4), fine to medium, some coarsely crystalline. <1% to 3% brown clay. [12]	39% of core recovered was 22 inches in length.
	8	4.8	3.5	73	— — — —	30.5'-32.4' HALITE: Clear, trace of light moderate brown, coarsely crystalline. <1/2% brown clay. Core broken up @ 30.8'-31.4'. [1, 8]	
30.8	30				— — — —	32.4'-36.2' ARGILLACEOUS HALITE: Clear to moderate brown (5YR 3/4), some light moderate reddish orange (10R 6/6). Medium to coarsely crystalline. <1% to 3% brown clay. <1/2% dispersed polyhalite. Scattered breaks. [10, 12]	
	9	3.8	3.7	97	X — — —	36.2'-36.95' ANHYDRITE: Very light (N8) to light gray (N7), some moderate reddish orange anhydrite. Scattered halite growths within. 3/4" hard brown clay @ 36.2'.	
34.6	35				— — — —	36.95'-40.3' HALITE: Clear, some moderate reddish orange (10R 6/6), coarsely crystalline <1%, locally 2% polyhalite, scattered white anhydrite stringers. [1, 3]	
	10	3.4	2.9	85	X — — —	40.3'-41.4' POLYHALITIC HALITE: Clear, to moderate reddish orange (10R 6/6), coarsely crystalline, <1% to 3% polyhalite. [4, 7]	
38.0	40				X — — —	41.4'-42.55' HALITE: Clear, some moderate brown (5YR 4/4) coarsely crystalline, some medium, <1% brown clay, break @ 42.5'. [1, 8]	
	11	4.5	3.9	87	X X — —	42.55'-46.4' HALITE: Clear to moderate reddish orange (10R 6/6), some moderate brown (5YR 4/4). Coarsely crystalline, some medium. 2% polyhalite to 43'±; then <1% [1, 2]. 2% brown clay at 43.65'-43.9' [12]. Break @ 44.3'.	
42.5	45				X X — —	46.4'-47.2' ARGILLACEOUS HALITE: Clear to moderate brown (5YR 3/4), coarsely crystalline, <1% to 3% brown clay. Mixture of brown clay and halite seam at 47.1'-47.2'. [10]	
	12	4.7	4.7	100	X — — —	47.2'-48.3' HALITE: Clear to moderate reddish orange/brown (10R 6/6, 4/6), medium to coarsely crystalline. 1% brown clay, <1% polyhalite. [17]	
47.2	50				X — — —	48.3'-50.5' ARGILLACEOUS HALITE: Clear to moderate brown (5YR 4/4), medium to coarsely crystalline, some fine <2% to 5% brown clay. Scattered clay breaks [10, 15].	
50.5	55						



# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE/SIZE NC-CORE BORING NO. DH-28

LOCATION ROOM 6 ACCESS DRIFT - FLOOR

STATION N1107, W682 COLLAR ELEV. 1289.9 DIRECTION OF DRILLING VERTICAL DOWN

MINE COORDINATES N10793.8, E6218.3 DEPTH OF BOREHOLE 50.5'

DRILLING METHOD ROTARY AIR DRILL MAKE/MODEL CP-65

DATE STARTED 7-25-84 DATE COMPLETED 7-26-84 SHEET

LOGGED BY: J. F. GALLERANT DATE: 7-27-84 1 OF 2

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
1	0	3.0	2.7	90	X -	0.0'-4.2' HALITE: Clear, coarsely crystalline, some medium. <1% polyhalite, <1% clay, predominantly gray with trace of brown. [1, 2]	NC double tube wire-line core barrel with NC rods. Used 2-5/8" core bit, single tube barrel from 0.0'-3.0'. Total drilling time: 4.5 hrs. Core quality good, 75% of core recovered is ≥ 2" lengths.
2	3.0	4.8	4.75	98	- X	4.2'-5.6' HALITE: Clear, mottled with some moderate reddish orange (10R 6/6). Coarsely crystalline. <1% polyhalite blebs. Trace of anhydrite. [2, 4]	
3	7.8	5.2	5.1	98	X -	5.6'-9.9' MB-139: Mixture of polyhalitic halite and anhydrite to 7.6'. Some "swallowtail" pattern. Then predominantly anhydrite with scattered halite growths. Light gray and moderate reddish orange to 8.4', then predominantly light (N7) to medium light (N6) gray. <1/8" gray clay at 9.9'.	
4	13.0	5.0	5.0	100	X -	9.9'-13.65' HALITE: Clear to medium light gray (N6) and light moderate reddish orange (10R 6/6). Medium to coarsely crystalline. <1% dispersed polyhalite. <1% gray clay. [9]	
5	18.0	5.0	5.0	100	X -	13.65'-18.3' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline. <1% to 3% polyhalite. Scattered anhydrite. Anhydrite/halite @ 18.05'-18.25'. Irregular gray clay break at 18.3'. [4, 7]	
6	23.0	5.1	5.1	100	X -	18.3'-20.4' HALITE: Clear to light gray (N7) and light moderate reddish orange (10R 6/6), medium to coarsely crystalline. <1% dispersed polyhalite and gray clay. [9]	
					X X	20.4'-24.9' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline. <1% to 3% polyhalite, trace of gray clay at 23.85'. [3, 4, 7]	M
					X -	24.9'-25.9' HALITE: Clear to light moderate reddish orange (10R 6/6), medium to coarsely crystalline, <1% dispersed polyhalite. [2]	
					X X	25.9'-28.1' HALITE: Clear to moderate reddish brown (10R 4/6) and medium brown (5YR 3/4), medium to coarsely crystalline. <1% to 2% brown clay. <1% polyhalite. [17]	

BORING NO. DH-28

# WIPP

WASTE ISOLATION PILOT PLANT 2 SHEET OF 2 BORING NO. DH-28

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
	25						
6		5.1	5.1	100	X X - X	28.1'-30.6' HALITE: Clear, medium to coarsely crystalline, <1/2% dispersed polyhalite, trace of gray clay locally. [2]	
7	28.1	5.0	4.9	98	- X - X	30.6'-35.1' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline, <1% to 3% polyhalite [7]. Moderate reddish orange to light gray anhydrite, some halite, at 34.65'-34.9'.	
	30						
						35.1'-35.35' ANHYDRITE: Light (N7) to medium light (N6) gray, microcrystalline. Scattered halite growths. $\frac{3}{8}$ " hard gray clay layer at lower contact.	
8	33.1	5.0	5.0	100	X X X	35.35'-42.55' HALITE: Clear to light moderate reddish orange (10R 6/6) and medium gray (N5). Medium to coarsely crystalline. <1% dispersed polyhalite, $\frac{1}{2}$ % gray clay. [9, 11]	
	35						
						42.55'-44.6' HALITE: Clear to moderate reddish brown (10R 4/6) and moderate brown (5YR 3/4). Medium to coarsely crystalline, <1% to 2% brown clay, some gray, <1% polyhalite dispersed. [17, some 9]	
						44.6'-47.9' HALITE: Clear to moderate reddish orange (10R 6/6), some medium gray (N5). Medium to coarsely crystalline, $\frac{1}{2}$ % polyhalite and $\frac{1}{2}$ % gray clay. [9]	
9	38.1	4.9	4.6	94	- - X	47.9'-50.5' HALITE: Clear, coarsely crystalline. [1]	
	40						
10	43.0	5.0	5.0	100	X - - X		Core broken up at 39.6'-39.8'±.
	45						
11	48.0	2.5	2.5	100	- -		
	50						



# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE/SIZE NC-CORE BORING NO. DH-29

LOCATION ROOM 6 ACCESS DRIFT - ROOF

STATION N1099, W982 COLLAR ELEV. 1298.3 DIRECTION OF DRILLING VERTICAL UP

MINE COORDINATES N10785 4, E5932 4 DEPTH OF BOREHOLE 50.4'

DRILLING METHOD ROTARY AIR DRILL MAKE/MODEL CP-65

DATE STARTED 7-23-84 DATE COMPLETED 7-25-84 SHEET

LOGGED BY: J. E. GALLERANI DATE: 7-25-84 1 OF 2

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
0.0	0						
1		2.2	2.2	100		0.0'-3.9' HALITE: Clear, coarsely crystalline. [1]	NC double tube wire line core barrel, NC stepped diamond bit. Used 2 ft starter barrel (2-5/8" core) from 0'-6.1' Total drilling time: 132 hrs.
2.2		1.8	1.8	100		3.9'-6.3' HALITE: Clear to moderate brown (5YR 3/4), coarsely crystalline, <1% to 2% brown clay.	
4.0						6.3'-7.55' HALITE: Clear to moderate brown (5YR 4/4) and grayish red. Fine to medium, some coarse, s1% clay, brown and gray. <1/2% dispersed polyhalite.	
5		2.1	2.1	100		7.55'-7.75' ANHYDRITE b: Light gray (N7), micro-crystalline, scattered halite growths. Trace of gray clay at 7.55'.	
6.1					X	7.75'-13.25' HALITE: Clear, coarsely crystalline. <1/2% polyhalite, scattered white stringers.	
10		4.6	4.6	100	X	13.25'-14.3 HALITE: Clear to moderate reddish orange (10R 6/6), medium to coarsely crystalline. <1% gray clay. s1% to 2% polyhalite dispersed.	
10.7					X	14.3'-14.8' ANHYDRITE a: Light gray to medium light gray microcrystalline anhydrite. Scattered halite growths. Trace of gray clay at 14.2'.	
14.8					X	14.8'-19.6' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline, <1% to 3% polyhalite.	
15					X	19.6'-22.5' HALITE: Clear, some moderate brown, coarsely crystalline, some fine and medium. s1% brown clay. <1/2% dispersed polyhalite. Breaks at 20.75', 21.5'.	
6		4.7	4.7	100	X	22.5'-24.4' HALITE: Clear, to moderate brown, fine to medium, some coarsely crystalline. <1% brown clay. <1/2% dispersed polyhalite.	M
19.5					X	24.4'-27.7' HALITE: Clear, coarsely crystalline. Scattered white anhydrite.	
20		4.9	4.9	100	X	27.7'-29.9' HALITE: Clear, mottled with moderate brown, coarsely crystalline, some medium. s1% to 2% brown clay. Core broken up to 29.2'.	
24.4					X		Run 7: bottomed in brown clay seam. Vibrated and broke core.

BORING NO. DH-29



# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE/SIZE NC-CORE BORING NO. DH-29A

LOCATION ROOM 6 ACCESS DRIET - ROOF \_\_\_\_\_

STATION N1099, W987 COLLAR ELEV. 1298.1 DIRECTION OF DRILLING VERTICAL UP

MINE COORDINATES N10,786.1 E5927.3 DEPTH OF BOREHOLE 35.0'

DRILLING METHOD ROTARY/AIR DRILL MAKE/MODEL CP-65

DATE STARTED 9-12-84 DATE COMPLETED 9-12-84 SHEET

LOGGED BY: J.E. GALLERANI DATE: 9-29-84 1 OF 2




RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
	0					0.0'-20.0' NON-CORE: Refer to log for DH-29.	NC double tube core barrel used. This hole was drilled to replace 20'-35' zone of poor quality core in DH-29. Refer to log for DH-29 for core descriptions at 0'-20' and 35'-50'
	5					20.0'-25.0' HALITE: Clear to moderate brown (5YR 4/4), some moderate reddish orange (10R 6/6). Medium to coarsely crystalline, some fine. <1% to 2% brown clay. <1% polyhalite locally. Anhydrite seam at 25'±. 4 1/4" hard brown clay associated. [12, 17]	
	10					25.0'-28.4' HALITE: Clear, coarsely crystalline. Scattered anhydrite stringers. [1]	
	15					28.4'-30.9' ARGILLACEOUS HALITE: Clear to moderate brown (5YR 3/4, 4/4), medium to coarsely crystalline. <1% to 3% brown clay. <1/2% dispersed polyhalite. [10, 15, 17]	
	20.0					30.9'-35.0' HALITE: Clear, some moderate brown (5YR 3/4, 4/4), coarsely crystalline, some medium. 4 1/2% brown clay. [10]	
1	25	5.0	4.6	92	X		



BORING NO. DH-29A

# WIPP

WASTE ISOLATION PILOT PLANT 2 SHEET OF 2 BORING NO. DH-29A

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
25.0	25						
2		5.0	4.7	94			
30.0	30						
3		5.0	4.5	90			
35.0	35						
	40						

M



# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE/SIZE \_\_\_\_\_ NC CORE \_\_\_\_\_ BORING NO. DH-30

LOCATION ROOM 6 ACCESS DRIET - FLOOR


STATION N1099, W982 COLLAR ELEV. 1289.2 DIRECTION OF DRILLING VERTICAL DOWN

MINE COORDINATES N10785.5, F5932.3 DEPTH OF BOREHOLE 50.1'

DRILLING METHOD ROTARY AIR DRILL MAKE/MODEL CP-65

DATE STARTED 7-25-84 DATE COMPLETED 7-25-84 SHEET \_\_\_\_\_

LOGGED BY: L GALLERANT DATE: 7-26-84 1 OF 2

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
1	0	1.7	1.7	100	—	0.0'-8.6' HALITE: Clear, some light medium gray. Coarsely crystalline, some medium. <1% gray clay. Trace of brown at 1.0'-1.7'. [1, 11]	NC double tube wire-line core barrel. Used 2 ft single tube barrel from 0'-5.8'. Had to ream hole to 5.8 ft to accommodate NC core barrel. Total drilling time 5.5 hrs.
2	5	4.1	4.1	100	—	8.6'-11.5' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6). Coarsely crystalline. <1% to 3% polyhalite. [7]	
					—	11.5'-16.0' MB-139: Mixture of halite and anhydrite to 13'. Then predominantly very light to medium light gray anhydrite with scattered halite growths. Irregular hairline fracture at 14'±. Gray clay at lower contact.	
3	5.8	4.1	4.1	100	—	16.0'-19.2' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline. <1% gray clay. <1% to 3% polyhalite. Scattered anhydrite. [some 5]	
					X III	19.2'-20.7' HALITE: Clear, some light moderate reddish orange (10R 6/6). Medium to coarsely crystalline. <1% dispersed polyhalite. <1/2% gray clay.	
4	9.9	5.0	5.0	100	III X	20.7'-25.45' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline. <1% to 3% polyhalite. [5, 7]	
					Diagonal Hatching	25.45'-30.1' HALITE: Clear to light moderate reddish orange (10R 6/6), medium to coarsely crystalline. <1% polyhalite dispersed. <1% gray clay. [9]	66% of core recovered is ≥2 inch length.
5	14.9	5.0	5.0	100	X X X X X X	30.1'-35.2' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline. <1% to 3% polyhalite. Scattered anhydrite [5, 7]. Anhydrite/halite layer at 34.9'-35.1'±.	
					X	35.2'-35.6' ANHYDRITE: Light gray (N7) to medium light gray (N6), microcrystalline. Scattered halite growths. No clay.	
6	19.9	5.1	5.1	100	X X X X	35.6'-43.75' HALITE: Clear to light moderate reddish orange (10R 6/6), medium to coarsely crystalline. <1% dispersed polyhalite and gray clay [9]. Polyhalitic at 42.9'-43.5'±.	
					X		
	25.0				X		

BORING NO. DH-30



# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE/SIZE NC-CORE BORING NO. DH-31

LOCATION ROOM 6 ACCESS DRIFT - ROOF

STATION N1099, W1282 COLLAR ELEV. 1298.5 DIRECTION OF DRILLING VERTICAL UP

MINE COORDINATES N10,784.9, E5632.3 DEPTH OF BOREHOLE 50.5'

DRILLING METHOD ROTARY AIR DRILL MAKE/MODEL CP-65

DATE STARTED 7-18-84 DATE COMPLETED 7-19-84 SHEET

LOGGED BY: J. E. GALLERANT DATE: 7-20-84 1 OF 2

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
0	0	Non-Core			Non-Core	0.0'-5.0' NON-CORE.	NC double tube wire line core barrel, NC stepped diamond bit. 2 ft starter barrel with impregnated bit caused too much vibration. Went to plugged diamond bit from 0.0 ft to 5.0 ft. Total drilling time 11.5 hrs.
1	5.0	2.7	2.65	98	— —	5.0'-7.25' HALITE: Clear to moderate brown (5YR 4/4), coarsely crystalline, some medium, <1% to 2% brown clay.	
2	7.7				X	7.25'-7.5' ANHYDRITE b: Light gray microcrystalline anhydrite. Scattered halite growths. <1/4" gray clay at 7.25'.	
3	10	5.0	4.9	98	— —	7.5'-13.6' HALITE: Clear, some light moderate reddish orange, coarsely crystalline. <1/2% polyhalite. Scattered white stringers.	
4	12.7				X	13.6'-14.4' HALITE: Clear to moderate reddish brown, medium to coarsely crystalline. <1% brown clay, some gray, and dispersed polyhalite.	
5	15	4.8	4.8	100	X —	14.4'-15.1' ANHYDRITE a: Light gray to medium light gray. Scattered halite growths. Trace gray clay at 14.4'. Core grinding evident.	
6	17.5				X X	15.1'-19.05' POLYHALITIC HALITE: Clear to moderate reddish orange, coarsely crystalline. <1% to 2% polyhalite.	
7	20	4.0	4.0	100	X X	19.05'-21.4' ARGILLACEOUS HALITE: Clear to moderate brown, medium to coarsely crystalline, <1% to 3% brown clay. <1% dispersed polyhalite.	
8	21.5				X X	21.4'-23.95' HALITE: Clear to light moderate reddish orange, medium to coarsely crystalline. <1% polyhalite. <1/2% brownish gray clay. Brown clay seam at 23.9' with associated anhydrite to 23.95.	
9	25	4.5	4.2	95	X —	23.95'-27.9' HALITE: Clear, coarsely crystalline. Scattered white anhydrite stringers. [1]	
					X	27.9'-29.65' HALITE: Clear to moderate brown, medium to coarsely crystalline. None to 3% brown clay.	
					X	29.65'-31.1' HALITE: Clear, coarsely crystalline.	



BORING NO. DH-31

# WIPP

WASTE ISOLATION PILOT PLANT

SHEET 2 OF 2

BORING NO. DH-31

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	%RECOVERED	PROFILE	DESCRIPTION	REMARKS
	25						
26.0						31.1'-32.7' HALITE: Clear, medium to coarsely crystalline. <1/2% brown clay.	Run 6: Core broken up. Difficult to measure recovery.
6		4.5	4.1	91		32.7'-33.6' ARGILLACEOUS HALITE: Clear to moderate brown (5YR 3/4, 4/4), medium to coarsely crystalline. <1% to 3% brown clay. [10]	
						33.6'-34.5' HALITE: Clear, coarsely crystalline. <1/2% brown clay.	Run 7: Discing, some broken core.
30.5	30					34.5'-36.55' ARGILLACEOUS HALITE: Clear to moderate brown, medium to coarsely crystalline. <1% to 3% brown clay.	
7		5.0	4.7	94		36.55'-37.35' ANHYDRITE: Very light gray to medium light gray, scattered halite growths and irregular laminae. <1/8" brown clay at 36.55'.	Run 8: 1 1/2" core is broken up.
						37.35'-41.5' HALITE: Clear to moderate reddish orange, coarsely crystalline. <1% to 2% polyhalite. Locally polyhalitic.	
35.5	35					41.5'-44.3' ARGILLACEOUS HALITE: Clear to moderate brown, medium to coarsely crystalline. <1% to 3%, locally, brown clay, scattered breaks.	
8		5.0	4.8	96		44.3'-45.5' HALITE: Clear, coarsely crystalline. <1% polyhalite. <1/2% clay.	
						45.5'-47.0' HALITE: Clear, mottled with moderate brown (5YR 4/4), coarsely crystalline. <1% to 2% brown clay.	
40.5	40				X	47.0'-50.5' ARGILLACEOUS HALITE: Clear to moderate brown, medium to coarsely crystalline. <1% to 3% brown clay. Breaks from 47.5' to 50.5'.	
9		5.0	5.0	100	X		
45.5	45						
10		5.0	5.0	100			
50.5	50						
						Note: Hole redrilled due to poor core quality. See log for hole DH-31A.	



BORING NO. DH-31

# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE/SIZE NC-CORE BORING NO. DH-31A

LOCATION ROOM 6 ACCESS DRIFT - ROOF

STATION N1099 W1280 COLLAR ELEV. 1298.5 DIRECTION OF DRILLING UP VERTICAL

MINE COORDINATES N10784.8, E5630.5 DEPTH OF BOREHOLE 49.2'

DRILLING METHOD ROTARY AIR DRILL MAKE/MODEL CP-65

DATE STARTED 7-20-84 DATE COMPLETED 7-24-84 SHEET

LOGGED BY: J. E. GALLERANI DATE: 7-24-84 1 OF 2

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
0.0	0	Non-Core				0.0'-5.1' NON-CORE: Used plugged diamond bit.	NC double tube wire-line core barrel. Wireline rod and stepped diamond bit. Total drilling time: 10.5± hrs. 46% of core recovered was 32 inch length.
						5.1'-7.15' HALITE: Clear to moderate brown, some light to moderate reddish orange. Medium to coarsely crystalline. <1% brown clay with trace of gray. <1/2% dispersed polyhalite. [8, 17]	
	5					7.15'-7.35' ANHYDRITE b: Light gray (N7), micro-crystalline, partially laminated. Scattered halite growths. Gray clay at 7.15'. Contact dips 10°±.	Upper 4.9' of hole was replaced with corehole DH-32B.
1	4.9	4.8	97	X		7.35'-13.85' HALITE: Clear, some light to moderate reddish orange. Coarsely crystalline. <1/2% polyhalite. Scattered white stringers. [1, 2]	
				X		13.85'-14.65' HALITE: Clear to moderate brown. Fine to medium crystalline, some coarsely crystalline. <1% brown clay. [12]	
10.0	10	5.2	5.2	100	X	14.65'-15.3' ANHYDRITE a: Light to medium light gray microcrystalline. Scattered halite growths. <3/16" gray clay at 14.65. Vertical fracture noted from 14.35' to 14.85'.	
	15					15.3'-19.5' POLYHALITIC HALITE: Clear to moderately reddish orange, (10R 6/6), coarsely crystalline. <1% to 3% polyhalite. <1/2% gray clay locally. [5, 7]	Run 2: Several broken zones in clear halite.
15.2	15	5.1	5.1	100	X X	19.5'-24.75' HALITE: Clear, some lightly moderate reddish orange. Medium to coarsely crystalline with some fine crystalline. <1% brown with some gray clay and polyhalite dispersed. 1/2" grayish brown hard clay at 24.7'. Scattered halite within. [12, 17]	
					X X	24.75'-28.8' HALITE: Clear, coarsely crystalline. Scattered white anhydrite. 3/4" anhydrite layer at 26.4'±. Appears to be vertical fracture at 24.75'-25.15'±. Probably caused when banging end piece of core from barrel. [1]	
20.3	20				X	28.8'-30.3' ARGILLACEOUS HALITE: Clear to moderate brown. Fine to medium crystalline with some coarsely crystalline. <1% to 3% brown clay. Break at 30.3'. [12]	M
4	5.0	5.0	100	X			

BORING NO. DH-31A

# WIPP

WASTE ISOLATION PILOT PLANT

SHEET OF 2

BORING NO. DH-31A

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
25.3	25					30.3'-32.4' HALITE: Clear, coarsely crystalline. [1]	Run 5: Badly broken by drilling.
5		4.8	4.8	100	////	32.4'-36.7' ARGILLACEOUS HALITE: Clear to moderately brown, medium to coarsely crystalline. <1% to 3% brown clay. Scattered breaks. [15]	
30.1	30					36.7'-37.1' HALITE: Clear to coarsely crystalline. <1% brown clay. [8, 10]	Run 6: Badly broken to 33.3' in very coarse halite.
6		4.7	4.7	100	----	37.1'-37.85' ANHYDRITE: Light to medium light gray, microcrystalline anhydrite. Partly laminated. Scattered halite growths. <3/4" hard brown clay seam at 37.1'.	
34.8	35					37.85'-41.5' HALITE: Clear, coarsely crystalline, scattered medium. <1/2% polyhalite. [1]	
7		4.7	4.7	100	----	41.5'-44.6' HALITE: Clear to moderate brown. Medium to coarsely crystalline. <1% to 2% brown clay. <1% polyhalite blebs. Irregular 1" brown clay and halite seam at 44.5'. [8, 17]	
39.5	40				X	44.6'-45.8' HALITE: Clear, coarsely crystalline. <1% polyhalite blebs. [2]	
8		4.9	4.9	100	X	45.8'-47.8' HALITE: Clear, mottled with moderate brown, coarsely crystalline. <1% brown clay blebs. <1/2% polyhalite blebs. [8, 10]	Run 9: Core disced from 45.5' to 48'.
44.4	45				X	47.8'-49.2' ARGILLACEOUS HALITE: Clear to moderate brown. Fine to medium crystalline, some coarsely crystalline. <1% to 3% brown clay with scattered breaks. [12]	
9		4.8	4.8	100	X		
49.2	50						



BORING NO. DH-31A



# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE/SIZE NC-CORE BORING NO. DH-32  
 LOCATION ROOM G ACCESS DRIFT - FLOOR

STATION N1099, W1282 COLLAR ELEV. 1289.6 DIRECTION OF DRILLING VERTICAL DOWN  
 MINE COORDINATES N10784.9, E5632.2 DEPTH OF BOREHOLE 50.0'  
 DRILLING METHOD ROTARY AIR DRILL MAKE/MODEL CP-65  
 DATE STARTED 7-19-84 DATE COMPLETED 7-20-84 SHEET  
 LOGGED BY: J. E. GALLERANI DATE: 7-20-84 1 OF 2

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
0	0	Non-Core				0.0'-5.3' NON-CORE: Used plugged bit.  5.3'-7.4' HALITE: Clear, mottled with some moderate reddish orange and brown. Coarsely crystalline. <1% polyhalite. <1/2% brown and gray clay 6.75'-7.05'. [3]	NC double tube wire-line core barrel, NC rods and stepped diamond bit. Total drilling time: 6 1/2 hrs.  Upper 5.5' of hole replaced with corehole DH-32A.
1	5.3	5.0	4.9	98	X X X X	7.4'-8.5' POLYHALITIC HALITE: Clear to moderate reddish orange to coarsely crystalline. <1% to 2% polyhalite [3, 4].  8.5'-11.3' NB-139: (upper contact dips 40±). Mixture of halite and anhydrite to 9.6± with some "swallowtail" structure. From 9.6±, predominantly light to light medium gray anhydrite with scattered halite growths @ 9.15' to 10.75'. Clear halite layers at 10.3'-10.4'. #3/16" gray clay @ 11.3'. Core grinding evident here.	
2	10.3	4.8	4.2	95	X X	11.3'-14.2' HALITE: Clear, some moderate reddish orange (10R 6/6), moderate brown, medium to coarse. #1% clay, gray to 12.7', then brown clay. Irregular brownish gray break @ 14.2'. <1/2% dispersed polyhalite. [9, 17]	
3	15.1	5.0	4.8	96	X X X X X X X X	14.2'-18.85' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline. <1% to 3% polyhalite. Scattered anhydrite. Gray clay parting @ 18.85'. [3, 5, 7]	
4	20.1	4.9	4.9	100	X X X X X X X X	18.85'-20.1' HALITE: Clear to light moderate reddish orange (10R 6/6), medium to coarsely crystalline. <1% dispersed polyhalite. <1/2% gray clay. [9]	56% of recovered core was 22 inch length.
	20.1				X X	20.1'-25.25' POLYHALITIC HALITE: Clear to moderate reddish orange and brown (10R 6/6, 4/6), coarse, some medium. <1% to 3% polyhalite. <1/2% brown and gray clay. Vertical fracture in core at 23.4'-23.8'. Looks like stress fracture. [4, 6, 7]	
	25				X X	25.25'-30.4' HALITE: Clear to moderate reddish orange (10R 6/6), medium to coarsely crystalline. <1% to 2% polyhalite. <1% gray clay, locally. <1% brown clay at 28.3'-29.9'. Vertical fractures in core at 27.35'-27.55' and 28.6'-29.2±. [9, some 17]	Run 4: Vertical fracture at 20.1', 23.5' and 26.0'. Probably caused by overshot tool impact on barrel.

BORING NO. DH-32




# WIPP

WASTE ISOLATION PILOT PLANT

SHEET 2 OF 2

BORING NO. DH-32

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
	25						
5	30.2	5.2	4.9	94.5	X - X - - - X	30.4'-35.0' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline. <1% to 3% polyhalite. <1% gray clay to 31'. [7]	
					X - - - X	35.0'-35.9' ANHYDRITE: Moderate reddish orange (10R 6/6) to medium light gray (N6), microcrystalline anhydrite with scattered halite growths. Gray clay at 35.9'. Contact irregular, low angle here.	
6	30.2	5.0	5.0	100	X X - X X - X X X	35.9'-40.8' HALITE: Clear to light moderate brown (5YR 4/4) and light moderate reddish orange (10R 6/6). Medium to coarsely crystalline. <1/2% dispersed polyhalite. <1% clay, predominantly gray. Brown clay at 37.3'-37.9' [9, 11, some 17]	
					X X - X X X	40.8'-44.2' HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline. <1% to 2% polyhalite, locally 3% from 43.0'-43.9'±. <1% gray clay [4, 9].	
7	35.2	4.8	4.7	97	 - X - - X	44.2'-46.1' HALITE: Clear to moderate brown (5YR 4/4), medium to coarsely crystalline. <1% brown clay. <1/2% dispersed polyhalite [17].	
					X - - - X	46.1'-47.75' HALITE: Clear, some medium light gray. Medium to coarsely crystalline. <1% gray clay and <1/2% polyhalite [9].	
8	40.0	5.1	5.1	100	X - X - X - - X	47.75'-50.0' HALITE: Clear mottled with moderate reddish orange (10R 6/6). Coarsely crystalline. <1% polyhalite. <1/2% gray clay locally. [2]	
9	45.1	4.9	4.9	100	X - - X - - X		
	50.0				X - - X		



BORING NO. DH-32



# WIPP

# GEOLOGIC DRILL LOG

## WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE/SIZE \_\_\_\_\_ NC-CORE \_\_\_\_\_ BORING NO. DH-33  
 LOCATION ROOM G ACCESS DRIFT - ROOF

STATION N1099, W1582 COLLAR ELEV. 1298.6 DIRECTION OF DRILLING UP VERTICAL  
 MINE COORDINATES N10786.0, E5331.1 DEPTH OF BOREHOLE 50.5'  
 DRILLING METHOD ROTARY AIR DRILL MAKE/MODEL CP-65  
 DATE STARTED 7-16-84 DATE COMPLETED 7-18-84 SHEET  
 LOGGED BY: J. E. GALLERANI DATE: 7-18-84 1 OF 2

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
0	0	Non-core				0.0'-4.0' NON-CORE: Roller bit to 4' in order to accommodate long core barrel.	NC double tube wire-line core barrel, NC rods and stepped diamond bit used from 4.0' depth. Upper 4.0' of hole replaced with corehole DH-33A. Total drilling time: 16+ hrs.  40% of recovered core was 22 inch length.
1	4.0 - 5.0	5.0	4.9	98	—	4.0'-5.9' HALITE: Clear with some moderate brown (SYR 4/4). Coarsely crystalline with some medium crystalline. <1% brown clay. [8, 13]	
	5.0 - 7.15				—	5.9'-7.15' HALITE: Clear to moderate brown (SYR 4/4), medium to coarsely crystalline, <1% to 2% brown clay. Irregular break at 6.0'. [10]	
	7.15 - 7.25				—	7.15'-7.25' ANHYDRITE b: Light gray to medium gray (N7, N6). Microcrystalline. Gray clay $\leq 3/16"$ at 7.15'.	
	7.25 - 12.9				X	7.25'-12.9' HALITE: Clear with some light to moderate reddish orange (10R 6/6). Coarsely crystalline. Scattered white stringers of anhydrite and/or magnesite. None to <1/2% polyhalite. [1]	
2	9.0 - 13.0	4.0	4.0	100	X	12.9'-13.1' HALITE: Clear to moderate reddish orange (10R 6/6). Coarsely crystalline, $\leq 1\%$ polyhalite, $\leq 1\%$ brown clay. [17]	
	13.0 - 13.1				X	13.1'-13.85' HALITE: Clear to light moderate brown (SYR 4/4). Fine to medium crystalline with some coarse crystalline. <1/2% polyhalite and <1% clay, brown with some gray. [9]	
3	13.0 - 18.0	5.0	5.0	100	X X X X	13.85'-14.4' ANHYDRITE a: Light gray to light medium gray (N7, N6), microcrystalline anhydrite with scattered halite growths. $\leq 1/8"$ gray clay at lower contact.	
	18.0 - 19.0				X	14.4'-19.0' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline. <1% to 3% polyhalite with scattered anhydrite. [4, 7]	
4	19.0 - 23.0	5.0	5.0	100	X	19.0'-21.25' HALITE: Clear with some lightly moderate brown (SYR 3/4), medium to coarsely crystalline with some fine crystalline. $\leq 1\%$ brown clay and some gray clay with $\leq 1/8"$ anhydrite at 21.2'-21.25'. [9, 12]	
5	23.0 - 25.0	5.0	5.0	100	X	21.25'-24.1' HALITE: Clear with some moderate brown (SYR 4/4), coarsely crystalline, some fine to medium crystalline, <1% brown clay, <1/2% polyhalite. 1/2" brown clay seam at 23.95' with associated halite/anhydrite to 24.1'. [8]	



# WIPP

WASTE ISOLATION PILOT PLANT 2 SHEET OF 2 BORING NO. DH-33

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
	25						
28.0						24.1'-28.7' HALITE: Clear, coarsely crystalline, trace of brown clay locally. [1]	
					X	28.7'-30.3' HALITE: Clear to moderate brown (5YR 4/4). Fine to medium crystalline with some coarse crystalline. <1/2% dispersed polyhalite. <1% to 2% brown clay, some gray. [12]	
6	30	5.0	4.8	96	X	30.3'-32.0' HALITE: Clear, coarsely crystalline. [1]	
						32.0'-36.8' ARGILLACEOUS HALITE: Clear to moderate brown (5YR 4/4). Medium to coarsely crystalline. <1% to 3% brown clay. Scattered breaks. [15, 16]	
33.0						36.8'-37.3' ANHYDRITE: Light gray to light medium gray (N7, N6), microcrystalline anhydrite. Scattered halite growths. Brown clay at 36.8'. Core grinding here.	
7	35	4.0	4.0	100		37.3'-38.0' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline, <1% to 3% polyhalite. [5, 7]	
37.0					X X X	38.0'-42.0' HALITE: Clear with some light to moderate reddish orange (10R 6/6). Coarsely crystalline. <1% polyhalite. [1, 2]	
8	40	5.0	5.0	100	X	42.0'-47.5' HALITE: Clear to lightly moderate reddish orange and moderate brown (5YR 3/4, 4/4). Medium to coarsely crystalline. Some fine crystalline locally. <1% brown clay. <1% polyhalite. Fairly clear, coarsely crystalline between 45.3' and 46.3'±. [1] [10, 17]	
42.0					X	47.5'-50.5' ARGILLACEOUS HALITE: Clear to moderate brown (5YR 4/4, 3/4), medium to coarsely crystalline. <1% to 3% brown clay with scattered breaks. [10, 14]	
9	45	5.0	4.8	96	X		
47.0					X		
10	50	3.5	3.5	100			
50.5							



BORING NO. DH-33



# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE / SIZE NC CORE BORING NO. DH-34

LOCATION ROOM 6 ACCESS DIRECT - FLOOR


STATION N1099, W1582 COLLAR ELEV. 1289.4 DIRECTION OF DRILLING VERTICAL DOWN

MINE COORDINATES N10786.5, E5331.7 DEPTH OF BOREHOLE 51.5'

DRILLING METHOD ROTARY AIR DRILL MAKE / MODEL CP-65

DATE STARTED 7-16-84 DATE COMPLETED 7-17-84 SHEET

LOGGED BY: J. E. GALLERANI DATE: 7-18-84 1 OF 2

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
0.0	0					0.0'-3.5' NON-CORE.	
0		Non-core				3.5'-4.2' HALITE: Clear, some moderate brown (5YR 4/4) and moderate reddish orange (10R 6/6). Coarsely crystalline. <1% brown clay, some gray. Trace polyhalite. [8]	CP65 mounted on scissor lift. NW split tube core barrel, NW rods used plugged diamond bit to 3.5' because of low drift back. Unable to use longer core barrel. Upper 3.5' of hole replaced with corehole DH-34A. Total drill time: 13 hrs ±.
3.5					X —	4.2'-7.8' POLYHALITIC HALITE: Clear, mottled with moderate reddish orange (10R 6/6), coarsely crystalline. <1% to 3% polyhalite blebs and patches. ±1% gray clay to 6.1', then no clay. Scattered anhydrite. [5, 7]	
1	5	2.5	2.3	92	X X — X		
5.9					X X X X		
2		3.4	3.4	100	X X	7.8'-11.05' MB-139: Mixture of anhydrite and halite ("swallowtail" pattern) from 7.8' to 8.6'±. Then becomes mostly anhydrite. Moderate reddish orange with irregular patches of white and light gray to 9.7'±. Increase in halite content 9.8'-10.3'±. Below 10.3' is light gray anhydrite. Trace of gray clay at 11.05'. Core grinding evident.	
9.3	10						
3		4.7	4.7	100	X	11.05'-12.1' HALITE: Clear, medium to coarsely crystalline. [1]	
14.0					X	12.1'-14.2' HALITE: Clear to light moderate reddish orange (10R 6/6). Medium to coarsely crystalline. [1]	
4	15	5.0	5.0	100	X X X X	14.2'-18.9' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline. <1% to 3% polyhalite. [5, 6, 7] Moderate reddish orange anhydrite mixed with halite from 18.65'-18.9'±. Break at 14.45'±.	40% of core recovered was 22 inch length.
19.0					X X X X	18.9'-20.95' HALITE: Clear to light moderate reddish orange (10R 6/6), some moderate brown (5YR 4/4). Medium to coarsely crystalline. ±1% brown clay, trace of gray. ±1% dispersed polyhalite. Break @ 20.75'. [17]	
5	20	5.0	4.75	95	X X X X	20.95'-27.45' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline. <1% to 3% polyhalite. Medium to coarsely crystalline from 25.2'±. Anhydrite-halite from 24.1'-24.2', ±1% gray clay from 26.5'-26.8'±. [7]	
24.0		5.0	5.0	100	X		

BORING NO. DH-34

# WIPP

WASTE ISOLATION PILOT PLANT

2

SHEET

2

BORING NO.

DH-34

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
	25						
					X X - X - X X	27.45'-29.9' HALITE: Clear, some moderate brown (5YR 4/4) and light moderate reddish orange (10R 6/6), medium to coarsely crystalline, some fine. <1% brown clay, some gray from 29.4'-29.9'. <1/2% dispersed polyhalite. [17, some 9]	
29.0					- X	29.9'-35.4' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline. <1% to 3% polyhalite. 2" anhydrite/halite layer at 35.15'-35.3'. [4, 7]	Run 7: Some vibration this run. Tightened tie down bolts and feed beam.
	30				X X X X X X X	35.4'-36.15' ANHYDRITE: Light gray (N7) to moderate reddish orange (10R 6/6), microcrystalline. Halite growths within. Trace of gray clay at 36.15'.  36.15'-43.0' HALITE: Clear, coarsely crystalline, some medium. <1/2% dispersed polyhalite. <1% gray clay. [9]	
34.0		5.0	5.0	100	X X X	43.0'-44.2' HALITE: Clear, some moderate reddish orange, coarsely crystalline. <1/2% polyhalite. [2]	
	35				X X X	44.2'-45.4' HALITE: Clear with some moderate brown (5YR 4/4), coarsely crystalline. <1% brown clay. Break at 45.4'. [8, some 10]	
		5.1	5.1	100	X X X	45.5'-51.5' HALITE: Clear, coarsely crystalline, some medium, <1% gray clay, trace brown. [8, 11]	Run 9: Core barrel blocked up this run. Some brown clay on inner tube.
39.1					- X		
	40						
		3.9	1.8	46			
43.0					X		Run 11: Dropped core barrel 4" when pulling rods. Day shift driller drilled over this run. Core broken up because of this.
	45						
		5.0	5.0	100			
48.0							
	50						
		3.5	3.5	100			
51.5							



BORING NO. DH-34

# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE/SIZE 2 3/4" CORE BORING NO. DH-34A

LOCATION ROOM 6 ACCESS DRIET - FLOOR

STATION N1099, W1570 COLLAR ELEV. 1289.2 DIRECTION OF DRILLING VERTICAL DOWN

MINE COORDINATES N10 786.8 E5341.9 DEPTH OF BOREHOLE 3.6'

DRILLING METHOD ROTARY AIR DRILL MAKE/MODEL CP-65

DATE STARTED 9-13-84 DATE COMPLETED 9-13-84 SHEET

LOGGED BY: J. E. GALLERANI DATE: 9-29-84 1 OF 1

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
1	0.0 - 3.6	3.6	3.6	100	X	<p>0.0'-1.3' HALITE: Clear, coarsely crystalline, some medium, &lt;1/2% polyhalite blebs. [1]</p> <p>1.3'-3.6' HALITE: Clear, some moderate brown (5YR 4/4), coarsely crystalline. &lt;1% brown clay. [8, 10]</p>	<p>Used single tube starter barrel.</p> <p>94% of recovered core was 22 inch length.</p> <p>This hole was drilled to replace non-core section of DH-34.</p>

BORING NO. DH-34A



# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE/SIZE \_\_\_\_\_ NC CORE \_\_\_\_\_ BORING NO. DH-35

LOCATION ROOM 6 - ROOF

STATION N1102, W1882 COLLAR ELEV. 1294.4 FT DIRECTION OF DRILLING VERTICAL UP

MINE COORDINATES N10789.4, E5032.2 DEPTH OF BOREHOLE 52.0 FT.

DRILLING METHOD ROTARY AIR DRILL MAKE/MODEL CP-65

DATE STARTED 1-26-85 DATE COMPLETED 1-27-85 SHEET

LOGGED BY: J. E. GALLERANI DATE: 2-13-85 1 OF 2

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
1	0.0 - 2.2	2.2	2.0	91	X	0.0'-4.4' HALITE: clear to moderate brown (SYR 4/4), coarsely crystalline. <1% brown clay. Scattered polyhalite blebs. [1,8]	NC single-tube barrel used for run 1. NC double-tube wireline barrel used for remainder of hole.
2	2.2 - 5.0	5.0	4.5	90	X	4.4'-6.2' HALITE: Clear to moderate brown (SYR 4/4; 3/4); fine to medium crystalline, some coarse. ≤1% brown clay, trace of gray. [8,10,12]	Partially broken core upper 2' of Run 2.
	5.0 - 6.2					6.2'-6.4' ANHYDRITE "b": Light medium to medium gray microcrystalline anhydrite with polyhalitic halite growths. Trace of hard gray clay at 6.2'. Anhydrite is laminated close to clay contact, low angle.	26% of core recovered was 2-inch lengths.
	6.2 - 7.2					6.4'-12.1' HALITE: Clear, coarsely crystalline. Trace of anhydrite stringers. [1]	Dry hole. No gas detected.
3	7.2 - 12.2	5.0	4.8	96	X	12.1'-13.2' HALITE: Clear to light moderate reddish orange (10R 6/6); fine to medium crystalline. < 1/2% dispersed polyhalite. ≤ 1% clay, brown and gray. Brown break at 12.35'. [9,12]	
	12.2 - 13.2					13.2'-13.85' ANHYDRITE "a": Very light to medium gray microcrystalline anhydrite. Irregular laminae. Scattered halite growths. From 13.6'. Up to 1/4" hard gray clay at 13.2'. Core grinding evident.	
4	13.2 - 17.2	5.0	4.9	98	X	13.85'-18.0' POLYHALITIC HALITE: Clear to moderate reddish orange/brown (10R 6/6; 4/6), coarsely crystalline. <1 to 3% polyhalite. [4,7]	Run 6 partially broken in clear halite.
	17.2 - 21.9					18.0'-21.9' HALITE: Clear to moderate reddish orange/brown (10R 6/6; 4/6); fine to coarsely crystalline. ≤1% gray clay, some brown. < 1% polyhalite. [9, some 12]	Run 7 broken most of run.
5	21.9 - 25.5	5.3	4.7	89	X	21.9'-24.05' HALITE: Clear, scattered moderate brown (SYR 4/4). Coarsely crystalline, some medium, <1/2% polyhalite. ≤1% brown clay. Up to 3/8" hard brown clay at 24.0'. Trace of anhydrite above. Near horizontal, irregular. [8,10]	
6	25.5 - 28.5	5.0	3.5	70	X		



BORING NO. DH-35

# WIPP

WASTE ISOLATION PILOT PLANT

2<sup>1</sup> SHEET  
OF 2

BORING NO. DH-35

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
6	25	5.0	3.5	70		24.05'-27.8' HALITE: Clear, coarsely crystalline. [1]	Broken core in Run 9.
	27.5					27.8'-28.7' HALITE: Clear to moderate brown (5YR 4/4); medium to coarsely crystalline. <1 to 2% brown clay. [10]	
7	30	5.0	3.3	66		28.7'-32.5' HALITE: Clear, coarsely crystalline. None to <1% brown clay. [1, some 10]	Broken zones throughout Run 10.
	32.5					32.5'-36.5' ± 0.3' ARGILLACEOUS HALITE: Clear to moderate brown (5YR 4/4); medium to coarsely crystalline. <1 to 3% brown clay, trace brownish-gray locally scattered breaks. [10,15]	
8	35	5.0	4.3	86		36.5'-37.1' ANHYDRITE: Very light to light medium gray, microcrystalline anhydrite. Scattered small polyhalitic halite growths. Up to 1/2" hard brown clay at 36.5'. Near horizontal. Core grinding evident.	Broken zones, especially last 18" of Run 11.
	37.5					37.1'-42.6' HALITE: Clear, coarsely crystalline. <1/2% scattered polyhalite blebs. Scattered white anhydrite. [1]	
9	40	5.0	3.2	64	X ////	42.6'-46.1' HALITE: Clear, some moderate brown (5YR 4/4), coarsely crystalline, except fine to medium from 43.7' to 44.5'. <1/2% moderate reddish orange polyhalite here. <1% brown clay. Irregular break at 44.55'±.	
	42.5					46.1'-50.6' ARGILLACEOUS HALITE: Clear to moderate brown (5YR 4/4; 3/4); medium to coarsely crystalline. <1 to 3% brown clay, up to 5% locally. Seam of clay mixed with halite crystals from 50.4' to 50.6'. [10,12,15]	
10	45	5.0	5.0	100	X X	50.6'-52.0' POLYHALITIC HALITE: Clear to moderate reddish orange/brown (10R 6/6; 4/6); coarsely crystalline. <1 to 3% polyhalite. Moderate reddish brown polyhalite/anhydrite at 50.75' to 50.95'±.	
	47.5						
11	50	4.5	4.5	100	X X X		
	52.0						
	55						



BORING NO. DH-35

# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE/SIZE-NC-CORE \_\_\_\_\_ BORING NO. DH-36  
 LOCATION ROOM G - FLOOR

STATION N1102, W1882 COLLAR ELEV. 1284.6 FT DIRECTION OF DRILLING VERTICAL DOWN  
 MINE COORDINATES N10789.4, E5032.2 DEPTH OF BOREHOLE 51.5 FT  
 DRILLING METHOD ROTARY AIR DRILL MAKE/MODEL CP-65  
 DATE STARTED 1-26-85 DATE COMPLETED 1-26-85 SHEET  
 LOGGED BY: J. E. GALLERANI DATE: 1-27-85 1 OF 2

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
1	0	2.0	2.0	100	-	0.0'-2.7' HALITE: Clear, some moderate brown, coarsely crystalline. <1% brown clay.	NC single-tube core barrel used for Runs 1 and 2. For remaining runs, NC double-tube wireline core barrel used.  Total drilling time: 6 hrs.  43% of core recovered was $\geq$ 2-inch lengths.  In salt, used second gear (74 rev./inch).  In anhydrite, used third gear (100 rev./inch).  Dry hole. No gas detected.
2	2.0	1.5	1.4	93	-	2.7'-7.0' $\pm$ 0.2' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline. <1 to 3% polyhalite. Trace clay. [2,5,7]	
3	3.5	4.5	4.2	93	X	7.0'-10.4' $\pm$ 0.3' MB-139: Moderate reddish orange and medium gray to 8.7' $\pm$ . From 8.7', predominantly light to medium gray anhydrite with halite growths. Gray clay, up to 1/2" at 10.4'.	
	5				X		
					X		
					X		
	8.0				X	10.4'-14.3' HALITE: Clear to light bluish gray; medium to coarsely crystalline. < 1/2% dispersed polyhalite. <1% gray clay. [9,11]	
4	10	3.2	2.5	78		14.3'-18.6' POLYHALITIC HALITE: Clear to moderate reddish orange/brown, coarsely crystalline. <1 to 3% polyhalite. Gray clay, some anhydrite at 18.3'-18.6' $\pm$ . Irregular gray seam at 18.6'.	
	11.2				X	18.6'-20.6' HALITE: Clear to light moderate reddish orange (10R 6/6), medium to coarsely crystalline. <1% gray clay and polyhalite. [9]	
5	15	5.0	5.0	100	X	20.6'-24.7' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6) coarsely crystalline. <1 to 3% polyhalite. Average is <2%. [2,4,7]	
	16.2				X X X		
					X X X	24.7'-29.4' HALITE: Clear, some moderate reddish orange (10R 6/6); coarsely crystalline. <1% polyhalite. Locally polyhalitic. <1% gray clay. [9]	
					X X X		
6	20	5.0	5.0	100	X X	29.4'-33.4' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6); coarsely crystalline. <1 to 3% polyhalite. Trace anhydrite.	
					X		
					X	33.4'-34.9' HALITE: Clear, some light moderate reddish orange; coarsely crystalline. <1% polyhalite.	
	21.2				X		
7	25	5.3	5.3	100	X X		
					X X		
					X X		
					X X		




# WIPP

WASTE ISOLATION PILOT PLANT

SHEET

2 OF 2

BORING NO. DH-36

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
7	25				X	34.9'-35.5' ANHYDRITE: Moderate reddish orange microcrystalline anhydrite mixed with halite growths to 35.15'±. Very irregular upper contact. Consists of anhydrite intermixed with halite. From 35.15', light to light medium gray anhydrite with scattered halite growths. Some "swallowtail" pattern noted. 1/2" hard gray clay at lower contact. Dips 10°±.	
8		5.0	4.8	96	X -		
	30				X X / X \	35.5'-41.2' HALITE: Clear, some light medium gray. Coarsely crystalline, some medium. <1% gray clay and <1/2% polyhalite blebs. [1,11]	
	31.5				X X X \	41.2'-42.7' HALITE: Clear, some moderate reddish orange. Coarsely crystalline. <1% gray clay. [9]	
9		5.0	5.0	100	X X X	42.7'-44.9' HALITE: Clear to moderate reddish orange/brown (10R 6/6; 4/6); medium to coarsely crystalline. <1 to 2% polyhalite, locally polyhalitic. <1% brown clay. [17]	
	35					44.9'-51.5' HALITE: Clear, coarsely crystalline, some medium. <1/2% dispersed polyhalite locally. <1% gray clay at 47'-47.3' and 48.5'-49.3'. Scattered breaks at 50.5'-51.2'. [1,11]	
	36.5				X		
10		5.0	5.0	100	- X		
	40				-		
	41.5				-		
11		5.0	4.5	90	X - - X X -		
	45				X -		
	46.5				- X - -		
12		5.0	4.6	92	- - - X - -		
	50				- - - X - -		
	51.5				- - - X - -		
	55						



# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE/SIZE NC CORE BORING NO. DH-37

LOCATION ROOM 6 - ROOF

STATION N1101, W2182 COLLAR ELEV. 1297.4 FT DIRECTION OF DRILLING VERTICAL UP

MINE COORDINATES N10788.9, E4732.0 DEPTH OF BOREHOLE 51.5 FT.

DRILLING METHOD ROTARY AIR DRILL MAKE/MODEL CP-65

DATE STARTED 1-25-85 DATE COMPLETED 1-26-85 SHEET

LOGGED BY: J. E. GALLERANI DATE: 1-26-85 1 OF 2

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
1	0	2.2	2.2	100	X	0.0'-1.8' HALITE: Clear, some light moderate reddish orange (10R 6/6), coarsely crystalline. <1/2% polyhalite. [1]	NC single-tube core barrel used for Run 1. NC double-tube core barrel used for remainder of hole.
2	2.2				-	1.8'-5.3' ± 0.15' HALITE: Clear to moderate brown (5YR 3/4), medium to coarsely crystalline. None to 1% brown clay, some gray. Scattered breaks at 3.7', 4.0', 5.1'±.	42% of core recovered was 2 2" lengths.
	5	5.8	5.3	91	-	5.3'-5.5' ANHYDRITE "b". Light to medium gray, microcrystalline anhydrite. Partially laminated. Trace of gray clay along irregular, low-angle surface at 5.3'. Core broken along this.	Dry hole. No gas detected.
	8.0					5.5'-11.3' HALITE: Clear, coarsely crystalline. Scattered white anhydrite stringers. [1]	Run 4: Some broken core.
3	10	3.5	3.2	91		11.3'-12.2' HALITE: Clear, some moderate brown (5YR 4/4). Fine to medium crystalline, some coarse. <1% brown clay.	
	11.5				-	12.2'-12.7' ANHYDRITE "a": Light to medium gray microcrystalline anhydrite. Up to 1/8" brown clay along low-angle, smooth surface at 12.2'. Some core grinding evident.	First 1' of Run 5 broken.
4	15	5.0	4.8	96	X X X X	12.7'-16.5' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6); coarsely crystalline. <1 to 3% polyhalite.	
	16.5				X	16.5'-21.6' HALITE: Clear to moderate brown (5YR 4/4); medium to coarsely crystalline. <1% brown clay, trace of gray. <1/2% dispersed polyhalite. Up to 1/2" hard brown clay seam at 21.35'. Low-angle, irregular. Some anhydrite associated to 21.6'. [10, 17]	First 1' of Run 6 broken.
5	20	5.0	5.0	100	X	21.6'-24.5' HALITE: Clear, coarsely crystalline. <1/2% brown clay to 23'. [8 to 23'; then 1]	Broken zones through Run 7, especially first 18".
	21.5				X	24.5'-26.5' HALITE: Clear to light moderate reddish orange (10R 6/6) and moderate brown (5YR 4/4). Fine to medium, crystalline, some coarse. <1% brown clay, trace gray. <1/2% dispersed polyhalite. [12]	
6	25	5.0	4.2	84	-		



BORING NO. DH-37

# WIPP

WASTE ISOLATION PILOT PLANT

SHEET 2 OF 2

BORING NO. \_\_\_\_\_

DH-37

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
6	25				X	26.5'-30.2' HALITE: clear, coarsely crystalline. <1/2% brown clay to 28'. [8,1]	Broken clear halite in Run 9.
7	30	5.0	5.0	100	-	30.2'-35.15' ARGILLACEOUS HALITE: Clear to moderate brown (5YR 4/4); medium to coarsely crystalline, some fine. <1% brown clay to 31.5'; then 1 to 3%. Scattered breaks. [10,15]	
	31.5				-	35.15'-35.85' ANHYDRITE: Light to medium gray, microcrystalline anhydrite with scattered halite growths. Up to 1" hard brown clay at 35.15'. Low angle.	
	31.5				-	35.85'-39.7' ± 0.7' HALITE: Clear, coarsely crystalline. <1/2% polyhalite. Scattered white anhydrite stringers.	
8	35	5.0	4.5	90	-	39.7'-42.6' HALITE: Clear, some moderate brown (5YR 4/4); coarsely crystalline. <1% brown clay. Irregular break at 41.7'± [10]	
9	36.5	1.5	1.5	100	X	42.6'-44.9' HALITE: Clear with <1% moderate reddish orange polyhalite blebs. Coarsely crystalline. [1]	
10	38.0				X	44.9'-47.25' HALITE: Clear to moderate brown (5YR 4/4); coarsely crystalline. <1% brown clay. [10]	
10	40	3.5	2.1	60	-	47.25'-51.5' ARGILLACEOUS HALITE: Clear to moderate brown (5YR 4/4); medium to coarsely crystalline, some fine. <1 to 3% brown clay, locally up to 5% from 49.8'-50.9'. Scattered breaks at 47.6'; 50.9', 51.2'±. <1/2% polyhalite. [15]	
11	41.5				X		
11	45	4.5	4.5	100	X		
12	46.0				-		
12	50	5.5	5.5	100	X		
12	51.5				X		



# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE/SIZE \_\_\_\_\_ NC CORE \_\_\_\_\_ BORING NO. DH-38

LOCATION ROOM 6 - FLOOR

STATION N1101, W2182 COLLAR ELEV. 1287.0 FT DIRECTION OF DRILLING VERTICAL DOWN

MINE COORDINATES N10788.8, E4731.9 DEPTH OF BOREHOLE 47.5 FT

DRILLING METHOD ROTARY AIR DRILL MAKE/MODEL CP-65

DATE STARTED 1-25-85 DATE COMPLETED 1-26-85 SHEET

LOGGED BY: J. E. GALLERANI DATE: 1-26-85 1 OF 2

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
1	0-2.4	2.4	2.3	96	-	0.0'-2.5' HALITE: Clear to moderate brown (5YR 3/4); coarsely crystalline, some medium. $\leq$ 1% brown clay. [8,10]	NC double-tube wireline core barrel, except Run 1 where NC single-tube barrel was used
2	2.4-5.0	5.0	4.9	98	X X X X X X X X X	2.5'-3.1' HALITE: Clear, coarsely crystalline. $<$ 1/2% polyhalite blebs. [1,2]  3.1'-7.4' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6); coarsely crystalline. $<$ 1 to 3% polyhalite. Anhydrite mixed with halite from 5.4' to 7.4'. Some "swallowtail" structure evident. [4,7 to 5.4']	47% of core recovered was $\geq$ 2-inch lengths.  Dry hole. No gas detected.
3	5.0-10.0	4.1	3.9	95	X X X X X X X X X	7.4'-9.45' MB-139: Gray anhydrite mixed with growths of polyhalitic halite/halite to 9'; then predominantly light to light medium gray anhydrite. Scattered halite growths. Gray clay at lower contact. Core grinding evident.  9.45'-13.2' HALITE: Clear to light moderate reddish orange (10R 6/6), medium to coarsely crystalline. $\leq$ 1% polyhalite and gray clay. [9]	
4	10.0-15.0	5.0	4.2	84	X X X X X X X X X	13.2'-17.35' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6); coarsely crystalline. $<$ 1 to 3% polyhalite. Some anhydrite and gray clay from 17.05' to 17.3'+. [7]  17.35'-18.8' HALITE: Clear to light moderate reddish orange (10R 6/6); coarsely crystalline, some medium. $<$ 1% polyhalite. $<$ 1/2% clay, brown and gray. [8,9]	
5	15.0-20.0	5.0	4.7	94	X X X X X X X X X	18.8'-22.3' POLYHALITIC HALITE: Clear to moderate reddish orange/brown (10R 6/6; 4/6); coarsely crystalline. $<$ 1 to 3% polyhalite. Trace gray clay at 21.5'. [7]  22.3'-28.7' HALITE: Clear to moderate reddish orange/brown (10R 6/6, 4/6). Coarsely crystalline, some medium. $\leq$ 1 to 2% polyhalite locally. $\leq$ 1% light bluish gray clay, slight trace of brown.	
6	20.0-25.0	5.0	5.0	100	X X X X X X X X X	28.7'-34.3' POLYHALITIC HALITE: Clear to moderate reddish orange/brown (10R 6/6; 4/6), coarsely crystalline. $<$ 1 to 3% polyhalite. Clear halite 34-34.3'. [7]	



# WIPP

WASTE ISOLATION PILOT PLANT

2 SHEET OF 2

BORING NO. DH-38

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
	25						
26.5	6				-	34.3'-34.6' ANHYDRITE: Very light to light medium gray microcrystalline anhydrite. Scattered small halite growths common from 34.45'± with larger growths present above this. Some irregular laminae within anhydrite. 1/4" hard dry gray clay at lower contact. Low angle.	Dropped core barrel on last run. After retrieving barrel, did not continue drilling.
	7	5.0	5.0	100	- X		
31.5	30				X X X	34.6'-41.55' HALITE: Clear to moderate reddish orange/brown (10R 6/6; 4/6). Medium to coarsely crystalline with zones of fine to medium, sugary-textured halite. None to 41% polyhalite. <1% gray clay, some brown. Polyhalitic 41.2'-41.55'. [9, some 17]	Total time on hole was 12 hrs ±.
	31.5				X X		
8	5.0	5.0	100		X X X	41.55'-44.1' HALITE: Clear to moderate brown (5YR 4/4; 3/4), coarsely crystalline, some medium. <1 to 2% brown clay. Trace of polyhalite. [10]	
	35				X X		
36.5	35				X	44.1'-47.5' HALITE: Clear to light moderate reddish orange (10R 6/6); medium to coarsely crystalline, some fine. <1% polyhalite. 4 gray clay. [2,9]	
	9	5.0	5.0	100	- X		
41.5	40				X -		
	41.5				X X X		
10	6.0	5.1	85		- X		
	45				X		
47.5	45				- X		
	47.5				X		
	50						
	55						





# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE/SIZE NC CORE BORING NO. DH-39

LOCATION ROOM G - ROOF

STATION N1101, W2482 COLLAR ELEV. 1296.0 FT DIRECTION OF DRILLING VERTICAL UP

MINE COORDINATES N10789.2, E4430.7 DEPTH OF BOREHOLE 50.7 FT

DRILLING METHOD ROTARY AIR DRILL MAKE/MODEL CP-65

DATE STARTED 1-24-85 DATE COMPLETED 1-24-85 SHEET

LOGGED BY: J. E. GALLERANI DATE: 2-9-85 1 OF 2

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
1	0-3.7	3.7	3.0	81		0.0'-3.6' HALITE: Clear, coarsely crystalline, some medium. [1] 3.6'-6.6' ± 0.3' HALITE: Clear, some moderate brown (5YR 3/4), coarsely crystalline to 5', then medium to coarse. <1% clay, increasing content from 5'. Brown, some gray. Break at 5.9'±.	Run 1 made with NC single-tube barrel. Remainder of hole with NC double-tube wireline core barrel. Dry hole. No gas detected. 30% of core recovered was 2 2-inch lengths.
2	3.7-8.7	5.0	4.3	86		6.6'-6.8' ANHYDRITE "b": Medium gray, microcrystalline. Gray clay at 6.6'. Core broken. Halite growths especially within 0.05' of lower contact. 6.8'-13.2' HALITE: Clear, coarsely crystalline. <1/2% polyhalite from 12.2'. [1]	Core broken in parts of Runs 3 and 4.
3	8.7-13.7	5.0	4.8	96	X X	13.2'-13.9' HALITE: Clear to moderate brown (5YR 3/4) and light moderate reddish orange. Fine to medium crystalline. <1% brown clay. <1/2% dispersed polyhalite. [9,17] 13.9'-14.45' ANHYDRITE "a": Light gray to light medium gray, microcrystalline anhydrite. Near-horizontal laminae. Scattered halite growths. 3/8" gray clay at 13.9'.	Last 0.2' of Run 5 broken.
4	13.7-18.7	5.0	5.0	100	X X X X	14.45'-18.75' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6); coarsely crystalline. <1 to 3% polyhalite, average 2%. Anhydrite stringer at 15.8'. [2,3,5] 18.75'-23.7' HALITE: Clear to moderate brown (5YR 4/4) and some moderate reddish orange (10R 6/6). Medium to coarsely crystalline. <1% brown clay, locally up to 2%. <1% polyhalite, dispersed and blebs. [10,17]	Run 6: Core broken; discing throughout. Run 8: Mostly broken zones. Run 9: Discing of core. Run 10: Several broken zones.
5	18.7-23.7	5.0	4.8	96	X X	23.7'-28.2' HALITE: Clear, coarsely crystalline. <1/2% brown clay to 25'. <1/4" brown clay at 25.0' with associated anhydrite layer to 25.15'. [1] 28.2'-30.0' HALITE: Clear to moderate brown, some moderate reddish orange. Fine to medium, some coarse. <1% brown clay. <1/2% dispersed polyhalite. [12]	Runs 11 and 12: Broken core. Run 13: Core is badly broken.
6	23.7-25	4.7	4.7	100			

BORING NO. DH-39

# WIPP

WASTE ISOLATION PILOT PLANT

SHEET 2 OF 2

BORING NO. DH-39

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
	25						
6		4.7	4.7	100		30.0'-32.6' HALITE: Clear, some moderate brown (5YR 4/4), coarsely crystalline. None to <1% brown clay. [1,8]	
28.4							
7		1.8	1.8	100	X	32.6'-34.9' ARGILLACEOUS HALITE: Clear to moderate brown (5YR 3/4; 4/4). Medium to coarsely crystalline. <1 to 3% brown clay. Trace of dispersed polyhalite.	
30.2	30						
8		1.5	1.5	100		34.9'-35.9' HALITE: Clear to light moderate reddish orange; medium to coarsely crystalline. <1/2% dispersed polyhalite and gray clay [2,9].	
31.7							
9		1.4	1.4	100		35.9'-36.5' ANHYDRITE: Light gray to medium gray microcrystalline anhydrite. Some halite growth. Trace brown clay at 35.9'. Core grinding evident.	
33.1					X		
10		2.8	2.8	100		36.5'-41.4' HALITE: Clear, some light moderate reddish orange (10R 6/6) coarsely crystalline. <1/2% polyhalite. [1,2]	
35.9	35						
11		2.0	1.7	85		41.4'-45.7' ± 0.6' HALITE: Clear with some moderate brown and moderate reddish orange. Fine to medium crystalline to 43.5'±, then coarsely crystalline. <1/2% dispersed polyhalite. <1% brown clay.	
37.9							
12	40	5.0	5.0	100	X	45.7'-50.7' ARGILLACEOUS HALITE: Clear to moderate brown (5YR 3/4). Medium to coarsely crystalline, some fine. <1 to 5% brown clay.	
42.9					X		
13	45	4.0	2.5	62			
46.9							
14		3.8	2.5	66			
50.7	50						
	55						

M

# WIPP

## WASTE ISOLATION PILOT PLANT

# GEOLOGIC DRILL LOG

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE / SIZE \_\_\_\_\_ NC CORE \_\_\_\_\_ BORING NO. DH-40

LOCATION ROOM 6 - FLOOR

STATION N1101, W2482 COLLAR ELEV. 1286.1 FT DIRECTION OF DRILLING VERTICAL DOWN

MINE COORDINATES N10789.2, E4431.0 DEPTH OF BOREHOLE 51.0 FT

DRILLING METHOD ROTARY AIR DRILL MAKE / MODEL CP-65

DATE STARTED 1-24-85 DATE COMPLETED 1-25-85 SHEET

LOGGED BY: J. E. GALLERANI DATE: 1-25-85 1 OF 2

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
1	0 - 2.0	2.0	1.9	95	X	0.0'-2.6' HALITE: Clear, some moderate brown (5YR 4/4), coarsely crystalline, some medium. <1/2% polyhalite. <1% brown clay, trace of gray. [8,10]	NC double-tube wireline core barrel, except for Runs 1 and 2 where NC single-tube barrel used.  Total drilling time: 8 hrs. ±.  Dry hole. No gas detected.  74% of core recovered was 22-inch lengths. Good core.
2	2.0 - 2.7	0.7	0.7	100	-	2.6'-5.4' HALITE: Clear, some moderate reddish orange (10R 6/6), coarsely crystalline. <1% polyhalite blebs. Trace gray clay locally. [2,4]	
3	2.7 - 6.5	3.8	3.7	97	X X X X X	5.4'-7.05' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6). Coarsely crystalline, except fine to medium from 5.4' to 5.8'±. <1 to 3% polyhalite. Trace anhydrite from 6.55'. [4,7]	
4	6.5 - 10	5.0	5.0	100	X X X X X	7.05'-10.95' MB-139: Moderate reddish orange to light gray anhydrite and polyhalitic halite to 9.5'±. Then light to light medium gray anhydrite with scattered growths of halite within. 3/4" hard, gray, dry clay at lower contact.	
	10 - 11.5				X	10.95'-15.1' HALITE: Clear with some light moderate reddish orange (10R 6/6), medium to coarsely crystalline. <1/2% dispersed polyhalite. <1/2% gray clay. [9]	
5	11.5 - 15	5.0	5.0	100	X X	15.1'-18.4' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline. <1 to 3% polyhalite. Average 2%. 1-1/2" polyhalite/anhydrite at 18.25'. Gray clay parting at 18.4'. [7]	
	15 - 16.5				X X X X X X	18.4'-20.2' HALITE: Clear to light moderate reddish orange (10R 6/6). Some light gray (N7). Medium to coarsely crystalline. <1% gray clay. <1/2% polyhalite. [9]	
6	16.5 - 20	5.0	5.0	100	X X X X X	20.2'-24.3' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline. <1 to 3% polyhalite. [4,7]	
	20 - 21.5				X X X X X	24.3'-26.4' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline, some medium. <1 to 3% polyhalite. <1% gray clay.	
7	21.5 - 25	5.1	5.1	100	X X X X X X		

BORING NO. DH-40

# WIPP

WASTE ISOLATION PILOT PLANT

2 SHEET OF 2

BORING NO.

DH-40

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
7	26.6	5.1	5.1	100	X X X X X X	26.4'-29.7' HALITE: Clear, some light moderate reddish orange (10R 6/6), medium to coarsely crystalline. <1/2% dispersed polyhalite and brown clay. Trace gray clay locally. [17, locally 9]	
8	30	4.9	4.9	100	X — X	29.7'-35.05' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline. <1 to 3% polyhalite. Moderate reddish orange polyhalite/anhydrite from 34.7'-34.95'. [4,7]	
9	31.5	4.5	4.5	100	X X X X X X X X X X X X	35.05'-35.4' ANHYDRITE: Light to very light (N7, W8) gray anhydrite to 35.15'. Then anhydrite with scattered halite growths throughout. 1/4" hard, dry gray clay at lower contact.	
10	36.0	5.0	5.0	100	X X X X X X X X X X X X X — — —	35.4'-36.75' HALITE: Clear to light moderate reddish orange, fine to medium crystalline. <1/2% dispersed polyhalite and gray clay. [2,9]  36.75'-41.0' HALITE: Clear, trace of moderate brown, coarsely crystalline. <1% brown clay. [8]  41.0'-47.0' HALITE: Clear to moderate reddish orange/brown (10R 6/6, 4/6). Coarsely crystalline, some medium. <1 to 2% polyhalite. <1% gray clay, some brown. Locally polyhalite. [2,4,6]  47.0'-48.8' HALITE: Clear to light moderate reddish orange (10R 6/6), coarsely crystalline. <1% polyhalite. [1,2]	
11	41.0	5.0	5.0	100	X — X	48.8'-51.0' HALITE: Clear to light moderate reddish orange (10R 6/6). Medium to coarsely crystalline, some fine. <1/2% polyhalite and gray clay locally. Break at 50.6'± which dips 45°±. Trace of gray clay along contact of fine-medium crystalline and coarse crystalline halite at 49'-50.5'±. [1,9]	
12	46.0	5.0	5.0	100	X X X X X		

# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE/SIZE \_\_\_\_\_ NC CORE \_\_\_\_\_ BORING NO. DH-41

LOCATION ROOM G - ROOF

STATION N1101, W2782 COLLAR ELEV. 1295.8 FT DIRECTION OF DRILLING VERTICAL UP

MINE COORDINATES N10789.0, E4132.6 DEPTH OF BOREHOLE 49.9 FT

DRILLING METHOD ROTARY AIR DRILL MAKE/MODEL CP-65

DATE STARTED 1-23-85 DATE COMPLETED 1-24-85 SHEET

LOGGED BY: J. E. GALLERANI DATE: 1-24-85 1 OF 2

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
1	0 - 3.0	3.0	1.1	37		0.0'-3.0' HALITE: Clear, coarsely crystalline, some medium. [1]	NC single-tube core barrel for Run 1. All other runs used NC double-tube wireline core barrel.  Total drilling time: 8 hrs ±.  Dry hole. No gas detected.  31% of recovered core was 22-inch lengths.  Run 1: Some broken core. Run 3: Broken last 1/2'.  Much of Run 5 broken.  Run 8: Zones of broken core.  Run 10: Some broken zones.  Run 12: Partially broken last 3'.
2	3.0 - 5.0	4.0	3.3	82		3.0'-5.9' HALITE: Clear, some light moderate brown, coarsely crystalline. <1/2% brown clay. [8]	
3	5.0 - 7.0	4.0	2.8	70	X	5.9'-7.0' HALITE: Clear to moderate brown (SYR 4/4), fine to medium, some coarse crystalline. 1% locally 2%, brown clay with trace of gray. <1/2% dispersed polyhalite.  7.0'-7.3' ANHYDRITE "b": Light to light medium gray (N7, N6), microcrystalline anhydrite. Laminated to 7.1'. Scattered halite growths. 1/2" gray clay at 7.0'. Some core grinding evident.	
4	7.0 - 11.0	5.0	4.2	84	X	7.3'-12.9' ± 0.4' HALITE: Clear, coarsely crystalline. Scattered white anhydrite stringers. <1/2% polyhalite locally. [1]	
5	11.0 - 16.0	5.0	3.4	68	X X X X X X X X X X	12.9'-13.8' ± 0.4' HALITE: Clear to moderate brown (SYR 4/4), medium to coarsely crystalline. 1% brown clay, some gray. Only 0.4' core recovered.  13.8' ± -14.4' ANHYDRITE "a": Light to light medium gray (N7, N6); microcrystalline anhydrite. Irregular dark/light laminae. Trace of brown clay at 13.8'. Low-angle contact.	
6	16.0 - 21.0	5.0	5.0	100	X X X X X X X X X X	14.4'-18.8' ± POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline. <1 3% polyhalite. [5,7]	
	21.0 - 25.0				X	18.8'-25.0' HALITE: Clear to moderate brown (SYR 4/4), some moderate reddish orange. Medium to coarsely crystalline, some fine. 1% brown clay, trace of gray. <1/2% of polyhalite locally. Irregular, low-angle brown clay seam at 24.8'. Up to 1/4". Associated anhydrite to 25'. Core broken. [1,10]	
					X	25.0'-27.7' HALITE: Clear, coarsely crystalline. Scattered polyhalite and anhydrite stringers.	

BORING NO. DH-41

# WIPP

WASTE ISOLATION PILOT PLANT

SHEET

2 OF 2

BORING NO. DH-41

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
	25						
6		5.0	5.0	100	X	27.7'-29.4' HALITE: Clear, some moderate brown (5YR 4/4) and moderate reddish orange (10R 6/6). Medium to coarsely crystalline, some fine. <1% brown clay and <1/2% dispersed polyhalite locally. [12]	
7		1.5	1.5	100	X		
8	30	5.0	5.0	100	X	29.4'-31.4' HALITE: Clear, coarsely crystalline. [1]	
						31.4'-36.5' ARGILLACEOUS HALITE: Clear to moderate brown (5YR 4/4; 3/4), fine to coarsely crystalline. <1 to 3% brown clay. Scattered breaks. [10,15]	
						36.5'-37.25' ANHYDRITE: Light to medium gray (N7,N5), microcrystalline anhydrite. Laminae most noticeable from 37.0'. Prominent halite growths to 36.75'. Up to 1/4" brown clay at 36.5' but core broken here.	
9	35	4.0	4.0	100	X	37.25'-42.55' HALITE: Clear, coarsely crystalline. None to 2% polyhalite. Scattered anhydrite. [1,2] <2% polyhalite from 38.9-41.1'. [4]	
						42.55'-47.0' HALITE: Clear, some moderate brown (5YR 4/4), coarsely crystalline, some fine to medium locally. <1% brown clay. [8,10]	
10	40	4.6	4.6	100	X	47.0'-49.9' ARGILLACEOUS HALITE: Clear to moderate brown (5YR 3/4; 4/4). Medium to coarsely crystalline, some fine. <1 to 3% brown clay, locally up to 5%. Scattered breaks. [10,15]	
11	41.1	1.4	1.4	100	X		
12	45	4.4	4.4	100	X		
13	46.9	3.0	3.0	100	X		
	50						
	55						



BORING NO. DH-41



# WIPP

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
	25						
6	28.3	5.3	4.4	83	X	39.8'± -43.3' HALITE: Clear, some moderate brown (5YR 4/4); medium gray (N5) and moderate reddish orange. Coarsely crystalline. <1% clay, gray with some brown. <1% polyhalite. Bluish-gray break at 43.3'.	
7	30	5.0	0.0	0		43.3'-44.65' ARGILLACEOUS HALITE: Clear to moderate brown (5YR 4/4), fine to medium crystalline, some coarse. <1/2% polyhalite. <1 to 3% brown clay. Scattered breaks.	
8	33.3	3.5	2.0	57		44.65'-47.2' HALITE: Clear, some moderate reddish orange (10R 6/6). Coarsely crystalline, some fine to medium. <1% gray clay. Predominantly brown clay to 46'. <1% polyhalite. [9,11, some 17]	
9	36.8	3.0	0.4	13		47.2'-51.2' HALITE: Clear, coarsely crystalline. <1/2% polyhalite. [1]	
10	39.8	3.1	3.1	100	X		
11	42.9	5.1	5.0	98	X		
12	48.0	3.2	2.0	63	X		
	50						
	51.2						
	55						

Unable to log due to poor core recovery and quality.





# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE/SIZE NC CORE BORING NO. DH-42A

LOCATION ROOM G - FLOOR

STATION N1101, W2789 COLLAR ELEV. 1285.7 FT DIRECTION OF DRILLING VERTICAL DOWN

MINE COORDINATES N10789.2, E4125.5 DEPTH OF BOREHOLE 40.5 FT

DRILLING METHOD ROTARY AIR DRILL MAKE/MODEL CP-65

DATE STARTED 1-25-85 DATE COMPLETED 1-25-85 SHEET

LOGGED BY: J. E. GALLERANI DATE: 1-25-85 1 OF 2

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
	0					0.0'-20.0' No core. Refer to DH-42 log.	Replacement hole for portion of core hole DH-42.
	5					20.0'-25.7' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6) coarsely crystalline. <1 to 3% polyhalite. <1% gray clay from 24.7-25.7'. Some brown clay. [7, some 9]	NC double-tube wireline barrel used. NC rods 20.0'-40.5'.  58% of core recovered was 22-inch length.
	10	No Core				25.7'-28.9' HALITE: Clear, some moderate reddish orange (10R 6/6) and moderate brown (5YR 4/4). Medium to coarsely crystalline, some fine. 41% polyhalite and brown clay. Scattered breaks from 26.8'. [17]	Total drilling time: 5 1/2 hrs ±.  Dry hole. No gas detected.
	15					28.9'-33.4' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline. <1 to 3%, average 2%, polyhalite. [4,7]	Very good core.
	20					33.4'-35.0' HALITE: Clear, some light moderate reddish orange (10R 6/6), coarsely crystalline. 41% polyhalite, locally 2%. Small moist vug in core. Gradational contact at 33.4'. [1,2,4]	
	21.5					35.0'-35.7' ANHYDRITE: Moderate reddish orange/brown (10R 6/6, 4/6), intermixed with polyhalitic halite to 35.3'. Then moderate reddish orange to light gray anhydrite. Scattered halite growths. Up to 3/4" gray clay at 35.7'. Irregular, low-angle contact.	
	25					35.7'-40.5' HALITE: Clear to light moderate reddish orange (10R 6/6), medium to coarsely crystalline. <1/2% polyhalite. 0 to <1% gray clay. Breaks at 37.2' and 37.55'±. [9,11]	
1	20	1.5	1.5	100	X X X X X	M	
2	21.5	5.0	5.0	100	X X X X X X X X X X		

BORING NO. DH-42A

# WIPP

WASTE ISOLATION PILOT PLANT 2 SHEET OF 2 BORING NO. DH-42A

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
	25						
2		5.0	5.0	100	X X X		
26.5					-		
3		5.0	5.0	100	- X -		
	30				X X X X X X X X X X X X X X X		
31.5					X X X X X X X X X X		
4		5.0	5.0	100	X X		
	35				X / / /		
36.5					X		
5		4.0	3.6	90	- X		
40.5	40				-		
	45						
	50						
	55						

M

# WIPP-SPDV

WASTE ISOLATION PILOT PLANT

# ROCK CORING LOG UPWARD CORING



BORING NO. DH-207 INSTRUMENT Extensometer  
 TYPE & NUMBER GE-246 HOLE SIZE NX  
 LOCATION East 140 Drift, 300' S of centerline of South 400 Drift, near E rib

STATION S697, E155 COLLAR ELEV. 1259.8' DIRECTION OF DRILLING Vertical Up  
 MINE COORDINATES N8989.7, E7049.1 BOREHOLE PENETRATION 53.0'  
 DRILLING METHOD Wet (brine) DRILL MAKE/MODEL Joy 12B  
 PREPARED BY RLB/TSC//DGK/Bechtel DATE 1/26/83

SHEET  
1 OF 3

RUN NUMBER	PENETRATION (ft.)	RECOVERY (%)	% RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS
9	25	5.0	100	—	X	20.7' - 25.8' HALITE: mottled colorless to moderate reddish-orange (10R 6/6) to moderate brown (5YR 3/4) halite, medium to coarsely crystalline, 0-1X polyhalite, 0-7X brown clay, banded clay/polyhalite appearance.	Pressurized gas encountered at 11.9' pushed drill rods back slightly and blew water out of hole.  Gas encountered at ~8.8'.  Core runs 1 through 4 were drilled without inner barrel.  0' - 1' drilled with 6" single-tube core barrel.  Drilling started at 09:30 hours on 10 December 1982.
8	5.0	100	—	—	X		
7	20	4.7	92	—	X	16.4' - 20.7' POLYHALITIC HALITE: colorless to moderate reddish-orange (10R 5/6) halite, medium to coarsely crystalline, 10-20X polyhalite from 16.4'-17.2', 1-5X from 17.2'-20.7', clear, pure halite from 16.9'-17.0', anhydrite stringer (~1/2") at 17.0', no clay, discontinuous anhydrite stringer (~1/16") at 18.1'.	
					X		
6	15	4.2	84	—	X	15.7' - 16.4' ANHYDRITE: (Anhydrite "a") light gray (N7) microcrystalline anhydrite, 0-5X halite, no basal clay but core is badly broken and chipped up at bottom of anhydrite—clay may be washed away.	
					X		
5	10	0.40	80	—	X	8.9' - 15.7' HALITE: clear to colorless halite, medium to coarsely crystalline, <1X polyhalite from 8.8'-10.0' and 13.9'-15.3', absent elsewhere, ~1X gray clay from 13.9'-15.3', clay absent elsewhere, anhydrite stringer (1/16") at 9.0'.	
					X		
4	5	2.0	59	—	X	8.75' - 8.9' ANHYDRITE: (Anhydrite "b") light gray (N7), microcrystalline anhydrite, 8.8'-8.9' core lost.	
					X		
3	0	1.7	85	—	X	3.3' - 8.75' HALITE: colorless to moderate brown (5YR 3/4) halite, finely to coarsely crystalline, fining upwards, 0-1X polyhalite, 1-5X brown clay locally concentrated, few blebs of gray clay, gray clay break at 8.75'.	
					X		
2	0	0.7	88	—	X	0.0' - 3.3' HALITE: clear halite, coarsely crystalline, <1X polyhalite, <1X gray clay, <1X brown clay increasing upward, grades into next higher unit.	
					X		
1	0.8	67	—	—	X		
0							





# WIPP-SPDV

WASTE ISOLATION PILOT PLANT

# ROCK CORING LOG UPWARD CORING



BORING NO. DH-207 INSTRUMENT Extensometer  
 TYPE & NUMBER GE-246 HOLE SIZE NX  
 LOCATION East 140 Drift, 300' S of centerline of South 400 Drift, near E rib

STATION S697, E155 COLLAR ELEV. 1259.8' DIRECTION OF DRILLING Vertical Up  
 MINE COORDINATES N8989.7, E7049.1 BOREHOLE PENETRATION 53.0'  
 DRILLING METHOD Wet (brine) DRILL MAKE/MODEL Joy 12B  
 PREPARED BY RLB/TSC//DGK/Bechtel DATE 1/26/83

SHEET  
3 OF 3

RUN NUMBER	PENETRATION (ft.)	RECOVERY (%)	% RECOVERED	ROD	PROFILE	DESCRIPTION	REMARKS
14	4.0	100	-	-	-	49.0' - 53.0' ARGILLACEOUS HALITE: mottled colorless to moderate brown (5YR 3/4) halite, finely to coarsely crystalline, fining upward, <1% polyhalite, 1-20% brown clay, increasing upward, brown clay partings at 50.1', 51.9', 52.6', and 52.9', brown clay seam at 50.2'.	total penetration = 53.0'.  Drilling completed on 11 December 1982.



# WIPP-SPDV

# ROCK CORING LOG



WASTE ISOLATION PILOT PLANT

BORING NO. DH-208 INSTRUMENT TYPE & NUMBER None HOLE SIZE NX  
 LOCATION East 140 Drift, 300' S of centerline of South 400 Drift, near E rib

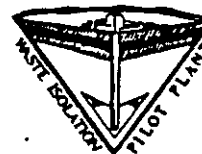
STATION S698, E150 COLLAR ELEV. 1251.6' DIRECTION OF DRILLING Vertical Down  
 MINE COORDINATES N8988.8, E7044.0 DEPTH OF BOREHOLE 49.2'  
 DRILLING METHOD Wet (brine) DRILL MAKE/MODEL Joy 12 B  
 PREPARED BY DGK, JPS/Bechtel DATE 1/26/83 SHEET 1 OF 2

RUN NUMBER	DEPTH (ft)	RECOVERY (ft)	% RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS
1	0	1.5	75	—	X		Drilling started 10:00 hours, 10 December 1982
2	5	1.5	38	—	X	0.0' - 9.1' HALITE: clear to moderate reddish-orange (IOR 6/6) and moderate reddish-brown (IOR 4/6) halite, moderately hard, medium to coarsely crystalline, scattered blebs of orange polyhalite throughout. Trace (<1/2%) of brown interstitial clay. Polyhalite content increases to ~2% below 8.0'. Clear halite from 6.5' to 8.0'.	RDN 1 - unclear where core loss occurred. No inner barrel used.  RDN 2 - no inner barrel used.
3	10	4.2	100	—	X		
4	10	4.4	88	—	X	9.1' - 12.6' ANHYDRITE: (Marker Bed 139) light gray (N7) anhydrite, moderately hard, very finely crystalline, core broken into 1/4" to 3/4" pieces.	
	12.6				X	12.6' - 12.7' CLAY: medium light gray (N6) clay seam, stiff, moderately plastic.	
	12.7				X	12.7' - 16.9' HALITE: clear to mottled medium gray (N5) to pale reddish-brown (IOR 5/4) halite, moderately hard, finely to coarsely crystalline. Clay comprises 3-5% with trace (2-3%) interstitial polyhalite and scattered polyhalite blebs. Clay breaks at 13.6', 13.9', 14.0', 14.4', 14.7', 15.5', 16.1', and 16.7'.	
5	15	5.1	100	—	X		
	20				X	16.9' - 28.1' HALITE: clear halite with some moderate reddish-orange (IOR 6/6) polyhalite zones, finely to coarsely crystalline, moderately hard. Trace (<1%) interstitial, light gray (N7) clay from 21.5'-23.8'. Polyhalite content ranges from 0 to 2% throughout and increases to 2-3% from 26.5'-28.1'. Clear halite from 24.7' to 26.0'.	
6	25	4.9	98	—	X		



# WIPP-SPDV

# ROCK CORING LOG



WASTE ISOLATION PILOT PLANT

BORING NO. DH-208 INSTRUMENT TYPE & NUMBER None HOLE SIZE NX  
 LOCATION East 140' Drift, 300' S of centerline of South 400 Drift, near E rib

STATION S698, E150 COLLAR ELEV. 1251.6' DIRECTION OF DRILLING Vertical Down  
 MINE COORDINATES N8988.8, E7044.0 DEPTH OF BOREHOLE 49.2'  
 DRILLING METHOD Wet (brine) DRILL MAKE/MODEL Joy 12B  
 PREPARED BY BGK, JPS/Bechtel DATE 1/26/83 SHEET 2 OF 2

RUN NUMBER	DEPTH (ft)	RECOVERY (ft)	% RECOVERED	ROD	PROFILE	DESCRIPTION	REMARKS
7	25				X	(as above)	Averaging 1 in approximately 2 1/2 minutes of drilling.
	51	100			X		
8	30				X	28.1' - 34.0' HALITE: clear to very light gray (N8) to light brownish-gray (5YR 6/1) halite, moderately hard, medium to coarsely crystalline, clay in part comprises up to 3% of core. Few polyhalite blebs throughout. Very light gray (N8) halite from 29.3'-30.2'. Clay breaks at 28.4', 29.3', 29.8', 30.9', and 32.0'.	
	4.8	96			X		
	35				X		
9	3.9	98			X	34.0' - 39.2' HALITE: polyhalitic, clear to moderate reddish-orange (10R 6/6) halite, moderately hard, coarsely crystalline. Polyhalite occurs as interstitial layers and scattered blebs and comprises 2-5% of core. Polyhalite lens from 38.5'-39.0'.	
					X		
	40				X		
10	5.0	100				39.2' - 39.4' ANHYDRITE: very light gray (N8) anhydrite, dense, hard, very finely crystalline, few blebs of clear halite.	
11	45					39.4' - 49.2' ARGILLACEOUS HALITE: clear to mottled medium dark gray (N4) to pale yellowish-brown (10YR 6/2), to pale red (10R 6/2) halite, moderately hard, finely to coarsely crystalline, clay content ranges from 0 to 10%. Scattered, near-horizontal clay breaks at 40.5', 40.7', 42.7', 42.9', 43.7', 47.6', 48.2', and 48.5'. Finely crystalline below 46.5'.	
	4.8	96					
	50						



Drilling finished 14:30 hours, 10 December 1982.  
 Total depth = 49.2'.  
 Hole slowly discharging gas on 13 December 1982.

# WIPP-SPDV

WASTE ISOLATION PILOT PLANT

# ROCK CORING LOG UPWARD CORING



BORING NO. DH-211 INSTRUMENT TYPE & NUMBER None HOLE SIZE NX  
 LOCATION East 140 Drift, 930' S of South 400 Drift centerline, near E rib

STATION S1320, E163 COLLAR ELEV. 1270.5' DIRECTION OF DRILLING Vertical  
 MINE COORDINATES N8366.5, E7057.1 BOREHOLE PENETRATION 50.0'  
 DRILLING METHOD Wet (brine) DRILL MAKE/MODEL Joy 12B  
 PREPARED BY RLB/TSC//DGK/Bechtel DATE 1/26/83 SHEET 1 OF 2

RUN NUMBER	PENETRATION (ft.)	RECOVERY(R)	% RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS
8	5.0	100	-	-	X	(see description on next sheet)	
7	4.6	100	-	-	X	19.0' - 24.2' HALITE: mottled colorless to moderate brown (5YR 3/4) halite, finely to coarsely crystalline, fining upward, <1% polyhalite, 1-5% brown clay locally concentrated, <1% gray clay.	
6	4.9	98	-	-	X	15.1' - 19.0' HALITE: colorless to moderate reddish-orange (10R 6/6) halite, coarsely crystalline, 1-2% polyhalite, polyhalite stringers at 15.1'; anhydrite stringer zone from 15.1'-15.8', anhydrite stringers at 16.3' and 17.1'.	
5	3.4	97	-	-	X	14.5' - 15.1' ANHYDRITE: (Anhydrite "a") light gray (N7) microcrystalline anhydrite.	
4	1.5	100	-	-	X	13.7' - 14.5' HALITE: mottled colorless to grayish-orange-pink (5YR 7/2) to moderate brown (5YR 3/4) halite, medium to finely crystalline, <1% polyhalite, 2-5% disseminated brown clay, <1% gray clay, gray clay parting at 14.5'.	Advancing 5' in 0.5 hr.
3	2.0	100	-	-	X	7.9' - 13.7' HALITE: colorless halite, coarsely crystalline, <1% polyhalite and clay, anhydrite stringers at 9.3' (0.5") and 10.0' (0.1"), gray clay increases from 0-1% from 13.3' - 13.7', grades into unit above.	Gas at moderate pressure at just under 8'.
2	0.7	35	-	-	X	7.8' - 7.9' ANHYDRITE: (Anhydrite "b") light gray (N7), microcrystalline anhydrite, mixed with halite at upper contact.	CORE LOSS: Run #1, at 1.6'-2.1' Run #2, throughout run
1	1.5	75	-	-	X	5.0' - 7.8' HALITE: colorless to mottled moderate reddish-orange (10R 6/6) to medium light gray (N6) halite, medium to coarsely crystalline, <1-3% polyhalite locally concentrated, ~1% gray clay, gray clay break at 7.8'.	0' - 1.0' drilled with 6" single-tube core barrel. Drilling started at 13:45 hours on 18 December 1982.
0					X	0.0' - 5.0' HALITE: colorless halite, coarsely crystalline, <1% polyhalite, few blebs of gray clay.	





# WIPP-SPDV

# ROCK CORING LOG



WASTE ISOLATION PILOT PLANT

BORING NO. DH-212 INSTRUMENT TYPE & NUMBER None HOLE SIZE NX  
 LOCATION East 140 Drift, 930' S of South 400 Drift centerline, near E rib

STATION S1320, E163 COLLAR ELEV. 1261.7' DIRECTION OF DRILLING Vertical Down  
 MINE COORDINATES N8366.5, E7057.1 DEPTH OF BOREHOLE 52.1'  
 DRILLING METHOD Wet (brine) DRILL MAKE/MODEL Joy 12B  
 PREPARED BY DGK, JPS/Bechtel DATE 1/26/83 SHEET 1 OF 3

RUN NUMBER	DEPTH (ft.)	RECOVERY(ft.)	% RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS
1	0	5.6	80	-	X	0.0' - 4.3' HALITE: clear to medium gray (N5) halite, moderately hard, coarsely crystalline, 5% clay in part. Gray clay breaks at 2.0', 2.8', and 3.3'. Trace (<1/2%) polyhalite at 1.9'.	Started at 14:00 hours on 17 December 1982.  Drilling rate is 20' per hour.  Core loss in Run #1 from 0.0'-1.4'.
	5				X X X X X X X X		
2	10	5.1	100	-	X X	10.7' - 12.6' ANHYDRITE: (Marker Bed 139) banded, medium gray (N5) and very light gray (N8) anhydrite, hard, dense, finely crystalline. Core is broken into 1/4"-1/2" chips from 12.1' to 12.6'. Medium light gray (N6) clay seen at 12.6', moderately soft and plastic, +1/2" thick.	
	15				-		
3	20	5.0	100	-	X X X X X X X X	14.5' - 27.9' POLYHALITIC HALITE: clear and moderate reddish-orange (10R 6/6) halite, moderately hard, medium to coarsely crystalline. Polyhalite is interstitial and occurs as blebs and ranges from 0% to 10%. Discontinuous, very thin clay breaks at 15.6', 18.8', 19.9', 21.6', 22.0', and 27.4'.	
	25				X X X X		





# WIPP-SPDV

# ROCK CORING LOG



WASTE ISOLATION PILOT PLANT

BORING NO. DH-212 INSTRUMENT TYPE & NUMBER None HOLE SIZE NX  
 LOCATION East. 140 Drift, 930" S of South 400 Drift centerline, near E rib

STATION S1320, E163 COLLAR ELEV. 1261.7' DIRECTION OF DRILLING Vertical Down  
 MINE COORDINATES N8366.5, E7057.1 DEPTH OF BOREHOLE 52.1'  
 DRILLING METHOD Wet (brine) DRILL MAKE/MODEL Joy 12B  
 PREPARED BY DGK, JPS/Bechtel DATE 1/26/83 SHEET 3 OF 3

RUN NUMBER	DEPTH (ft.)	RECOVERY (%)	% RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS
10	50	48	96	-		(as above) 51.9' - 52.1' HALITE: clear halite, moderately hard, coarsely crystalline.	Finished hole at 12:45 hours on 18 December 1982. Total depth = 52.1'.
	55						





# WIPP-SPDV

WASTE ISOLATION PILOT PLANT

# ROCK CORING LOG UPWARD CORING



BORING NO. DH-215 INSTRUMENT Extensometer  
 TYPE & NUMBER GE-247 HOLE SIZE NX  
 LOCATION East 140 Drift, 1960' S of Exploratory Shaft centerline, 13' from E rib

STATION S1960, E153 COLLAR ELEV. 1272.0' DIRECTION OF DRILLING Vertical Up  
 MINE COORDINATES N7727.2, E7046.9 BOREHOLE PENETRATION 52.0'  
 DRILLING METHOD Wet (brine) DRILL MAKE/MODEL Joy 12B  
 PREPARED BY BWH/TSC//RMB, JPS/Bechtel DATE 1/5-6/83 SHEET 2 OF 3

RUN NUMBER	PENETRATION (ft.)	RECOVERY (ft.)	% RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS
12	50	5.0	100	-		42.0' - 52.0' ARGILLACEOUS HALITE: halite with trace polyhalite, mottled grayish brown and reddish orange (10YR 6/5). From 42.0' - 45.4', 20-30% brownish clay, coarsely crystalline with less than 1% polyhalite. Clay breaks at: 42.6', 42.9', 44.0', 44.2', 44.5', and 45.3'. From 45.4' - 47.4', clear, medium to coarsely crystalline, trace of gray clay, less than 1% polyhalite. From 47.4' - 52.0', argillaceous with 10-15% clay, fine to coarsely crystalline, moderately hard. Clay breaks at: 48.2', 48.8', 49.3', 49.4', 49.5', 50.4', 50.7', 50.9', 51.1', and 51.4'. From 51.2' - 52.0', finely crystalline with less than 2% interstitial polyhalite.	
11	45	5.0	100	-		38.4' - 42.0' HALITE: polyhalitic (5-10%) halite, clear and mottled reddish-orange, polyhalite as blebs in part. Moderately hard, medium crystalline. Trace of gray clay throughout. At 38.7', thin <1/4" anhydrite stringer.	
10	40	5.0	100	-		37.8' - 38.4' ANHYDRITE: (Marker Bed 138) light gray (N5) anhydrite, hard, dense, with light and dark gray banding. At 37.8', 0.1' thick brown clay seam, moderately stiff.	
9	35	5.0	100	-		36.6' - 37.8' HALITE: polyhalitic (25%) halite to 37.0', finely crystalline, mottled gray, brown, and reddish orange, moderately hard. Argillaceous (10-15%) to 37.8', finely to medium crystalline, gray brown.	
8	30	5.0	100	-		32.8' - 36.6' ARGILLACEOUS HALITE: dark grayish brown (5YR 3/2) halite with some clear halite. Moderately hard, medium to coarsely crystalline. Clay breaks at 33.2', 33.3', 34.1', 34.4', 34.6', 34.9', 35.0', 35.4', 35.8', 36.3', and 36.6'.  30.4' - 32.8' HALITE: clear halite, moderately hard, finely to medium crystalline.  28.8' - 30.4' ARGILLACEOUS HALITE: brownish gray (5YR 4/1), finely to coarsely crystalline halite, moderately hard. Clay (10-20%) is dark brown with trace of gray. Polyhalite (1%) from 30.2' to 30.4'. At 29.6', brown clay break.	
7	25	4.9	98	-		(As below)	
							Stopped coring on 5 January 1983 at 15:30 hrs. at 42.0 ft.











# WIPP-SPDV

# ROCK CORING LOG



WASTE ISOLATION PILOT PLANT

BORING NO. DH-216 INSTRUMENT Extensometer  
 TYPE & NUMBER GE-248 HOLE SIZE NX

LOCATION East 140 Drift, 1960' S of Exploratory Shaft centerline, 13' from E rib

STATION S1960, E153 COLLAR ELEV. 1262.6' DIRECTION OF DRILLING Vertical  
Down

MINE COORDINATES N7727.2, E7046.9 DEPTH OF BOREHOLE 54.2'

DRILLING METHOD Wet (brine) DRILL MAKE/MODEL Joy 12B

PREPARED BY RMB,JPS/Bechtel DATE 1/8-10/83

SHEET  
3 OF 3

RUN NUMBER	DEPTH (ft.)	RECOVERY(ft)	% RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS
10	50	5.1	100	-	-	49.7' - 54.2' HALITE: clear, medium to coarsely crystalline halite, moderately hard. Trace of gray clay throughout.	Hole completed on 6 January 1983 at 15:00 hours.  Total depth = 54.2'
11		1.5	100	-	-		
	55						



# WIPP-SPDV

WASTE ISOLATION PILOT PLANT

# ROCK CORING LOG UPWARD CORING



BORING NO. DH-219 INSTRUMENT TYPE & NUMBER None HOLE SIZE NX  
 LOCATION East 140 Drift, 2422' S of Exploratory Shaft centerline, 5' from E rib

STATION S2422, E162 COLLAR ELEV. 1266.3' DIRECTION OF DRILLING Vertical Up  
 MINE COORDINATES N7264.9, E7056.6 BOREHOLE PENETRATION 51.0'  
 DRILLING METHOD Wet (brine) DRILL MAKE/MODEL Joy 12B  
 PREPARED BY JPS/Bechtel DATE 1/18/83 SHEET 1 OF 3

RUN NUMBER	PENETRATION (ft.)	RECOVERY (ft.)	% RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS												
8	25	5.1	100	-		24.0' - 28.8' HALITE: clear, medium to coarsely crystalline halite, moderately hard, few scattered white anhydrite blebs. At 24.3', 1/2" thick medium gray (NS) clay seam, dense, highly plastic.													
7	20	5.0	100	-		21.7' - 24.0' HALITE: clear to light brownish-gray (SYR 4/1) halite, finely crystalline, moderately hard. Trace (< 1%) of brown, interstitial argillaceous material throughout.													
6	15	5.0	100	-	X X X	19.0' - 21.7' HALITE: argillaceous, clear to mottled brownish-gray (SYR 4/1) and moderate brown (SYR 3/4) halite, finely to medium crystalline, moderately hard. Light and dark brown interstitial argillaceous zones (SZ) throughout. Clay breaks at: 19.0', 19.4', 19.9', 20.5', 20.7' and 21.5'.	Trace of pressurized gas encountered at 15.0'.												
						15.1' - 19.0' HALITE: clear, medium to coarsely crystalline halite, moderately hard. At 15.7', 45' dipping very light gray (NB) anhydrite seam, 1" thick. Few blebs of reddish-orange (10R 5/6) polyhalite throughout. Polyhalite content increases to 1/2% below 18.2'.													
						14.5' - 15.1' ANHYDRITE: (Anhydrite "a") banded light (N7) to dark (N3) gray anhydrite, hard, dense, trace of clear interstitial halite throughout.													
5	10	4.8	96	-		14.4' - 14.5' CLAY: very light gray (NS) clay seam, subhorizontal, moderately soft.													
4	0.7	0.7	70	-		8.0' - 14.4' HALITE: clear to very pale orange (10YR 8/2) halite, finely to coarsely crystalline, moderately hard. From 13.0' to 14.4', argillaceous content up to 1%. Few polyhalite blebs at 14.2'.													
3	5	2.1	52	-		5.8' - 8.0' HALITE: argillaceous, clear to mottled brownish-gray (SYR 4/1) to moderate brown (SYR 3/4) halite, moderately hard, slightly brittle, finely to coarsely crystalline.													
2	2.1	2.1	95	-		0.0' - 5.8' HALITE: clear halite, medium to coarsely crystalline, moderately hard, trace (< 1%) of interstitial polyhalite and few scattered blebs of medium reddish-orange (10R 5/6) polyhalite throughout.													
1	0	1.1	85	-	X														
							<p><b>CORE LOSS:</b></p> <table border="1"> <thead> <tr> <th>RUN</th> <th>WHERE LOST</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>0.0' - 0.2'</td> </tr> <tr> <td>3</td> <td>4.1' - 4.8'</td> </tr> <tr> <td></td> <td>5.2' - 6.0'</td> </tr> <tr> <td></td> <td>6.5' - 6.9'</td> </tr> <tr> <td>4</td> <td>7.9' - 8.2'</td> </tr> </tbody> </table> <p>NX coring began at 13:00 hours on 13 January 1983.</p>	RUN	WHERE LOST	1	0.0' - 0.2'	3	4.1' - 4.8'		5.2' - 6.0'		6.5' - 6.9'	4	7.9' - 8.2'
RUN	WHERE LOST																		
1	0.0' - 0.2'																		
3	4.1' - 4.8'																		
	5.2' - 6.0'																		
	6.5' - 6.9'																		
4	7.9' - 8.2'																		

# WIPP-SPDV

WASTE ISOLATION PILOT PLANT

# ROCK CORING LOG UPWARD CORING



BORING NO. DH-219 INSTRUMENT TYPE & NUMBER None HOLE SIZE NX  
 LOCATION East 140 Drift, 2422' S of Exploratory Shaft centerline, 5' from E rib

STATION S2422, E162 COLLAR ELEV. 1266.3' DIRECTION OF DRILLING Vertical Up  
 MINE COORDINATES N7264.9, E7056.6 BOREHOLE PENETRATION 51.0'  
 DRILLING METHOD Wet (brine) DRILL MAKE/MODEL Joy 12B  
 PREPARED BY JPS/Bechtel DATE 1/18/83 SHEET 2 OF 3

RUN NUMBER	PENETRATION (ft.)	RECOVERY (ft.)	% RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS
13	50	4.0	100	—	—	(see description on next sheet)	
12	45	3.1	100	—	—	42.8' - 49.9' HALITE: argillaceous, clear to mottled grayish-brown (5YR 3/2) halite, moderately hard, finely to coarsely crystalline. Numerous scattered, brown clay breaks throughout. Argillaceous content ranges from 0% to 2%. Reduction in clay content from 46.8'-48.0'. Clay breaks at: 43.2', 43.8', 44.8', 44.9', 45.4', 45.9', 46.4', 46.5', 49.0', and 49.6'.	
11	40	5.0	100	—	—	38.9' - 42.8' HALITE: clear, medium to coarsely crystalline halite, moderate hard. Few scattered stringers of light gray (N7) anhydrite throughout. Irregular anhydrite partings at: 39.0', 39.1', 39.7', and 40.2'.	
10	35	4.8	96	—	—	38.1' - 38.9' ANHYDRITE: (Marker Bed 138) white (N9) to very light gray (N8) anhydrite, dense, hard, finely crystalline.	Trace of pressurized gas at 37.0'.
						38.0' - 38.1' CLAY: moderate brown (5YR 3/4) clay seam, moderately soft and plastic, subhorizontal contact with overlying anhydrite.	
9	30	5.3	100	—	—	32.5' - 38.0' ARGILLACEOUS HALITE: clear to mottled grayish-brown (5YR 3/2) halite, finely to medium crystalline, moderately hard. Argillaceous content 10-20%, but less than 5% from 32.5'-33.5'. From 37.3'-38.0', trace of interstitial dark yellowish-orange (10YR 6/6) polyhalite. Clay breaks at 34.0', 34.2', 34.4', 35.6', 36.2', 36.3', and 36.9'.	
						30.3' - 32.5' HALITE: clear, medium to coarsely crystalline halite, moderately hard.	
8	25	5.1	100	—	—	28.8' - 30.3' HALITE: argillaceous, clear to brownish-gray (5YR 4/1) halite, finely crystalline. Argillaceous content 2-3% from 28.8' to 29.3' and < 1% from 29.3' to 30.3'.	
						(As below)	

# WIPP-SPDV

WASTE ISOLATION PILOT PLANT

# ROCK CORING LOG UPWARD CORING



BORING NO. DH-219 INSTRUMENT TYPE & NUMBER None HOLE SIZE NX  
 LOCATION East 140 Drift, 2422' S of Exploratory Shaft centerline, 5' from E rib

STATION S2422, E162 COLLAR ELEV. 1266.3' DIRECTION OF DRILLING Vertical Up  
 MINE COORDINATES N7264.9, E7056.6 BOREHOLE PENETRATION 51.0'  
 DRILLING METHOD Wet (brine) DRILL MAKE/MODEL Joy 12B  
 PREPARED BY JPS/Bechtel DATE 1/18/83 SHEET 3 OF 3

RUN NUMBER	PENETRATION (ft.)	RECOVERY(%)	% RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS
13	50	40.	100	—	—	49.9' - 51.0' HALITE: argillaceous, clear, moderate brown (5YR 3/4) halite, very finely crystalline, sugary texture in part, moderately hard, 2-5% argillaceous content. Irregular, moderate brown (5YR 3/4) clay breaks at 50.0' and 50.2'.	Total penetration = 51.0'.  Hole completed at 15:15 hours on 14 January 1983.

# WIPP-SPDV

WASTE ISOLATION PILOT PLANT

# ROCK CORING LOG UPWARD CORING



BORING NO. DH-219A INSTRUMENT TYPE & NUMBER None HOLE SIZE NX

LOCATION East 140 Drift, 2418' S of Exploratory Shaft centerline, 5' from E rib

STATION S2418, E162 COLLAR ELEV. 1266.1' DIRECTION OF DRILLING Vertical Up

MINE COORDINATES N7268.5, E7056.2 BOREHOLE PENETRATION 11.3'

DRILLING METHOD Wet (brine) DRILL MAKE/MODEL Joy 12B

PREPARED BY JPS/Bechtel DATE 1/18/83 SHEET

1 OF 1

RUN NUMBER	PENETRATION (ft.)	RECOVERY (%)	% RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS
5	5.3	100				8.2' - 11.3' HALITE: clear halite, moderately hard, medium to coarsely crystalline. Few scattered hairline stringers of very light gray (N6) anhydrite at: 8.5', 8.8', 9.8', 10.0', 10.8' and 11.1'.	Total penetration = 11.3'.
4	0.3	100				8.2' ANHYDRITE: (Anhydrite "b") light gray (N7), very finely crystalline anhydrite, hard, dense, 3/8" thick.	Hole cored to determine exact location, thickness, and character of clay parting and anhydrite lens at 8.2' not recovered in DH-219.
3	2.0	100			X	3.5' - 8.2' ARGILLACEOUS HALITE: clear to mottled moderate brown (5YR 3/4) halite, medium to coarsely crystalline, moderately hard. Interstitial argillaceous material comprises 20% of core. Trace of grayish-orange (10YR 7/4) polyhalite (< 1%) from 7.0' to 7.3'. Brown clay break at 7.3' and gray clay parting at 8.2'.	0' - 1.0' drilled with 6" single-tube core barrel.
2	1.7	100			X	0.0' - 3.5' HALITE: clear halite, finely to coarsely crystalline, moderately hard, trace of medium reddish-orange (10R 5/6) polyhalite and scattered polyhalite blebs.	RUN 1 core lost between 1.7' - 2.0'.
1	0.7	70			X		NX coring began at 10:00 hours and ended at 11:15 hours on 17 January 1983.



# WIPP-SPDV

# ROCK CORING LOG



WASTE ISOLATION PILOT PLANT

BORING NO. DH-220 INSTRUMENT TYPE & NUMBER None HOLE SIZE NX

LOCATION East 140 Drift, 2421' S of Exploratory Shaft centerline, 5' from E rib

STATION S2421, E162 COLLAR ELEV. 1257.4' DIRECTION OF DRILLING Down Vertical

MINE COORDINATES N7265.5, E7055.9 DEPTH OF BOREHOLE 51.8'

DRILLING METHOD Wet (brine) DRILL MAKE/MODEL Joy 12B

PREPARED BY JPS/Bechtel DATE 1/19/83 SHEET

1 OF 3

RUN NUMBER	DEPTH (ft.)	RECOVERY(ft)	% RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS																
1	0				X -		NX coring began at 08:30 hours on 15 January 1983.  CORE LOSS: <table border="1"> <thead> <tr> <th>RUN</th> <th>WHERE LOST</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>1.3' - 1.4'</td> </tr> <tr> <td></td> <td>2.3' - 2.8'</td> </tr> <tr> <td></td> <td>3.3' - 4.0'</td> </tr> <tr> <td></td> <td>4.1' - 4.7'</td> </tr> <tr> <td>2</td> <td>6.0' - 6.1'</td> </tr> <tr> <td>4</td> <td>12.2' - 12.3'</td> </tr> <tr> <td>8</td> <td>33.4' - 33.7'</td> </tr> </tbody> </table>	RUN	WHERE LOST	1	1.3' - 1.4'		2.3' - 2.8'		3.3' - 4.0'		4.1' - 4.7'	2	6.0' - 6.1'	4	12.2' - 12.3'	8	33.4' - 33.7'
	RUN	WHERE LOST																					
1	1.3' - 1.4'																						
	2.3' - 2.8'																						
	3.3' - 4.0'																						
	4.1' - 4.7'																						
2	6.0' - 6.1'																						
4	12.2' - 12.3'																						
8	33.4' - 33.7'																						
	4.1	68	-		X - - X X - X - - X X -	0.0' - 6.5' HALITE: clear, finely to coarsely crystalline halite, moderately hard. Trace (< 1X) of reddish-orange (10R 5/6) polyhalite blebs throughout. Few grayish-brown argillaceous zones, < 1%.																	
2	0.9	90	-		X X X X	6.5' - 8.8' POLYHALITIC HALITE: clear to moderate reddish-orange (10R 6/6) halite, moderately hard, medium to coarsely crystalline. Polyhalite (5-10X) occurs as blebs and interstitial layers.																	
3	5.2	100	-		X X X X X	8.8' - 11.0' ANHYDRITE: (Marker Bed 139) polyhalitic, pale reddish-brown (10R 5/4) and medium gray (N5) anhydrite, dense, finely crystalline, hard, numerous polyhalite seams and partings comprise up to 50% of core, slightly banded. Medium gray (N5) clay parting at 11.0'.																	
4	4.9	98	-		X X X	11.0' - 19.9' HALITE: polyhalitic in part, clear halite, light gray (N7) and moderate reddish-orange (10R 6/6). Finely to coarsely crystalline, moderately hard. Interstitial gray clay at 12.2'. Polyhalite content 2X (3-5X from 16.0' to 19.9'). Scattered polyhalite blebs at 14.0', seam at 19.3'.																	
5	5.3	100	-		X X X	19.9' - 22.0' HALITE: clear to light gray (N7) halite, medium to coarsely crystalline, moderately hard, trace clay (< 1%) in part. Gray clay break at 20.0'.																	
6	5.0	100	-		X X	22.0' - 28.4' HALITE: polyhalitic, clear to moderate reddish-orange (10R 6/6) and light brownish-gray (5YR 6/1) halite, finely to coarsely crystalline, moderately hard, 2-3X polyhalite and trace (< 1%) clay from 26.8'-28.4'. Finely crystalline from 24.9'-27.0'. Polyhalite occurs as interstitial layers and irregular blebs. Below 26.8', 5X interstitial gray clay, with clay breaks at 26.8', 27.0' and 27.4'.																	





# WIPP-SPDV

## ROCK CORING LOG



WASTE ISOLATION PILOT PLANT

BORING NO. DH-220 INSTRUMENT TYPE & NUMBER None HOLE SIZE NX

LOCATION East 140 Drift, 2421' S of Exploratory Shaft centerline, 5' from E rib

STATION S2421, E162 COLLAR ELEV. 1257.4' DIRECTION OF DRILLING Vertical Down

MINE COORDINATES N7265.5, E7055.9 DEPTH OF BOREHOLE 51.8'

DRILLING METHOD Wet (brine) DRILL MAKE/MODEL Joy 12B

PREPARED BY JPS/Bechtel DATE 1/19/83 SHEET 3 OF 3

RUN NUMBER	DEPTH (ft.)	RECOVERY (ft.)	% RECOVERED	ROD	PROFILE	DESCRIPTION	REMARKS
11	50	3.9	100	-	-	(As above) 50.5' - 51.8' HALITE: clear halite, moderately hard, moderately to coarsely crystalline.	Hole completed at 15:00 hours on 15 January 1983.
	55						Trace of gas encountered after completion of hole.  Total depth = 51.8'.



# WIPP-SPDV

WASTE ISOLATION PILOT PLANT

# ROCK CORING LOG UPWARD CORING



BORING NO. DH-223 INSTRUMENT Extensometer  
 TYPE & NUMBER GE-249 HOLE SIZE NY  
 LOCATION East 140 Drift, 3079' S of Exploratory Shaft centerline, 13' from  
E rib

STATION S3079, E154 COLLAR ELEV. 1255.1' DIRECTION OF DRILLING Vertical Up  
 MINE COORDINATES N6607.2, E7048.5 BOREHOLE PENETRATION 52.6'  
 DRILLING METHOD Wet (brine) DRILL MAKE/MODEL Joy 12B  
 PREPARED BY RMB, JPS/Bechtel DATE 1/26/83 SHEET 1 OF 3

RUN NUMBER	PENETRATION (ft.)	RECOVERY (%)	% RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS								
8	25	50	100	-		19.2' - 28.9' HALITE: argillaceous and polyhalitic in part; clear to mottled light gray (N7) and moderate brown (5YR 3/4) halite, moderately hard, finely to coarsely crystalline. Clay content <2%. Polyhalite <1% from 20.8' to 21.1'. Clay breaks at 19.3', 22.3', 23.1', 23.8', clay parting at 24.3'. At 24.3', anhydrite stringer, 1/8" thick, bluish-white (5B 9/1), hard, dense.									
7	20	52	100	-		15.2' - 19.2' HALITE: clear halite, medium to coarsely crystalline, moderately hard, trace (<1%) moderate reddish-orange (10R 5/6) polyhalite blebs throughout.									
6	15	4.9	98	-		14.2' - 15.2' ANHYDRITE: (Anhydrite "a") very light (N8) to light gray (N7) anhydrite, dense, hard, finely crystalline, faintly banded in part. Some interstitial clear halite from 14.8' to 15.2'.	Pressurized gas at 15' blew return line out of reserve pond.								
5	10	5.3	100	-		0.0' - 14.2' HALITE: clear to medium gray (N5) halite, medium to coarsely crystalline, moderately hard. Core is moderately fractured and broken from 1.0' to 4.5'. Trace clay (<1%) from 5.0' to 8.3' and from 13.5' to 14.2'. Clay breaks at 5.0', 6.7', 6.9', 7.3', 8.1', and 13.4'. 1/4" clay seams at 8.2' and 14.2'. 1/2"-thick, hard, dense, medium dark gray (N4) anhydrite (Anhydrite "b") lens at 8.2'.	Trace of gas between 8' and 9'.								
4	5	11	58	-											
3		12	80	-											
2		1.7	85	-											
1	0	1.0	100	-											
						<p><b>CORE LOSS:</b></p> <table border="1"> <thead> <tr> <th>RUN</th> <th>WHERE LOST</th> </tr> </thead> <tbody> <tr> <td>2</td> <td>1.0' - 1.3'</td> </tr> <tr> <td>3</td> <td>Throughout run</td> </tr> <tr> <td>4</td> <td>Throughout run</td> </tr> </tbody> </table> <p>Core Run #1 was a 1' run with a 6" O.D. core barrel.</p> <p>Drilling started 09:30 hours on 22 January 1983</p>	RUN	WHERE LOST	2	1.0' - 1.3'	3	Throughout run	4	Throughout run	
RUN	WHERE LOST														
2	1.0' - 1.3'														
3	Throughout run														
4	Throughout run														



# WIPP-SPDV

WASTE ISOLATION PILOT PLANT

# ROCK CORING LOG UPWARD CORING



INSTRUMENT Extensometer  
 BORING NO. DH-223 TYPE & NUMBER GE-249 HOLE SIZE NX  
 LOCATION East 140 Drift, 3079' S of Exploratory Shaft centerline, 13' from E rjh

STATION S3079, E154 COLLAR ELEV. 1255.1' DIRECTION OF DRILLING Vertical Up  
 MINE COORDINATES N6607.2, E7048.5 BOREHOLE PENETRATION 52.6'  
 DRILLING METHOD Wet (brine) DRILL MAKE/MODEL Joy 12B  
 PREPARED BY RMB, JPS/Bechtel DATE 1/26/83 SHEET 2 OF 3

RUN NUMBER	PENETRATION (ft.)	RECOVERY (%)	% RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS
13	50	5.2	100	-		(see description on next sheet)	
12	45	5.0	100	-		44.9' - 48.6' HALITE: clear halite, moderately hard, coarsely crystalline. Trace interstitial dark reddish-brown (10R 3/4) clay from 44.9' - 45.4'.	
11	40	5.2	100	-	X X	38.6' - 42.0' HALITE: clear halite, medium to coarsely crystalline, moderately hard, trace interstitial moderate reddish-orange (10R 6/6) polyhalite and medium gray (N5) clay. Very light gray (N8) anhydrite stringers at 39.0' and 39.5'.	
						37.9' - 38.6' ANHYDRITE: (Marker Bed 138) light gray (N7) anhydrite, dense, hard, very finely crystalline.	
10	35	5.1	100	-		33.5' - 37.9' ARGILLACEOUS HALITE: brownish-gray (5YR 4/1) to grayish-brown (5YR 3/2) halite, finely to coarsely crystalline, moderately hard, 15-30% interstitial clay with clear halite. Clay breaks at 34.6', 35.1', 35.5', 35.7', 35.9', 36.3', 37.0', 37.2', 37.3', and 37.8'. At 37.9', 3/4"-thick clay seam, grayish-brown (5YR 3/2), stiff, moderately plastic.	
						30.3' - 33.5' HALITE: clear halite, coarsely crystalline, moderately hard, trace (<1/2%) clay from 32.7' to 33.5'.	
9	30	5.2	100	-		28.9' - 30.3' ARGILLACEOUS HALITE: clear to moderate brown (5YR 3/4) halite, moderately hard, finely to moderately crystalline, 10-15% clay. Clay breaks at 29.1', 29.9', 30.0'. Core is slightly vesicular at 30.0'. Clay seam, 1/4" thick, medium light gray (N6), stiff and moderately plastic at 30.2'.	Pressurized gas encountered at +30'.
						(as below)	
8	25	5.0	100	-			



# WIPP-SPDV

WASTE ISOLATION PILOT PLANT

# ROCK CORING LOG UPWARD CORING



BORING NO. DH-223 INSTRUMENT Extensometer  
 TYPE & NUMBER GE-249 HOLE SIZE NX  
 LOCATION East 140 Drift, 3079' S of Exploratory Shaft centerline, 13' from E rib

STATION S3079, E154 COLLAR ELEV. 1255.1' DIRECTION OF DRILLING Vertical Up  
 MINE COORDINATES N6607.2, E7048.5 BOREHOLE PENETRATION 52.6'  
 DRILLING METHOD Wet (brine) DRILL MAKE/MODEL Joy 12B  
 PREPARED BY RMB, JPS/Bechtel DATE 1/26/83 SHEET 3 OF 3

RUN NUMBER	PENETRATION (ft.)	RECOVERY (%)	% RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS
13	52	100	-	-	-	<p>48.6' - 52.6' ARGILLACEOUS HALITE: clear to moderate brown (5R 3/4) halite, moderately hard, finely to coarsely crystalline. Clay comprises 20-35% in part. Finely crystalline from 50.6' - 52.6'. Clay breaks at 48.8', 49.0', 50.1', 52.0', 52.3', and 52.6'.</p>	<p>Total penetration = 52.6'. Completed hole at 08:30 hours on 23 January 1983.</p>



# WIPP-SPDV

# ROCK CORING LOG



WASTE ISOLATION PILOT PLANT

BORING NO. DH-224 INSTRUMENT TYPE & NUMBER None HOLE SIZE NX

LOCATION East 140 Drift, 3079' S of Exploratory Shaft centerline, 13' from E rib

STATION S3079, E154 COLLAR ELEV. 1246.6' DIRECTION OF DRILLING Vertical Down

MINE COORDINATES N6607.5, E7048.5 DEPTH OF BOREHOLE 52.5'

DRILLING METHOD Wet (brine) DRILL MAKE/MODEL Joy 12B

PREPARED BY JPS/Bechtel DATE 1/25/83 SHEET 1 OF 3

RUN NUMBER	DEPTH (ft)	RECOVERY (ft)	% RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS
1	0	1.0	100	-	X		Coring began at 08:40 hours on 23 January 1983.
2	1.7	40	-	-	X	6.0' - 7.6' HALITE: clear halite, moderately hard, medium to coarsely crystalline, trace clay (<1/2%) from 1.0'-3.0', few moderate reddish-orange (10R 6/6) polyhalite blebs.	Core Run #1, from 0.0' to 1.0', using 6" single-tube core barrel.
3	5.2	100	-	-	X	7.6' - 10.7' ANHYDRITE: (Marker Bed 139), banded light bluish-gray (5B 7/1) to medium light gray (N6) to moderate reddish-brown (10R 4/6) anhydrite, very finely crystalline, hard, dense slightly halitic and polyhalitic. Medium gray (N5) clay seam, moderately soft and plastic, +1/2" thick at 10.7'.	<b>CORE LOSS:</b> RUN WHERE LOST 2 Throughout run 4 10.2' - 10.3'
4	10.9	90	-	-	X	10.7' - 15.2' HALITE: clear and mottled moderate reddish-orange (10R 6/6) to light gray (N7) to grayish-orange (10TR 7/4) halite, moderately hard, finely to medium crystalline. Polyhalite and clay content varies throughout from <1% to 3%. Polyhalite is interstitial with some blebs. Medium light gray (N6) clay breaks at 11.7', 12.0', and 14.5'.	
5	15.3	100	-	-	X	15.2' - 18.6' POLYHALITIC HALITE: clear to moderate reddish-orange (10R 6/6) halite, moderately hard, medium to coarsely crystalline, polyhalite content ranges from <1% to 10% in blebs and interstitially, clay-filled fracture at 15.25'.	
6	20.5	100	-	-	X	18.6' - 21.7' HALITE: clear and brownish-gray (5YR 4/1) halite with trace of moderate reddish-orange (10R 6/6), moderately hard, medium to coarsely crystalline, trace (<2%) clay in part with trace (<5%) interstitial polyhalite throughout, clay breaks at 18.75', 19.9', and 20.75'.	
7	25.2	100	-	-	X	21.7' - 25.0' HALITE: polyhalitic, clear and moderate reddish-orange (10R 6/6) halite, moderately hard, coarsely crystalline, polyhalite occurs as blebs and interstitial layers, ranging from 3-5%.	





# WIPP-SPDV

# ROCK CORING LOG



WASTE ISOLATION PILOT PLANT

BORING NO. DH-224 INSTRUMENT TYPE & NUMBER None HOLE SIZE NX

LOCATION East 140 Drift, 3079' S of Exploratory Shaft centerline, 13' from E rib

STATION S3079, E154 COLLAR ELEV. 1246.6' DIRECTION OF DRILLING Vertical Down

MINE COORDINATES N6607.5, E7048.5 DEPTH OF BOREHOLE 52.5'

DRILLING METHOD Wet (brine) DRILL MAKE/MODEL Joy 12B

PREPARED BY JPS/Bechtel DATE 1/25/83

SHEET  
3 OF 3

RUN NUMBER	DEPTH (ft.)	RECOVERY(ft.)	% RECOVERED	ROD	PROFILE	DESCRIPTION	REMARKS
12	50	52	100	-	-	<p>49.1' - 52.5' HALITE: clear and mottled pale reddish-brown (10R 5/4) to light gray (N7) halite, finely to coarsely crystalline, moderately hard. Trace (&lt;1/2X) polyhalite and clay throughout. At 52.0', 3/8"-thick, light gray (N7) clay seam, firm, moderately plastic. Thin clay break at 52.3'.</p>	<p>Hole completed at 14:30 hours on 23 January 1983.</p>
	<p>55</p>						<p>Total depth = 52.5'</p>

# WIPP-SPDV

WASTE ISOLATION PILOT PLANT

# ROCK CORING LOG UPWARD CORING



BORING NO. DH-227 INSTRUMENT TYPE & NUMBER None HOLE SIZE NX  
 LOCATION East 140 Drift, 3656' S of Exploratory Shaft centerline, 5' from W rib

STATION S3656, E147 COLLAR ELEV. 1247.0' DIRECTION OF DRILLING Vertical Up  
 MINE COORDINATES N6030.7, E7041.2 BOREHOLE PENETRATION 51.7'  
 DRILLING METHOD Wet (brine) DRILL MAKE/MODEL Joy 12B  
 PREPARED BY JPS/Bechtel DATE 1/28/83 SHEET 1 OF 3

RUN NUMBER	PENETRATION (ft.)	RECOVERY (ft.)	% RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS
7	5.3	100	-	-	(see description on next sheet)		
6	5.0	100	-	-	18.0' - 26.3' ARGILLACEOUS HALITE: clear and medium light gray (N6) halite with isolated bands of moderate reddish-orange (10R 6/6) polyhalite, finely to coarsely crystalline, moderately hard. Argillaceous content 5-10% with clay breaks at 18.1', 18.5', 19.0', 19.6', 20.2', 20.5', 21.5', 22.4', 22.6, and 23.3'. Isolated bands of polyhalite at 19.2', 19.9', and 20.9'.		
5	5.1	100	-	-	X	14.5' - 18.0' POLYHALITIC HALITE: clear and moderate reddish-orange (10R 6/6) halite, medium to coarsely crystalline, moderately hard. Polyhalite generally <2% and occurs as scattered blebs or interstitially.	
					X	13.8' - 14.5' HALITE: clear halite, coarsely crystalline, moderately hard. At 14.5', very light gray (N8) anhydrite lens.	
4	5.0	100	-	-	X	13.0' - 13.8' ANHYDRITE: (Anhydrite "a") banded very light gray (N8) and medium gray (N5) anhydrite, hard, dense, microcrystalline.	
					X	12.9' - 13.0' CLAY: light gray (N7) clay, moderately soft, moist.	
3	1.0	100	-	-	7.1' - 12.9' HALITE: clear halite, medium to coarsely crystalline, moderately hard. From 12.1'-12.9', few interstitial argillaceous and polyhalitic zones. Clay content about 1-2% from 12.1'-12.5', and polyhalite about 1% from 12.5'-12.9'.	Trace of gas at 7.0'.	
2	0.5	25	-	-	0.0' - 7.1' HALITE: clear to medium gray (N5) halite, moderately hard, coarsely crystalline, slightly (<1/2%) argillaceous in part. Few discontinuous clay breaks throughout. Few orange polyhalitic blebs from 6.0'-6.5'. At 7.1', olive gray (5Y 4/1) anhydrite stringer (Anhydrite "b"), hard, dense, with trace of medium gray (N5) clay.	Core Loss: Run 1 Throughout Run Run 2 Throughout Run Run 12 46.7'-46.8'	
1	0.6	30	-	-		0' - 1.0' drilled with 6" single-tube core barrel.	
0	1.0	100	-	-		Hole began at 13:00 hours on 28 January 1983.	





# WIPP-SPDV

WASTE ISOLATION PILOT PLANT

# ROCK CORING LOG

## UPWARD CORING



BORING NO. DH-227 INSTRUMENT TYPE & NUMBER None HOLE SIZE NX  
 LOCATION East 140 Drift, 3656' S of Exploratory Shaft centerline, 5' from W rib

STATION S3656, E147 COLLAR ELEV. 1247.0' DIRECTION OF DRILLING Vertical Up  
 MINE COORDINATES N6030.7, E7041.2 BOREHOLE PENETRATION 51.7'  
 DRILLING METHOD Wet (brine) DRILL MAKE/MODEL Joy 12B  
 PREPARED BY JPS/Bechtel DATE 1/28/83 SHEET 2 OF 3

RUN NUMBER	PENETRATION (ft.)	RECOVERY(ft.)	% RECOVERED	ROD	PROFILE	DESCRIPTION	REMARKS
12	50	49	98	-		45.6' - 50.4' ARGILLACEOUS HALITE: clear to grayish-brown (SYR 3/2) halite, finely to coarsely crystalline, moderately hard, finely crystalline from 49.8'-50.6'. Clay content generally 0-15% and about 1% from 45.6'-47.4'. Clay breaks at 47.1', 47.4', 47.5', 47.8', 48.3', 48.5', 48.7', 49.3', 49.4', 49.5', and 50.2'. From 50.4' - 50.6', grayish-red (10R 4/2) clay seam, moderately soft, highly plastic.	
11	45	5.1	100	-		44.0' - 45.6' HALITE: clear halite, coarsely crystalline, moderately hard.	
						41.7' - 44.0' ARGILLACEOUS HALITE: clear to grayish-brown (SYR 3/2) halite, finely to coarsely crystalline, moderately hard. Argillaceous content ranges from 0-15% with clay breaks at 42.0', 42.9', 43.5', 43.7, and 43.9'.	
10	40	5.0	100	-	X X X X X	37.5' - 41.7' POLYHALITIC HALITE: clear to moderate reddish-orange (10R 6/6) halite, polyhalite occurs as isolated blebs or interstitially, and comprises about 5-8% of core.	
						36.6' - 37.5' HALITE: clear halite, coarsely crystalline, moderately hard, few isolated stringers of gray anhydrite.	
						35.9' - 36.6' ANHYDRITE: (Marker Bed 138) olive gray (5Y 4/1) anhydrite, hard, dense, microcrystalline, core broken into 1/4" chips.	
9	35	5.2	100	-		35.8' - 35.9' CLAY: pale brown (SYR 5/2) clay, moist, moderately soft, moderately plastic.	
						27.0' - 35.8' ARGILLACEOUS HALITE: clear to mottled pale brown (SYR 5/2) and moderate brown (SYR 4/4) halite, moderately hard, finely to coarsely crystalline. Argillaceous content ranges from 0 to 10%. Clear and clay-free from 29.0'-30.2'. Brown and gray clay partings and breaks at 27.9', 28.0', 28.2', 28.5', 28.8', 30.5' (gray), 30.6' (gray), 30.8' (gray), 32.4', 32.5', 33.0', 33.1', 33.5', 33.8', 34.4', 34.7', 34.9', 35.5', and 35.6'.	
7	25	5.3	100	-		24.3' - 27.0' HALITE: clear halite, moderately hard, medium to coarsely crystalline, few scattered hairline breaks of light gray (N7) anhydrite.	

50

# WIPP-SPDV

WASTE ISOLATION PILOT PLANT

# ROCK CORING LOG UPWARD CORING



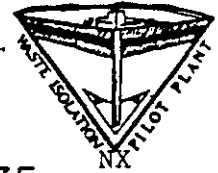
BORING NO. DH-227 INSTRUMENT TYPE & NUMBER None HOLE SIZE NX  
 LOCATION East 140 Drift, 3656' S of Exploratory Shaft centerline, 5' from W rib

STATION S3656, E147 COLLAR ELEV. 1247.0' DIRECTION OF DRILLING Vertical Up  
 MINE COORDINATES N6030.7, E7041.2 BOREHOLE PENETRATION 51.7'  
 DRILLING METHOD Wet (brine) DRILL MAKE/MODEL Joy 12B  
 PREPARED BY JPS/Bechtel DATE 1/28/83 SHEET 3 OF 3

RUN NUMBER	PENETRATION (ft.)	RECOVERY(ft.)	% RECOVERED	ROD	PROFILE	DESCRIPTION	REMARKS
12	50	49	98	-	X	50.6' - 51.7' HALITE: clear and moderate reddish-orange (IOR 6/6) halite, moderately hard, coarsely crystalline. Polyhalite occurs as isolated blebs and comprises 2-3% of core.  (as below)	Total penetration = 51.7'.  Hole completed at 17:30 hours on 28 January 1983.

# WIPP-SPDV

# ROCK CORING LOG



WASTE ISOLATION PILOT PLANT

BORING NO. DH-228 INSTRUMENT None HOLE SIZE             
 LOCATION East 140 Drift, 3656' S. of Exploratory Shaft centerline, 5' from W  
rib

STATION S3656, E147 COLLAR ELEV. 1237.8' DIRECTION OF DRILLING Vertical  
Down  
 MINE COORDINATES N6030.7, E7041.2 DEPTH OF BOREHOLE 50.4'  
 DRILLING METHOD Wet (brine) DRILL MAKE/MODEL Joy 12B  
 PREPARED BY JPS/Bechtel DATE 2/2/83 SHEET 1 OF 3

RUN NUMBER	DEPTH (ft.)	RECOVERY (%)	% RECOVERED	ROD	PROFILE	DESCRIPTION	REMARKS
1	0 - 3.0	58		-	-	0.0' - 7.3' HALITE: clear and medium gray (N5) halite, coarsely crystalline, moderately hard with numerous gray clay-filled hairline breaks. Slightly (1X) argillaceous in part. Few (1X) polyhalitic blebs and interstitial layers from 5.9'-6.2'.	Coring began at 17:45 hours on 28 January 1983  Hole cored from 0' to 5.2' without inner tube in drill rod. From 5.2' to 50.4', hole cored using NX double tube core barrel.
2	3.0 - 5.3	100		-	X	7.3' - 9.4' POLYHALITIC HALITE clear and moderate reddish-orange (1OR 6/6) halite, moderately hard, medium to coarsely crystalline, few grayish-pink (5R 8/2) anhydrite stringers. Polyhalite comprises up to 15% of rock.	
	5.3 - 9.4				X	9.4' - 10.2' POLYHALITE: pale reddish-brown (1OR 5/4) to moderate reddish-orange (1OR 6/6) polyhalite, microcrystalline, moderately hard, grades into underlying anhydrite.	
3	9.4 - 11.5	100		-	X	10.2' - 11.5' ANHYDRITE: (Marker Bed 139) light gray (N7) anhydrite, dense, hard, microcrystalline, banded medium dark gray (N4) in part, core broken into 1/8"-1/16" chips. At 11.5', medium gray (N5) clay seam, 1/4" thick, soft, moist.	
	11.5 - 14.4				X X	11.5' - 14.4' ARGILLACEOUS HALITE: clear and medium light gray (N6) halite, finely to coarsely crystalline with 5-15% argillaceous material. Gray clay breaks at 11.7', 12.0', 12.4', 13.5', 13.8', 14.2', and 14.4'.	
4	14.4 - 19.4	100		-	X X	14.4' - 19.4' POLYHALITIC HALITE: clear and moderate reddish-orange (1OR 6/6) halite, medium to coarsely crystalline, moderately hard. Polyhalite comprises 10-15% of core and occurs as blebs or interstitial zones.	
	19.4 - 21.4				X X	19.4' - 21.4' ARGILLACEOUS HALITE: clear and brownish-gray (5YR 4/1) halite, finely to coarsely crystalline, moderately hard, few clay breaks throughout. Clay content ranges from 0 to 5%. At 19.4', 1/2"-thick, very light gray (N8) anhydrite seam. At 19.5', medium gray (N5) clay parting, subhorizontal. Clay breaks at 20.7' and 21.3'.	
5	21.4 - 25.0	100		-	X X	(see description on next sheet)	



# WIPP-SPDV

# ROCK CORING LOG



WASTE ISOLATION PILOT PLANT

BORING NO. DH-228 INSTRUMENT TYPE & NUMBER None HOLE SIZE NX  
 LOCATION East 140 Drift, 3656' S of Exploratory Shaft centerline, 5' from W rib

STATION S3656, E147 COLLAR ELEV. 1237.8' DIRECTION OF DRILLING Vertical Down  
 MINE COORDINATES N6030.7, E7041.2 DEPTH OF BOREHOLE 50.4'  
 DRILLING METHOD Wet (brine) DRILL MAKE/MODEL Joy 12B  
 PREPARED BY JPS/Bechtel DATE 2/2/83 SHEET 2 OF 3

RUN NUMBER	DEPTH (ft.)	RECOVERY (ft.)	% RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS
5	25	5.0	100	-	X - X - X	21.4' - 25.7' <b>POLYHALITIC HALITE:</b> clear to moderate reddish-orange (10R 6/6) halite, medium to coarsely crystalline, moderately hard. Polyhalite content ranges from 0-10% and occurs as interstitial layers and scattered blebs.	
6	30	5.3	100	-	X - X - X	25.7' - 30.7' <b>HALITE:</b> argillaceous, clear and light gray (N7) halite, moderately hard, finely to coarsely crystalline. Clay content ranges from 2-5% with clay breaks at 27.7', 28.6', 29.5', 29.6', and 30.1'. Some (5%) interstitial polyhalite from 26.2' to 27.4' and at 28.8'.	
7	35	4.9	100	-	X X X X	30.7' - 36.3' <b>HALITE:</b> polyhalitic, clear and moderate reddish-orange (10R 6/6) halite, moderately hard, coarsely crystalline, 0-3% polyhalite. At 35.5', light gray (N7) 1/2" horizontal anhydrite seam.	
8	40	5.2	100	-	X - X - X	36.3' - 36.5' <b>ANHYDRITE:</b> banded medium dark gray (N4) and very light gray (N8) anhydrite, hard, dense, microcrystalline.	
9	45	5.0	100	-	X - X - X	36.5' - 49.1' <b>ARGILLACEOUS HALITE:</b> clear and medium light gray (N6) to grayish-orange (10YR 7/4) halite, finely to coarsely crystalline, moderately hard. Clay content about 5-10%, and clay breaks at 37.7', 38.2', 42.1', 43.3', 44.0', 45.0', and 47.0'. Finely crystalline from 44.1'-46.4'.	
10	50	4.0	85	-	X - X - X	49.1' - 50.4' <b>HALITE:</b> clear halite, moderately hard, coarsely crystalline.	



# WIPP-SPDV

# ROCK CORING LOG



WASTE ISOLATION PILOT PLANT

BORING NO. D11-228 INSTRUMENT TYPE & NUMBER None HOLE SIZE NX  
 LOCATION East 140 Drift, 3656' S of Exploratory Shaft centerline, 5' from W rib

STATION S3656, E147 COLLAR ELEV. 1237.8' DIRECTION OF DRILLING Vertical Down  
 MINE COORDINATES N6030.7, E7041.2 DEPTH OF BOREHOLE 50.4'  
 DRILLING METHOD Wet (brine) DRILL MAKE/MODEL Joy 12B  
 PREPARED BY JPS/Bechtel DATE 2/2/83 SHEET 3 OF 3

RUN NUMBER	DEPTH (ft.)	RECOVERY(ft.)	% RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS
10	50	40	85	-		(as above)	Hole completed at 22:00 hours on 28 January 1983. Total depth = 50.4'.



# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE/SIZE \_\_\_\_\_ NC CORE \_\_\_\_\_ BORING NO. DH-301

LOCATION INTERSECTION N150, W170 DRIFTS - ROOF


STATION N150, W170 COLLAR ELEV. 1276.9 DIRECTION OF DRILLING VERTICAL UP

MINE COORDINATES N9830.5, E6724.5 DEPTH OF BOREHOLE 50.75'

DRILLING METHOD ROTARY AIR DRILL MAKE/MODEL CP-65

DATE STARTED 8-29-84 DATE COMPLETED 8-30-84 SHEET

LOGGED BY: J. E. GALLERANI DATE: 8-31-84 1 OF 2

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
1	0	2.0	2.0	100	X	0.0'-5.3' HALITE: Clear, mottled with blebs of moderate reddish orange polyhalite. Coarsely crystalline. <1% polyhalite. [1, 2]	NC double cube wireline core barrel. NC rods. Total drill time: 26 hrs ±.
2	2.0				X	5.3'-8.0' HALITE: Clear, some moderate brown (5YR 3/4, 4/4). Coarsely crystalline, <1% brown clay. [8, 17]	
	5	5.0	5.0	100	X	8.0'-8.9' HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline. <1% polyhalite and gray clay. [9]	No gas. Dry hole.
	7.0				X	8.9'-9.15' ANHYDRITE b: Light gray (N7), micro-crystalline, faintly laminated. Halite growths within. Trace of gray clay at 8.9'.	
3	10	5.0	5.0	100	X	9.15'-14.3' HALITE: Clear, some light moderate reddish orange (10R 6/6). Coarsely crystalline. Scattered anhydrite. [1]	39% of core recovered was ≥ 2 inch length.
	12.0				X	14.3'-15.65' HALITE: Clear to light moderate reddish orange (10R 6/6). Medium to coarsely crystalline. <1% dispersed polyhalite and gray clay, trace of brown clay. [9]	
4	15	4.6	4.6	100	X	15.65'-16.45' ANHYDRITE a: Light (N7) to medium light (N6), microcrystalline. Faintly laminated. Scattered halite growths, especially at 15.95'-16.45'. Trace of gray clay at 15.65'.	
	16.6				X	16.45'-20.4' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline. <1% to 3% polyhalite. [7]	
5	20	5.0	5.0	100	X	20.4'-25.7' HALITE: Clear to moderate brown and reddish orange (10R 4/6, 6/6). Medium to coarsely crystalline. <1% brown clay. <1/2% polyhalite except at 20.4'-21.9' where polyhalite is 1% to 2%. [17]. 3/4" hard grayish-brown clay seam at 25.65'. Trace of associated anhydrite.	
	21.6				X	25.7'-29.4' HALITE: Clear, coarsely crystalline. Scattered white anhydrite stringers. [1]	
6	25	5.0	5.0	100	X	29.4'-32.1' HALITE: Clear, some moderate brown (5YR 4/4), coarsely crystalline, some fine to medium. <1% brown clay. [8, some 10]	

BORING NO. DH-301

# WIPP

WASTE ISOLATION PILOT PLANT

2 SHEET OF 2

BORING NO. DH-301

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
	25						
26.6						32.1'-34.05' HALITE: Clear, coarsely crystalline. [1]	
7		2.0	2.0	100		34.05'-39.2' ARGILLACEOUS HALITE: Clear to moderate brown (SYR 3/4, 4/4), medium to coarsely crystalline. <1% to 3% brown clay. Clear halite 36.0'-36.2'±. [10, 15]	
28.6							
8	30	3.7	3.7	100	—	39.2'-39.7' ANHYDRITE: Light (N7) to medium light (N6) gray anhydrite, laminated. Scattered halite growths. Trace of grayish-brown clay at 39.2'.	
32.3							
9					—	39.7'-46.75' POLYHALITIC HALITE: Clear to moderate reddish orange (1OR 6/6), coarsely crystalline, locally some fine to medium, <1% to 3% polyhalite to 40.5', <1% polyhalite at 40.5'-41.95' and 42.85' to 44.85'. Trace brown clay at 44.6'± [2, 5].	
	35	5.0	4.9	98	—	46.75'-47.55' HALITE: Clear to moderate brown, some moderate reddish orange (SYR 4/4, 6/6). Medium to coarsely crystalline. ≤1% brown clay. Parting at 47.55'. [17]	
37.3							
10					—	47.55'-49.75' POLYHALITIC HALITE: Clear to moderate reddish orange (1OR 6/6). Coarsely crystalline, <1% to 3% polyhalite. [3, 5, 7]	
	40	4.45	4.45	100		49.75'-50.75' HALITE: Clear mottled with moderate brown (SYR 4/4), coarsely crystalline. ≤1% brown clay. [8, 10]	
41.75					X X		
11		2.0	2.0	100	X X		
43.75					X		
	45				X X		
12		4.0	4.0	100	X X		
47.75					X X		
13		3.0	2.9	97	X		
50.75	50				—		



# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE/SIZE \_\_\_\_\_ NC CORE \_\_\_\_\_ BORING NO. DH-302

LOCATION INTERSECTION N150, W170 DRIFTS - FLOOR


STATION N150, W170 COLLAR ELEV. 1264.9 DIRECTION OF DRILLING VERTICAL DOWN

MINE COORDINATES N9830.5, E6724.5 DEPTH OF BOREHOLE 50.6'

DRILLING METHOD ROTARY AIR DRILL MAKE/MODEL CP-65

DATE STARTED 8-30-84 DATE COMPLETED 8-30-84 SHEET

LOGGED BY: J. E. GALLERANI DATE: 8-31-84 1 OF 2

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
1	0	1.7	0.6	35.3		0.0'-2.8' HALITE: Clear, coarsely crystalline. <1/2% gray clay to 1.7'. <1/2% polyhalite from 1.7' to 2.8'. [1]	NC double tube core barrel. Set up time: 30 minutes. Total drill time: 6 hrs. Run 1: Bit plugged. Core broken up badly.
2	1.7				X	2.8'-7.3' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline. <1% to 3% polyhalite. [7]	
3	5	4.9	4.8	97.9	X	7.3'-9.6' MB-139: Mixture of halite and anhydrite to 8.1'±. Light gray to light moderate reddish orange. Some "swallowtail" pattern. From 8.1', very light (W8) to medium light (W6) gray anhydrite with scattered halite growths. Faintly laminated. Trace of gray clay at 9.6'.	
3	6.6				X	9.6'-12.9' HALITE: Clear to light moderate reddish orange (10R 6/6), medium to coarsely crystalline, some fine. <1% gray clay and dispersed polyhalite. [9]	82% of core recovered is 22 inch length.
4	10	5.0	5.0	100	X	12.9'-17.0' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline. <1% to 3% polyhalite [7]. Anhydrite/halite layer at 16.8'-17.0' with 1/4" gray clay @ 17'.	
4	11.6				X	17.0'-19.3' HALITE: Clear, some moderate reddish orange (10R 6/6), medium to coarsely crystalline. <1% gray clay and dispersed polyhalite [9].	
5	15	5.0	5.0	100	X X	19.3'-25.6' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline to 23.5' then medium to coarse. <1% to 3% polyhalite locally up to 5%. <1% gray clay from 22.2'±. [5, 6, 7]	
5	16.6				X X	25.6'-29.6' HALITE: Clear, some light bluish gray, medium to coarsely crystalline. <1% gray clay. <1% polyhalite dispersed. [9, some 11]	
5	20	5.0	5.0	100	X X	29.6'-34.6' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline. <1% to 3% polyhalite [3, 7]. Anhydrite layers up to 3/4" thick at 34.4'-34.6'.	
6	21.6				X X	34.6'-35.7' HALITE: Clear, some light moderate reddish orange, coarsely crystalline. <1% polyhalite. Scattered anhydrite. [2]	
6	25	5.0	5.0	100	X X		

BORING NO. DH-302



# WIPP

WASTE ISOLATION PILOT PLANT

SHEET 2 OF 2

BORING NO. DH-302

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
	25						
26.6					X X	35.7'-35.9' ANHYDRITE: Light (N7) to very light (N8) gray microcrystalline anhydrite. Scattered small halite growths. Trace of gray clay at 35.9'.	
7					X		
	30	5.0	4.9	98	X X	35.9'-43.3' HALITE: Clear, some moderate reddish orange (10R 6/6) and medium light gray (N6). Coarsely crystalline, some medium and fine. <1% dispersed polyhalite to 38.2', then <1/2% dispersed and blebs. <1% gray clay. Low angle gray clay parting at 43.3'. [9, some 11]	
31.6					X X		
					X X	43.3'-47.4' HALITE: Clear to moderate reddish orange (10R 6/6). Some moderate brown (5YR 4/4) from 44.8'-45.5'±. Medium to coarsely crystalline. <1% to 2% polyhalite. <1% gray clay except 1% to 2% brown clay at 44.8' to 45.5'.	
8					X		
	35	5.0	5.0	100	X X X	47.4'-50.6' HALITE: Clear, coarsely crystalline. <1% gray clay. Trace of polyhalite blebs. [1, 11]	
36.6					X		
9					X		
	40	5.0	5.0	100	X		
41.6					X		
10					X		
	45	5.0	5.0	100	X		
46.6					X		
11					X		
	50	4.0	4.0	100	X		
50.6							



# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE / SIZE NC CORE BORING NO. DH-303

LOCATION W170 DRIFT - ROOF

STATION S400, W170 COLLAR ELEV. 1267.2 DIRECTION OF DRILLING UP VERTICAL

MINE COORDINATES N9282.3, E6726.1 DEPTH OF BOREHOLE 51.4'

DRILLING METHOD ROTARY AIR DRILL MAKE/MODEL CP-65

DATE STARTED 9-4-84 DATE COMPLETED 9-4-84 SHEET

LOGGED BY: J. E. GALLERANI DATE: 9-4-84 1 OF 2

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
1	0	2.5	2.5	100	X	0.0'-5.45' HALITE: Clear, coarsely crystalline. <1/2% scattered polyhalite blabs. [1]	NC double tube wireline core barrel. NC rods.
2	2.5	5.0	5.0	100	X	5.45'-8.6' HALITE: Clear with some moderate brown (5YR 4/4). Medium to coarsely crystalline. <1% brown clay [8]. Break at 6.75'. <1/2% dispersed polyhalite at 7.5'-8.6'. [17]	No gas. Dry hole.
3	5	4.7	4.7	100	X	8.6'-8.8' ANHYDRITE b: Light to light medium gray (N7, N6). Microcrystalline with scattered halite growths. Trace of gray clay at 8.6'.	48% of recovered core is 22 inch length.
4	7.5	5.0	5.0	100	X	8.8'-14.5' HALITE: Clear, coarsely crystalline. Scattered white anhydrite stringers. [1]	
5	10	4.8	4.8	100	X	14.5'-15.75' HALITE: Clear with some light moderate reddish orange (10R 6/6), medium to coarsely crystalline. <1% dispersed polyhalite. <1% gray clay. [9]	
6	12.2	5.0	5.0	100	X	15.75'-16.45' ANHYDRITE a: Very light to light medium gray (N8, N6). Microcrystalline. Partially laminated, scattered halite growths. Trace of gray clay at 15.75'.	
7	15	5.0	5.0	100	X	16.45'-20.65' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline. <1% to 3%, average 2% polyhalite. Scattered anhydrite. [2, 3, 5]	Run 4: Core broken last 6" of run.
8	17.2	4.8	4.8	100	X	20.65'-26.4' HALITE: Clear to light moderate reddish orange (10R 6/6), some medium brown (5YR 4/4). Medium to coarsely crystalline with some fine crystalline. <1/2% dispersed polyhalite. <1% brown clay. <1/2" hard, dry brown clay seams at 26.3" with anhydrite associated to 26.4'. [8, 17]	Run 5: Some broken core in polyhalitic halite.
9	20	5.0	5.0	100	X	26.4'-30.7' HALITE: Clear, coarsely crystalline with scattered anhydrite. [1]	
10	22	5.0	5.0	100	X	30.7'-37.7' HALITE: Clear with some medium brown (5YR 3/4). Medium to coarsely crystalline with some fine. None to <1% brown clay with traces of gray. <1/2% polyhalite. [1, 8] with [12] at 30.7'-32.1'.	
11	25						



BORING NO. DH-303

# WIPP

WASTE ISOLATION PILOT PLANT

SHEET 2 OF 2

BORING NO. DH-303

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
	25						
27					X	37.7'-39.5' ARGILLACEOUS HALITE: Clear to moderate brown (5R 4/4, 3/4). Medium to coarsely crystalline with <1/2% dispersed polyhalite. <1% to 3% brown clay with a trace of gray clay. Brown break at 38.3'. [15, 17]	
7						39.5'-40.15' ANHYDRITE: Very light to medium light gray (N8, N6). Scattered halite growths with irregular low angle laminae. <1/2" hard, dry brown clay at 39.5'.	
	30	4.9	4.9	100		40.15'-44.2' HALITE: Clear to moderate reddish orange (10R 6/6). Coarsely crystalline with scattered white anhydrite. <1% polyhalite [2, 3] except at 41.3'-42.9' where there is >1% to 3% polyhalite. [7]	Run 8: isolated broken zones.
31.9					X		
8						44.2'-47.3' HALITE: Clear to moderate brown (5YR 4/4, 3/4). Coarsely crystalline with locally fine to medium crystalline. < 1% brown clay with trace gray locally. Break at 47.2' with some thin anhydrite stringers at 47.2'-47.3'. [8, 10]	Run 9: Some broken core 39.5'-41.9 ft.
	35	5.0	5.0	100		47.3'-49.6' HALITE: Clear, coarsely crystalline with < 1/2% polyhalite. Slight trace of very small brown clay blebs from 49'. [8, 10]	
36.9					X		
9						49.6'-51.4' ARGILLACEOUS HALITE: Clear to moderate brown ((5YR 3/4, 4/4). Coarsely crystalline with fine to medium crystalline from 51.3'. <1% to 3% brown clay, averaging 1% to 2%. Scattered clay breaks. [12, 15]	
	40	5.0	4.9	98			
41.9					X X		
					X		
10							
	45	5.0	5.0	100			
46.9							
					X		
11							
	50	4.5	4.5	100			
51.4							



BORING NO. DH-303

# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE / SIZE NC CORE BORING NO. DH-304

LOCATION S 400, W 170 DRIFT INTERSECTION - FLOOR

STATION S 400, W 170 COLLAR ELEV. 1254.3 DIRECTION OF DRILLING VERTICAL DOWN

MINE COORDINATES N 9282.5, E6726.1 DEPTH OF BOREHOLE 50.5'

DRILLING METHOD ROTARY AIR DRILL MAKE/MODEL CP-65

DATE STARTED 08/31/84 DATE COMPLETED 08/31/84 SHEET

LOGGED BY: J.E. GALLERANI DATE: 08/31/84 1 OF 2

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
1	5.0	5.0	4.9	98		0.0'-4.0' HALITE: Clear to light moderate reddish orange (10R 6/6), coarsely crystalline. <1% gray clay. <1/2% dispersed polyhalite. [9]	NC double tube wireline core barrel. NC rods. Total drill time: 6 hrs±. 81% of core recovered is 22 inch length.
						4.0'-6.1' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline. <1% to 3% polyhalite. [5, 7]	
2	6.9	1.9	1.9	100	X X X X	6.1'-8.75' MB-139: Mixture of moderate reddish orange (10R 6/6) halite and anhydrite to 7.15'±. Then predominantly light gray, microcrystalline anhydrite with scattered halite growths. Some near-horizontal lighter-darker gray laminae. Gray clay at 8.75'.	No gas. Dry hole.
3	11.9	5.0	5.0	100	X X X X	8.75'-12.4' HALITE: Clear to light moderate reddish orange (10R 6/6), some light gray (N7). Medium to coarsely crystalline. <1/2% dispersed polyhalite. <1% gray clay. [9]	
					X	12.4'-16.5' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline. Scattered anhydrite. <1% to 3% polyhalite. [5, 7] 1/4" gray clay seam at 16.5', dipping 40°±.	
4	16.9	5.0	5.0	100	X X X X	16.5'-18.6' HALITE: Clear to light moderate reddish orange (10R 6/6), some light gray (N7). Medium to coarsely crystalline, some fine. <1% dispersed polyhalite and gray clay. [9]	
					X X X X	18.6'-25.5' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline. Scattered anhydrite. <1% to 3% polyhalite [3, 7]. <1% gray clay, some medium crystalline at 23.5'-25.5'.	
5	21.9	5.0	5.0	100	X X X X	25.5'-29.05' HALITE: Clear, some light moderate reddish orange (10R 6/6) and light gray (N7). Medium to coarsely crystalline, some fine. <1/2% polyhalite and <1% gray clay. Scattered anhydrite. [9]	
					X X X X	29.05'-34.7' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline. Scattered anhydrite from 33.8'. [3, 5, 7]	
6	25	5.0	5.0	100	X X X X	34.7'-35.15' ANHYDRITE: Very light gray (N8) to light gray (N7) anhydrite with scattered halite growths. Gray clay parting at 35.15'.	
					X X X X		

BORING NO. DH-304

# WIPP

WASTE ISOLATION PILOT PLANT

SHEET 2 OF 2

BORING NO. DH-304

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
	25						
26.9					X	35.15'-48.2' HALITE: Clear, some light moderate reddish orange (10R 6/6) and light medium bluish gray. Medium to coarsely crystalline, some fine to 37.7', then predominantly coarse, <1/2% dispersed polyhalite. 4% gray clay. [9, 11]	
7		5.0	5.0	100	X		
	30				X X	48.2'-50.5' HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline, 4% polyhalite and gray clay. [2, 9]	
					X		
31.9					X		
					X X		
8		5.1	5.1	100	X X X		
	35						
37.0					X		
9		5.0	5.0	100			
	40						
42.0					X		
10		4.8	4.8	100	X		
	45						
46.8							
11		3.7	3.7	100	X		
	50						
50.5							





# WIPP

WASTE ISOLATION PILOT PLANT

SHEET

2

OF

2

BORING NO. DH-306

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
	25						
7	29.5	5.0	5.0	100	X X X X X X	30.6'-31.0' ANHYDRITE: Very light to light gray (N8, N7), microcrystalline. Scattered halite growths especially below 30.75'. No clay evident.	
	30				X X	31.0'-39.7'± HALITE: Clear to lightly moderate reddish orange (10R 6/6). Coarsely crystalline, some medium. <1/2% dispersed polyhalite and gray clay. Anhydrite runs down to 31.5' within halite. [1, some 9, 11]	
8	34.5	5.0	4.6	92	X X X X	39.7'-42.3' HALITE: Clear, some moderate brown (5YR 4/4). Coarsely crystalline. ±1% brown clay. [8, 10]	
	35				X	42.3'-44.9' HALITE: Clear, coarsely crystalline. <1% light bluish gray clay.	Had problems with core recovery in some runs. Core spring not holding core probably due to water in the hole. Had to adjust spring.
9	38.5	4.0	1.9	48	X	44.9'-48.0' HALITE: Clear, coarsely crystalline. Slight trace of brownish clay to 45.5'±. [1]	
	40				-	48.0'-49.6' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6). Coarsely crystalline. <1% to 3% polyhalite. Trace of anhydrite. [5]	
10	41.5	3.0	1.8	60	X	49.6'-52.0' HALITE: Clear to lightly moderate reddish orange and some light bluish gray. Coarsely crystalline, some medium. <1/2% polyhalite dispersed and ±1% bluish gray clay. [9]	35% of core recovered was 22 inch length.
11	43.0	1.5	1.5	100	-		
12	45	5.0	5.0	100	-		
13	48.0	4.0	4.0	100	X X X X X		
	52.0				-		



BORING NO. DH-306





# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER GE-263 HOLE TYPE/SIZE NX CORE BORING NO. DH-307  
 LOCATION INTERSECTION OF E 300; S 400 DRIFTS - ROOF

STATION S 400, E 300 COLLAR ELEV. 1262.6 DIRECTION OF DRILLING VERTICAL HP  
 MINE COORDINATES N9286.7 E7194.2 DEPTH OF BOREHOLE 52.0'  
 DRILLING METHOD ROTARY AIR DRILL MAKE/MODEL CP-65  
 DATE STARTED 08/21/84 DATE COMPLETED 08/21/84 SHEET  
 LOGGED BY: J.E. GALLERANT DATE: 08/27/84 1 OF 2

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
1	0 - 5.0	5.0	1.3	26		0.0'-4.7'± (Core Loss) HALITE: Clear, coarsely crystalline. [1] 4.7'-7.5' HALITE: Clear with some light moderate brown (SYR 4/4). Coarsely crystalline with fine to medium crystalline between 7'-7.5'± [9]. <1% brown clay with some gray clay at 7'-7.5'. [8]	NW split tube core barrel. NW rods.  No gas. Dry hole.
2	5.0 - 7.7	3.0	3.0	100		7.5'-7.7' ANHYDRITE b: Very light to light gray (N8, N7). Microcrystalline with scattered halite. Gray clay at 7.5'. 7.7'-12.95' HALITE: Clear, coarsely crystalline with scattered anhydrite. <1/2% gray clay locally. [1]	Overall core quality not too good. Box #2 is good. Most other boxes show much discing. 21% of core recovered is 22 inch length.
3	7.7 - 9.0	1.0	1.0	100		12.95'-14.05' HALITE: Clear to lightly moderate reddish orange (10R 6/6) and light medium brown (SYR 4/4). Medium to coarsely crystalline. <1/2% dispersed polyhalite and <1% brown, gray clay. [9, 17]	
4	9.0 - 11.5	2.5	1.1	44		14.05'-15.0' ANHYDRITE a: Light to very light gray (N7, N8), microcrystalline anhydrite with scattered irregular laminae in light to darker gray. Halite growths common at 14.5'-15.0'. Trace of clay at 14.05'.	
5	11.5 - 15.0	5.0	5.0	100	X	15.0'-19.3' POLYHALITIC HALITE: Clear to moderate reddish orange, coarsely crystalline, <1% to 3% polyhalite, averaging <2%. Scattered anhydrite.	
6	15.0 - 20.0	5.0	5.0	100	X X X X X X	19.3'-24.7' HALITE: Clear to moderate brown (SYR 3/4, 4/4) with light moderately reddish orange (10R 6/6). Medium to coarsely crystalline with some fine crystalline. <1/2% dispersed polyhalite. 1% brown clay with trace of gray locally. At 24.5'-24.7' hard, grayish brown clay associated with anhydrite. Core broken up here. [9, 17]	
7	20.0 - 21.5	5.0	5.0	100	X	24.7'-27.1' HALITE: Clear, coarsely crystalline with scattered anhydrite stringers. [1]	
7	21.5 - 25.0	5.0	5.0	100	X	27.1'-30.0'± HALITE: Clear to medium brown (SYR 4/4). Coarsely crystalline, 2% brown clay to 27.9'± then <1%. [8, 10]	



# WIPP

WASTE ISOLATION PILOT PLANT

2 SHEET OF 2

BORING NO. DH-307

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
	25						
26.5						30.0'-32.7' HALITE: Clear, coarsely crystalline. [1] (much discing)	
8	30	5.0	5.0	100	— — —	32.7'-37.75'± HALITE: Clear to medium brown (5YR 4/4, 3/4) with some light moderate reddish orange (10R 6/6). Medium to coarsely crystalline with some fine. Average <1% brown clay to 36.7'±, then gray. Argillaceous halite with 1% to 3% brown clay from 35'-36.8'±. [9, 12, 17]	
31.5						37.75'-38.5' ANHYDRITE: Light to very light gray (N7, H8). Microcrystalline with scattered halite growths. Up to 1" of hard brown clay at 37.75'.	
9	35	4.5	4.5	100	— X —	38.5'-40.1'± POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6). Coarsely crystalline. <1% to 3% polyhalite with some anhydrite [4, 5]. Much discing.	
36.0						40.1'-42.0'± HALITE: Clear, coarsely crystalline with <1% moderate reddish orange polyhalite blebs. Much discing. [1, 2]	
10		2.5	2.5	100	— X —	42.0'-45.5'± POLYHALITIC HALITE: Clear, mottled with some moderate reddish orange (10R 6/6). Coarsely crystalline with some localized medium and fine crystalline. <1% to 3% polyhalite blebs/patches. <1/2% gray clay locally. Brown clay parting at 44.5'± with some anhydrite above. [2, 3, 5]	
38.5	40				X X X	45.5'-47.7' HALITE: Clear with some light to moderate brown (5YR 4/4). Coarsely crystalline. <1% brown clay. [8]	
11		4.9	4.9	100	X X X	47.7'-51.7' ARGILLACEOUS HALITE: Clear to moderate brown (5YR 4/4, 3/4). Medium to coarsely crystalline. <1% to 3% brown clay with scattered breaks and <1/2% dispersed polyhalite. [15, 17]	
43.4					X X	51.7'-52.0' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6). Coarsely crystalline. 1% to 3% polyhalite. [5]	
12	45	4.8	4.8	100	X X —		
48.2					X — —		
13	50	3.8	3.8	100	— — —		
52.0					X X X		



# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER GE-265 HOLE TYPE/SIZE NX CORE BORING NO. DH-309  
 LOCATION INTERSECTION OF E 300, S 700 DRIFTS - ROOF

STATION S 700, E 220 COLLAR ELEV. 1259.2 DIRECTION OF DRILLING VERTICAL UP  
 MINE COORDINATES N 8987.1, E 7123.0 DEPTH OF BOREHOLE 52.3'  
 DRILLING METHOD ROTARY AIR DRILL MAKE/MODEL CP-65  
 DATE STARTED 08/23/84 DATE COMPLETED 08/23/84 SHEET 1 OF 2  
 LOGGED BY: J.E. GALLERANI DATE: 08/28/84

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
0.0	0						
1	0.0 - 4.0	4.0	3.4	85	X X	0.0'-2.5' HALITE: Clear to light, moderately reddish orange (10R 6/6). Coarsely crystalline with some medium crystalline. <1/2% dispersed polyhalite. [1]	NW split tube core barrel. NW rods.  18% of recovered core is 22 inch length. Overall core quality is poor.
2	4.0 - 5.0	2.5	2.5	100	X	2.5'-8.95' HALITE: Clear to moderate brown (5YR 4/4) with some moderate reddish orange (10R 6/6). Coarsely crystalline with some medium crystalline. 1% brown clay. <1/2% polyhalite dispersed. [8, 17]	
3	5.0 - 10.0	5.0	5.0	100	X	8.95'-9.1' ANHYDRITE b: Light to medium light gray (N7, N6). Microcrystalline with halite growths common between 9.0'-9.1'. Trace of gray clay at 8.95'.  9.1'-14.7' HALITE: Clear, coarsely crystalline with scattered anhydrite. [1]	
4	10.0 - 15.0	4.5	4.4	98	X X	14.7'-15.75' HALITE: Clear to moderate brown (5YR 4/4). Medium with some coarse crystalline. 1% brown clay with a trace of gray. <1/2% dispersed polyhalite. Break at 15.05'±.	
5	15.0 - 20.0	5.0	5.0	100	X X X	15.75'-16.35' ANHYDRITE a: Light to medium light gray (N7, NC), with scattered laminae. Scattered halite growths. Trace of gray clay at 15.75'.  16.35'-20.7' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6). Coarsely crystalline. <1% to 3% (average 1%) polyhalite. Core broken up, discd. [3, 4]	
6	20.0 - 25.0	5.0	5.0	100	X X	20.7'-25.5' HALITE: Clear to light moderate brown (5YR 4/4) with some light moderately reddish orange (10R 6/6). Medium to coarsely crystalline with some fine. 1% brown clay. <1/2% dispersed polyhalite. 3/4" brown clay seam at 25.45' with some anhydrite stringers above. [8, 10, 17]	
	25.0 - 28.8				X	25.5'-28.8' HALITE: Clear, coarsely crystalline with scattered anhydrite. [1]	Runs 4 to 11: Shows much discing between 12' and 45'±.  Accurate logging was difficult where core was badly discd.
	28.8 - 35.7				X	28.8'-35.7' HALITE: Clear, some moderate brown (5YR 4/4). Coarsely crystalline with locally medium crystalline. 1% brown clay. Clear 32.1'-33'±. [1, 8, locally 10]	

BORING NO. DH-309

# WIPP

WASTE ISOLATION PILOT PLANT 2 SHEET 2 OF 2 BORING NO. DH-300

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
	25						
26.0					X —	35.7'-39.1' HALITE: Clear to moderate brown (SYR 4/4, 3/4). Medium to coarsely crystalline. $\leq$ 1% brown clay locally argillaceous where 1% to 3% clay at 35.7'-37.3'±.	* Six gas flows were encountered during drilling at the following depths: 15.6', 20.6', 25.0', 25.6', 31.9' and 39.1'. Gas flows varied in duration from about 10 seconds to 5 minutes and smelled sweet. Dry hole.
7		5.0	4.5	90	—	39.1'-39.65' ANHYDRITE: Very light to light gray (N8, N7). Microcrystalline with scattered halite growths and light to dark laminae. Brown hard clay seam at 39.1'.	
31.0					—	39.65'-44.4' HALITE: Clear with some lightly moderate reddish orange (10R 6/6). Coarsely crystalline. $<$ 1/2% polyhalite. [1]	
8		5.0	3.2	64	—	44.4'-47.0' HALITE: Clear with some moderate brown (5YR 4/4). Coarsely crystalline $\leq$ 1% brown clay. Breaks at 45.4'-45.5'±. [8, some 10]	
36.0					—	47.0'-48.4' HALITE: Clear to lightly moderate reddish orange (10R 6/6) with some moderate brown (5YR 4/4). Medium to coarsely crystalline. $\leq$ 1% brown clay. $<$ 1/2% dispersed polyhalite [17] Irregular break at 47.9'.	
37.1		1.1	1.1	100	—		
10		3.6	3.6	100	—	48.4'-50.5' HALITE: Clear, mottled with some light moderate brown. Coarsely crystalline. $<$ 1% brown clay. [8]	
40.7					X	50.5'-52.3' ARGILLACEOUS HALITE: Clear to moderate brown (SYR 4/4, 3/4). Coarse with some medium crystalline. $<$ 1% to 3% brown clay. $>$ 5% brown clay between 51.6' and 51.85'±. [10, 15]	
11		3.4	2.8	82	X		
44.1					—		
12		4.9	4.3	88	X		
49.0					—		
13		3.3	3.3	100	—		
52.3					—		



# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER GE-264 HOLE TYPE/SIZE NX CORE BORING NO. DH-311

LOCATION E 300 DRIFT - ROOF

STATION E 300; S 1000 COLLAR ELEV. 1264.4 DIRECTION OF DRILLING VERTICAL UP

MINE COORDINATES N 8686.3, E7194.9 DEPTH OF BOREHOLE 52.0'

DRILLING METHOD ROTARY AIR DRILL MAKE/MODEL CP-65

DATE STARTED 08/24/84 DATE COMPLETED 08/24/84 SHEET

LOGGED BY: J.E. GALLERANI DATE: 08/27/84 1 OF 2

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
0.0	0						
1	1.6	1.6	1.6	100	—	0.0'-2.5' HALITE: Clear, coarsely crystalline. <1/2% gray clay. [1]	NW split tube core barrel. NW rods.
2	4.1	3.0	3.0	73	—	2.5'-8.4' HALITE: Clear to moderate brown (5YR 4/4), coarsely crystalline. <1% to 2% brown clay. Becomes medium crystalline at 7.7'-8.4' with trace of polyhalite dispersed. [8, 10]	No gas. Dry hole.
3	5.7	3.1	3.1	100	—	8.4'-8.8' ANHYDRITE b: Very light gray (N8) to medium light gray (N6). Microcrystalline with scattered halite growths especially last 0.2'. Trace gray clay at 8.4'.	Overall core is poor quality.
4	8.8	3.1	3.1	100	X	8.8'-14.1' HALITE: Clear and coarsely crystalline with scattered white anhydrite/magnesite. [1]	Much discing in halite. Only 8% of recovered core is ≥ 2 inch length.
5	11.0	2.2	1.6	73	—	14.1'-15.1' HALITE: Clear to moderate brown and moderate yellowish brown (10YR 5/4).. Medium crystalline. <1% brown with a trace of gray clay. <1/2% dispersed polyhalite. [17]	
6	15.8	4.8	4.2	88	—	15.1'-15.8' ANHYDRITE a: Very light to medium light gray (N8, N6). Microcrystalline anhydrite, partially laminated. More halite pinkish color between 15.4'-15.8'. Trace of gray clay at 15.1'.	
7	15.8	2.3	1.6	70	X	15.8'-19.5' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline. <1% to 3% polyhalite. <1/2% gray clay locally. Traces of anhydrite locally. [3, 5, 7]	
8	18.1	2.3	2.3	100	X X	19.5'-25.4' HALITE: Clear to moderate brown (5YR 3/4, 4/4) and light moderate reddish orange. Medium to coarsely crystalline with some fine. <1/2% dispersed polyhalite. 4% brown clay with trace of gray locally. Gray clay seam at 25.2'. Anhydrite laminae mixed with halite to 25.4'. [10, 17] - some [8]	
9	21.5	3.1	3.1	100	X X	25.4'-29.7' HALITE: Clear, coarsely crystalline. [1]	
9	25	5.0	5.0	100	X	29.7'-31.5' HALITE: Clear with some moderately brown (5YR 3/4). Coarsely crystalline with some medium to fine. <1% brown clay except at 30.2'-30.6' where 42% brown clay. Break at 30.6'. [8, 17]	



BORING NO. DH-311



# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE/SIZE NW CORE BORING NO. DH-313

LOCATION INTERSECTION OF E 300; S 1300 DRIFTS - ROOF

STATION S 1300, E 300 COLLAR ELEV. 1270.6 DIRECTION OF DRILLING VERTICAL

MINE COORDINATES N 8385.9, E 7190.6 DEPTH OF BOREHOLE 19.6'

DRILLING METHOD ROTARY AIR DRILL MAKE/MODEL CP-65

DATE STARTED 07/09/84 DATE COMPLETED 07/10/84 SHEET

LOGGED BY: J.E. GALLERANI DATE: 07/10/84 1 OF 1

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
0.0	0						
1	5.0	5.0	3.7	74	X	0.0'-7.9' ( $\pm 0.6'$ ) HALITE: Clear and coarsely crystalline. <1/2% gray clay and polyhalite locally. From 6.5' ( $\pm 0.6'$ ) $\leq 1\%$ clay with some medium crystalline.	NW split tube core barrel and rods with diamond stepped bit.
						7.9'-8.1' ANHYDRITE b: Light gray (N7), microcrystalline. Halite growths with a trace of clay at lower contacts.	No gas. Dry hole.
5.0	5						
2	5.0	5.0	3.8	76	X	8.1'-13.1' HALITE: Clear, coarsely crystalline.	
						13.1'-14.0' HALITE: Clear, fine to medium crystalline with some coarsely crystalline. <1/2% light gray clay.	
						14.0'-14.85' ANHYDRITE a: Light gray (N7), microcrystalline with scattered halite growths. Trace of clay at 14.0'.	
10.0	10						
3	2.1	2.1	2.0	95		14.85'-19.6' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6). Coarsely crystalline. <1% to 3% polyhalite.	
12.1							
						Stopped hole at 19.6 ft due to core loss and poor core quality. Refer to log for replacement hole DH-313A.	
15.3	15	3.2	3.2	100	X X		
					X X		
5	4.3	4.3	3.3	77	X X		14% of core recovered was 22 inch length.
					X X		
19.6	20						



BORING NO. DH-313

# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE/SIZE NW CORE BORING NO. DH-313A  
 LOCATION INTERSECTION OF E 300; S 1300 DRIFTS - ROOF

STATION S 1300, E 299 COLLAR ELEV. 1270.9 DIRECTION OF DRILLING VERTICAL UP  
 MINE COORDINATES N 8386.6, E 7189.5 DEPTH OF BOREHOLE 50.2'  
 DRILLING METHOD ROTARY/AIR DRILL MAKE/MODEL CP-65  
 DATE STARTED 07/10/84 DATE COMPLETED 07/12/84 SHEET  
 LOGGED BY: J.E. GALLERANI DATE: 07/12/84 1 OF 2

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
1	0.0	1.8	1.8	100	X	0.0'-5.2' HALITE: Clear, coarsely crystalline with some fine to medium crystalline locally. <1/2% polyhalite blebs and gray clay. [1, 11]	NW split tube core barrel. NW rods.
2	1.8	1.6	1.6	100	X	5.2'-7.9' HALITE: Clear to moderate brown (5YR 4/4). Medium to coarsely crystalline <1% to 2% brown clay to 7.3', then <1% gray clay. [8, 10, 12]	
3	3.4	2.1	2.1	100	-	7.9'-8.05' ANHYDRITE b: Light gray microcrystalline. Trace of gray clay at 7.9'.	Total drill time: 12 hrs. Total down time: 5 hrs.
4	5.5	3.0	3.0	100	-	8.05'-13.3' HALITE: Clear and coarsely crystalline. <1/2% polyhalite with scattered white stringers of anhydrite/magnesite. [1]	No gas. Dry hole.
5	8.5	2.4	1.9	79	X	13.3'-14.0' HALITE: Clear with medium to coarsely crystalline. <1/2% gray clay. Gray break at 13.3'.	Down time due to power outage.
6	10.9	1.6	1.6	100	X	14.0'-15.0' ANHYDRITE a: Light gray microcrystalline anhydrite. Partially laminated. Halite growths increasing in percent from 14.4'. Trace of gray clay at 14.0'.	
7	12.5	3.35	3.0	90	-	15.0'-19.0' POLYHALITIC HALITE: Clear to moderately reddish orange. Coarsely crystalline. <1% to 3% polyhalite. Scattered anhydrite mixed with halite to 15.65'-15.85'. [3, 4]	Broken core, discing between 8.5' and 30.0'.
8	15.85	2.15	1.9	88	X X	19.0'-24.5' HALITE: Clear to moderate brown (5YR 4/4). Medium to coarsely crystalline. <1% brown clay. <1/2% dispersed polyhalite. Clear halite at 21.9' to 22.35'±. [8, 17]	22% of total core recovered was 22 inch length.
9	18.0	2.85	2.85	100	X X	24.5'-27.3' HALITE: Clear and coarsely crystalline with scattered anhydrite. [1]	
10	20.85	2.65	2.65	100	X	27.3'-32.35' HALITE: Clear with some moderate brown (5YR 4/4). Coarsely crystalline except fine to medium crystalline between 29.2'-30.3'. <1% brown clay except 29.2'-30.3' where clay is <1%. [1, 8, 10] Gradational upper contact.	
11	23.5	2.35	1.7	72	-		

BORING NO. DH-313A



# WIPP

WASTE ISOLATION PILOT PLANT

SHEET

2 OF 2

BORING NO. DH-313A

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
25.85	25						
12		2.65	2.1	79		32.35'-37.5' ARGILLACEOUS HALITE: Clear to moderate brown (5YR 4/4). Medium to coarsely crystalline with some fine. <1% to 2% brown clay with trace of gray clay <1/2% dispersed polyhalite. [10, 15]	
28.5							
13		2.35	1.75	74		37.5'-38.2' ANHYDRITE: Light to medium gray, micro-crystalline anhydrite. Scattered halite growths especially common to 37.9'. 1/2" brown clay seen at 37.5'.	
30.85	30						
14		2.65	2.65	100		38.2'-42.25' HALITE: Clear to light moderate reddish orange. Coarsely crystalline. $\leq$ 1% polyhalite with scattered anhydrite to 39.2'. [2, 3]	
33.5							
15		2.35	2.35	100		42.25'-45.7' HALITE: Clear to moderate brown (5YR 4/4). Coarsely crystalline. $\leq$ 1% brown clay with $\leq$ 2% between 45.25'-45.7'. [10]	
35.85	35						
16		2.65	2.65	100		45.7'-47.15' HALITE: Clear coarsely crystalline 0% to 1/2% brown clay. [1, 8]	
38.5							
17		2.35	2.35	100	X	47.15'-48.7' HALITE: Clear and coarsely crystalline with some medium. <1% brown clay. [10, 17]	
40.85	40				X	48.7'-50.2' HALITE: Clear to moderate reddish orange (10R 6/6) and moderate brown (5YR 4/4). Medium to coarsely crystalline with some fine. <1/2% dispersed polyhalite. <1% to 2% locally brown clay. [12, 17]	
43.5							
18		2.65	2.65	100			
45.85	45						
19		2.35	2.1	89			
48.5	48						
20		2.65	2.65	100			
50.2	50						
21		1.7	1.7	100	X		



BORING NO. DH-313A

# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE/SIZE NW CORE BORING NO. DH-314

LOCATION INTERSECTION OF S 1300, E 300 DRIFTS - FLOOR

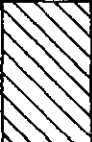

STATION S1300, E 300 COLLAR ELEV. 1258.3 DIRECTION OF DRILLING VERTICAL DOWN

MINE COORDINATES N 8386.5, E 7189.5 DEPTH OF BOREHOLE 50.75'

DRILLING METHOD ROTARY AIR DRILL MAKE/MODEL CP-65

DATE STARTED 07/12/84 DATE COMPLETED 07/13/84 SHEET

LOGGED BY: J.E. GALLERANI DATE: 07/13/84 1 OF 2

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
0.0	0						
1	3.75	3.75	3.1	83	X X X	0.0'-1.5' HALITE: Clear, some moderate reddish orange (10R 6/6). Coarsely crystalline. <1/2% polyhalite. [1, 2]	NW split tube core barrel with NW rods.
3.75					X X	1.5'-4.55' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6). Coarsely crystalline. <1% to 3% polyhalite. <1/2% gray clay locally. [3, 6, 7]	
2	5	2.0	2.0	100	X 	4.55'-7.6' MB-139: "Swallowtail" pattern to 5.45'±. Mixture of halite and anhydrite. Moderate reddish orange (10R 6/6) to light gray color. Then light to medium gray anhydrite with scattered halite growths. Scattered laminae. Trace of gray clay at 7.6'. Some grinding evident.	Total drill time: 7 hrs. No gas. Dry hole.
5.75					X	7.6'-10.3' HALITE: Clear to light moderate reddish orange (10R 6/6), some light gray (N7). Fine to medium crystalline with some coarse. <1% dispersed polyhalite. <1/2% gray clay. [9]	Core quality good.
10.7	10				X X X X	10.3'-11.8' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), some moderate brown (5YR 4/4). Coarsely crystalline. <1% to 3% polyhalite. <1% brown clay. [some 17]	
4	15	5.1	5.1	100	X X X X	11.8'-16.1' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline. <1% to 3% polyhalite. Anhydrite mixed with halite at 15.8'-16.1'. [7]	
15.8					X X X	16.1'-18.2' HALITE: Clear to lightly moderate reddish orange (10R 6/6). Medium to coarsely crystalline, some fine. <1% brown and gray clay. <1% dispersed polyhalite. [9, 17]	46% of core recovered was 22 inch length.
5	20	5.1	5.1	100	X X X	18.2'-22.5' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline. [7]	
20.9					X X X	22.5'-28.3' HALITE: Clear to lightly moderate reddish orange (10R 6/6), some light gray. Fine to coarsely crystalline, <1% dispersed polyhalite and gray clay. Some scattered anhydrite. [9]	
6	25	5.1	5.1	100	X		

BORING NO. DH-314

# WIPP

WASTE ISOLATION PILOT PLANT

SHEET

2

OF

2

BORING NO.

DH-314

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
	25						
26.0					— X	28.3'-33.2' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6). Coarsely crystalline. <1% to 3% polyhalite, generally dispersed. Moderate reddish orange (10R 6/6) anhydrite mixed with halite at 32.85'-33.05'. [17]	
7		5.0	5.0	100	X X X	33.2'-33.65' ANHYDRITE: Very light to light gray (N8, N7). Microcrystalline anhydrite. Scattered halite growths throughout. No clay.	
31.0					X X X	33.65'-39.25' HALITE: Clear medium to coarsely crystalline. <1% gray clay. [9, 11]	
8		5.0	4.9	98	X X X X	39.25'-41.15' HALITE: Clear, some lightly moderate reddish orange (10R 6/6). Coarsely crystalline with some fine to medium. <1% gray clay and dispersed polyhalite.	
36.0					—	41.15'-43.45' HALITE: Clear, some lightly moderate reddish orange (10R 6/6). Medium to coarsely crystalline, some fine. <1% brown clay and 1/2% dispersed polyhalite. [17]	
9		4.85	4.7	97	— —	43.45'-48.25' HALITE: Clear, coarsely crystalline with some medium. <1% gray clay. Trace of polyhalite locally. [11]	
40.85					— — X	48.25'-50.75' HALITE: Clear, coarsely crystalline. <1/2% polyhalite. Gray clay break at 50.25'. [1]	
10		5.1	5.1	100	— — X		
45.95					— — X		
11		4.8	4.8	100	X — — X		
50.75					— — X		



BORING NO. DH-314

# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE/SIZE NC CORE BORING NO. DH-315

LOCATION INTERSECTION OF W 170, S 1300 DRIFTS - ROOF

STATION S 1300, W 170 COLLAR ELEV. 1272.1 DIRECTION OF DRILLING VERTICAL UP

MINE COORDINATES N 8387.3, E 6725.5 DEPTH OF BOREHOLE 50.3'

DRILLING METHOD ROTARY AIR DRILL MAKE/MODEL CP-65

DATE STARTED 09/05/84 DATE COMPLETED 09/06/84 SHEET

LOGGED BY: J.E. GALLERANI DATE: 09/06/84 1 OF 2

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
1	0.0 - 1.5	1.5	1.1	73	X	0.0'-7.0' HALITE: Clear, coarsely crystalline with some medium. <1/2% polyhalite. <1/2% gray clay locally. [1]	NC double tube wireline core barrel with NC rods. Run 1: Broken core.
2	1.5 - 5.0	5.0	4.5	90	-	7.0'-8.4' HALITE: Clear, some moderate brown (5YR 4/4) and light moderate reddish orange. Medium to coarsely crystalline. <1/2% dispersed polyhalite. <1% brown clay to 7.7'±, then gray. [9, 17]	Run 2: Broken zones within run.
	5.0 - 6.5				X	8.4'-8.6' ANHYDRITE b: Very light to medium light gray (8B, 86) microcrystalline anhydrite. Scattered halite within. Hard, dry, gray clay at 8.4'	No gas. Dry hole.
	6.5 - 8.6				X	8.6'-14.3' HALITE: Clear, coarsely crystalline. Scattered white anhydrite stringers. [1]	
3	8.6 - 14.3	5.0	5.0	100	X	14.3'-15.1' HALITE: Clear to lightly moderate brown (5YR 4/4), some lightly moderate reddish orange (10R 6/6). Fine to medium crystalline. <1/2% dispersed polyhalite. <1% brown clay.	
	14.3 - 15.1				X	15.1'-15.95' ANHYDRITE a: Very light to medium light gray (8B, 86), microcrystalline. Partially laminated. Scattered halite growths especially from 15.5'±. <1/4" gray clay at 15.1'.	
4	15.1 - 20.0	5.0	5.0	100	X	15.95'-20.0' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6). Coarsely crystalline. <1% to 3% polyhalite, average <1% to 2%. [2, 4, 7]	
	20.0 - 25.1				X X	20.0'-25.1' HALITE: Clear to light moderate reddish orange (10R 6/6), some moderate brown (5YR 4/4). Medium to coarsely crystalline, some fine. <1% brown clay. <1/2% dispersed polyhalite. Some scattered breaks. [8, 17] <1/4" hard, dry, brown clay at 25.0' with associated anhydrite stringers to 25.1'	39% of recovered core was 22 inch length.
5	25.1 - 29.8	5.0	5.0	100	X X	25.1'-29.8' HALITE: Clear, coarsely crystalline. Scattered anhydrite stringers. [1]	
	29.8 - 31.5				X	29.8'-31.5' ARGILLACEOUS HALITE: Clear to medium brown (5YR 4/4), fine to medium crystalline, some coarse. <1% to 3% brown clay. [12]	
6	31.5 - 48.3	4.8	4.8	100	- X		

BORING NO. DH-315

# WIPP

WASTE ISOLATION PILOT PLANT

SHEET 2 OF 2

BORING NO. DH-315

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
26.3	25					31.5'-34.7' HALITE: Clear, some moderate brown (SYR 4/4). Coarsely crystalline, <1% brown clay. [1, 8]	
7	30	5.0	5.0	100		34.7'-39.0' ARGILLACEOUS HALITE: Clear to moderate brown (SYR 4/4, 3/4), some light moderate reddish orange (10R 6/6). Fine to medium crystalline, some coarse. <1% to 3% brown clay. <1/2% dispersed polyhalite locally. Scattered breaks. [12, 15]	
31.3	35					39.0'-39.45' AMHYDRITE: Very light gray to light medium gray (N8, N6). Microcrystalline, faintly laminated. Scattered small halite growths. 1/2" hard, dry, brown clay seen at 39.0'.	
8	35	4.8	4.8	100		39.45'-40.6' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6). Coarsely crystalline. <1% to 3% polyhalite. [2, 7]	
36.1	35				X	40.6'-43.7' HALITE: Clear, coarsely crystalline. Locally <1/2% polyhalite. Very clear to 41.6'±. [1]	
9	40	5.0	5.0	100	X X X	43.7'-49.1' HALITE: Clear to moderate brown (SYR 4/4), scattered lightly moderate reddish orange (10R 6/6). Coarsely crystalline, some medium. Generally <1% brown clay with zones 1% to 3%. Break at 44.0'±; parting at 44.15±. Predominantly brown clay mixed with halite at 45.8'-46.0'±. Broken up here. [1, 8, 10, locally 12]. Trace of polyhalite.	Run 9: Broken between 40.0'-41.1'. Scattered broken zones throughout.
41.1	40				X	49.1'-50.3' ARGILLACEOUS HALITE: Clear to moderate brown (SYR 3/4). Medium to coarsely crystalline. <1% to 5% brown clay. Break at 50.3' [15]	
10	45	4.9	4.9	100	X		
46.0	45				X		
11	50	4.3	4.3	100			
50.3	50						



BORING NO. DH-315

# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE/SIZE \_\_\_\_\_ NC CORE \_\_\_\_\_ BORING NO. DH-316

LOCATION INTERSECTION S 1300, W 170 DRIFTS - FLOOR

STATION S 1300, W 170 COLLAR ELEV. 1259.9 DIRECTION OF DRILLING VERTICAL DOWN

MINE COORDINATES N 8387.2, E 6725.3 DEPTH OF BOREHOLE 50.1'

DRILLING METHOD ROTARY AIR DRILL MAKE/MODEL CP-65

DATE STARTED 09/06/84 DATE COMPLETED 09/06/84 SHEET

LOGGED BY: J.E. GALLERANI DATE: 09/06/84 1 OF 2

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
1	0.0 - 1.6	1.6	1.6	100	X	0.0'-1.7' HALITE: Clear with some moderate reddish orange. (10R 6/6) Coarsely crystalline. <1/2% polyhalite and gray clay locally. [1, 2]	NC double tube wireline core barrel. NC rods. Total drill time: 7 hrs.
2	1.6 - 6.5	4.9	4.9	100	X X X X X X	1.7'-5.0' POLYHALITIC HALITE: Clear to moderate reddish orange. (10R 6/6) Coarsely crystalline. <1% to 3% polyhalite with scattered anhydrite. [3, 7]	
						5.0'-7.65' MB-139: Mixture of very light to light medium gray anhydrite and moderate reddish orange halite (10R 6/6) to 6.25'±. Then predominantly light gray and moderate reddish orange anhydrite mixed with some halite. Low angle irregular layering and laminae throughout. Dry hard gray clay at 7.65'.	No gas. Dry hole.
3	6.5 - 11.5	5.0	5.0	100	X X X	7.65'-11.85' HALITE: Clear to lightly moderate reddish orange (10R 6/6). Medium to coarsely crystalline with some fine. <1/2% polyhalite dispersed and gray clay except locally at 9.2'-10.7' where polyhalite is 1% to 2%. [9]	
4	11.5 - 16.5	5.0	5.0	100	X X X X X X	11.85'-24.0' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6). Coarsely crystalline with some medium crystalline locally. Scattered anhydrite. <1% to 3% polyhalite, locally up to 5%. <1% gray clay below 15.8'. [3, 5, 7]	79% of core recovered was ≥ 2 inch length.
						24.0'-25.2' HALITE: Clear to moderate reddish brown (10R 6/6). Coarsely crystalline. 4% polyhalite and brown clay with a trace of gray.	
5	16.5 - 21.5	5.0	5.0	100	X X X X X X	25.2'-26.95' HALITE: Clear with some moderate brown (5YR 4/4). Fine to medium, some coarsely crystalline. <1% brown clay. Breaks at 25.2' and 25.25', parting at 25.55'±. [8, 10]	
						26.95'-33.05' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6). Coarsely crystalline. <1% to 3% polyhalite with scattered anhydrite. 1"± irregular anhydrite layer at 33'±.	
6	21.5 - 25	5.0	5.0	100	X X X X X	33.05'-34.0' HALITE: Clear coarsely crystalline Scattered white anhydrite stringers. [1]	

BORING NO. DH-316

# WIPP

WASTE ISOLATION PILOT PLANT

2 SHEET OF 2

BORING NO. DH-316

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
	25						
26.5					—	34.0'-34.4' ANHYDRITE: Very light to light medium gray microcrystalline anhydrite. Scattered halite growths and pods, especially below 34.2'±. <1/4" gray clay at 34.4'.	
7		5.0	5.0	100	X X X X X	34.4'-39.1' HALITE: Clear to light moderate reddish orange (10R 6/6). Medium to coarsely crystalline with some fine. <1/2% dispersed polyhalite and gray clay. [1, 9]	
30					X X X	39.1'-46.1' HALITE: Clear to moderate brown (5YR 4/4) with some lightly moderate reddish orange. Medium to coarsely crystalline. <1% brown clay. <1/2% polyhalite. [8, 10, 17]	
31.5					X X X X	46.1'-47.5' HALITE: Clear with some light bluish gray. Coarsely crystalline, some medium. <1/2% gray clay. <1/2% scattered polyhalite blebs.	
8		5.0	5.0	100	X —	47.5'-49.7' HALITE: Clear, coarsely crystalline. <1/2% polyhalite blebs. [1]	
35					—	49.7'-50.1' POLYHALITIC HALITE: Clear to moderate reddish-orange. Coarsely crystalline. <1% to 3% polyhalite. [7]	
36.5					X		
9		5.0	5.0	100	—		Run 9: First 2' of run contained locally broken zones.
40					X —		
41.5					—		
10		5.0	5.0	100	X		
45					—		
46.5					X —		
11		3.6	3.6	100	X		
50					X X X		
50.1							



BORING NO. DH-316

# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE/SIZE \_\_\_\_\_ NX CORE \_\_\_\_\_ BORING NO. DH-317

LOCATION INTERSECTION OF S 1600, W 30 DRIFTS - ROOF

STATION S 1600, W 33 COLLAR ELEV. 1271.3 DIRECTION OF DRILLING VERTICAL UP

MINE COORDINATES N 8077.4, E 6875.9 DEPTH OF BOREHOLE 50.1'

DRILLING METHOD ROTARY AIR DRILL MAKE/MODEL CP-65

DATE STARTED 07/05/84 DATE COMPLETED 07/06/84 SHEET

LOGGED BY: J.E. GALLERANI DATE: 07/06/84 1 OF 2

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
0.0	0						
1	4.8	4.8	3.2	66	X	0.0'-7.3' HALITE: Clear, coarsely crystalline to 5.0', then medium to coarsely crystalline. <1/2% polyhalite and gray clay locally. [1, 11]	NW split tube core barrel and NW rods. Total drill time: 11 hrs. Runs 1, 6, 7, 8, 10 and 11 contain broken zones.
					-	7.3'-8.4' HALITE: Clear to moderate reddish orange (10R 6/6), some medium brown (5YR 4/4). Medium to coarsely crystalline. <1% brown/gray clay and polyhalite [17]	
4.8	5				X	8.4'-8.7' ANHYDRITE b: Very light to medium light gray (N8, N6). Microcrystalline anhydrite. Scattered halite growths. Trace of gray clay at 8.4'	No gas. Dry hole.
2	5.0	5.0	5.0	100	-	8.7'-11.8' (±0.15') HALITE: Clear, coarsely crystalline. Scattered white anhydrite stringers. [1]	
9.8	10				X	11.8'-12.65' HALITE: Clear, some medium brown (5YR 3/4) and moderate reddish orange (10R 6/6). Medium crystalline, some coarse. <1% brown to gray clay. <1% polyhalite. [9, 17]	Runs 4 and 5 contain discing.
10.8	10	1.0	1.0	100	-	12.65'-13.15' ANHYDRITE a: Light gray to medium light gray (N7, N6). Microcrystalline. Scattered halite growths, trace of clay at 12.65'.	
15.8	15				X	13.15'-19.2' HALITE: Clear, trace of medium reddish orange (10R 6/6). Coarsely crystalline. <1/2% polyhalite. [1, 2]	
5	15	5.0	4.7	94	-	19.2'-22.9' (±0.5') HALITE: Clear, some moderate brown (5YR 4/4) to moderate reddish orange (10R 6/6). Medium to coarsely crystalline. <1% dispersed polyhalite and brown clay. [17]	
20.8	20				X	22.9'-28.6' (±0.6') HALITE: Clear, coarsely crystalline. [1] <1/8" brown clay seam at 24.7' ±0.45". 3/4" anhydrite at 24.75±.	18% of core recovered was 22 inch length.
6	20.8	5.0	4.1	82	-	28.6'±-30.6'± HALITE: Clear to moderate brown (5YR 4/4). Medium to coarsely crystalline. <1% to 2% brown clay. <1% polyhalite. [10] 1/4" brown clay seam at 30.6', some anhydrite associated.	
	25				X	30.6'-35.6' HALITE: Clear, coarsely crystalline. <1% brown clay. [8, some 10]	

BORING NO. DH-317



# WIPP

WASTE ISOLATION PILOT PLANT

SHEET

2

OF

2

BORING NO.

DH-317

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
25.8	25					35.6'-38.2' ARGILLACEOUS HALITE: Clear to moderate brown (5YR 4/4). Medium to coarsely crystalline. <1% to 3% brown clay, trace gray. [15]	
7		5.0	3.9	78		38.2'-38.8' ANHYDRITE: Light gray (N7). Microcrystalline. Scattered halite growths. Trace brown clay at 38.2'.	
	30				X	38.8'-40.1' HALITE: Clear, coarsely crystalline. <1% polyhalite. [1]	
30.8						40.1'-42.4' HALITE: Clear, some moderate reddish orange (10R 6/6). Coarsely crystalline. ≤1% polyhalite blebs, locally 2%. Gray clay break at 42.4'. [2, 4]	
8		4.8	4.0	83		42.4'-44.0' HALITE: Clear, some moderate brown (5YR 4/4). Coarsely crystalline. <1% brown clay. [8, 10]	
35.6	35					44.0'-44.7' HALITE: Clear to moderate brown (5YR 3/4). Medium crystalline. <1% to 2% brown clay. <1/2% dispersed polyhalite. [17]	
9		5.0	5.0	100		44.7'-49.2' HALITE: Clear, some medium brown (5YR 4/4). Coarsely crystalline. ≤1% brown clay. Locally <1/2% polyhalite blebs. [10]	
40.6	40				X	49.2'-50.1' HALITE: Clear to moderate reddish orange (10R 6/6), medium brown, medium to coarsely crystalline. ≤1% brown clay and polyhalite. [17]	
					X		
					X		
10		5.0	5.0	100			Because of poor quality and recovery of core, holes DH-317A, 317B were drilled. Refer to logs for these holes.
	45				-X-		
45.6							
					X		
11		4.5	4.5	100			
50.1	50				X		



# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE/SIZE \_\_\_\_\_ NW CORE \_\_\_\_\_ BORING NO. DH-317A

LOCATION INTERSECTION OF S 1600, W 30 DRIFTS - ROOF

STATION S 1600, W 30 COLLAR ELEV. 1271.2 DIRECTION OF DRILLING VERTICAL UP

MINE COORDINATES N 8077.5, E 6879.5 DEPTH OF BOREHOLE 5.0'

DRILLING METHOD ROTARY/AIR DRILL MAKE/MODEL CP-65

DATE STARTED 07/06/84 DATE COMPLETED 07/06/84 SHEET

LOGGED BY: J.E. GALLERANI DATE: 07/06/84 1 OF 1

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
1		2.0	2.0	100	—	0.0'-5.0' HALITE: Clear, coarsely crystalline. <1/2% polyhalite and gray clay. [1, 2]	NW split tube core barrel and NW rods. Drill time: 45 minutes. This hole was drilled to replace first run of hole 317.
2		3.0	2.9	97	X		
	5						No gas. Dry hole.



# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE / SIZE NC CORE BORING NO. DH-317B

LOCATION INTERSECTION OF W 30, S 1600 DRIFTS - ROOF

STATION S 1597, W 30 COLLAR ELEV. 1271.2 DIRECTION OF DRILLING VERTICAL UP

MINE COORDINATES N8080.3, F6881.0 DEPTH OF BOREHOLE 51.0'

DRILLING METHOD ROTARY AIR DRILL MAKE / MODEL CP-65

DATE STARTED 09/07/84 DATE COMPLETED 09/07/84 SHEET

LOGGED BY: J.E. GALLERANI DATE: 09/08/84 1 OF 2

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
1	0.0 - 1.75	1.75	1.4	80	X	0.0'-5.1' HALITE: Clear with some lightly moderate reddish orange (10R 6/6). Coarsely crystalline with some medium. <1/2% polyhalite. [1]	NC double tube wireline core barrel with NC rods. Total drilling time: 12 hrs ±. This is a replacement hole for 317 and 317A. Run#1, 2: broken core.
2	1.75 - 5.0	4.65	4.65	100	X	5.1'-7.1' HALITE: Clear, medium to coarsely crystalline. <1% gray clay and dispersed polyhalite. [1, 11]	
	5.0 - 6.4				-	7.1'-8.1' HALITE: Clear to moderate brown (5YR 4/4) with some light moderate reddish orange (10R 6/6). Medium to coarsely crystalline. <1% brown clay. Trace of polyhalite.	
	6.4 - 8.1				X	8.1'-8.7' HALITE: Clear, some lightly moderate reddish orange (10R 6/6). <1/2% gray clay and polyhalite. [9]	
	8.1 - 10.0				X	8.7'-8.9' ANHYDRITE b: Very light to medium light gray. microcrystalline anhydrite with growths of halite. <1/4" dry gray clay at 8.7'.	
	10.0 - 11.3				X	8.9'-13.9' HALITE: Clear, coarsely crystalline with scattered white anhydrite stringers. [1]	
3	11.3 - 16.3	4.9	4.9	100	X	13.9'-15.1' HALITE: Clear to lightly moderate reddish orange (10R 6/6). Medium crystalline with some fine and coarsely crystalline. <1/2% polyhalite with <1% between 14.9' and 15.1'. <1% gray clay.	Run 4: Water seepage from hole after rods were broken at end of run. Probably from anhydrite a.
	16.3 - 18.1				X	15.1'-15.85' ANHYDRITE a: Very light to lightly medium gray (N8, N6) anhydrite. Scattered halite growths. Trace of moist gray clay at 15.1'.	
	18.1 - 21.3				X	15.85'-20.1' HALITE: Clear to lightly moderate reddish orange (10R 6/6). Coarsely crystalline anhydrite mixed with halite between 16'-16.2'. Scattered white anhydrite stringers throughout core. <1% polyhalite blebs. [1, 2] Core broken up between 15.85'-16.05'±. Very clear.	
	21.3 - 25.0				X	20.1'-26.0' HALITE: Clear, some moderate brown (5YR 4/4). Medium to coarsely crystalline, some fine. <1% brown clay. <1/2% dispersed polyhalite. <1/4" brown hard clay seam at 25.8' with associated anhydrite stringers to 26.0'.	
6	25.0 - 26.0	5.0	4.7	94	X		



# WIPP

WASTE ISOLATION PILOT PLANT

SHEET 2 OF 2

BORING NO. DH-317B

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
	25						
26.3					X -	26.0'-30.1' HALITE: Clear, coarsely crystalline. Scattered white anhydrite stringers. [1]	
		5.0	4.5	90		30.1'-33.8' HALITE: Clear with zones of moderate brown. Coarsely crystalline with some medium. $\leq 1\%$ brown clay. [1, 8, some 10]	
	30					33.8'-39.6' ARGILLACEOUS HALITE: Clear to moderate brown (SYR 3/4, 4/4). Coarsely crystalline, some medium. $< 1\%$ to $3\%$ brown clay. $< 1/2\%$ dispersed polyhalite. Scattered breaks. [8, 10, 15, 17]	Run 8: Broken zones of core.
31.3						39.6'-40.2' ANHYDRITE: Very light to light medium gray (N8, N6), microcrystalline anhydrite. Faintly laminated, low angle. Scattered very small halite growths. $\leq 3/8"$ brown clay seam at 39.6'. Dips $15^\circ \pm$ .	
		5.0	4.6	92		40.2'-44.3' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6). Coarsely crystalline. $< 1\%$ to $3\%$ polyhalite, average $< 2\%$ . [3, 7]	
36.3						44.3'-51.0' HALITE: Clear, some moderate brown (SYR 4/4). Coarsely crystalline, locally fine to medium. $\leq 1\%$ brown clay. $< 1/2\%$ polyhalite patches, blebs, locally up to $2\%$ . Scattered brown clay breaks 47.1'-47.7'. Clear halite, scattered polyhalite blebs at 48'-49.1' $\pm$ . [1, 8, 10]	
		5.0	4.6	92			
	40						
41.3					X X		Run 10: Broken core beyond 43 ft. Hit gas pocket at 45.9'. No reading on methane detection meter. No sound of gas leak.  34% of recovered core is 22 inch length.
					X		
					X X		
					X X		
		5.0	5.0	100	X		
46.3							
					X		
		4.7	4.7	100			
	50						
51.0					X		

BORING NO. DH-317B

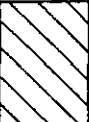
# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT \_\_\_\_\_ HOLE TYPE/SIZE \_\_\_\_\_ NX CORE \_\_\_\_\_ BORING NO. DH-318  
 LOCATION INTERSECTION OF S 1600, W 30 DRIFTS - FLOOR

STATION S 1600, W 30 COLLAR ELEV. 1258.5 DIRECTION OF DRILLING VERTICAL DOWN  
 MINE COORDINATES N 8077.3, E 6876.1 DEPTH OF BOREHOLE 50.0'  
 DRILLING METHOD ROTARY AIR DRILL MAKE/MODEL CP-65  
 DATE STARTED 07/02/84 DATE COMPLETED 07/03/84 SHEET \_\_\_\_\_  
 LOGGED BY: J.E. GALLERANI DATE: 07/03/84 1 OF 2

DEPTH (ft.)	RUN NUMBER	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
0.0							
0.0	1	4.2	4.2	100	X X X X	0.0'-4.75' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6). Coarsely crystalline. Scattered anhydrite. <1% to 3% polyhalite. [7]	NW split tube core barrel. NW rods. Scissor lift.
4.2					X X X X X	4.75'-7.3' MB-139: From 4.75'-5.75'± is mixture of anhydrite and halite. Then predominantly anhydrite with scattered halite growths. Light gray with some moderate reddish orange. Gray clay parting at 7.3'.	Total drill time: 7 hrs.
5.0						7.3'-11.0' HALITE: Clear to light gray (N7) and light moderate reddish orange. Medium to coarsely crystalline. <1% gray clay. <1% dispersed polyhalite. Gray clay break at 9'. <3% polyhalite to 7.8'±. [9]	No gas. Dry hole.
9.5	2	5.3	5.3	100	X X — X	11.0'-15.45' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6). Coarsely crystalline. <1% to 2% polyhalite dispersed. Scattered anhydrite. 3/4" anhydrite layer at 15.35'. Gray clay parting at 15.45'. [4, 7]	33% of core recovered is 22 inch length.
14.7	3	5.2	5.2	100	X X X X X X	15.45'-17.2' HALITE: Clear, some light gray (N7) and moderate reddish orange (10R 6/6). Medium to coarsely crystalline. <1% gray clay. <1/2% dispersed polyhalite. [9]	
19.7	4	5.0	5.0	100	X X — X X	17.2'-20.5' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6). Coarsely crystalline. <1% to 3% polyhalite. [5, 6, 7]	
24.8	5	5.1	5.1	100	X X X X X X — X	20.5'-27.0' HALITE: Clear (some light gray (N7) to lightly moderate reddish orange (10R 6/6). Medium to coarsely crystalline. <1% gray clay, some brown. <1% polyhalite dispersed. Breaks at 21.5' and 21.9'±. [9, 17]	
					X X X X X X	27.0'-32.7' HALITE: Clear to moderate reddish orange (10R 6/6). coarsely crystalline. <1% to 2% dispersed polyhalite. Trace of gray clay at 27.1'. Up to 1" anhydrite at 32.6'. Scattered anhydrite stringers between 31.6'-32.6'. [2, 4]	
					— — X	32.7'-33.65' HALITE: Clear, medium to coarsely crystalline. <1/2% dispersed polyhalite. [1]	



# WIPP

WASTE ISOLATION PILOT PLANT 2 SHEET OF 2 BORING NO. DH-318

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
	25						
6	30.0	5.2	5.2	100	X	33.65'-33.95' ANHYDRITE: Very light to light gray (N8, N7). Microcrystalline. Scattered halite growths. 1/2" halite layer just below upper contact. $\leq 1/8"$ gray clay seam at lower contact. Core grinding here.	
					X	33.95'-40.3' HALITE: Clear, some moderate reddish orange (10R 6/6). $< 1/2\%$ polyhalite. $< 1\%$ gray clay to 34.95' $\pm$ , then 0 - $< 1/2\%$ . [2], [some 9]	
					X	40.3'-44.2' HALITE: Clear, some medium brown (5YR 4/4). Coarsely crystalline, some medium. $\leq 1\%$ brown clay. $< 1/2\%$ polyhalite. [8, 10]	
7	35.0	5.0	5.0	100	X	44.2'-50.0' HALITE: Clear, coarsely crystalline, some medium. Zero to $< 1\%$ gray clay. $< 1/2\%$ polyhalite. [1, 11]	
					X		
8	40.0	5.0	5.0	100	X		
					X		
9	45.0	5.0	5.0	100	X		
					X		
10	50.0	5.0	3.0	60	X		



# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE/SIZE NC CORE BORING NO. DH-319

LOCATION INTERSECTION OF S 700, E 300 DRIFTS -- ROOF

STATION S 700, E 300 COLLAR ELEV. 1260.0 DIRECTION OF DRILLING VERTICAL

MINE COORDINATES N8988.1 E7191.6 DEPTH OF BOREHOLE 51.05'

DRILLING METHOD ROTARY AIR DRILL MAKE/MODEL CP-65

DATE STARTED 09/10/84 DATE COMPLETED 09/10/84 SHEET

LOGGED BY: J.E. GALLERANI DATE: 09/10/84 1 OF 2

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
1	0.0 - 2.0	2.0	2.0	100	X	0.0'-5.4' HALITE: Clear to lightly moderate reddish orange (10R 6/6). Coarsely crystalline, some medium locally. <1/2% polyhalite. Trace brown clay from 4.7'. [1]	NC double tube wireline core barrel. NC rods.  No gas. Dry hole.
2	2.0 - 5.0	4.6	4.6	100	X	5.4'-8.45' HALITE: Clear to moderate brown (5YR 4/4). Coarsely crystalline. 41% brown clay, locally up to 2%. Gray clay from 5.05'. Scattered polyhalite. Some anhydrite close to contact at 8.45'. [8, 10]	
	5.0 - 6.6				X	8.45'-8.65' ANHYDRITE b: Very light to light medium gray (N8, N6). Microcrystalline. Trace gray clay at 8.45'.	
3	6.6 - 10.0	5.1	5.1	100	X	8.65'-14.3' HALITE: Clear, coarsely crystalline. Scattered white anhydrite. [1]	
	10.0 - 11.7				X	14.3'-15.65' HALITE: Clear, some lightly moderate reddish orange and moderate brown (5YR 4/4). Fine to coarsely crystalline. 41% polyhalite and gray, brown clay. [17]	
4	11.7 - 15.0	5.0	5.0	100	X	15.65'-16.35' ANHYDRITE a: Very light to medium light gray anhydrite. Scattered halite growths, especially from 16.15'. Trace gray clay at 15.65'. Core grinding evident here.	
	15.0 - 16.7				X	16.35'-20.85' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6). Coarsely crystalline. <1% to 3% polyhalite. Average 1% to 2%. [3, 4]	
5	16.7 - 20.0	5.0	4.9	98	X X X X X X X X	20.85'-25.35' HALITE: Clear to moderate brown (5YR 4/4). Medium to coarsely crystalline. 41% brown clay, some gray. Trace dispersed polyhalite. [10, 17, some 12] 1/4" hard brown grayish clay seam at 25.3'± with associated anhydrite/halite to 25.35'.	Run 5: Some broken core.
	20.0 - 21.7				X X	25.35'-30.9' HALITE: Clear, coarsely crystalline. Slight trace clay. [1]	
	21.7 - 23.0				X	30.9'-32.7' ARGILLACEOUS HALITE: Clear to moderate brown (5YR 4/4, 3/4). Medium to coarsely crystalline. Scattered breaks. <1% to 3% brown clay. [10, 15]	
6	23.0 - 25.0	4.7	4.7	100	X	32.7'-33.9' HALITE: Clear, coarsely crystalline. [1]	

BORING NO. DH-319

# WIPP

WASTE ISOLATION PILOT PLANT

2 SHEET OF 2

BORING NO. DH-319

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
	25						
26.4						33.9'-36.55' HALITE: Clear, some moderate brown (5YR 4/4). Coarsely crystalline. <1% brown clay. [8, 10]	Run 7: Broken core.
7		4.9	4.9	100		36.55'-40.05' ARGILLACEOUS HALITE: Clear to moderate brown (5YR 3/4, 4/4). Medium to coarsely crystalline. <1% to 3% brown clay. Scattered breaks. [15]	
	30					40.05'-40.6' ANHYDRITE: Very light to light medium gray (N8, N6). Microcrystalline. Scattered halite growths. Partially laminated. 1/2" halite layer at 40.4'±.	
31.3						40.6'-48.3' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6). Coarsely crystalline, some fine to medium between 45.8'-46.8'±. <1% to 3% polyhalite, locally 5%. Scattered anhydrite. Scattered brown clay 45.8'-46.8'±.	Run 8: Broken zones within run.
8		4.75	4.75	100		48.3'-51.05' HALITE: Clear mottled with moderate brown (5YR 4/4). Coarsely crystalline. <1%, locally 2% brown clay. <1/2% polyhalite blebs.	
36.05							
41.05							40% of core recovered was 32 inch length.
9		5.0	5.0	100			
	40						
46.05							
10		5.0	5.0	100			
	45						
51.05							
11		5.0	5.0	100			
	50						



# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER GE-268 HOLE TYPE/SIZE NX CORE BORING NO. DH-321

LOCATION S 400 DRIFT JUST WEST OF WASTE SHAFT - ROOF

STATION S 400 E0 COLLAR ELEV. 1261.4 DIRECTION OF DRILLING VERTICAL

MINE COORDINATES N9792.0 E6891.8 DEPTH OF BOREHOLE 52.0'

DRILLING METHOD ROTARY/AIR DRILL MAKE/MODEL CP-65

DATE STARTED 09/14/84 DATE COMPLETED 09/14/84 SHEET

LOGGED BY: J.E. GALLERANI DATE: 09/29/84 1 OF 2

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
1	5	5.0	5.0	100	X	0.0'-4.3' HALITE: Clear, coarsely crystalline. <1/2% polyhalite and gray clay. [1]	NW split tube core barrel with NW rods. Overall core quality good.
					-	4.3'-6.6' HALITE: Clear to moderate brown (5YR 4/4), coarsely crystalline. 1% brown clay [10]	
					-	6.6'-7.8' HALITE: Clear to medium light gray (N6) and light moderate reddish orange (10R 6/6). Fine to medium, some coarsely crystalline. <1/2% dispersed polyhalite. 1% gray clay.	
2	5	5.0	5.0	100	X	7.8'-8.05' ANHYDRITE b: Light gray (N7) microcrystalline, some laminae. Scattered halite growths. Trace of gray clay at 7.8'.	
					-	8.05'-14.0' HALITE: Clear, coarsely crystalline. Scattered white anhydrite stringers. [1]	
3	5	5.0	5.0	100	X	14.0'-14.65' HALITE: Clear to moderate brown (5YR 4/4) and light moderate reddish orange (10R 6/6), medium crystalline. 1% brown clay. <1% dispersed polyhalite.	
					-	14.65'-15.5' ANHYDRITE a: Light to medium gray (N7, N5) microcrystalline anhydrite. Irregular laminae. Scattered halite growths especially from 15.1'. Trace of gray clay at 14.65'.	
4	5	5.0	5.0	100	X	15.5'-19.9' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline. <1% to 3% polyhalite, average 2% scattered anhydrite. [3, 4, 7]	
					X		
					X	19.9'-22.4' HALITE: Clear to moderate reddish orange (10R 6/6). Some moderate brown. Medium to coarsely crystalline. 1% polyhalite and brown clay. [17]	
					X		
5	5	5.0	5.0	100	X	22.4'-24.3' HALITE: Clear to light moderate reddish orange and some light bluish gray. Medium to coarsely crystalline. <1/2% polyhalite. <1% gray clay. [9]	
					X	24.3'-29.6' HALITE: Clear, coarsely crystalline. Scattered anhydrite. Up to 1/2" hard brown clay seam at 25.1' with trace of associated anhydrite. <1/2% polyhalite locally. [1]	



BORING NO. DH-321

# WIPP

WASTE ISOLATION PILOT PLANT 2 SHEET OF 2 BORING NO. DH-321

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
6	30.0	5.0	5.0	100	[Profile symbols]	29.6'-31.2' ARGILLACEOUS HALITE: Clear to moderate brown (SYR 3/4, 4/4), medium to coarsely crystalline, some fine. <1% to 3% brown clay. [12]	
						31.2'-33.3' HALITE: Clear, coarsely crystalline. [1]	
7	35.0	5.0	5.0	100	[Profile symbols]	33.3'-35.2' HALITE: Clear, some moderate reddish brown (10R 4/6), coarsely crystalline. None to 4% brown clay [1, 10]	
						35.2'-38.7' ARGILLACEOUS HALITE: Clear to moderate brown (SYR 4/4, 3/4), medium to coarsely crystalline. <1% to 3% brown clay, trace gray. 1/2" brown clay seam at 37.45'. <1/2% polyhalite dispersed. [14, 17].	
8	40.0	5.0	5.0	100	[Profile symbols]	38.7'-39.4' ANHYDRITE: Light to medium light gray (N7, N6) microcrystalline anhydrite. Partially laminated. 3/4" hard brown clay seam at 38.7'.	
						39.4'-40.2' HALITE: Clear, coarsely crystalline. <1/2% polyhalite, scattered anhydrite. [1]	
9	45.0	5.0	5.0	100	[Profile symbols]	40.2'-43.0' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline. <1% to 3% polyhalite. [7]	
						43.0'-47.0' HALITE: Clear to moderate reddish orange (10R 6/6), some moderate brown (SYR 4/4). Coarsely crystalline with zones of fine-medium. <1% to 2% brown clay. <1% polyhalite. [8, 12]	
10	50.0	5.0	5.0	100	[Profile symbols]	47.0'-48.9' HALITE: Clear mottled with some moderate reddish orange (10R 6/6), coarsely crystalline. 4% polyhalite. <1/2% gray clay. [1, 3]	
						48.9'-52.0' ARGILLACEOUS HALITE: Clear to moderate brown (SYR 3/4, 4/4), medium to coarsely crystalline. <1% to 3% brown clay. [10, 15]	
11	52.0	2.0	2.0	100	[Profile symbols]		



# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER GE-267 HOLE TYPE/SIZE NX BORING NO. DH-323  
 LOCATION WASTE SHAFT STATION - ROOF - EAST OF WASTE SHAFT

STATION S400, E55 COLLAR ELEV. 1261.2 DIRECTION OF DRILLING VERTICAL UP  
 MINE COORDINATES N9291.7, E6952.5 DEPTH OF BOREHOLE 52.5 FT  
 DRILLING METHOD ROTARY AIR DRILL MAKE/MODEL CP-65  
 DATE STARTED 2-22-85 DATE COMPLETED 2-22-85 SHEET 1 OF 2  
 LOGGED BY: J. E. GALLERANI DATE: 2-28-85

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
1	0.0 - 3.0	3.0	0.9	30		0.0'-3.6' HALITE: Clear, medium to coarsely crystalline. [1]	NX split-tube core barrel.  8.7% of core recovered was 2 2-inch lengths.  Poor core quality.
2	3.0 - 4.3	1.3	1.2	92		3.6'-8.0' HALITE: Clear, some moderate brown (SYR 4/4); medium to coarsely crystalline. <1% brown clay. [8]	
3	4.3 - 5.0	2.7	2.7	100		8.0'-8.3' ANHYDRITE "b": Very light to medium gray anhydrite. Scattered halite growths. Up to 1/2" dark gray clay at 8.0'. Irregular, low angle.	
	5.0 - 7.0					8.3'-14.5' HALITE: Clear, coarsely crystalline. Scattered white anhydrite stringers. [1]	
4	7.0 - 10.0	5.0	5.0	100		14.5'-15.6' ± HALITE: Clear to moderate brown (SYR 4/4); fine to medium crystalline. ≤ 2% brown clay, some gray. <1/2% dispersed polyhalite. [12]	
	10.0 - 12.0					15.6'-16.25' ± ANHYDRITE "a": Light to light medium gray anhydrite. 1/4" gray clay at 15.6'. Low angle.	
5	12.0 - 15.0	5.0	3.5	70		16.25' ± - 20.5' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6); coarsely crystalline. <1 to 3% polyhalite. Scattered anhydrite. [5,7]	
	15.0 - 17.0					20.5'-23.5' HALITE: Clear, some moderate brown (SYR 4/4); medium to coarsely crystalline, some fine. ≤ 1% brown clay. Trace polyhalite. Up to 1" brown clay seam at 23.25'. Irregular, low angle. Some hairline halite-filled fractures in clay. Some associated anhydrite to 23.5'. [8,10]	
6	17.0 - 19.0	2.0	1.1	55	X X X X X X X X	23.5'-30.4' HALITE: Clear, coarsely crystalline, some medium. [1]	
7	19.0 - 21.5	2.5	2.5	100	X X X X X X X X	30.4'-35.4' HALITE: Clear to moderate brown (SYR 4/4); medium to coarsely crystalline, some fine. ≤ 1% brown clay, locally 2%. Break at 31.7' ±. [8,10]	
8	21.5 - 23.0	1.5	0.9	60	X	35.4'-37.8' ± 0.5' ARGILLACEOUS HALITE: Clear to moderate brown (SYR 4/4; 3/4), fine to medium crystalline. <1 to 3% brown clay. [12,15]	
9	23.0 - 25.0	3.4	1.2	35		37.8'-38.8' ANHYDRITE: Light to medium gray, microcrystalline anhydrite. Up to 1" brown clay at 37.8'. Irregular, undulating surfaced core is disced.	



# WIPP

WASTE ISOLATION PILOT PLANT

SHEET  
OF

BORING NO. DH-323

2

2

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
	25						
26.4	9	3.4	1.2	35		38.8'-42.0' POLYHALITIC HALITE: Clear to moderate reddish orange/brown (10R 6/6; 4/6). Coarsely crystalline. <1 to 3% polyhalite blebs and patches. Core broken.	Note: Core is badly disced from about Run 10. It is broken from about 33' to 52.5'. Difficult to log hole due to broken core and core loss.
27.2	10	0.8	0.6	75			
	11	3.2	1.2	38		42.0'-50.5'± HALITE: Clear to moderate brown (5YR 4/4), coarsely crystalline. ±1% patches of brown clay, increasing to ±2% beyond 48'±. Core badly disced. [8,10]	
30.4	30					50.5'-52.5' ARGILLACEOUS HALITE: Clear to moderate brown, fine to medium crystalline, some coarse. <1 to 3% brown clay.	
	12	5.0	2.6	52			
35.4	35						
	13	3.4	2.3	68			
38.8	40						
	14	3.2	2.0	62			
42.0	45						
	15	3.0	1.5	50			
45.0	50						
	16	2.5	1.0	40			
47.5	55						
	17	5.0	3.5	70			
52.5							
	55						



BORING NO. DH-323

# WIPP-SPDV

WASTE ISOLATION PILOT PLANT

# ROCK CORING LOG UPWARD CORING



BORING NO. DO-45 INSTRUMENT TYPE & NUMBER Extensometer GE-230 HOLE SIZE NX  
 LOCATION East 140 Drift, 114' N of N rib of North 140 Drift, midspan

STATION N254, E147 COLLAR ELEV. 1285.5' DIRECTION OF DRILLING Vertical Up  
 MINE COORDINATES N9941.0, E7041.3 BOREHOLE PENETRATION 52.4'  
 DRILLING METHOD Wet (brine) DRILL MAKE/MODEL Joy 12B  
 PREPARED BY RLB/TSC//DGK/Bechtel DATE 1/25/83 SHEET 1 OF 3

RUN NUMBER	PENETRATION (ft.)	RECOVERY (%)	% RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS
8	25	5.0	100	-	X	21.8' - 26.9' HALITE: colorless to moderate reddish-orange (10R 6/6) to moderate brown (5YR 3/4) halite, finely to coarsely crystalline, 1-2% polyhalite, 1-5% brown and gray clay. Clay is largely interstitial from 21.8'-24.0', in discontinuous partings and breaks from 24.0'-26.9', brown clay break at 25.9'.	Run 8 from 24.0'-29.0' is broken and separated along clay seams. Clay may be washed out.  Runs 1 - 4 were not cored with the inner barrel.  0' - 0.9' drilled with 6" single-tube core barrel.  Drilling started 09:45 hours, 3 December 1982.
7	20	5.0	100	-	X	16.6' - 21.8' HALITE: colorless to moderate reddish-orange (10R 6/6) halite, coarsely crystalline, ~2% dispersed polyhalite, two undulatory anhydrite stringers (~1/8") at 17.2'.	
6	15	4.0	78	-	X	16.0' - 16.6' ANHYDRITE: (Anhydrite "a") very light (N8) to medium gray (N5) microcrystalline anhydrite, 10-20% halite from 16.3'-16.6', light gray (N7) clay parting at 16.0'.	
					X	14.8' - 16.0' HALITE: mottled colorless to moderate brown (5YR 3/4) halite, medium crystalline, 5% brown (and gray) clay, polyhalite band at 15.8'-15.9', otherwise polyhalite absent.	
5	10	3.3	66	-	X	7.9' - 14.8' HALITE: clear, colorless to moderate reddish-orange (10R 6/6) halite, medium to coarsely crystalline, trace (1-2%) polyhalite from 7.9'-10.8' and 12.1'-14.8', undulatory very light gray (N8) anhydrite stringers at 11.1' (~1/16"), 11.35' (~1/16"), and 11.55' (<1/16").	
					X	7.0' - 7.9' HALITE: mottled colorless to medium gray (N5) to moderate reddish-orange (10R 6/6) halite, finely to medium crystalline, 5% gray and brown clay, 7.0'-7.1' is pure, medium to coarsely crystalline halite, brown clay break at 7.2', brown and gray clay break at 7.9', 1% polyhalite.	
4	5	2.0	100	-	X	6.9' - 7.0' ANHYDRITE: (Anhydrite "b") light (N7) to very light gray (N8) microcrystalline anhydrite, dense, ~20% halite.	
3	5	1.8	95	-	X	5.0' - 6.9' HALITE: mottled colorless to grayish-brown (5YR 3/2) halite, medium to coarsely crystalline, 2-3% interstitial grayish-brown and medium light gray (N6) clay, <1% polyhalite.	
2	5	0.8	40	-	X	3.8' - 5.0' Core lost.	
1	0	1.8	86	-	X	0.0' - 3.8' HALITE: colorless to clear halite, medium to coarsely crystalline, 0-3% moderate reddish-orange (10R 6/6) polyhalite dispersed, trace (1%) brown and gray clay from 3.0'-3.8'.	



# WIPP-SPDV

WASTE ISOLATION PILOT PLANT

# ROCK CORING LOG UPWARD CORING



BORING NO. DO-45 INSTRUMENT Extensometer  
 TYPE & NUMBER GE-230 HOLE SIZE NX  
 LOCATION East 140 Drift, 114' N of N rib of North 140 Drift, midspan

STATION N254, E147 COLLAR ELEV. 1285.5' DIRECTION OF DRILLING Vertical  
Up  
 MINE COORDINATES N9941.0, E7041.3 BOREHOLE PENETRATION 52.4'  
 DRILLING METHOD Wet (trine) DRILL MAKE/MODEL Joy 12B  
 PREPARED BY RLB/TSC//DGK/Bechtel DATE 1/25/83 SHEET

2 OF 3

RUN NUMBER	PENETRATION (ft.)	RECOVERY (ft)	% RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS
13	50	3.2	100	-	-X-	(see description on next sheet)	
12	45	5.0	100	-	-X-	44.8' - 49.3' HALITE: clear to moderate reddish-orange (10R 6/6) to moderate brown (5YR 3/4) halite, medium to coarsely crystalline, <1-3% polyhalite, concentration (5-10%) of brown clay at 46.25'-46.5', brown clay break at 46.6', discontinuous break at 48.4', trace to absent clay elsewhere.	
					X -		
11	40	4.8	100	-	X -	43.4' - 44.8' ARGILLACEOUS HALITE: clear to moderate brown (5YR 3/4) halite, medium to coarsely crystalline, 5% brown clay locally concentrated, 1-2% polyhalite, brown clay parting at 43.4', break at 44.7'.	
					-X-		
10	35	4.5	83	-	X -	40.0' - 43.4' POLYHALITIC HALITE: clear to moderate reddish-orange (10R 6/6) halite, coarsely crystalline, 5-10% polyhalite, clay is absent to 43.0', trace above, anhydrite stringers decreasing in frequency from 40.0'-41.0'.	
					X X		
9	30	4.4	88	-	X X	39.4' - 40.0' ANHYDRITE: (Marker Bed 138) very light (N8) to medium gray (N5) microcrystalline anhydrite, 5-10% halite increasing upwards, grades into anhydritic halite above.	Run 10 (34.0'-39.4') Bottom (around 34.0'-35.0') is more broken up. Core loss was assumed to be at 34.0'-35.0'.
					X X		
8	25	5.0	100	-	X X	35.6' - 39.4' ARGILLACEOUS HALITE: clear to moderate brown (5YR 3/4) halite, coarsely to medium crystalline, fining upwards, 5-10% brown clay locally concentrated, <1% polyhalite, clay is ~1% from 38.7'-39.4' and polyhalite is ~2%, pale brown (5YR 5/2) clay parting at 39.4'.	Run 9 (29.0'-34.0') is also very broken and clay may have been lost at breaks.
					X X		
8	25	5.0	100	-	X X	32.1' - 35.6' HALITE: clear, coarsely crystalline halite, few blebs of polyhalite, clay is absent 32.1'-33.0', ~1% from 33.0'-35.6', increasing upsection.	
					X X		
8	25	5.0	100	-	X X	30.6' - 32.1' ARGILLACEOUS HALITE: clear to moderate brown (5YR 3/4) halite, coarsely crystalline at base, fining upwards to sugary texture, 5-10% clay (mostly brown), brown clay parting at 30.7', break at 32.1', trace polyhalite.	
					X X		
8	25	5.0	100	-	X X	26.9' - 30.6' HALITE: clear, coarsely crystalline halite, few blebs of polyhalite, discontinuous anhydrite stringers (<1/16") at 27.1' and 28.1'.	
					X X		
8	25	5.0	100	-	X X	(as below)	
					X X		

# WIPP-SPDV

WASTE ISOLATION PILOT PLANT

# ROCK CORING LOG UPWARD CORING



BORING NO. D0-45 INSTRUMENT Extensometer  
 TYPE & NUMBER GE-230 HOLE SIZE NX  
 LOCATION East 140 Drift, 114' N of N rib of North 140 Drift, midspan

STATION N254, E147 COLLAR ELEV. 1285.5' DIRECTION OF DRILLING Vertical Up  
 MINE COORDINATES N9941.0, E7041.3 BOREHOLE PENETRATION 52.4'  
 DRILLING METHOD Wet (Brine) DRILL MAKE/MODEL Joy 12B  
 PREPARED BY RLB/TSC//DGK/Bechtel DATE 1/25/83

SHEET  
3 OF 3

RUN NUMBER	PENETRATION (ft.)	RECOVERY(%)	% RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS
13	50	3.2	100	-	- X - - X - - X -	<p>52.2' - 52.4' HALITE: clear, coarsely crystalline halite, 1X polyhalite.</p> <p>49.3' - 52.2' ARGILLACEOUS HALITE: mottled clear to moderate brown (5YR 3/4) to moderate reddish-brown (10R 4/6) halite, finely to coarsely crystalline, 5-10X brown clay, 1-5X polyhalite, pale (10R 5/4) to moderate reddish-brown (10R4/6) clay seam at 52.1', brown clay break at 49.4'.</p>	<p>Total penetration = 52.4'.                      Hole finished at 15:00 hours, 4 December 1982.</p>



# WIPP-SPDV

# ROCK CORING LOG



WASTE ISOLATION PILOT PLANT

BORING NO. DO-46 INSTRUMENT TYPE & NUMBER None HOLE SIZE NX  
 LOCATION East 140 Drift, 114' N of N rib of North 140 Drift, midspan

STATION N254, E147 COLLAR ELEV. -1276.5' DIRECTION OF DRILLING Vertical Down  
 MINE COORDINATES N9941.0, E7041.3 DEPTH OF BOREHOLE 51.5'  
 DRILLING METHOD Wet (brine) DRILL MAKE/MODEL Joy 12B  
 PREPARED BY DGK, JPS/Bechtel DATE 1/26/83 SHEET 1 OF 3

RUN NUMBER	DEPTH (ft.)	RECOVERY(ft)	% RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS
1	0 - 32	64	64	-	X	0.0' - 7.0' HALITE: clear to brownish-gray (5YR 4/1) halite, medium to coarsely crystalline, trace (<1/2%) of moderate reddish-orange (10R 6/6) polyhalite. Clay content up to 5% occurring as diffuse zones or interstitially.	Drilling started 15:20 hours, 4 December 1982. Stopped at 15:40 hours, with 5.0' drilled. Run 1 - core loss seems to have occurred at top of core.
2	5 - 04	40	40	-	X	7.0' - 8.9' POLYHALITIC HALITE: clear and moderate reddish-orange (10R 6/6) halite, coarsely crystalline, moderately hard. Polyhalite occurs interstitially and as scattered blebs from 0 to 10%. Light gray (N7) clay parting (1/8") at 7.8'.	
3	5.0 - 10	100	100	-	X X X	8.9' - 13.0' ANHYDRITE: (Marker Bed 139) light gray (N7) anhydrite, microcrystalline, hard, zones of moderate reddish-orange (10R 6/6) polyhalite from 8.9'-9.5', hairline anhydrite cracks in clear halite matrix at top. Core broken into 1/2" chips from 11.0'-13.0'. Light gray (N7) clay seam, stiff, at 13.0'.	
4	13.0 - 15	86	86	-	X X	13.0' - 16.4' HALITE: clear, medium to coarsely crystalline halite, with clay and polyhalite in discrete bands and interstitially. Several brown clay partings (1/16") at 13.4'-13.5', and a brown clay break (1/32") at ~15.2'. Light gray (N7) clay is less abundant and occurs interstitially. Clay content ranges from 0 to 3% and polyhalite content to 2%.	
5	15 - 20	100	100	-	X X X X	16.4' - 27.9' POLYHALITIC HALITE: clear, medium to coarsely crystalline halite, with 5-10% moderate reddish-orange (10R 6/6) polyhalite, brown clay break (1/32") at 20.6', trace interstitial gray clay from 20.6'-21.8' and at 26.7'.	
6	20 - 25	94	94	-	X X X X		

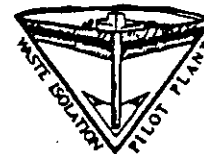






# WIPP-SPDV

# ROCK CORING LOG



WASTE ISOLATION PILOT PLANT

BORING NO. D0-46 INSTRUMENT TYPE & NUMBER None HOLE SIZE NX  
 LOCATION East 140 Drift, 114' N of N rib of North 140 Drift, midspan

STATION N254, E147 COLLAR ELEV. -1276.5' DIRECTION OF DRILLING Vertical Down  
 MINE COORDINATES N9941.0, E7041.3 DEPTH OF BOREHOLE 51.5'  
 DRILLING METHOD Wet (brine) DRILL MAKE/MODEL Joy 12B  
 PREPARED BY DGK, JPS/Bechtel DATE 1/26/83

SHEET

3 OF 3

RUN NUMBER	DEPTH (ft.)	RECOVERY(ft.)	% RECOVERED	ROD	PROFILE	DESCRIPTION	REMARKS
11	50	5.1	100	-	- - X	(as above)	Hole finished at 13:30 hours, 5 December 1982.
	55						Total depth = 51.5'.  <div style="text-align: center; border: 1px solid black; border-radius: 50%; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center; margin: 20px auto;">M</div>



# WIPP-SPDV

WASTE ISOLATION PILOT PLANT

# ROCK CORING LOG UPWARD CORING



BORING NO. D0-52 INSTRUMENT Extensometer  
 TYPE & NUMBER GE-226 HOLE SIZE NX  
 LOCATION 0 East Drift, 146' N of Exploratory Shaft centerline, midspan

STATION N146, W4 COLLAR ELEV. 1280.4' DIRECTION OF DRILLING Vertical  
 MINE COORDINATES N9832.5, E6890.5 BOREHOLE PENETRATION 51.6'  
 DRILLING METHOD Wet (brine) DRILL MAKE/MODEL Joy 12 B  
 PREPARED BY RLB/TSC//DGK/Bechtel DATE 1/25/83 SHEET

2 OF 3

RUN NUMBER	PENETRATION (ft.)	RECOVERY(ft)	% RECOVERED	ROD	PROFILE	DESCRIPTION	REMARKS
11	50	100				46.6' - 51.1' ARGILLACEOUS HALITE: colorless to moderate brown (5YR 3/4) halite, finely to coarsely crystalline, 1-2% polyhalite, 1-10% brown clay locally concentrated, brown clay partings at 47.2', 48.3', 48.7', 50.5' and 51.0', coarsely crystalline halite with <1% clay and polyhalite from 49.0'-49.3'.	
10	45	100				44.5' - 46.6' HALITE: colorless to moderate reddish-orange (10R 6/6) halite, coarsely crystalline, 1-3% polyhalite, few blebs of gray and brown clay. 41.5' - 44.5' ARGILLACEOUS HALITE: mottled colorless to moderate brown (5YR 3/4) halite, medium to coarsely crystalline, ~1% polyhalite, 2-10% brown clay locally concentrated, 41.5'-41.9' is purer halite, with only trace brown and gray clay, brown clay partings at 43.0', 43.5', and 44.5', brown clay seam at 43.2'.	
9	40	100				36.9' - 41.5' POLYHALITIC HALITE: colorless to moderate reddish-orange (10R 6/6) halite, medium to coarsely crystalline, 1-10% polyhalite locally concentrated, polyhalite stringer zone from 38.15'-38.35', anhydrite stringers at 36.95', 37.2', 37.6', and 38.8'.	
8	35	78				36.5' - 36.9' ANHYDRITE: (Marker Bed 138) light gray (N7), microcrystalline anhydrite, undulatory, halitic upper contact. 31.0' - 36.5' ARGILLACEOUS HALITE: mottled colorless to moderate brown (5YR 3/4) halite, medium to coarsely crystalline, <1% polyhalite, 2-10% brown clay locally concentrated, brown clay partings at 33.8', 34.1', 34.5', and 36.3', brown clay break at 35.4', gray clay seam at 36.5'.	
7	30	40				28.5' - 31.0' HALITE: colorless halite, coarsely crystalline, few blebs of polyhalite, clay is absent to 30.0', increasing to 2% interstitial brown blebs at 31.0'.	Drill rods stuck at -30' after being left in the hole overnight.
6	25	100				26.8' - 28.5' ARGILLACEOUS HALITE: colorless to moderate brown (5YR 3/4) halite, medium to coarsely crystalline, <1% polyhalite in 1/8"-1/2" blebs, 5-10% brown clay, brown clay breaks at 27.1', 27.7', 27.8', and 28.4'.	
5	25	100				(as below)	

# WIPP-SPDV

WASTE ISOLATION PILOT PLANT

# ROCK CORING LOG UPWARD CORING



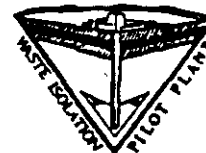
BORING NO. DO-52 INSTRUMENT Extensometer  
 TYPE & NUMBER GE-226 HOLE SIZE NX  
 LOCATION 0 East Drift, 146' N of Exploratory Shaft centerline, midspan

STATION N146, W4 COLLAR ELEV. 1280.4' DIRECTION OF DRILLING Vertical Up  
 MINE COORDINATES N9832.5, E6890.5 BOREHOLE PENETRATION 51.6'  
 DRILLING METHOD Wet (brine) DRILL MAKE/MODEL Joy 12B  
 PREPARED BY RLB/TSC//DGK/Bechtel DATE 1/25/83 SHEET 3 OF 3

RUN NUMBER	PENETRATION (ft.)	RECOVERY (%)	% RECOVERED	ROD	PROFILE	DESCRIPTION	REMARKS
11	50	50	100	-		51.1' - 51.6' HALITE: colorless to moderate reddish-orange (10R 5/6) halite, medium to coarsely crystalline, 1-2% polyhalite, <1% gray and brown clay, anhydrite stringer (0.1") at 51.25'. (as below)	Total penetration = 51.6'.

# WIPP-SPDV

# ROCK CORING LOG



WASTE ISOLATION PILOT PLANT

BORING NO. DO-53 INSTRUMENT TYPE & NUMBER None HOLE SIZE NX

LOCATION 0 East Drift, 146' N of Exploratory Shaft centerline, midspan

STATION N146, W4 COLLAR ELEV. 1266.6' DIRECTION OF DRILLING Vertical Down

MINE COORDINATES N9832.5, E6890.5 DEPTH OF BOREHOLE 49.2'

DRILLING METHOD Wet (brine) DRILL MAKE/MODEL Longyear 38

PREPARED BY DGK,JPS/Bechtel DATE 1/26/83 SHEET 1 OF 2

RUN NUMBER	DEPTH (ft)	RECOVERY(ft)	% RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS
	0						
1	31	78		-	X - X - X - X - X - X - X - X	0.0' - 4.9' <b>ARGILLACEOUS HALITE:</b> clear, coarsely crystalline halite, with some moderate reddish-orange (1OR 6/6) to moderate reddish-brown (1OR 4/6) polyhalite, and some light gray (N7) clay that occurs in small patches, especially around 3.2'.	0' - 1.0' was drilled with 6" single-tube core barrel.
2	5	10	50	-	X X X	4.9' - 6.5' <b>POLYHALITIC HALITE:</b> clear, coarsely crystalline halite, with abundant polyhalite.	RUN 1 core broken. Impossible to determine location of core loss.
3	10	5.0	100	-	X - X - X X	6.5' - 8.6' <b>ANEHYDRITE:</b> (Marker Bed 139) very light gray (N8), microcrystalline anhydrite, with clear, fine-grained halite. Anhydrite becomes purer with depth. Light gray (N7) clay partings (1/8"-1/4") at base of anhydrite.	Drilling was very slow due to problems with the Longyear drill. The first 7 core runs were relatively easy (relative to the last 4 runs). All later cores were completed with great difficulty. The vertical control for the drill was broken so there was no mechanical means of pulling the core barrel. The drilling brine is not filtered.
4	15	5.0	100	-	X X X X	8.6' - 12.4' <b>HALITE:</b> clear, white, and mottled pale red (1OR 6/2) coarsely crystalline halite, with approximately 1% moderate reddish-orange (1OR 6/6) polyhalite, and trace (<5%) moderate brown (5YR 4/4) interstitial clay.	
5	20	4.9	100	-	X X X X	12.4' - 25.2' <b>POLYHALITIC HALITE:</b> clear to moderate reddish-orange (1OR 6/6) halite, medium to coarsely crystalline, moderately hard. Polyhalite represents 3-5% of core and occurs as scattered blebs or interstitially. Gray clay parting (1/8"-1/4") at 17.1'. Light gray (N7) clay seams at 24.8'-25.2'.	
6	25	5.0	100	-	X X		

# WIPP-SPDV

# ROCK CORING LOG



WASTE ISOLATION PILOT PLANT

BORING NO. D0-53 INSTRUMENT TYPE & NUMBER None HOLE SIZE NX  
 LOCATION 0 East Drift, 146'N of Exploratory Shaft centerline, midspan

STATION N146, W4 COLLAR ELEV. 1266.6' DIRECTION OF DRILLING Vertical Down  
 MINE COORDINATES N9832.5, E6890.5 DEPTH OF BOREHOLE 49.2'  
 DRILLING METHOD Wet (brine) DRILL MAKE/MODEL Longyear 38  
 PREPARED BY DGK,JPS/Bechtel DATE 1/26/83 SHEET 2 OF 2

RUN NUMBER	DEPTH (ft.)	RECOVERY(%)	% RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS
						(as above)	
6	25	5.0	100	-	X - X - X -		
7	30	4.8	98	-	X - X - X - X - X - X - X - X	25.2' - 29.5' HALITE: clear, coarsely crystalline halite, with some (10-15%) interstitial moderate brown (5YR 4/4) clay, a light gray (N7) clay seam at 26.2', and some (10-15%) polyhalite. Laminations at 26.2' dip about 10°.	RUN 7 core lost from 26.8' - 26.9'.
8	35	5.0	100	-	X X X X X X X X X X X	29.5' - 35.5' POLYHALITIC HALITE: clear, coarsely crystalline halite, with 5-10% moderate reddish-orange (10R 6/6) polyhalite. Polyhalite occurs as discontinuous breaks, blebs or interstitially. Clear halite from 35.0'-35.5'.	
						35.5' - 35.7' ANHYDRITE: very light gray (N8), microcrystalline anhydrite, with gray clay parting (1/8") at base.	
9	40	5.0	100	-	X X X X		
10	45	4.5	100	-	X X X X	35.7' - 49.2' ARGILLACEOUS HALITE: clear halite, finely to medium crystalline, moderately hard, with interbedded brown clay (5Y) and polyhalite (1-5%). Color ranges from medium gray (N5) to light brown (5YR 6/4). Polyhalite occurs as interstitial layers.	
11	50	2.9	100	-	X X		
							Total depth = 49.2'.



# WIPP-SPDV

WASTE ISOLATION PILOT PLANT

# ROCK CORING LOG

## UPWARD CORING



BORING NO. DO-56 INSTRUMENT Extensometer  
 TYPE & NUMBER Ge-234 HOLE SIZE NX  
 LOCATION 0 East Drift, 621.3' N of Exploratory Shaft Centerline, 12.5' from E rib

STATION N621, E0 COLLAR ELEV. 1296.8 DIRECTION OF DRILLING Vertical up  
 MINE COORDINATES N10311.8 E6892.3 BOREHOLE PENETRATION 52.1'  
 DRILLING METHOD Rotary w/Brine DRILL MAKE/MODEL Joy 12B  
 PREPARED BY JPS/Bechtel DATE 2/4/83 SHEET 1 OF 3

RUN NUMBER	PENETRATION (ft.)	RECOVERY % RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS								
6	5.1	100	-	X	20.2'-25.1' ARGILLACEOUS HALITE: clear to mottled pale brown (SYR 5/2) and brownish-gray (SYR 4/1), medium to coarsely crystalline and moderately hard. Clay occurs interstitially with some clay breaks and partings and represents from 0-10% of core. From 23.3'-24.1', zone of moderate reddish-orange (10R 6/6) interstitial polyhalite. Clay breaks at: 20.3', 20.5', 21.3', 22.0', and 24.5'. At 24.9', 1/4" thick brownish-gray (SYR 4/1) clay partings.	<p><u>Core Loss:</u></p> <table border="1"> <thead> <tr> <th>Run</th> <th>Where Lost</th> </tr> </thead> <tbody> <tr> <td>2</td> <td>2.0'-6.0'</td> </tr> <tr> <td>3</td> <td>11.6'-11.7'</td> </tr> <tr> <td>11</td> <td>47.1'-47.2'</td> </tr> </tbody> </table> <p>Hole begun at 13:00 hours on 2 February 1983. Cored from 0 to 1.0' using 6" diameter single tube barrel. Cored from 1.0'-52.1' using NX core barrel with brine.</p>	Run	Where Lost	2	2.0'-6.0'	3	11.6'-11.7'	11	47.1'-47.2'
Run	Where Lost													
2	2.0'-6.0'													
3	11.6'-11.7'													
11	47.1'-47.2'													
5	5.0	100	-	X X X	15.3'-20.2' POLYHALITIC HALITE: clear and moderate reddish-orange (10R 6/6), finely to coarsely crystalline, moderately hard. Finely crystalline from 19.5'-20.0'. Polyhalite occurs as isolated blebs or interstitially and comprises 5-10% of core.									
4	5.0	100	-	X X	14.7'-15.3' ANHYDRITE: banded, very light gray (N8) and medium dark gray (N4), microcrystalline, hard, dense. Core broken into 1/2" chips.									
				X - X - X -	13.5'-14.7' HALITE: argillaceous and polyhalite in part. Mottled pale brown (SYR 4/2) and moderate reddish-brown (10R 4/6) and brownish-gray (SYR 4/1). Finely crystalline, moderately hard. Clay and polyhalite comprise 5-10% of core.									
3	4.9	98	-	XXXXXXXXXX	8.0'-13.5' HALITE: clear, medium to coarsely crystalline, moderately hard, few scattered, very light gray (N8) anhydrite stringers throughout.									
				XXXXXXXXXX	7.8'-8.0' ANHYDRITE: medium gray (N5), hard, dense, microcrystalline.									
2	2.7	47	-	X	5.8'-7.8' ARGILLACEOUS HALITE: clear and brownish-gray (SYR 4/1), medium to coarsely crystalline, moderately hard. Argillaceous content up to 10%.									
				X X	0.0'-5.8' HALITE: polyhalitic, clear and moderate reddish-orange (10R 6/6), coarsely crystalline, moderately hard. Polyhalite occurs as isolated blebs and comprises up to 3% core.									
1	1.0	100	-	X										



# WIPP-SPDV

WASTE ISOLATION PILOT PLANT

# ROCK CORING LOG UPWARD CORING



BORING NO. DO-56 INSTRUMENT Extensometer  
 TYPE & NUMBER GE-234 HOLE SIZE NX  
 LOCATION 0 East Drift, 621.3' N of Exploratory Shaft Centerline, 12.5' from E rib

STATION N621, E0 COLLAR ELEV. 1296.8 DIRECTION OF DRILLING Vertical up  
 MINE COORDINATES N10311.8 E6892.3 BOREHOLE PENETRATION 52.1'  
 DRILLING METHOD Rotary w/Brine DRILL MAKE/MODEL Joy 12B

PREPARED BY JPS/Bechtel DATE 2/4/83 SHEET  
2 OF 3

RUN NUMBER	PENETRATION (ft.)	RECOVERY	% RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS
11	50	5.1	100	-	---	47.0'-49.5' ARGILLACEOUS HALITE: clear and moderate brown (SYR 3/4), finely to coarsely crystalline, moderately hard. Clay content ranges from 0 to 15%. Clay breaks at: 47.9', 48.5', 48.7', and 49.0'.	
10	45	5.0	100	-	X ---	38.0'-47.0' HALITE: clear with trace of moderate reddish-orange (10R 6/6) polyhalite blebs throughout. Finely to coarsely crystalline, moderately hard. Polyhalite occurs interstitially or as scattered blebs and comprises up to 5% of core. Anhydrite stringer, 1/2"-3/4" thick at 39.0'. Finely crystalline, sugary texture from 44.3'-45.0', and argillaceous (2-5%). Brown clay breaks at: 44.6', and 44.9'.	
9	40	5.0	100	-	X ---	37.5'-38.0' ANHYDRITE: light gray (N7) to medium dark gray (N6), dense, hard, microcrystalline.	
					X ---	37.5' CLAY: pale brown (SYR 5/2), moderately plastic, moderately soft, moist, 1/2" thick seam.	
8	35	5.1	100	-	---	32.5'-37.5' ARGILLACEOUS HALITE: clear to grayish-brown (SYR 3/2), finely to coarsely crystalline, moderately hard. Clay content ranges from 2-10% with clay breaks at: 33.0', 33.5', 33.7', 33.9', 34.2', 34.4', 35.0', 35.6', 36.0', 36.6', and 37.1'. Finely crystalline from 35.2'-37.5'.	
7	30	5.2	100	-	---	25.1'-32.5' HALITE: clear and slightly argillaceous in part. Finely to coarsely crystalline, moderately hard. From 29.0'-31.0' clay content ranges from 0 to 2% with brown clay breaks at: 29.1', 29.9', 30.0', 30.7', and 30.8'.	
6	25	4.9	98	-	---		

# WIPP-SPDV

WASTE ISOLATION PILOT PLANT

# ROCK CORING LOG UPWARD CORING



BORING NO. DO-56 INSTRUMENT Extensometer  
 TYPE & NUMBER GE-234 HOLE SIZE NX  
 LOCATION 0 East Drift, 621.3' N of Exploratory Shaft Centerline, 12.5' from E rib

STATION N621, E0 COLLAR ELEV. 1296.8 DIRECTION OF DRILLING Vertical up  
 MINE COORDINATES N10311.8 E 6892.3 BOREHOLE PENETRATION 52.1'  
 DRILLING METHOD Rotary w/Brine DRILL MAKE/MODEL Joy 12B  
 PREPARED BY JPS/Bechtel DATE 2/4/83 SHEET 3 OF 3

RUN NUMBER	PENETRATION (ft.)	RECOVERY	% RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS
	55						
	50				X X X	49.5'-52.1' HALITE: polyhalite, clear and mottled reddish-orange (10R 6/6) and grayish-red (5R 4/2). Finely to medium crystalline, moderately hard. Polyhalite occurs interstitially and as blebs and comprises 0-10% of core. Sugary texture from 50.5'-51.2'.	Hole completed at 22:00 hours on 2 February 1983.  Total Penetration = 52.1'

# WIPP-SPDV

# ROCK CORING LOG



WASTE ISOLATION PILOT PLANT

BORING NO. D0-57 INSTRUMENT TYPE & NUMBER None HOLE SIZE NX  
 LOCATION 0 East Drift, 621.3' N of Exploratory Shaft centerline,  
12.5' from E rib

STATION N621, E0 COLLAR ELEV. 1288.1 DIRECTION OF DRILLING vertical down  
 MINE COORDINATES N10311.8 E6892.4 DEPTH OF BOREHOLE 52.1'  
 DRILLING METHOD Rotary w/brine DRILL MAKE/MODEL Joy 12B

PREPARED BY JPS/Bechtel DATE 2/4/83 SHEET 1 OF 3

RUN NUMBER	DEPTH (ft.)	RECOVERY	% RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS										
1	0-5	1.2	17	-	-	0.0'-7.9' HALITE: clear to pale brown (SYR 5/2). Coarsely crystalline, moderately hard, trace of gray and brown clay throughout.	Hole begun at 09:30 hours on 3 February 1983. Hole cored from 0' to 7' using NX size drill rods without inner barrel.										
	7.9-10.1	4.7	94	-	X X	7.9'-10.1' POLYHALITIC HALITE: clear and moderate reddish-orange (10R 6/6), moderately hard, coarsely crystalline.											
2	10.1-12.2				X X	10.1'-12.2' ANHYDRITE: banded light gray (N7) to olive gray (SYR 4/1), hard, dense, microcrystalline.	Core Logs: <table border="1"> <thead> <tr> <th>Run</th> <th>Where Lost</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Throughout Run</td> </tr> <tr> <td>2</td> <td>7.0'-7.3'</td> </tr> <tr> <td>7</td> <td>33.6-33.7'</td> </tr> <tr> <td>9</td> <td>43.0'-43.1'</td> </tr> </tbody> </table>	Run	Where Lost	1	Throughout Run	2	7.0'-7.3'	7	33.6-33.7'	9	43.0'-43.1'
	Run	Where Lost															
1	Throughout Run																
2	7.0'-7.3'																
7	33.6-33.7'																
9	43.0'-43.1'																
12.2'-12.3'					- X	12.2'-12.3' CLAY: medium gray (N5) moist, moderately soft, highly plastic.											
3	12.3'-15.5	5.1	100	-	- X	12.3'-15.5' HALITE: clear and mottled pale brown (SYR 5/2) and pale reddish-brown (10R 5/4), finely crystalline, moderately hard. Trace of clay and polyhalite throughout, up to 5%, locally. Brown clay break at 13.8'.											
	15.5'-20.2'				X X	15.5'-20.2' POLYHALITIC HALITE: clear and moderate reddish-orange (10R 6/6), coarsely crystalline, moderately hard.											
4	20.2'	5.3	100	-	X X	20.2' CLAY: medium gray (N5), moist, highly plastic, moderately soft, 1/2"-3/4" thick, sub-horizontal.	M										
	20.2'-22.1'				-	20.2'-22.1' HALITE: argillaceous, coarsely crystalline, moderately hard. Clay content is 3-5% and occurs interstitially. Clay breaks at: 21.0' and 21.4'. Halite is clear and pale brown (SYR 5/2).											
5	22.1'-28.0'	5.1	100	-	X X	22.1'-28.0' POLYHALITIC HALITE: clear and moderate reddish-orange (10R 6/6), medium to coarsely crystalline, moderately hard. Polyhalite comprises up to 10% of core and occurs as scattered blebs or interstitially. Few isolated seams of polyhalite throughout.											

# WIPP-SPDV

# ROCK CORING LOG



WASTE ISOLATION PILOT PLANT

BORING NO. DO-57 INSTRUMENT TYPE & NUMBER None HOLE SIZE 1X

LOCATION 0 East Drift, 621.3' N of Exploratory Shaft centerline,  
12.5' from E rib

STATION N621, E0 COLLAR L<sub>2</sub>V. 1288.1 DIRECTION OF DRILLING vertical down

MINE COORDINATES N10311.8 E6892.4 DEPTH OF BOREHOLE 52.1'

DRILLING METHOD Rotary w/brine DRILL MAKE/MODEL Joy 12B

PREPARED BY JPS/Bechtel DATE 2/4/83 SHEET

2 OF 3

RUN NUMBER	DEPTH (')	RECOVERY	% RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS
5	25	5.1	100	-	XXXXXX X X X	(as above)	
6	30	5.3	100	-	X X X X X	28.0'-32.8' <b>ARGILLACEOUS HALITE:</b> clear and mottled pale-reddish-brown (10R 5/4) and medium light gray (N6), finely to coarsely crystalline, moderately hard. Clay content up to 10% with trace amounts of orange polyhalite throughout. Clay breaks at: 28.0', 28.4', 28.7', 29.2', 29.4', 29.7', 31.5', 32.0', and 32.4'.	
7	35	4.9	98	-	X X X X X XXXXXX X	32.8'-37.8' <b>POLYHALITIC HALITE:</b> clear and moderate reddish-orange (10R 6/6), finely to coarsely crystalline, moderately hard. Polyhalite comprises up to 15% of core and occurs as isolated blebs or interstitial layers. Polyhalite seams from 36.7'-36.9'.	
8	40	5.2	100	-	X X XXXXXX X	37.8'-38.1' <b>ANHYDRITE:</b> light gray (N7), hard, dense, microcrystalline.	
9	45	4.9	98	-	X X XXXXXX X	38.1'-51.3' <b>ARGILLACEOUS HALITE:</b> clear and mottled medium gray (N5), pale brown (5YR 5/2) and grayish-orange (10YR 7/4). Finely to coarsely crystalline, moderately hard, clay content varies from < 1% up to 10%. Clay breaks at: 38.5', 47.2', 47.3', 47.7', 48.2', 48.6', 50.0', and 50.6'. Few seams of interstitial, orange polyhalite. Clear halite from 42.6'-45.0'.	
10	50	4.1	100	-	X X XXXXXX X		



# WIPP-SPDV

# ROCK CORING LOG



WASTE ISOLATION PILOT PLANT

BORING NO. D0-57 INSTRUMENT TYPE & NUMBER None HOLE SIZE NX  
 LOCATION 0 East Drift, 621.3' N of Exploratory Shaft centerline,  
12.5' from E rib

STATION N621, E0 COLLAR ELEV. 1288.1 DIRECTION OF DRILLING vertical  
down

MINE COORDINATES N10311.8 E6892.4 DEPTH OF BOREHOLE 52.1'

DRILLING METHOD Rotary w/brine DRILL MAKE/MODEL Joy 12B

PREPARED BY JPS/Bechtel DATE 2/4/83 SHEET

3 OF 3

RUN NUMBER	DEPTH (ft.)	RECOVERY	% RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS
10	50	4.1	100	-		(as above)	Hole completed at 14:30 hours on 3 February 1983.  Total Depth = 52.1'
	52.1					51.3'-52.1' HALITE: clear, coarsely crystalline, moderately hard.	

M

# WIPP-SPDV

WASTE ISOLATION PILOT PLANT

# ROCK CORING LOG UPWARD CORING



BORING NO. D0-63 INSTRUMENT Extensometer  
 TYPE & NUMBER GE-243 HOLE SIZE NX  
 LOCATION 0 East Drift, 1110' N of Exploratory Shaft centerline, 12 1/2'  
from E rib

STATION N110, E0 COLLAR ELEV. 1310.6' DIRECTION OF DRILLING vertical up  
 MINE COORDINATES N10796.0, E6891.9 BOREHOLE PENETRATION 52.8'  
 DRILLING METHOD Rotary w/brine DRILL MAKE/MODEL Joy 12B

PREPARED BY JPS/Bechtel DATE 2/12/83 SHEET 1 OF 3

RUN NUMBER	PENETRATION (ft.)	RECOVERY	% RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS
7	25	5.0	100	-		(see description on next sheet)	
6	20	5.0	100	-		17.9'-23.4' <b>HALITE</b> : argillaceous, moderately hard, finely to coarsely crystalline, clear to mottled grayish-brown (5YR 3/2) and pale yellowish-brown (10YR 6/2). Clay content up to 20% in part. Clay breaks at: 18.5', 19.2', 19.9', 20.2', 22.7', and 23.0'.	
5	15	5.2	100	-	X X X X	14.8'-17.9' <b>POLYHALITIC HALITE</b> : clear and moderate reddish-orange (10R 6/6), moderately hard, coarsely crystalline. Polyhalite content ranges from 2-15% with few polyhalite stringers and isolated blebs. 13.6'-14.8' <b>ANHYDRITE</b> : very light gray (N8) to pinkish-gray (5YR 8/1) hard, dense microcrystalline with some interstitial clear halite.	
4	10	2.6	100	14	X X	12.0'-13.6' <b>HALITE</b> : argillaceous, clear to mottled brownish-gray (5YR 4/1) to light gray (N7). Finely to coarsely crystalline, moderately hard. Clay content up to 15% and gray clay breaks at 13.0' and 13.1'. Trace of orange polyhalite from 13.3'-13.6'. Gray clay parting, moderately plastic at 13.6'. 6.7'-12.0' <b>HALITE</b> : clear, moderately hard, medium to coarsely crystalline, few white (N9) anhydrite stringers.	Core Loss: Run Where Lost 2 3.0'-3.2' 4.2'-4.5' 5.1'-5.5' 3 6.9'-7.0' 7.5'-7.7' 8.0'-8.1'
3	5	4.6	92	-	X X	6.5'-6.7' <b>ANHYDRITE</b> : very light gray (N8), hard, dense, microcrystalline. Core broken into 1/4" chips. 3.8'-6.5' <b>HALITE</b> : argillaceous, medium light gray (N6) to light brownish-gray (5YR 6/1), moderately hard, finely to medium crystalline. Clay content ranges from 2-8%, with clay breaks at 4.4', 5.2', and 6.1'. Trace of interstitial polyhalite at 6.0'. Gray clay parting at 6.5'.	Began coring at 08:30 hours on 10 February 1983. Cored to 5.8' without inner barrel.
1	0	2.0	100	-	X X	0.0'-3.8' <b>HALITE</b> : polyhalitic in part, clear and moderate reddish-orange (10R 6/6) interstitial polyhalite. Moderately hard and medium to coarsely crystalline.	
0	0	.85	83	-	X X		



# WIPP-SPDV

WASTE ISOLATION PILOT PLANT

# ROCK CORING LOG UPWARD CORING



BORING NO. D0-63 INSTRUMENT Extensometer  
TYPE & NUMBER GE-243 HOLE SIZE NX

LOCATION 0 East Drift, 1110' N of Exploratory Shaft centerline,  
12½' from E rib

STATION N1110, E0 COLLAR ELEV. 1310.6' DIRECTION OF DRILLING vertical up

MINE COORDINATES N10796.0, E6891.9 BOREHOLE PENETRATION 52.8'

DRILLING METHOD Rotary w/brine DRILL MAKE/MODEL Joy 12B

PREPARED BY JPS/Bechtel DATE 2/12/83 SHEET

3 OF 3

RUN NUMBER	PENETRATION (ft.)	RECOVERY	% RECOVERED	RGD	PROFILE	DESCRIPTION	REMARKS
12	50 - 55	4.0	100	-	X X X	50.3'-52.8' HALITE: polyhalitic, clear and moderate reddish-orange (10R 6/6), coarsely crystalline, moderately hard. Polyhalite, which comprises about 0-10% of core, occurs interstitially and as isolated blebs.	Hole completed at 14:45 hours on 10 February 1983.  Total Penetration = 52.8'





# WIPP-SPDV

# ROCK CORING LOG



WASTE ISOLATION PILOT PLANT

BORING NO. DO-64 INSTRUMENT Extensometer  
 TYPE & NUMBER GE-221 HOLE SIZE NX

LOCATION 0 East Drift, 1110' N of Exploratory Shaft centerline,  
12½' from E rib

STATION N1110, E0 COLLAR ELEV. 1301.5' DIRECTION OF DRILLING vertical  
down

MINE COORDINATES N10796.0, E6891.6 DEPTH OF BOREHOLE 52.8'

DRILLING METHOD Rotary w/brine DRILL MAKE/MODEL Joy 12B

PREPARED BY JPS/Bechtel DATE 2/12/83 SHEET

1 OF 3

RUN NUMBER	DEPTH ( )	RECOVERY	% RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS						
0		1.0	100	-									
1	5	6.0	100	-	X X X	0.0'-8.0' HALITE: argillaceous and polyhalitic in part; clear to medium gray (N5) and moderate reddish orange (10R 6/6); moderately hard, finely to coarsely crystalline with few clay breaks. Clay and polyhalite up to 5% locally. Clay breaks at 1.5', 2.2', 2.5', 3.3', 3.7', 6.3', and 7.5'.	Hole began at 15:00 hours on 10 February 1983. Hole cored from 0' to 1' using a 6" core barrel. From 1' to 7' hole cored without inner core barrel.						
2	10	4.9	98	-	X X X X X	8.0'-10.6' POLYHALITIC HALITE: clear and moderate reddish orange (10R 6/6). Polyhalite occurs as dense isolated stringers and blebs and comprises 15% of core. From 10.0'-10.6' polyhalite is finely crystalline, hard and comprises up to 100% of core.	Core Loss: <table border="1"> <tr> <th>Run</th> <th>Where Lost</th> </tr> <tr> <td>2</td> <td>9.3'-9.4'</td> </tr> <tr> <td>8</td> <td>40.8'-41.0'</td> </tr> </table>	Run	Where Lost	2	9.3'-9.4'	8	40.8'-41.0'
Run	Where Lost												
2	9.3'-9.4'												
8	40.8'-41.0'												
						10.6'-12.8' ANHYDRITE: light gray (N7) to light olive-gray (5Y 6/1), moderately hard, micro-crystalline, highly fractured. Core broken into 1/4'-1/2' chips.							
3	15	5.1	100	-	X X	12.8'-15.0' ARGILLACEOUS HALITE: light gray (N7) to medium dark gray (N4), finely crystalline, moderately hard with clay content up to 20%. Gray clay breaks at 13.2', 13.3', and 13.7'. Numerous interstitial clay layers from 14.0'-15.0'. Gray clay parting at 12.8'.							
4	20	5.0	100	-	X X	15.0'-35.6' POLYHALITIC HALITE: clear and moderate reddish orange (10R 6/6), moderately hard, medium to coarsely crystalline. Polyhalite ranges from 0-15% with polyhalite blebs and interstitial zones. Slightly gray and argillaceous from 20.9'-21.9' and from 27.9'-28.2'. Clay breaks at: 20.9', 21.3', and 28.0'. Clear halite from 29.2'-29.9' and from 31.5'-32.4'.							
5	25	5.2	100	-	X								



# WIPP-SPDV

# ROCK CORING LOG



WASTE ISOLATION PILOT PLANT

BORING NO. DO-64 INSTRUMENT Extensometer  
 TYPE & NUMBER GE-221 HOLE SIZE NX

LOCATION 0 East Drift, 1110' N of Exploratory Shaft centerline,  
12 1/2' from E rib

STATION N1110, E0 COLLAR ELEV. 1301.5' DIRECTION OF DRILLING vertical down

MINE COORDINATES N10796.0, E6891.6 DEPTH OF BOREHOLE 52.8'

DRILLING METHOD Rotary w/brine DRILL MAKE/MODEL Joy 12B

PREPARED BY JPS/Bechtel DATE 2/12/83 SHEET

2 OF 3

RUN NUMBER	DEPTH (')	RECOVERY	% RECOVERED	ROD	PROFILE	DESCRIPTION	REMARKS
5	25	5.2	100	-	X X	(as above)	
6	30	5.1	100	-	X		
					X X		
7	35	5.2	100	-	X		
					X X		
					X		
8	40	4.8	96	-	X	35.6'-36.2' ANHYDRITE: olive gray (5Y 4/1) highly fractured and broken, dense, microcrystalline. Core broken into 1/2" pieces. Gray clay seam 1/2" thick at 36.2'.	
					X		
					X		
					X		
9	45	5.2	100	-	X	36.2'-43.3' HALITE: argillaceous in part, clear and mottled medium gray (N5) to pale yellowish brown (10YR 6/2). Interstitial clay content up to 10% locally. Clay breaks at: 39.9' and 40.0'. Few zones of orange interstitial polyhalitic halite at: 37.5', 39.0', 40.1' and 42.7'.	
					X		
					X		
					X		
					X		
10	50	5.2	100	-	X	43.3'-50.0' ARGILLACEOUS HALITE: clear and mottled grayish brown (5YR 3/2) and medium gray (N5) moderately hard, finely to coarsely crystalline. Clay content ranges from <1% to 25%. Clay breaks at: 44.0', 44.7', 45.9', 46.5', 47.0', 47.3', 48.1', 48.6', and 49.4'. Few polyhalite stringers at 44.5' and 45.6'.	



# WIPP-SPDV

# ROCK CORING LOG



WASTE ISOLATION PILOT PLANT

BORING NO. DO-64 INSTRUMENT Extensometer  
 TYPE & NUMBER GE-221 HOLE SIZE NX

LOCATION 0 East Drift, 1110' N of Exploratory Shaft centerline,  
12 1/2' from E rib

STATION N1110, E0 COLLAR ELEV. 1301.5' DIRECTION OF DRILLING vertical down

MINE COORDINATES N10796.0, E6891.6 DEPTH OF BOREHOLE 52.8'

DRILLING METHOD Rotary w/brine DRILL MAKE/MODEL Joy 12B

PREPARED BY JPS/Bechtel DATE 2/12/83 SHEET 3 OF 3

RUN NUMBER	DEPTH (')	RECOVERY	% RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS
10	50	5.0	100	-	X	50.0'-52.8' <b>MALITE:</b> clear, coarsely crystalline, moderately hard. Core broken into 1/4" pieces from 51.5'-52.0'. Slightly polyhalitic from 52.5'-52.8'.	Hole completed at 19:00 hours on 10 February 1983  Total Depth = 52.8'
	55						

(M)

# WIPP

# ROCK CORING LOG

WASTE ISOLATION PILOT PLANT

BOHRING NO. DO-67 INSTRUMENT Extensometer  
 TYPE & NUMBER CE-220 HOLE SIZE NX

LOCATION Test Room 1, Centerline of Room at Station N1265, in Floor  
16.5' From E and W Ribs,

STATION N1265, W231.5 COLLAR ELEV. 1296.8 DIRECTION OF DRILLING Down Vertical

MINE COORDINATES N10952.1, E6662.9 DEPTH OF BOREHOLE 51.7'

DRILLING METHOD Rotary w/Brine DRILL MAKE/MODEL Joy 12B

PREPARED BY IEG DATE 5/5/83 SHEET 1 OF 3

RUN NUMBER	DEPTH (Ft)	RECOVERY	% RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS
0	0	1.0	1.0	-	X	0.0' - 3.7' <b>POLYHALITIC HALITE:</b> Clear mottled with moderate reddish-orange (10R 6/6), coarsely crystalline, medium hard. Sibs of polyhalite <1 to 5%. Trace (<1%) gray clay.	Started Drilling at 09:45 hours on 18 April 1983.
1	3.3	87	-	-	X	3.7' - 6.8' <b>ANHYDRITE:</b> (Marker Bed 139) Very light gray (N8) anhydrite mixed with moderate reddish-orange (10R 6/6), and reddish-brown (10R 4/6) polyhalite and polyhalitic halite from 3.7' to 6.0', core hard. From 5.0 to 6.0', core is predominantly moderate reddish-brown (10R 4/6) polyhalite. Core broken into "disc-like" pieces as thin as 0.01". Core medium hard. From 6.0' to 6.8', core is all anhydrite, microcrystalline; hard gray clay at 6.7' to 6.8'.	5 1/2 single-tube barrel used to core 0.0 to 1.0'. NX single tube barrel used 1.0' to 4.8'. NX double tube barrel used 4.8' to 51.7'.
2	5	1.8	85	-	X	6.8' - 9.8' <b>HALITE:</b> Clear to moderate reddish-orange (10R 6/6) and grayish-brown (5YR 4/1) medium to coarsely crystalline, medium hard. <1 to 3% polyhalite. <1 to 3% gray clay to 8.6', turning to brown clay. Clay parting at 9.1'. Numerous breaks throughout core.	Moderate gas flow at 6' to 7'. Flow for 3 to 4 minutes, then slowed down appreciably. Methane 3 to 4 1/2 at collar.
3	10	4.8	100	-	X	9.8' - 14.7' <b>POLYHALITIC HALITE:</b> Clear to moderate reddish-orange (10R 6/6), coarsely crystalline, hard polyhalite generally <1 to 5% with local zones >5%. From 14.3' to 14.7' polyhalite 20 to 60%.	
4	15	5.1	100	-	X	14.7' - 16.6' <b>HALITE:</b> Clear to brownish-gray (5YR 4/1) with some moderate reddish-brown (10R 4/6), medium to coarsely crystalline, medium hard, trace (< 1%) of gray and brown clay. Trace (<1%) polyhalite. Clay breaks at 14.7' and 16.0'.	
5	20	4.8	100	-	X	16.6' - 20.5' <b>POLYHALITIC HALITE:</b> Clear to moderate reddish-orange (10R 6/6), coarsely crystalline, hard. <1 to 5% polyhalite. <1% gray clay.	
6	25	5.1	100	-	X	20.5' - 26.5' <b>HALITE:</b> Clear to moderate reddish-orange (10R 6/6) and moderate reddish-brown (10R 4/6), medium to coarsely crystalline, medium hard. <1 to 2% polyhalite and 1 to 2% clay. Clay breaks at 20.5', 23.4', 24.4' and 25.2'.	



# WIPP

# ROCK CORING LOG

WASTE ISOLATION PILOT PLANT

BORING NO DO-67 INSTRUMENT Extensometer  
 TYPE & NUMBER GE-220 HOLE SIZE NX

LOCATION Test Room 1, Centerline of Room at Station N1265  
in Floor 16.5' From E and W Ribs.

STATION N1265, W231.5 COLLAR ELEV. 1296.8 DIRECTION OF DRILLING Down Vertical

MINE COORDINATES N10952.1, E6662.9 DEPTH OF BOREHOLE 51.7'

DRILLING METHOD Rotary w/brine DRILL MAKE/MODEL Joy 12B

PREPARED BY JEG DATE 5/5/83 SHEET 2 OF 3

RUN NUMBER	DEPTH (Ft)	RECOVERY	% RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS
6	25	5.1	100	-	X	As Above	
7	26.5 - 31.6	4.8	100	-	X	26.5' - 31.6' HALITE: Clear to moderate reddish-orange (10R 6/6), coarsely crystalline, hard blebs and patches of polyhalite <1 to 3%. Polyhalitic from 29.4' to 30.5'. Anhydrite stringers from 30.5' to 30.9'	
	X X X						
8	31.6 - 31.9	4.95	99	-	X	31.6' - 31.9' ANHYDRITE: Very light (N8) to medium dark gray (N4), laminated, micro-crystalline, hard. Trace of clay at 31.9'. Some core grinding evident.	
	X						
9	31.9 - 38.7	5.0	100	-	X	31.9' - 38.7' HALITE: Clear to grayish brown (5Y 3/2) and moderate reddish-orange, fine to coarsely crystalline, medium hard. Contains <1 to 3% clay and <1% polyhalite. Argillaceous halite from 32.7' to 33.7'.	
	X						
10	38.7 - 41.5	5.2	100	-	X	38.7' - 41.5' ARGILLACEOUS HALITE: Clear to brownish gray (5YR 4/1), coarsely crystalline, medium hard. Gray and brown clay <1 to 5%. Breaks at 39.0', 40.3', 40.5' and 41.0'.	
	X						
11	41.5 - 51.7	4.8	96	-	X	41.5' - 51.7' HALITE: Clear to brownish-gray (5YR 4/1) to moderate reddish-orange, medium to coarsely crystalline, medium hard, <1% polyhalite. Clay, generally <1%. Zones from 42.4' to 43.3', 47.3' - 47.6' and 49.1' - 49.3' containing clay breaks and up to 5% clay. Core broken up at 46.8' to 47.1' due to extraction from core barrel. Core clear from 44.9' to 47.2'.	M
	X						

# WIPP

## ROCK CORING LOG

WASTE ISOLATION PILOT PLANT

BORING NO 00-67 INSTRUMENT Extensometer  
 TYPE & NUMBER GE-220 HOLE SIZE NX  
 LOCATION Test Room 1, Centerline of Room at Station N1265, in Floor  
16.5' From E and W Ribs.

STATION N1265, W231.5 COLLAR ELEV. 1296.8 DIRECTION OF DRILLING Down Vertical  
 MINE COORDINATES N10952.1, E6662.9 DEPTH OF BOREHOLE 51.7'  
 DRILLING METHOD Rotary w/Brine DRILL MAKE/MODEL Joy 12B

PREPARED BY JEG DATE 5/5/83 SHEET 3 OF 3

RUN NUMBER	DEPTH (Ft)	RECOVERY	% RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS
11	50	4.8	96	-	-	As Above	Completed drilling at 15:25 hours on 18 April 1983.
	55						Total penetration - 51.7 feet.



# WIPP

WASTE ISOLATION PILOT PLANT

## ROCK CORING LOG UPWARD CORING

BORING NO. DO-69 INSTRUMENT Extensometer  
TYPE & NUMBER GE-218 HOLE SIZE NX

LOCATION Test Room 1, Centerline of Room at Station N1265, in Roof  
16.5 Feet From E and W Ribs.

STATION N1265, W231.5 COLLAR ELEV. 1310.1 DIRECTION OF DRILLING Vertical Up

MINE COORDINATES N10951.9, E6662.5 BOREHOLE PENETRATION 51.4'

DRILLING METHOD Rotary w/Brine DRILL MAKE/MODEL Joy 12B

PREPARED BY JEG DATE 5/6/83 SHEET 1 OF 3

RUN NUMBER	PENETRATION (ft.)	RECOVERY	% RECOVERED	ROD	PROFILE	DESCRIPTION	REMARKS
6	5.1	100	-	-	X X	19.6' - 27.0' HALITE: Clear to brownish gray (5YR 4/1), medium to coarsely crystalline, medium hard to hard. Trace of polyhalite 20.6' to 20.8' and 22.4' to 23.0'. Trace (1-2%) gray clay at 19.6' to 22.4'. Brown clay (<3%) mixed with halite at 23.8' to 24.0'. Core broken up.	
5	4.9	100	-	-	X X	16.4' - 19.6' POLYHALITIC HALITE: Clear mottled with moderate reddish orange (10R 6/6) and moderate reddish brown (10R 4/6) polyhalite, coarsely crystalline, medium hard to hard polyhalite <1 to 5%. Trace (<1%) clay.	
4	5.1	100	-	-	X	14.9' - 16.4' HALITE: Clear mottled with moderate reddish orange (10R 6/6) polyhalite, coarsely crystalline, medium hard. Polyhalite <1%.	Light to moderate gas flow at 14'±. 1 to 3% methane at return line. Flow for approximately 10 minutes. Smell of "rotten egg" noted.
4					X	14.0' - 14.9' ANHYDRITE: (Anhydrite "a") white, very light (N8) to medium gray (N5), microcrystalline, hard. Trace of halite. Trace of clay at 14.0'.	
3	4.9	100	-	-	X	7.27' - 14.0' HALITE: Clear, medium to coarsely crystalline, hard. Contains minute traces (<1%) of polyhalite, scattered irregular anhydrite stringers. Gray clay break at 13.25'.	Light-moderate gas flow at 7'±. Faint smell. Flow lasted several minutes. No methane measured at return line.
3					X	7.0' - 7.27' ANHYDRITE: (Anhydrite "b") Light gray (N7), microcrystalline, hard anhydrite mixed with some halite. Trace of gray clay at 7.0'.	
2	5.0	100	-	-	X	6.5' - 7.0' ARGILLACEOUS HALITE: Clear to grayish brown (5YR 3/2), medium crystalline, medium hard. Clay predominantly gray with some brown (<5%), clay breaks at 6.7' and 6.8'.	NX double-tube barrel used from 1.6' to 51.4'. NX single-tube barrel used from 1.0' to 1.6'. 5 1/2" single-tube barrel used from 0.0' to 1.0'. Coring started at 11:45 hours, 12 April 1983.
2					X	5.1' - 6.5' HALITE: Clear to brownish gray (5YR 4/1) and medium gray (N5), medium to coarsely crystalline, medium hard. Trace of gray clay (<1% to 2%) throughout.	
0	1.0	100	-	-	X	0.0' - 5.1' HALITE: Clear to mottled with scattered medium reddish orange (10R 6/6) blebs of polyhalite, coarsely crystalline, medium hard to hard, polyhalite <1%.	
1	33	60	-	-			
0	0						

# WIPP

WASTE ISOLATION PILOT PLANT

## ROCK CORING LOG UPWARD CORING

BORING NO. DO-69 INSTRUMENT Extensometer  
TYPE & NUMBER GE-218 HOLE SIZE NX

LOCATION Test Room 1, Centerline of Room at Station N1265, in Roof  
16.5 Feet From E and W Ribs

STATION N1265, W231.5 COLLAR ELEV. 1310.1 DIRECTION OF DRILLING Vertical Up

MINE COORDINATES N10951.9, E6662.5 BOREHOLE PENETRATION 51.4'

DRILLING METHOD Rotary w/Brine DRILL MAKE/MODEL Joy 12B

PREPARED BY JEG DATE 5/6/83

SHEET  
2 OF 3

RUN NUMBER	PENETRATION (ft.)	RECOVERY	% RECOVERED	ROD	PROFILE	DESCRIPTION	REMARKS
	50				X	As Above	
11	5.1	100	-	-	-	45.2' - 49.3' <b>ARGILLACEOUS HALITE:</b> Clear to dark reddish brown (10R 3/4), medium to coarsely crystalline, medium hard. Brown clay <1 to 10%. Clay breaks throughout.	
10	4.8	100	-	-	X	40.7' - 45.2' <b>HALITE:</b> Clear to grayish brown (5YR 3/2) to moderate reddish brown (10R 4/6) and dark reddish brown (10R 3/4), fine to coarsely crystalline, medium hard. Trace (1%) polyhalite. Predominantly brown clay (<1%) with locally >3%. Clay breaks at 42.7' and 43.4'. Broken up at 42.3' to 42.6' probably during removal from barrel.	
9	5.0	100	-	-	X	38.5' - 40.7' <b>POLYHALITIC HALITE:</b> Clear mottled with moderate reddish orange (10R 6/6) and reddish brown (10R 4/6), coarsely crystalline, medium hard to hard. Polyhalite <1 to 5%. Scattered anhydrite stringers.	
	40				X	36.7' - 38.5' <b>HALITE:</b> Clear to dark reddish brown (10R 3/4), coarsely crystalline, hard. Contains trace of polyhalite, generally <1% but locally >5%. Irregular anhydrite stringers scattered within core. Anhydrite >40% from 36.7' to 37.1'.	
8	5.0	100	-	-	-	36.3' - 36.7' <b>ANHYDRITE:</b> (Marker Bed 138) : White to very light (N8) and medium gray (N5), microcrystalline, hard.	
	35				X	32.1' - 36.3' <b>ARGILLACEOUS HALITE:</b> Clear to dark reddish brown (10R 3/4), medium to coarsely crystalline, medium hard. Brown clay 2 to 10%. Clay breaks throughout. 1" brown clay seen at 36.3'.	
7	4.9	100	-	-	-	29.3' - 32.1' <b>HALITE:</b> Clear, medium to coarsely crystalline, medium hard to hard. Trace (<1%) clay and polyhalite from 31.6'.	
	30				X	27.0' - 29.3' <b>ARGILLACEOUS HALITE:</b> Clear to grayish brown (5YR 3/2), predominantly coarsely crystalline; fine-medium crystalline from 28.6' to 29.3', medium hard. Predominantly brown clay <1 to 5%. Clay breaks at 28.6' and 29.3'.	
6	5.1	100	-	-	-	As Below	
	25						





# WIPP

WASTE ISOLATION PILOT PLANT

## ROCK CORING LOG UPWARD CORING

BORING NO. DO-69 INSTRUMENT Extensometer  
TYPE & NUMBER GE-218 HOLE SIZE NX

LOCATION Test Room 1, Centerline of Room at Station N1265, in Roof  
16.5 Feet From E and W Ribs.

STATION N1265, W231.5 COLLAR ELEV. 1310.1 DIRECTION OF DRILLING Vertical Up

MINE COORDINATES N10951.9, E6662.5 BOREHOLE PENETRATION 51.4'

DRILLING METHOD Rotary W/Brine DRILL MAKE/MODEL Joy 12B

PREPARED BY JEG DATE 5/6/83 SHEET

3 OF 3

RUN NUMBER	PENETRATION (ft.)	RECOVERY	% RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS
11	50	5.1	100	-	X	49.3' - 51.4' POLYHALITIC HALITE: Clear mottled with moderate reddish orange (10R 6/6) polyhalite, coarsely crystalline, medium hard to hard. Polyhalite averages 1 to 3%, locally up to 5%. Trace (<1%) gray clay.	Total penetration = 51.4'. Drilling completed at 12:30 hours, 13 April 1983.



# WIPP

# ROCK CORING LOG

WASTE ISOLATION PILOT PLANT

BORING NO D0-77 INSTRUMENT Extensometer  
 TYPE & NUMBER GE-216 HOLE SIZE NX  
 LOCATION Test Room 2, Centerline of Room at Station N1270  
in Floor 16.5 Feet From E and W Ribs.

STATION N1270, W364.5 COLLAR ELEV. 1294.6 DIRECTION OF DRILLING Vertical Down  
 MINE COORDINATES N10962.5, E6529.6 DEPTH OF BOREHOLE 53.4'  
 DRILLING METHOD Rotary w/Brine DRILL MAKE/MODEL Joy 12B

PREPARED BY JEG DATE 3/31/83 SHEET 1 OF 3

RUN NUMBER	DEPTH (Ft)	RECOVERY	% RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS
0		0.8	100	-	X X	0.0' - 1.7' <b>POLYHALITIC HALITE:</b> clear to moderate reddish-orange (10R 6/6) to moderate reddish brown (10R 4/6), coarsely crystalline, hard. Polyhalite comprises <5% to 15% of rock.	Started drilling 27 March 1983 at 9:10 a.m. 5 1/2" diameter single-tube core barrel used from 0.0' to 0.8'. NX single-tube core barrel used from 1.0' to 5.6'. NX double-tube core barrel used from 5.6' to 53.4'.
1	1.0	50	-	X	X X	1.7' - 4.1' <b>HALITE:</b> clear, coarsely crystalline, moderately hard. Core is broken up, possible core loss. Trace (<2%) polyhalite blebs.	
2	1.9	65	-	X	X X	4.1' - 7.25' <b>ANHYDRITE (Marker Bed 139):</b> moderate reddish-orange (10R 6/6) to moderate reddish-brown (10R 4/6) polyhalitic halite, medium to coarsely crystalline, mixed with very light (N8) to light gray (N7) anhydrite from 4.1' to 6.4'. Grades into medium (N5) to very light gray (N8) anhydrite at approximately 6.4'. Microcrystalline, hard, dense. Trace of gray clay at 7.25'. Core grinding evident within this zone.	
3	0.9	64	-	X X	X X		
4	5.0	100	-	X X	X X	7.25' - 23.6' <b>POLYHALITIC HALITE:</b> clear to moderate reddish-orange (10R 6/6), fine to medium crystalline, hard. Polyhalite averages <5% to 10% with <2% from 14.7' to 17.3'. Gray clay breaks at 7.8', 8.0', 9.8' and 14.5'. Scattered clay breaks at 21.0' to 22.5'. Core contains gray clay (2% to 4%) from 14.4' to 23.6'.	
5	5.3	100	-	X X	X X	Possible Core Loss Zones: Run 1: Throughout Run 2: From 2.8' to 4.1'. Run 3: Throughout	
6	5.2	100	-	X X	X X		
7	5.2	100	-	X X	X X		
	25					23.6' - 27.2' <b>HALITE:</b> clear and brownish gray (5YR 4/1) to moderate reddish-brown (10R 4/6), fine to coarsely crystalline, hard. Gray clay (<1% to 4%). Polyhalite content (<1% to 5%), generally increasing with depth from 26.0'. Scattered clay breaks within core.	



# WIPP

# ROCK CORING LOG

WASTE ISOLATION PILOT PLANT

BORING NO. DO-77 INSTRUMENT Extensometer  
 TYPE & NUMBER GE-216 HOLE SIZE NX  
 LOCATION Test Room 2, Centerline of Room at Station N1270  
in Floor 16.5 Feet from E and W Ribs.

STATION N1270, W364.5 COLLAR ELEV. 1294.6 DIRECTION OF DRILLING Vertical Down  
 MINE COORDINATES N10962.5, E6529.6 DEPTH OF BOREHOLE 53.4'  
 DRILLING METHOD Rotary w/Brine DRILL MAKE/MODEL Joy 12B

PREPARED BY JEG DATE 3/31/83 SHEET  
2 OF 3

RUN NUMBER	DEPTH (Ft)	RECOVERY	% RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS
7	25	5.2	100	-	-	(as above)	
8	30	5.2	100	-	X	27.2' - 31.2' <b>POLYHALITIC HALITE:</b> clear to moderate reddish-orange (10R 6/6) to moderate reddish brown (10R 4/6), coarsely crystalline, hard. Polyhalite occurs as blebs and irregular patches, generally <1% to 5% but locally >15%.	
					X		
9	35	5.2	100	-	X	31.2' - 32.1' <b>HALITE:</b> clear, medium to coarsely crystalline, hard. Trace of polyhalite.	
					X		
10	40	5.1	100	-	X	32.1' - 32.3' <b>ANHYDRITE:</b> very light gray (N8) to medium light gray (N6), microcrystalline, banded. Trace of clear halite. Trace of clay at 32.3'. Some core grinding evident.	
					X		
11	45	5.1	100	-	X	32.3' - 36.9' <b>HALITE:</b> clear to brownish gray (5YR 4/1), medium to coarsely crystalline, hard. Gray clay <1% to 3% scattered throughout. Trace of moderate reddish-orange (10R 6/6) polyhalite.	
					X		
12	50	5.1	100	-	X	36.9' - 43.5' <b>ARGILLACEOUS HALITE:</b> clear to brownish-gray (5YR 4/1), fine to coarsely crystalline, hard. Brown clay seam (1/4") at 40.8' and clay parting at 41.3'. Moderate reddish-orange (10R 6/6) polyhalite constitutes 1% to 2% of core. Several clay breaks from 41.0' to 41.7'.	
					X		



# WIPP

## ROCK CORING LOG

WASTE ISOLATION PILOT PLANT

BORING NO. D0-77 INSTRUMENT Extensometer  
 TYPE & NUMBER GE-216 HOLE SIZE NX

LOCATION Test Room 2, Centerline of Room at Station N1270  
in Floor 16.5 Feet From E and W Ribs.

STATION N1270, W364.5 COLLAR ELEV. 1294.6 DIRECTION OF DRILLING Vertical Down

MINE COORDINATES N10962.5, E6529.6 DEPTH OF BOREHOLE 53.4'

DRILLING METHOD Rotary w/Brine DRILL MAKE/MODEL Joy 12B

PREPARED BY JEG DATE 3/31/83 SHEET

3 OF 3

RUN NUMBER	DEPTH (Ft)	RECOVERY	% RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS
12	50	5.1	100	-	X	43.5' - 53.4' HALITE: clear to grayish red (10R 4/2), medium to coarsely crystalline, hard. Trace of gray clay and trace of polyhalite blebs. 12 to 22 gray clay from 51.0' to 52.15' and 52.75' to 53.1'.	Completed drilling 27 March 1983 at 2:00 p.m.  Total Depth = 53.4'
	55						



# WIPP-SPDV

WASTE ISOLATION PILOT PLANT

# ROCK CORING LOG UPWARD CORING

BORING NO. D0-79 INSTRUMENT TYPE & NUMBER Extensometer GE-214 HOLE SIZE NX  
 LOCATION Test Room 2, Centerline of Room at Station N1270  
in Roof 16.5 Feet From E and W Ribs.

STATION N1270, W364.5 COLLAR ELEV. 1307.7 DIRECTION OF DRILLING Vertical Up  
 MINE COORDINATES N109°62.6, E6529.5 BOREHOLE PENETRATION 51.8'  
 DRILLING METHOD Rotary w/Brine DRILL MAKE/MODEL Joy 12B  
 PREPARED BY JEG DATE 3/24/83 SHEET 1 OF 3

RUN NUMBER	PENETRATION (ft.)	RECOVERY	% RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS
6	25	5.3	100	-	X	23.4'-27.9' HALITE: clear, medium crystalline, moderately hard. Obscure traces of polyhalite and argillaceous material. Core broken up from 27.4' to 27.6'. Irregular white anhydrite stringers at 23.7'.	
5	20	4.8	96	-	X	18.4'-23.4' ARGILLACEOUS HALITE: moderate brown (SYR 3/4) to moderate reddish-orange (10R 6/6) with some clear halite, medium to coarsely crystalline, hard. Scattered brown clay breaks. 1/8" brown clay seam at 23.3'. Trace polyhalite blebs (<1%) found locally. Argillaceous content varies from <1% to 5%.	
4	15	5.1	100	-	X	14.1'-18.4' POLYHALITIC HALITE: clear to mottled with moderate reddish-orange (10R 6/6) and moderate reddish-brown (10R 4/6) blebs of polyhalite. Medium to coarsely crystalline, hard. White anhydrite stringers from 15' to 15.1' and 15.2' to 15.3'. Polyhalite content varies from <2% to 5%. Scattered traces of argillaceous material from 17.1' to 18.4'.	
					X	13.8'-14.1' ANHYDRITE: (Anhydrite "a") light gray (N7) to white, microcrystalline, hard, dense. Trace of gray clay at 13.8'. Some evidence of core grinding.	Trace of gas at 14'±. No methane at end of return line.
3	10	4.8	96	-	X	13.3'-13.8' HALITE: grayish-red (SR 4/2) to clear, fine to medium crystalline, hard. Contains few gray clay breaks and trace of polyhalite.	
					X	7.35'-13.3' HALITE: clear with scattered zones of moderate reddish-orange (10R 6/6) and moderate reddish-brown (10R 4/6), medium to coarsely crystalline, moderately hard to hard. Thin, very light gray (N8) to white anhydrite stringers at 8.0', 8.5' and 8.8'.	Possible Core Loss Zones: Run 2: throughout Run 5: throughout Run 7: 27.9' to 29.8'.
2	5	4.5	96	-	X	7.1'-7.35' ANHYDRITE: (Anhydrite "b") light gray (N7) to medium gray (N5), banded, microcrystalline, hard, dense. Trace of brown clay.	Bit gas at 7'. Measured 2% methane at end of return line. Moderate gas flow.
					X	4.5'-7.1' ARGILLACEOUS HALITE: grayish-brown (SYR 3/2), predominantly medium crystalline ranging to coarsely crystalline, moderately hard to hard. Trace of reddish-orange polyhalite throughout. Clay content <5%, predominantly gray ranging to brown. Gray clay break at 6.3'. Trace of gray clay at 7.1', with evidence of core grinding.	NX double-tube core barrel used from 2.4' to 51.8'. NX single-tube core barrel used from 1.0' to 2.4'.
1	0	1.4	100	-	-	0.0'-4.5' HALITE: clear to moderate reddish-orange (10R 6/6), medium to coarsely crystalline, moderately hard. Trace of polyhalite blebs and brown argillaceous material found throughout.	0' - 1.0' drilled with 5 1/2" single-tube core barrel.
0	0	1.0	100	-	X		Drilling began at 11:35 a.m. on 21 March 1983



# WIPP-SPDV

WASTE ISOLATION PILOT PLANT

# ROCK CORING LOG UPWARD CORING

BORING NO. D0-79 INSTRUMENT TYPE & NUMBER Extensometer GE-214 HOLE SIZE NX

LOCATION Test Room 2, Centerline of Room at Station N1270

in Roof 16.5 Feet From E and W Ribs

STATION N1270, W364.5 COLLAR ELEV. 1307.7 DIRECTION OF DRILLING Vertical Up

MINE COORDINATES N10962.6, E6529.5 BOREHOLE PENETRATION 51.8'

DRILLING METHOD Rotary w/Brine DRILL MAKE/MODEL Joy 12B

PREPARED BY JEG DATE 3/24/83 SHEET 2 OF 3

RUN NUMBER	PENETRATION (ft.)	RECOVERY % RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS
11	5.2	100	-	~ ~	As Above	
10	5.1	100	-	-	44.4'-46.7' HALITE: clear mottled with some moderate reddish-brown (10R 4/6), medium to coarsely crystalline, hard. Trace of brown argillaceous material (<1%).	
					40.8'-44.4' HALITE: moderate reddish-brown (10R 4/6) to dark brown (10R 3/4) with some clear halite, fine to coarsely crystalline, moderately hard. Scattered zones of brown clay. Argillaceous content averages <2% but locally >5%.	
					37.3'-40.8' HALITE: clear from 37.4' to 38.4'. Clear, mottled with moderate reddish-orange (10R 6/6) and moderate reddish-brown (10R 4/6) comprises remaining portion of section; medium to coarsely crystalline, hard. Trace (2%) of polyhalite from 37.3' to 38.4' and 38.4' to 40.8'. Core broken up from 37.4' to 37.9' and 38.1' to 38.2'.	
9	5.1	100	-	X X	36.3'-37.3' ANHYDRITE: (Marker Bed 138) very light gray (N8) to medium dark gray (N6) to white, banded, microcrystalline, hard. Clear to reddish-orange (10R 6/6) halite is mixed with anhydrite from 36.9' to 37.3'.	
					35.4'-36.3' HALITE: clear, coarsely crystalline, hard. Several scattered blebs of grayish-brown argillaceous material.	
8	4.1	100	-	-	31.8'-35.4' ARGILLACEOUS HALITE: clear to dark reddish-brown (10R 3/4) to moderate brown (54R 3/4) to brownish-gray (54R 4/1) mottled, medium to coarsely crystalline, moderately hard. Brown and gray clay generally <2%. Numerous clay breaks.	
					29.8'-31.8' HALITE: clear, medium to coarsely crystalline, moderately hard. Traces of brown clay (<1%).	
7	4.7	94	-	~ ~ X	27.9'-29.8' HALITE: clear to moderate brown (5YR 3/4), medium to coarsely crystalline, moderately hard. Trace of argillaceous material throughout. Contains thin (F 1/8") brown clay partings at 28.6', 29.5', and 29.8'.	
					As Below	Air bubbles in return water continuously to 37'±. No methane at end of return line.
6	5.3	100	-	-	As Below	

# WIPP

## ROCK CORING LOG UPWARD CORING

WASTE ISOLATION PILOT PLANT

BORING NO. DO-79 INSTRUMENT TYPE & NUMBER Extensometer GE-214 HOLE SIZE NX

LOCATION Test Room 2, Centerline of Room at Station N1270  
in Roof 16.5 Feet From E and W Ribs

STATION N1270, W364.5 COLLAR ELEV. 1307.7 DIRECTION OF DRILLING Vertical Up

MINE COORDINATES N10962.6, E6529.5 BOREHOLE PENETRATION 51.8'

DRILLING METHOD Rotary w/Brine DRILL MAKE/MODEL Joy 12B

PREPARED BY JEG DATE 3/24/83 SHEET 3 OF 3

RUN NUMBER	PENETRATION (ft.)	RECOVERY	% RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS
11	50	5.2	100	—	X XXXXXXXXXXXX	<p>50.3'-51.8' <b>POLYHALITIC HALITE:</b> clear mottled with moderate reddish-orange (10R 6/6) and moderate reddish-brown (10R 4/6) polyhalite blebs and stringers; medium to coarsely crystalline, hard. Polyhalite content &lt;5%.</p> <p>46.7'-50.3' <b>ARGILLACEOUS HALITE:</b> clear to moderate reddish-orange (10R 6/6) mixed with moderate reddish-brown (10R 4/6), fine to coarsely crystalline, moderately hard. Argillaceous content typically &lt; 3% but &gt; 5% from 46.7' to 47.8'; color of core through this interval mottled dark reddish brown (10R 3/4). Zone of fine crystalline halite mixed with argillaceous material from 49.7' to 50.0'. Clay breaks/partings from 49.1' to 49.2'.</p>	<p>Total Penetration = 51.8'</p> <p>Hole completed at 5:30 p.m. on 21 March 1983.</p>

# WIPP

WASTE ISOLATION PILOT PLANT

# ROCK CORING LOG UPWARD CORING

BORING NO. DO-88 INSTRUMENT Extensometer  
TYPE & NUMBER GE-212 HOLE SIZE NX

LOCATION Test Room 3, Centerline of Room at Station N1265, in Roof  
16.5 Feet From E and W Ribs

STATION N1265, W497.5 COLLAR ELEV. 1305.9 DIRECTION OF DRILLING Vertical Up

MINE COORDINATES N10952.8, E6396.5 BOREHOLE PENETRATION 52.7'

DRILLING METHOD Rotary w/Brine DRILL MAKE/MODEL Joy 12B

PREPARED BY JEG DATE 4/14/83 SHEET 1 OF 3

RUN NUMBER	PENETRATION (ft.)	RECOVERY	% RECOVERED	ROD	PROFILE	DESCRIPTION	REMARKS
6	25	5.0	100	-		See Above	
5	20	5.2	100	-	X	19.3' - 24.1' <b>ARGILLACEOUS HALITE:</b> clear to moderate brown (SYR 3/4), medium to coarsely crystalline, hard. Trace of polyhalite. Anhydrite stringers at 23.4', 24.0' to 24.1' and scattered traces of anhydrite from 21.5' to 22.2'. Clay partings from 23.9' to 24.1'; clay breaks throughout. Clay content <3 to >5%.	
					X	14.8' - 19.3' <b>POLYHALITIC HALITE:</b> clear to moderate reddish-orange (IOR 6/6) and moderate reddish-brown (IOR 4/6), medium to coarsely crystalline, hard. Blebs and irregular patches of polyhalite, up to 5%. Scattered anhydrite stringers from 15.4' to 16.6'.	
4	15	4.8	100	-	X	14.3' - 14.8' <b>ANHYDRITE:</b> (Anhydrite "a") very light (N7) to medium gray (N5); micro-crystalline, hard. Trace of gray clay at 14.3'.	Gas hit again while drilling Anhydrite "a" (14.3' to 14.8'); 3 to 4% methane at end of return line. Strong flow to 15' then slowed appreciably.
					X	13.4' - 14.3' <b>HALITE:</b> clear to dark reddish brown (IOR 3/4), fine to medium crystalline, hard. Contains trace of brown and gray clay, locally up to 3%.	
3	10	5.3	100	-	X	7.55' - 13.4' <b>HALITE:</b> clear, medium to coarsely crystalline, hard, trace of polyhalite (<1%).	Gas hit at 7.33'. 2% to 4% methane at end of return line. Moderate to strong gas flow for 3 to 4 minutes, decreasing to light flow with 1 1/2% methane. Gas gave off foul odor.
					X	7.33' - 7.55' <b>ANHYDRITE:</b> (Anhydrite "b") very light (N7) to medium gray (N5), micro-crystalline, hard. Contains scattered polyhalitic halite. Gray clay parting at 7.33'.	
2	5	1.5	100	-		6.25' - 7.33' <b>ARGILLACEOUS HALITE:</b> clear to grayish-brown (SYR 3/2), fine to medium crystalline, hard. Contains brown and gray clay, up to 5%. Clay breaks at 6.3', 7.2', and 7.25'.	Drilled in low gear entire hole to minimize rod vibration.
1	5	5.3	100	-	X	4.7' - 6.25' <b>HALITE:</b> brownish-gray (SYR 4/1) to medium gray (N5), medium to coarsely crystalline, hard. Trace of gray clay scattered throughout.	NX double-tube core barrel used from 0.95' to 52.70'.
					X	0.0' - 4.7' <b>HALITE:</b> clear to moderate reddish-orange (IOR 6/6), medium to coarsely crystalline, moderately hard. Contains trace (<1%) polyhalite blebs. Slightly more polyhalite from 0.0' to 1.4'.	
0	0	0.9	100	-	X		Drilling begun: 4 April 1983 at 11:00 a.m. 5 1/2" diameter single-tube core barrel used to core from 0.0' to 0.95'.





# WIPP

## ROCK CORING LOG UPWARD CORING

WASTE ISOLATION PILOT PLANT

BORING NO. D0-88 INSTRUMENT Extensometer  
TYPE & NUMBER GE-212 HOLE SIZE NX

LOCATION Test Room 3, Centerline of Room at Station N1265, in Roof  
16.5 Feet From E and W Ribs

STATION N1265, W497.5 COLLAR ELEV. 1305.9 DIRECTION OF DRILLING Vertical Up

MINE COORDINATES N10952.8, E6396.5 BOREHOLE PENETRATION 52.7

DRILLING METHOD Rotary w/Brine DRILL MAKE/MODEL Joy 12B

PREPARED BY JEG DATE 4/14/83 SHEET

3 OF 3

RUN NUMBER	PENETRATION ( ft. )	RECOVERY	% RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS
11	50	4.4	100	-	X X	<p>50.55' - 52.70' <b>POLYHALITIC HALITE:</b> clear mottled with moderate reddish-orange polyhalite, coarsely crystalline, hard. Polyhalite &lt;12 to 52. Brown clay breaks from 50.55' to 50.75'.</p> <p>49.8' - 50.55' <b>HALITE:</b> clear, coarsely crystalline, hard.</p>	<p>Drilling completed: 5 April 1983 at 1:10 p.m.</p> <p>Total Drilling Time: 8 hrs</p> <p>Total Penetration = 52.70'</p>

# WIPP

# ROCK CORING LOG

WASTE ISOLATION PILOT PLANT

BORING NO. DO-90 INSTRUMENT Extensometer  
 TYPE & NUMBER GE-210 HOLE SIZE NX

LOCATION Test Room 3, Centerline of Room at Station N1265, in Floor 16.5'  
From E and W Ribs.

STATION N1265, W497.5 COLLAR ELEV. 1292.1 DIRECTION OF DRILLING Vertical Down  
 MINE COORDINATES N10952.6, E6396.4 DEPTH OF BOREHOLE 53.6'

DRILLING METHOD Rotary w/Brine DRILL MAKE/MODEL Joy 12B

PREPARED BY JEG DATE 4/14/83 SHEET

1 OF 3

RUN NUMBER	DEPTH (Ft)	RECOVERY	% RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS
0	0	0.85	100	-		0.0' - 1.8' HALITE: clear, coarsely crystalline, hard. Trace (<1%) polyhalite.	Started drilling 5 April 1983 at 1:50 p.m. 5 1/2" diameter single-tube core barrel used to drill 0.0' - 0.85'.  NX single-tube core barrel used from 0.85' - 5.55'.
1	1.3	100	-		X	1.8' - 2.65' POLYHALITIC HALITE: clear, mottled with moderate reddish-orange (10R 6/6), coarsely crystalline, hard. Blebs of polyhalite <1% to 5%. Trace of anhydrite from 2.25' to 2.65'.	
2	1.35	100	-		X X		
3	0.95	100	-		X X		
4	5	0.90	82	-	X X	2.65' - 4.45' POLYHALITE: moderate reddish brown (10R 4/6) polyhalite mixed with very light gray (N8) anhydrite. Fine to micro-crystalline, hard, dense.	
5	5.2	100	-		X -	4.45' - 5.7' ANHYDRITE: (Marker Bed 139) very light (N8) to medium gray (N6), micro-crystalline, hard, dense. Mixed with some polyhalite to 5'. Gray clay seam at 5.7'.	
	10				X X	5.7' - 9.25' HALITE: clear with scattered moderate reddish-orange (10R 6/6) medium crystalline, hard. Scattered polyhalite (<1%) and trace (<1%) gray clay.	
6	5.3	100	-		X X		
	15				X -	9.25' - 21.35' POLYHALITIC HALITE: clear to moderate reddish-orange (10R 6/6) and grayish-brown (5YR 4/1), medium to coarsely crystalline, hard. Irregular patches and blebs of polyhalite 1% to 5%, locally >10%. Gray clay 1% to 2% from 13.7' to 16.0' and 20.35' to 21.35'.	
7	5.3	100	-		X X		
	20				X -		
					X -		
8	5.3	100	-		X -	21.35' - 25.75' HALITE: clear to grayish-red (5R 4/2) medium to coarsely crystalline, moderately hard. Trace of polyhalite. 1% to 2% gray clay with lesser amounts of brown clay.	
	25				- X		



# WIPP

## ROCK CORING LOG

WASTE ISOLATION PILOT PLANT

BORING NO. DO-90 INSTRUMENT Extensometer  
 TYPE & NUMBER GE-210 HOLE SIZE NX

LOCATION Test Room 3, Centerline of Room at Station N1265, in Floor 16.5'  
From E and W Ribs.

STATION N1265, W497.5 COLLAR ELEV. 1292.1 DIRECTION OF DRILLING Vertical Down

MINE COORDINATES N10952.6, E6396.4 DEPTH OF BOREHOLE 53.6'

DRILLING METHOD Rotary w/Brine DRILL MAKE/MODEL Joy 12B

PREPARED BY JEG DATE 4/14/83 SHEET

2 OF 3

RUN NUMBER	DEPTH (FT)	RECOVERY	% RECOVERED	ROD	PROFILE	DESCRIPTION	REMARKS
8	25	5.3	100	-	X -	See Above	
9	30	5.2	100	-	X	25.75' - 31.95' <b>POLYHALITIC HALITE:</b> clear mottled with moderate reddish-orange (10R 6/6), coarsely crystalline, hard. 1% to 5% polyhalite. Scattered irregular blebs and stringers of very light gray (N8) anhydrite from 27.05' to 31.95', one-half inch wide irregular anhydrite seam at 31.0'.	
					X \		
10	35	5.1	100	-	X \	31.95' - 32.10' <b>ANHYDRITE:</b> very light gray (N8) to medium gray (N6), microcrystalline, hard, dense. Trace of gray clay at 32.1'.	
					X -		
11	40	5.2	100	-	- X	32.10' - 39.5' <b>HALITE:</b> clear to medium gray (N6), fine to coarsely crystalline, hard. Contains trace (<1%) polyhalite locally. Breaks and patches of gray clay <1% to 3%. Core clear with no argillaceous material from 36.65' to 37.05' and from 39.0' to 39.5'.	
					- X		
12	45	5.25	100	-	-	39.5' - 43.65' <b>ARGILLACEOUS HALITE:</b> clear to brownish-gray (5YR 4/1) medium to coarsely crystalline, moderately hard to hard. Contains <1% to 5% clay (average 2%), predominantly gray in color with lesser amounts of brown. Clay breaks throughout. Trace of polyhalite (<1%).	
					- X		
13	50	5.3	100	-	-	43.65' - 49.50' <b>HALITE:</b> clear, coarsely crystalline, moderately hard. Trace of gray clay (<1%). Trace polyhalite from 44.45' to 44.65'.	
					X -		
					X -	See below	



# WIPP

## ROCK CORING LOG

WASTE ISOLATION PILOT PLANT

BORING NO. D0-90 INSTRUMENT Extensometer  
 TYPE & NUMBER GE-210 HOLE SIZE NX

LOCATION Test Room 3, Centerline of Room at Station N1265, in Floor 16.5'  
From E and W Ribs.

STATION N1265, W497.5 COLLAR ELEV. 1292.1 DIRECTION OF DRILLING Vertical Down

MINE COORDINATES N10952.6, E6396.4 DEPTH OF BOREHOLE 53.6'

DRILLING METHOD Rotary w/Brine DRILL MAKE/MODEL Joy 12B

PREPARED BY JEG DATE 4/14/83 SHEET

3 OF 3

RUN NUMBER	DEPTH (Ft)	RECOVERY	% RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS
13	50	5.3	100	-	X -	49.50' - 52.10' HALITE: clear to moderate reddish-orange (10R 6/6) and brownish-gray (5YR 4/1). Contains trace of polyhalite (<1% and <1% to 3% gray clay. Clay parting at 49.5' and scattered breaks within core.	Drilling completed 7 April 1983 at 11:10 a.m. Total drilling time: 5.5 hours. Total Depth = 53.60'
14		0.9	100	-	- X	52.10' - 53.6' POLYHALITIC HALITE: clear to moderate reddish-orange (10R 6/6), medium to coarsely crystalline, hard. Polyhalite 1% to 3%. Trace (<1%) of gray clay.	
	55						

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# WIPP

# ROCK CORING LOG

WASTE ISOLATION PILOT PLANT

BORING NO. DO-91 INSTRUMENT Extensometer  
 TYPE & NUMBER GE-209 HOLE SIZE NX

LOCATION Test Room 4, Centerline of Room at Station N1275, in Floor 16.5'  
From E and W Ribs.

STATION N1275, W630.5 COLLAR ELEV. 1292.1 DIRECTION OF DRILLING Vertical Down

MINE COORDINATES N10961.5, E6263.9 DEPTH OF BOREHOLE 51.8'

DRILLING METHOD Rotary w/Brine DRILL MAKE/MODEL Joy 12B

PREPARED BY JEG DATE 5/5/83 SHEET

1 OF 3

RUN NUMBER	DEPTH (ft.)	RECOVERY	% RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS
0	0	1.0	100	-	X	0.0' - 2.1' HALITE: Clear, coarsely crystalline, medium hard. Contains <1% polyhalite blebs and trace (<1%) gray clay.	Drilling started at 15:05 hours, 28 April 1983.
1	0.6	0.6	50	-	-		
2	0.7	0.7	100	-	X	2.1' - 3.8' POLYHALITIC HALITE: Clear mottled with moderate reddish orange (10R 6/6) polyhalite. Polyhalite <1 to 5%. Trace (<1%) gray clay.	5 1/2" single tube barrel used 0.0' to 1.0'.
3	1.75	1.75	76	-	X	3.8' - 4.8' POLYHALITE: Moderate reddish brown (10R 4/6), very fine to microcrystalline, hard. Trace of anhydrite.	NX single tube barrel used 1.0' to 5.2'.
4	1.75	1.75	100	-	X	4.8' - 7.2' ANHYDRITE: (Marker Bed 139) Very light gray (N8), medium gray (N5) to moderate reddish brown (10R 4/6) and moderate reddish orange (10R 6/6) to approximately 6.5', with about 50% polyhalite. Then predominantly very light to medium gray anhydrite mixed with some polyhalite and polyhalitic halite. <1/8" gray clay parting at 7.2'. Core broken into disc-like pieces 5.2' to 6.2'.	NX double tube barrel used 5.2' to 51.8'.
5	4.6	4.6	100	-	X	7.2' - 11.6' HALITE: Clear to moderate reddish orange (10R 6/6) to light gray (N7), fine to coarsely crystalline, medium hard. Contains <1% gray clay with up to 5% locally. Polyhalite <1% to 2%. Polyhalitic halite at 10.0' to 10.3'. Clay break at 7.7'.	Note: Run #3 originally drilled to 4.5'±. Core stayed in hole after pulling barrel. Had to redrill to 5.2' and retrieve core.
6	5.2	5.2	100	-	X	11.6' - 15.3' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), medium to coarsely crystalline, medium hard to hard. Polyhalite 3% to >5%. Gray clay breaks at 14.9' and 15.0'. Irregular anhydrite stringers throughout.	Run #6 - core stayed in hole after barrel pulled. Had to return barrel, drill and pull core.
7	5.0	5.0	100	-	X	15.3' - 16.8' HALITE: Clear to light gray (N7) to moderate reddish orange (10R 6/6), medium to coarsely crystalline, medium hard. Polyhalite <1% to 2%. Gray clay <2%.	Small gas flow at 7'±. Low flow. No methane. Very slight flow continued until entire hole was drilled.
8	5.1	5.1	100	-	X	16.8' - 23.2' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6), coarsely crystalline, hard. Polyhalite average <1 to 3%, locally up to 5%. Trace gray clay at 20.8' to 23.2'. Scattered clay breaks.	Core Loss: Run 1, Throughout Run 3, Probably from 2.9' to 3.8'.
	23.2	23.2	100	-	X	23.2' - 25.4' HALITE: Clear, coarsely crystalline, hard. Trace (<1%) polyhalite and trace gray clay. Clay break at 23.7'.	



# WIPP

# ROCK CORING LOG

WASTE ISOLATION PILOT PLANT

BORING NO. DO-91 INSTRUMENT Extensometer  
 TYPE & NUMBER GE-209 HOLE SIZE NX

LOCATION Test Room 4, Centerline of Room at Station N1275, in Floor 16.5'  
From E and W Ribs.

STATION N1275, W630.5 COLLAR ELEV. 1292.1 DIRECTION OF DRILLING Vertical Down

MINE COORDINATES N10961.5, E6263.9 DEPTH OF BOREHOLE 51.8'

DRILLING METHOD Rotary w/Brine DRILL MAKE/MODEL Jov 12B

PREPARED BY JEG DATE 5/5/83 SHEET

2 OF 3

RUN NUMBER	DEPTH (ft.)	RECOVERY	% RECOVERED	ROD	PROFILE	DESCRIPTION	REMARKS
						As Above	
8	25	5.1	100	-	X		
					X		
					X X		
9	30	4.9	100	-	X X	25.4' - 31.8' <b>POLYHALITIC HALITE:</b> Clear to moderate reddish orange (10R 6/6) on moderate reddish brown (10R 4/6), coarsely crystalline, hard. Trace (<1%) gray clay. Polyhalite blebs and patches <1 to <5%, locally >5%. Scattered irregular anhydrite stringers from 27.2'. Polyhalite > 90% from 31.6' to 31.8'.	
					X X X		
					X	31.8' - 32.1' <b>ANHYDRITE:</b> Very light (N8) to medium gray (N5), microcrystalline, hard. Mixed with some halite from 31.8'. Trace of clay at 32.1'.	
10	35	4.9	100	-	-		
					X	32.1' - 39.7' <b>HALITE:</b> Clear to medium gray (N5) to grayish red (10R 4/2), medium to coarsely crystalline, medium hard. Gray clay <1 to 3%. Trace (<1%) polyhalite. Core broken up at 37.2' to 37.3'.	
11	40	5.1	100	-	-		
					-	39.7' - 41.8' <b>ARGILLACEOUS HALITE:</b> Clear to medium gray (N5), medium to coarsely crystalline, medium hard to soft. Some core can be broken in hand with low pressure. Gray clay 1 to 5%. Core broken up at 41.5' to 41.6'.	
12	45	5.1	100	-	X		
					X	41.8' - 44.4' <b>POLYHALITIC HALITE:</b> Clear to moderate reddish orange (10R 6/6), coarsely crystalline, medium hard. Polyhalite blebs and patches <1 to 5%. Trace of gray clay at 43.3'.	
					-		
					-	44.4' - 49.3' <b>HALITE:</b> Clear, coarsely crystalline, medium hard to hard. Trace (<1%) gray clay. Core broken up with trace of clay at 45.5' - 45.8'. Clay parting at 49.3' with up to 3% clay at 48.9' to 49.3'.	
13	50	4.9	100	-	-		
					X	As Below	







# WIPP

WASTE ISOLATION PILOT PLANT

# ROCK CORING LOG UPWARD CORING

BORING NO. D0-93 INSTRUMENT Extensometer  
TYPE & NUMBER GE-207 HOLE SIZE NX

LOCATION Test Room 4, Centerline of Room at Station N1275, in Roof 16.5 Feet From East and West Ribs

STATION N1275, W630.5 COLLAR ELEV. 1304.9 DIRECTION OF DRILLING Vertical Up

MINE COORDINATES N10961.1, E6263.9 BOREHOLE PENETRATION 52.0'

DRILLING METHOD Rotary w/Brine DRILL MAKE/MODEL Jov 12B

PREPARED BY JEG DATE 5/5/83 SHEET

1 OF 3

RUN NUMBER	PENETRATION (ft.)	RECOVERY	% RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS
6	25	5.2	100	-	As Above		
5	20	5.0	100	-	<p>18.9' - 24.0' <b>ARCILLACEOUS HALITE:</b> Clear to dark reddish brown (10R 3/4) medium to coarsely crystalline, medium hard. Scattered traces of anhydrite. 1/4" layer anhydrite at 23.9'. Brown clay &lt;1 to &gt;5%. Scattered clay breaks. Parting at 23.9'.</p> <p>14.9' - 18.9' <b>POLYHALITIC HALITE:</b> Clear mottled with medium reddish orange (10R 6/6) and medium reddish brown (10R 4/6) coarsely crystalline, hard. Scattered white anhydrite stringers to 16.4'. Polyhalite blebs and irregular patches average 1 to 5% with locally &gt;10% from 14.9' to 16.7'.</p>		
4	15	5.1	100	-	<p>14.2' - 14.9' <b>ANHYDRITE:</b> (Anhydrite "a") Very light (N8) to medium gray (N5), microcrystalline, hard. Some laminations noted. Some very finely crystalline halite mixed with anhydrite.</p> <p>13.3' - 14.2' <b>ARCILLACEOUS HALITE:</b> Clear to medium reddish orange (10R 6/6) and dark reddish brown (10R 3/4), fine to medium crystalline, medium hard to hard. Brown clay &lt;1 to &gt;5%. Trace (&lt;1%) polyhalite. Trace gray clay at 14.2'.</p>		
3	10	4.9	97	-	<p>7.3' - 13.3' <b>HALITE:</b> Clear, coarsely crystalline, hard. Scattered white anhydrite stringers. 1/8" anhydrite layer at 7.7'. Trace (&lt;1%) polyhalite.</p> <p>7.15' - 7.3' <b>ANHYDRITE:</b> (Anhydrite "b") Medium light (N6) to medium gray (N5), microcrystalline, hard.</p>	<p>Drilling begun at 11:00 hours. 27 April 1983.</p> <p>Core loss: Run #1, Throughout #3, Throughout #8, Throughout</p>	
2	5	4.95	100	-	<p>4.05' - 7.15' <b>HALITE:</b> Clear to medium brown (5YR 4/4) to medium gray (N5), medium to coarsely crystalline, medium hard. Trace (1 to 2%) brown and gray clay. Breaks at 6.6' and 7.1'. Trace clay at 7.2'.</p>	<p>Moderate gas flow at 7'±. Flow for 5-10 minutes, H<sub>2</sub>S - 0% and methane 1 to 3 1/2% measured at end of return line. Slight smell to gas. Low flow of gas to 16'±. No H<sub>2</sub>S recorded.</p> <p>5 1/2" single tube barrel used to core 0.0' to 1.0'.</p>	
1	0.65	81	-	-	<p>0.0' - 4.05' <b>HALITE:</b> Clear with some grayish red (5R 4/2), coarsely crystalline, medium to medium hard. Trace (&lt;1%) polyhalite blebs and clay.</p>	<p>NX single tube barrel used 1.0' to 1.8'.</p> <p>NX double tube barrel used 1.8' to 52.0'.</p>	
0	0	1.0	100	-			



# WIPP

WASTE ISOLATION PILOT PLANT

## ROCK CORING LOG UPWARD CORING

BORING NO. D0-93 INSTRUMENT Extensometer  
TYPE & NUMBER GE-207 HOLE SIZE NX

LOCATION Test Room 4, Centerline of Room at Stations N1275, in Roof 16.5 Feet  
From E and W Ribs

STATION N1275, W630.5 COLLAR ELEV. 1304.9 DIRECTION OF DRILLING Vertical Up  
MINE COORDINATES N10961.1, E6263.9 BOREHOLE PENETRATION 52.0'

DRILLING METHOD Rotary w/Brine DRILL MAKE/MODEL Joy 12B

PREPARED BY JEG DATE 5/5/83 SHEET  
2 OF 3

AS Above

RUN NUMBER	PENETRATION (ft.)	RECOVERY	% RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS
11	50	4.8	100	-		45.9' - 49.8' ARGILLACEOUS HALITE: Clear to medium brown (5YR 3/4), medium to coarsely crystalline, medium hard. Brown clay <1 to >5%. Clay breaks at 47.2', 47.4', 47.7', 48.3', 48.5', 48.9' and 49.3' to 49.4'. 3/4" clay seam at 49.7'.	
10	45	5.1	100	-	X 	41.3' - 45.9' HALITE: Clear to dark reddish brown (10R 3/4), medium to coarsely crystalline, medium hard to hard. Trace polyhalite. Brown clay averages 1% with local zones >5%. Clay breaks at 41.9' and 43.7'. Argillaceous halite at 41.9' to 42.1', 42.4' to 43.0' and 44.1' to 44.3'.	
9	40	5.1	100	-	X 	37.0' - 41.3' HALITE: Clear, coarsely crystalline, hard. Scattered white anhydrite stringers. Trace (<1%) moderate reddish orange polyhalite blebs from 39.4' to 41.3'.	
					X 	36.3' - 37.0' ANHYDRITE: (Marker Bed 138) Very light (N8) to medium gray (N5), micro-crystalline, hard. Some <20% halite mixed with anhydrite 36.4' to 36.6'. Brown clay seam 36.3' to 36.4'.	
8	35	5.0	100	-	X 	35.5' - 36.3' HALITE: Clear to medium reddish orange (10R 6/6), fine to medium crystalline, some coarse, medium hard. Trace polyhalite (<1%) and trace brown clay.	
						32.3' - 35.5' ARGILLACEOUS HALITE: Clear to medium brown (5YR 3/4), fine to medium crystalline, with some coarse. Soft to medium hardness. Core broken up approximately 32.6' to 33.2'. Brown clay generally 5 to 10% with zones <1%. Argillaceous >40% at 34.5' to 34.8'.	Can be combined in hand with low to moderate pressure due to grain size and clay content.
7	30	4.8	100	-	X 	29.7' - 32.3' HALITE: Clear, coarsely crystalline, medium hard to hard. Trace (<1%) brown clay from 31.6'.	
						27.5' - 29.7' HALITE: Clear to medium brown (5YR 3/4) fine to coarsely crystalline, medium hard. Brown argillaceous <1 to 4%. Clay break at 27.6'. Trace (<1%) polyhalite from 29.2' - 29.6'. Core medium reddish orange.	
6	25	5.2	100	-		24.0' - 27.5' HALITE: Clear, coarsely crystalline, hard. Few scattered white anhydrite stringers to 26.0'.	
						DESCRIPTION	REMARKS

M

# WIPP

WASTE ISOLATION PILOT PLANT

## ROCK CORING LOG UPWARD CORING

BORING NO. D0-93 INSTRUMENT TYPE & NUMBER Extensometer GE-207 HOLE SIZE NV

LOCATION Test Room 4, Centerline of Room at Stations N1275, in Roof 16.5 Feet From E and W Ribs

STATION N1275, W630.5 COLLAR ELEV. 1304.9 DIRECTION OF DRILLING Vertical Up

MINE COORDINATES N10961.1, E6263.9 BOREHOLE PENETRATION 52.0'

DRILLING METHOD Rotary w/Brine DRILL MAKE/MODEL Joy 12B

PREPARED BY JEC DATE 5/5/83 SHEET

3 OF 3

RUN NUMBER	PENETRATION (ft.)	RECOVERY	% RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS
11	50 4.8	100	-	X X		<p>49.8' - 52.0' <b>HALITE:</b> Clear to medium reddish orange (10R 6/6). Coarsely crystalline, hard. Polyhalite blebs and patches &lt;1 to 4%. Highest percentage is from 49.8' to 51.0'. A few scattered anhydrite stringers and blebs from 51.0' to 52.0'.</p>	<p>Hole completed at 11:15 hours, 28 April 1983. Total penetration = 52.0'.</p>



# WIPP-SPDV

WASTE ISOLATION PILOT PLANT

# ROCK CORING LOG UPWARD CORING



BORING NO. DO-201 INSTRUMENT TYPE & NUMBER None HOLE SIZE NX  
 LOCATION 0 East Drift, 406' S of Exploratory Shaft centerline, midspan

STATION S406, W19 COLLAR ELEV. 1262.2' DIRECTION OF DRILLING Vertical UP  
 MINE COORDINATES N9280.6, E6874.9 BOREHOLE PENETRATION 51.7'  
 DRILLING METHOD Wet (brine) DRILL MAKE/MODEL Joy 12B  
 PREPARED BY JBM, RFM, RLB/TSC//DGK, RMB/Bechte DATE 1/25/83 SHEET 2 OF 3

RUN NUMBER	PENETRATION (ft.)	RECOVERY(%)	% RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS
13	50	100	-	-	X X X X	(see description on next sheet)  46.3' - 49.4' HALITE: colorless to moderate reddish-orange (10R 6/6) halite, coarsely crystalline, 1-3% polyhalite, locally in blebs, <1% clay.	
12	45	96	-	-	X X X X X X	44.4' - 46.3' HALITE: colorless to moderate brown (5YR 3/4) halite, medium to coarsely crystalline, ~1% polyhalite, 1-5% brown clay, brown clay break at 44.8'.  38.9' - 44.4' HALITE: colorless to moderate reddish-orange (10R 6/6) halite, coarsely crystalline, 1-7% polyhalite, 0-1% clay, anhydrite stringers at 39.0', 39.3', and 40.0'.	
11	40	100	-	-	X X X X	38.3' - 38.9' ANHYDRITE: (Marker Bed 138) medium to light gray (N5-7), microcrystalline anhydrite, 10-20% halite in upper 0.05'.	
10	35	100	-	-	X X X X	33.2' - 38.3' ARGILLACEOUS HALITE: mottled colorless to moderate brown (5YR 3/4) halite, finely to coarsely crystalline, <1% polyhalite, 1-10% brown clay locally concentrated, brown clay parting at 37.1', brown clay seam at 38.3'.	
9	30	92	-	-	X X X X	31.4' - 33.2' HALITE: clear halite, coarsely crystalline, <1% polyhalite, <1% brown and gray clay.  29.4' - 31.4' ARGILLACEOUS HALITE: colorless to moderate brown (5YR 3/4) halite, finely to coarsely crystalline, <1% polyhalite, 1-5% clay (mostly brown), anhydrite stringer (<1/16") at 31.4'.	
8	25	100	-	-	X X X X	25.4' - 29.4' HALITE: clear halite, medium to coarsely crystalline, <1% polyhalite, <1% brown and gray clay from 29.3'-29.4', absent elsewhere, anhydrite stringers at 25.6'-25.7', 26.0', and 26.6'.  (as below)	

# WIPP-SPDV

WASTE ISOLATION PILOT PLANT

# ROCK CORING LOG UPWARD CORING



BORING NO. DO-201 INSTRUMENT TYPE & NUMBER None HOLE SIZE NX  
 LOCATION 0 East Drift, 406' S of Exploratory Shaft centerline, midspan

STATION S406; W19 COLLAR ELEV. 1262.2' DIRECTION OF DRILLING Vertical Up  
 MINE COORDINATES N9280.6, E6874.9 BOREHOLE PENETRATION 51.7'  
 DRILLING METHOD Wet (brine) DRILL MAKE/MODEL Joy 12B

PREPARED BY JBM,RFM,RLB/TSC//DGK,RMB/Bechtel DATE 1/25/83 SHEET

3 OF 3

RUN NUMBER	PENETRATION (ft.)	RECOVERY(h)	% RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS
13	50	50	100	-	- X	49.4' - 51.7' ARGILLACEOUS HALITE: colorless to moderate brown (5YR 4/6) halite, coarsely crystalline, 1-2X polyhalite, 1-5X brown clay to 50.7', 5-10X from 50.7'-51.7', brown clay breaks at 49.7', 50.6', 51.1', and 51.7'.	Total penetration = 51.7'. Hole finished at 13:30 hours, 24 November 1982.



# WIPP-SPDV

# ROCK CORING LOG



WASTE ISOLATION PILOT PLANT

BORING NO. DO-202 INSTRUMENT TYPE & NUMBER None HOLE SIZE NX  
 LOCATION 0 East Drift, 406' S of Exploratory Shaft centerline, midspan

STATION S406, W19 COLLAR ELEV. 1248.6' DIRECTION OF DRILLING Vertical Down  
 MINE COORDINATES N9280.6, E6874.9 DEPTH OF BOREHOLE 51.4'  
 DRILLING METHOD Wet (brine) DRILL MAKE/MODEL Joy 12B  
 PREPARED BY RMB, JPS/Bechtel DATE 11/24/82 SHEET 1 OF 3

RUN NUMBER	DEPTH (ft.)	RECOVERY(ft)	% RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS
1	0	14	70	-	X	0.0' - 3.7' HALITE: clear, medium to coarsely crystalline halite, with trace (<1X) polyhalite, and trace (<0.5X) gray clay blebs from 0'-2.0'.	Drilling started 14:00 hours, 24 November 1982. Coring with brine.
2	5	45	90	-	X	3.7' - 4.8' POLYHALITIC HALITE: moderate reddish-orange (10R 5/6), translucent, coarsely crystalline, medium hard halite. Gradational lower contact. Clay parting at 4.5' (washed out by drilling).	Core Run #1 - broken in small pieces and partially dissolved. Longest piece = 0.2'.
					X X	4.8' - 7.6' ANHYDRITE: (Marker Bed 139) light gray (N7) hard, dense, very thinly bedded to laminated anhydrite. Core is broken "poker-chip" fashion along bedding. Medium light gray (N6), moderately stiff, anhydritic clay seam (~1/2") at 7.6'.	
3	10	4.9	98	-	- X -	7.6' - 11.5' ARGILLACEOUS HALITE: moderate reddish-orange (10R 6/6) translucent, medium crystalline halite, with some polyhalite (10-20X), some to abundant (about 25-30X) clay, and localized trace light gray (N7) clay blebs. Clay break at 7.8'. Clay parting at 11.1'.	Hit pressurized gas around 10'-12'. Drilling fluid bubbled at collar. Drilling stopped at 16:00 hours and 12.0' 24 November 1982 for Thanksgiving Holiday. Resumed coring at 08:20 hours, 26 November 1982.
					X - X		
4	15	49	98	-	X X X	11.5' - 24.3' POLYHALITIC HALITE: clear, coarsely crystalline halite, with 35-40X polyhalite. Polyhalite bands at 13.1', 14.4', 21.8'. Relatively clear halite from 11.5'-12.1' and 15.5'-17.0' with some (10-15X) clay.	From 12' to 32', drilling averaged 0.2 ft./min.
					X X X		
5	20	5.1	100	-	X X X	Argillaceous zone at 15.7'-15.85' Gray clay parting at 15.95' Gray clay break at 16.55' Brown clay break at 16.7' Argillaceous zone at 17.5' Gray clay break at 22.6' Gray clay parting at 23.0' Gray argillaceous zone (30-40X clay) at 23.1'-23.3'.	
					X X X		
6	25	5.1	100	-	X X X	(see description on next sheet)	Run 6 - longest piece = 1.3'.
					X - X		

# WIPP-SPDV

# ROCK CORING LOG



WASTE ISOLATION PILOT PLANT

BORING NO. DO-202 INSTRUMENT TYPE & NUMBER None HOLE SIZE NX

LOCATION 0 East Drift, 406' S of Exploratory Shaft centerline, midspan

STATION S406, W19 COLLAR ELEV. 1248.6' DIRECTION OF DRILLING Vertical Down

MINE COORDINATES N9280.6, E6874.9 DEPTH OF BOREHOLE 51.4'

DRILLING METHOD Wet (brine) DRILL MAKE/MODEL Joy 12B

PREPARED BY RMB,JPS/Bechtel DATE 11/24/82 SHEET 2 OF 3

RUN NUMBER	DEPTH (ft)	RECOVERY (ft)	% RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS
6	25	51	100	-	- X - X - X - X -	24.3' - 28.0' ARGILLACEOUS HALITE: halite, with 20-25% clay, and 15-20% polyhalite. Gray-brown argillaceous zone at 24.4'-26.4', with clay breaks at 24.7', 25.1', 25.4', 25.6', 26.3'.	
7	30	52	100	-	X X - X X X X -	28.0' - 34.6' POLYHALITIC HALITE: moderate reddish-orange (10R 6/6), translucent, medium crystalline halite, with 1% to 20% polyhalite, and localized trace gray clay blebs. Clear halite at 31.2'-31.7', 32.6'-32.7', and 33.8'-34.6'. Polyhalite bands at 33.6'-33.8' and 34.2'.	
8	35	5.0	100	-	- X XXXXXX XXXXXX - X - X - X - X - X - X	34.6' - 35.0' ANHYDRITE: light gray (N7), hard, dense, halitic anhydrite. Gray clay parting at 35.0'.	Run 8 - Longest piece = 1.1'; average = 0.3'.
9	40	4.9	100	-	- X - X - X - X - X - X - X - - X - - X - - X -	35.0' - 49.0' ARGILLACEOUS HALITE: translucent, finely to medium crystalline, medium hard halite, mottled light brown with some (10%) moderate reddish-orange (10R 6/6) polyhalite, and some (10-15%) light gray (N7) and moderate brown (5YR 3/4) clay as blebs. Clay breaks at 38.9', 39.2' (gray), 40.7' (gray), 41.1' (gray), 42.5' (gray), 42.7' (brown), 43.6' (brown), 43.7' (brown), 44.3' (brown), brown clay parting at 43.2', and trace polyhalite from 43.2' to 44.8'.	
10	45	50	100	-	- X - X - X - X - X - X - X - - X -		
11	50	41	100	-	- X - X - X	49.0' - 51.4' HALITE: clear halite, moderately hard and coarsely crystalline.	





# WIPP-SPDV

# ROCK CORING LOG



WASTE ISOLATION PILOT PLANT

BORING NO. D0-202 INSTRUMENT TYPE & NUMBER None HOLE SIZE NX  
LOCATION 0 East Drift, 406' S of Exploratory Shaft centerline, midspan

STATION S406, W19 COLLAR ELEV. 1248.6' DIRECTION OF DRILLING Vertical Down  
MINE COORDINATES N9280.6, E6874.9 DEPTH OF BOREHOLE 51.4'  
DRILLING METHOD Wet (brine) DRILL MAKE/MODEL Joy 12B  
PREPARED BY RMB, JPS/Bechtel DATE 11/24/82

SHEET  
3 OF 3

RUN NUMBER	DEPTH (ft.)	RECOVERY(ft)	% RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS
11	50	41	100	-		(as above)	Run 11 - pulled at 12:30 hours, 26 November 1982. Total depth = 51.4'.
	55						

M

# WIPP-SPDV

WASTE ISOLATION PILOT PLANT

# ROCK CORING LOG UPWARD CORING



BORING NO. DO-203 INSTRUMENT Extensometer  
TYPE & NUMBER GE-235 HOLE SIZE NX

LOCATION East 140 Drift, 624' N of Exploratory Shaft centerline,  
6.8' from W rib

STATION N624, E140 COLLAR ELEV. 1298.2 DIRECTION OF DRILLING vertical  
UP

MINE COORDINATES N10308.6, E7041.7 BOREHOLE PENETRATION 52.0'

DRILLING METHOD Rotary w/brine DRILL MAKE/MODEL Joy 12B

PREPARED BY JPS/Bechtel DATE 2/23/83 SHEET  
1 OF 3

RUN NUMBER	PENETRATION (ft.)	RECOVERY	% RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS
6	25	5.2	100	-		(see description on next sheet)	Began coring at 10:15 hours on 23 February 1983. Cored from 0'-1.0' using 6" single tube barrel. Cored from 1.0'-5.8' without inner core tube.
5	20	5.1	100	-	X	20.6'-24.0' HALITE: argillaceous, clear to pale brown (SYR 5/2) and medium gray (N5), finely to coarsely crystalline, moderately hard. Clay content 0-5% and occurs interstitially. Clay breaks at 20.8', 22.2', 22.7', 23.4', and 23.9'. Irregular light gray (N7) anhydrite seam (1/2") at 24.0'.	Core loss in Run #1 occurred throughout core run.
					X	15.0'-20.6' POLYHALITIC HALITE: clear and moderate reddish-orange (10R 6/6), medium to coarsely crystalline, moderately hard. Polyhalite occurs as blebs and stringers and represents 0-5% of core. Clear halite from 19.8'-20.6'.	
4	15	5.2	100	-	X	14.2'-15.0' ANHYDRITE: medium gray (N5) to very light gray (N8), hard, dense, microcrystalline.	Encountered trace of gas at 14.5'.
					X	13.1'-14.2' HALITE: argillaceous, mottled light brownish-gray (SYR 6/1) and pale yellowish brown (10YR 6/2), finely crystalline, moderately hard. Clay content 3-8%. Brown clay breaks at 13.5' and 14.2'.	
3	10	2.0	100	-	X	8.2'-13.1' HALITE: clear, medium to coarsely crystalline, moderately hard, trace of scattered blebs of orange polyhalite. Few hairline stringers of white (N9) anhydrite.	
2	5	5.2	100	-	X	8.0'-8.2' ANHYDRITE: medium gray (N5), hard, dense, microcrystalline.	
					X	5.5'-8.0' HALITE: argillaceous, clear to pale yellowish-brown (10YR 6/2) to brownish-gray (SYR 4/1). Finely to medium crystalline, moderately hard. Interstitial clay comprises 2-10% of core. Brown clay breaks at: 6.9', 7.1', 7.3'. Thin parting of gray clay at 8.0'.	
1	0	1.7	35	-	X	0.0'-5.5' HALITE: clear with trace of moderate reddish-orange (10R 6/6) polyhalite. Coarsely crystalline, moderately hard. Few isolated blebs of polyhalite.	
0	0	.9	90	-	X		



# WIPP-SPDV

WASTE ISOLATION PILOT PLANT

# ROCK CORING LOG UPWARD CORING



BORING NO. D0-203 INSTRUMENT Extensometer  
 TYPE & NUMBER GE-235 HOLE SIZE NX  
 LOCATION East 140 Drift, 624' N of Exploratory Shaft centerline, 6.8'  
from W rib

STATION N624, E140 COLLAR ELEV. 1298.2 DIRECTION OF DRILLING vertical up  
 MINE COORDINATES N10308.6, E7041.7 BOREHOLE PENETRATION 52.0'  
 DRILLING METHOD Rotary w/brine DRILL MAKE/MODEL Joy 12B  
 PREPARED BY JPS/Bechtel DATE 2/23/83 SHEET 2 OF 3

RUN NUMBER	PENETRATION (ft.)	RECOVERY	% RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS
11	50	2.9	100	-			
10	45	5.2	100	-		42.4'-50.1' ARGILLACEOUS HALITE: clear and mottled pale brown (5YR 5/2), pale yellowish-brown (10 YR 6/2) and brownish-gray (5YR 4/1). Finely to coarsely crystalline, moderately hard. Clay content from 0 to 25% with brown clay breaks at: 42.5', 43.0', 45.3', 45.8', 46.2', 47.0', 47.2', 48.9', 49.3', and 49.6'. At 49.9', 1/2" thick, moist, brown clay seam.	
9	40	5.0	100	-		37.6'-42.4' HALITE: clear, medium to coarsely crystalline, moderately hard. Trace of moderate reddish-orange (10R 6/6) polyhalite stringers from 39.5'-42.0'.	
8	35	5.2	100	-		36.9'-37.6' ANHYDRITE: medium light gray (N6), very hard, dense, microcrystalline. Few clear halite stringers at 37.6'. 32.0'-36.9' ARGILLACEOUS HALITE: clear and mottled medium gray (N5), brownish-gray (5YR 4/1) and pale yellowish-brown (10YR 6/2). Finely to coarsely crystalline, moderately hard. Finely crystalline from 35.9'-36.9'. Clay content ranges from 0-15% with numerous discontinuous clay breaks throughout. Clay breaks at: 33.0', 33.5', 35.1', 35.6', 35.7'. At 36.9', 1/2" thick, grayish-brown (5YR 3/2) soft, moist clay seam.	
7	30	5.2	100	-		29.8'-32.0' HALITE: clear, coarsely crystalline, moderately hard. 28.2'-29.8' ARGILLACEOUS HALITE: clear and light brownish-gray (5YR 6/1), moderately hard, medium crystalline. Clay content ranges from 0 to 15% with clay breaks at: 29.0', 29.3' and 29.7'.	
6	25	5.2	100	-		24.0'-28.2' HALITE: clear, coarsely crystalline, moderately hard. Few scattered, white (N9) anhydrite stringers.	

# WIPP-SPDV

WASTE ISOLATION PILOT PLANT

# ROCK CORING LOG UPWARD CORING



BORING NO. DO-203 INSTRUMENT Extensometer  
 TYPE & NUMBER GE-235 HOLE SIZE NX  
 LOCATION East 140 Drift, 624' N of Exploratory Shaft centerline,  
6.8' from W rib

STATION N624, E140 COLLAR ELEV. 1298.2 DIRECTION OF DRILLING vertical up  
 MINE COORDINATES N10308.6, E7041.7 BOREHOLE PENETRATION 52.0'  
 DRILLING METHOD Rotary w/brine DRILL MAKE/MODEL Joy 12B  
 PREPARED BY JPS/Bechtel DATE 2/23/83 SHEET

3 OF 3

RUN NUMBER	PENETRATION ( ft. )	RECOVERY	% RECOVERED	ROD	PROFILE	DESCRIPTION	REMARKS
11	50 55	2.9	100	-	X	50.1'-52.0' HALITE: clear to moderate reddish-orange (10R 6/6), coarsely crystalline, moderately hard. Trace of orange polyhalite occurs as blebs and stringers	Total Penetration = 52.0'  Hole completed at 19:00 hours on 23 February 1983.

# WIPP-SPDV

# ROCK CORING LOG



WASTE ISOLATION PILOT PLANT

BORING NO. DO-204 INSTRUMENT TYPE & NUMBER None HOLE SIZE NX

LOCATION East 140 Drift, 624' N of Exploratory Shaft centerline 6.8'  
from W rib

STATION N640, E140 COLLAR ELEV. 1290.5 DIRECTION OF DRILLING vertical down

MINE COORDINATES N10308.5, E7041.5 DEPTH OF BOREHOLE 51.6'

DRILLING METHOD Rotary w/brine DRILL MAKE/MODEL Joy 12B

PREPARED BY JPS/Bechtel DATE 2/24/83 SHEET

1 OF 3

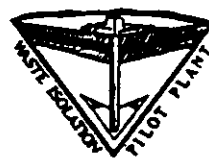
RUN NUMBER	DEPTH (')	RECOVERY	% RECOVERED	ROD	PROFILE	DESCRIPTION	REMARKS								
1	0	.7	35	-	-		<p>Began coring at 18:45 hrs. on 23 February 1983. Cored from 0 to 0.3' with 6" single tube core barrel. Cored without inner tube from 0.3' to 6.4'.</p> <p><b>Core Loss:</b></p> <table border="1"> <tr> <th>Run</th> <th>Where Lost</th> </tr> <tr> <td>1</td> <td>Throughout Run</td> </tr> <tr> <td>2</td> <td>Throughout Run</td> </tr> <tr> <td>3</td> <td>0.7' lost between 32.0' to 33.0'</td> </tr> </table>	Run	Where Lost	1	Throughout Run	2	Throughout Run	3	0.7' lost between 32.0' to 33.0'
Run	Where Lost														
1	Throughout Run														
2	Throughout Run														
3	0.7' lost between 32.0' to 33.0'														
2	5	1.9	46	-	-	0.0'-7.1' <b>HALITE:</b> argillaceous, clear and pale brown (5YR 5/2), coarsely crystalline, moderately hard. Interstitial brown clay content ranges from 0-3%. Clay breaks at: 3.0' and 5.0'.									
3	10	4.7	100	-	X	7.1'-8.9' <b>HALITE:</b> polyhalitic, clear and moderate reddish-orange (10R 6/6), coarsely crystalline, moderately hard. Polyhalite occurs as scattered stringers and blebs and represents from 0-3% of core. Dense polyhalite seam (1/4") at 8.9'.									
4	15	5.0	100	-	X	8.9'-11.5' <b>ANHYDRITE:</b> very light gray (N8) to medium light gray (N6), hard to very hard, dense, microcrystalline. Core broken into 1/8"-1/4" chips throughout; slightly banded in part.									
					X	11.5'-11.6" <b>CLAY:</b> medium gray (N5), moist, soft, highly plastic.									
5	20	5.1	100	-	X X	11.6'-15.3' <b>HALITE:</b> argillaceous, clear and light gray (N7) to grayish orange-pink (5YR 7/2). Trace of polyhalite throughout. Medium to coarsely crystalline, moderately hard. Clay content ranges from 0 to 15% with gray clay breaks at: 11.7', 12.0', 13.0', 13.5', and 14.0'									
					X	15.3'-27.9' <b>HALITE:</b> polyhalitic, clear and moderate reddish-orange (10R 6/6), and grayish-orange (10YR 7/4). Medium to coarsely crystalline, moderately hard, polyhalite content ranges from 0 to 20% locally and occurs interstitially and as isolated blebs and stringers. Trace of argillaceous halite from 19.0'-21.0'. Clay breaks at: 19.6', 19.7', and 20.0'.									
6	25	5.2	100	-	X X										





# WIPP-SPDV

# ROCK CORING LOG



WASTE ISOLATION PILOT PLANT

BORING NO. D0-204 INSTRUMENT TYPE & NUMBER None HOLE SIZE NX

LOCATION East 140 Drift, 624' N of Exploratory Shaft centerline, 6.8' from W rib

STATION N640, E140 COLLAR ELEV. 1290.5 DIRECTION OF DRILLING down vertical

MINE COORDINATES N10308.5, E7041.5 DEPTH OF BOREHOLE 51.6'

DRILLING METHOD Rotary w/brine DRILL MAKE/MODEL Joy 12B

PREPARED BY JPS/Bechtel DATE 2/24/83 SHEET

3 OF 3

RUN NUMBER	DEPTH ( )	RECOVERY	% RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS
11	50	5.3	100	-	-	49.8'-51.6' HALITE: clear, coarsely crystalline, moderately hard, with trace gray clay in part.	Hole completed at 10:00 hours on 24 February 1983.  Total Depth = 51.6'
	55						



# WIPP-SPDV

WASTE ISOLATION PILOT PLANT

# ROCK CORING LOG UPWARD CORING



BORING NO. DO-205 INSTRUMENT TYPE & NUMBER None HOLE SIZE NX

LOCATION 0 East Drift, 1410' N of Exploratory Shaft centerline,  
12 1/2' from E rib

STATION N1410, E0 COLLAR ELEV. 1316.5' DIRECTION OF DRILLING vertical  
up

MINE COORDINATES N11095, E6892 BOREHOLE PENETRATION 50.7'

DRILLING METHOD Rotary w/brine DRILL MAKE/MODEL Joy 12B

PREPARED BY JPS/Bechtel DATE 2/19/83 SHEET

1 OF 3

RUN NUMBER	PENETRATION (ft.)	RECOVERY	% RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS
6	25	5.0	100	-		<p>22.5'-31.5' HALITE: clear, coarsely crystalline, moderately hard, few isolated stringers of white (N9), anhydrite. At 22.7', 1/2" thick medium gray (N5) moist clay seam. From 27.5'-28.7', moderate brown (5YR 4/4), slightly argillaceous zone, medium crystalline. At 28.7' gray clay parting.</p> <p>17.4'-22.5' HALITE: argillaceous, clear to mottled dark gray (N4) to pale yellowish-brown (10YR 6/2). Finely to medium crystalline, moderately hard. Clay content ranges from 0 to 15%. Trace of orange polyhalitic halite from 19.3'-20.0'. Clay breaks at 18.3', 19.7', 20.0', 20.5', 21.0', 21.3', 21.9' and 22.3'.</p>	
5	20	5.2	100	-		<p>13.5'-17.4' POLYHALITIC HALITE: clear and moderate reddish-orange (10R 6/6), moderately hard, coarsely crystalline. Few very light gray (N8) hard, anhydrite stringers throughout. 1/8" thick anhydrite stringer at 14.7'. Polyhalite occurs interstitially and in isolated blebs in 5-8% of core.</p> <p>12.8'-13.5' ANHYDRITE: medium gray (N5) to very light gray (N8); hard, dense, microcrystalline, slightly banded in part. Moist, gray clay parting at 12.8'.</p>	At 12.9' encountered gas. No detectable gas after 5 minutes.
4	15	4.8	100	-		<p>6.3'-12.8' HALITE: clear, coarsely crystalline, moderately hard, few white (N9), hairline anhydrite stringers throughout. Trace polyhalite from 6.3'-7.1'. Finely crystalline above 12.0'. Trace of light gray (N7) interstitial clay above 12.0'. Gray clay breaks at 12.5' and 12.7'.</p> <p>6.1'-6.3' ANHYDRITE: very light gray (N8), hard, dense, microcrystalline, broken into 1/8" chips. Soft, gray clay parting at 6.1'.</p>	
3	10	3.0	97	-		<p>0.0'-6.1' HALITE: argillaceous and polyhalitic in part. Clear to moderate reddish-orange (10R 6/6) to light brown (5 YR 6/4) to medium gray (N5). Finely to coarsely crystalline, moderately hard. Finely crystalline above 4.6'. Few gray clay breaks at 4.4', 5.4' and 5.9'. Clay and polyhalite represent from 0-3% of core.</p>	Coring began at 09:00 hours on 18 February 1983.
2	5	3.0	97	-			Cored from 0'-1.0' with 6" core barrel. From 1.0'-6.1' cored without use of inner core barrel.
1	0	2.0	100	-			
0	0	.9	90	-			



# WIPP-SPDV

WASTE ISOLATION PILOT PLANT

# ROCK CORING LOG UPWARD CORING



BORING NO. DO-205 INSTRUMENT TYPE & NUMBER None HOLE SIZE NX

LOCATION 0 East Drift, 1410' N of Exploratory Shaft centerline,  
12 1/2' from E rib

STATION N1410, E0 COLLAR ELEV. 1316.5' DIRECTION OF DRILLING vertical  
UP

MINE COORDINATES N11095, E6892 BOREHOLE PENETRATION 50.7'

DRILLING METHOD Rotary w/brine DRILL MAKE/MODEL Joy 12R

PREPARED BY JPS/Bechtel DATE 2/19/83 SHEET

2 OF 3

RUN NUMBER	PENETRATION (ft.)	RECOVERY	% RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS
11	50	4.1	100	-	X	46.1'-49.1' ARGILLACEOUS HALITE: clear to mottled brownish-gray (5YR 4/1) to medium light gray (N6) to moderate brown (5YR 3/4). Finely to coarsely crystalline, moderately hard. Numerous clay breaks and partings with clay composing 0-20% of core. Finely crystalline from 47.8'-48.9'. Brown clay breaks at 46.4', 46.7', 46.9', 47.4', 47.9', 48.0', 48.1', 48.5' and 48.7'. Clay partings at 46.8', 48.8' and 48.9'.	
10	45	5.0	100	-	X	43.1'-46.1' HALITE: clear, medium to coarsely crystalline, moderately hard, numerous blebs and stringers of very light gray (N7) anhydrite. Trace of orange polyhalite at 43.6'. Trace of brownish-gray (5YR 4/1) clay from 45.6'-45.8'.	
9	40	5.1	100	-	X	40.4'-43.1' ARGILLACEOUS HALITE: clear to mottled grayish-brown (5YR 3/2), pale yellowish-brown (10YR 6/2) and moderately reddish-orange (10R 6/6), finely to coarsely crystalline, moderately hard. Finely crystalline from 41.0'-43.0'. Clay content ranges from 0-15% with trace of interstitial polyhalite from 42.5'-43.0'. Clay breaks at 40.7', 40.8', 41.2', 41.4', 41.8', 42.0', 42.3' and 43.0'.	
8	35	5.1	100	-	X	36.2'-40.4' HALITE: clear, coarsely crystalline, moderately hard. Trace of polyhalite throughout. Some isolated stringers of very light gray (N8) anhydrite. 35.4'-36.2' ANHYDRITE: light gray (N7) to medium gray (N5), very hard, dense. 35.3'-35.4' CLAY: grayish brown (5YR 3/2), moist, firm to stiff, highly plastic, dense. Horizontal contact with anhydrite above.	
7	30	5.2	100	-	X	31.5'-35.3' ARGILLACEOUS HALITE: clear to pale yellowish-brown (10YR 6/2) and medium gray (N5), finely to coarsely crystalline, moderately hard, numerous brown clay breaks throughout; clay represents about 3-10% of core. Clay breaks at 31.5', 31.6', 32.9', 33.4', 33.6' and 34.0'.	
6	25	5.0	100	-	X		

# WIPP-SPDV

WASTE ISOLATION PILOT PLANT

# ROCK CORING LOG UPWARD CORING



BORING NO. DO-205 INSTRUMENT TYPE & NUMBER None HOLE SIZE NX

LOCATION 0 East Drift, 1410' N of Exploratory Shaft centerline,  
12 1/2' from E rib

STATION N1410, E0 COLLAR ELEV. 1316.5' DIRECTION OF DRILLING vertical up

MINE COORDINATES N11095, E6892 BOREHOLE PENETRATION 50.7'

DRILLING METHOD Rotary w/brine DRILL MAKE/MODEL Joy 12B

PREPARED BY JPS/Bechtel DATE 2/19/83 SHEET

3 OF 3

RUN NUMBER	PENETRATION (ft.)	RECOVERY	% RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS
11		4.1	100	17	X	49.1'-50.7' HALITE: polyhalitic, clear and moderate reddish orange (10R 6/6), coarsely crystalline, moderately hard. Polyhalite comprises 0-3% of core and occurs as isolated blebs and stringers.	Total Penetration = 50.7' Completed hole at 15:00 hours on 18 February 1983.

# WIPP-SPDV

# ROCK CORING LOG



WASTE ISOLATION PILOT PLANT

BORING NO. DO-206 INSTRUMENT TYPE & NUMBER None HOLE SIZE NX  
 LOCATION 0 East Drift, 1410' N of Exploratory Shaft centerline,  
12 1/2' from E rib

STATION N1410, E0 COLLAR ELEV. 1308.0' DIRECTION OF DRILLING vertical down  
 MINE COORDINATES N11095, E6892 DEPTH OF BOREHOLE 50.6'  
 DRILLING METHOD Rotary w/brine DRILL MAKE/MODEL Joy 12B

PREPARED BY JPS/Bechtel DATE 2/22/83 SHEET 1 OF 3

RUN NUMBER	DEPTH (ft.)	RECOVERY % RECOVERED	ROD	PROFILE	DESCRIPTION	REMARKS
1	0 - 3.3	55	-	X - X	0.0'-9.5' HALITE: argillaceous and polyhalitic in part. Clear to moderate reddish-orange (10R 6/6) and light gray (N7), finely to coarsely crystalline, moderately hard. Interstitial clay composes up to 1% of core as does isolated blebs and stringers of orange polyhalite. Clear halite from 8.5'-9.5'.	Hole began at 09:30 hours on 21 February 1983. Cored from 0' to 6.0' without inner core barrel.  Core Loss: Run 1 Throughout Run '3 11.3'-13.2'  Encountered gas at 13.2'.
2	3.3 - 5.3	100	-	- X		
3	5.3 - 7.0	55	-	X X X X X	9.5'-13.2' POLYHALITIC HALITE: clear and moderate reddish-orange (10R 6/6), coarsely crystalline, moderately hard. Polyhalite is interstitial and locally represents up to 25% of core. Hard polyhalite seam at 13.1'.	
4	7.0 - 9.1	100	-	X X X X	13.2'-14.4' ANHYDRITE: light gray (N7) to, very light gray (N8), hard, dense, microcrystalline.	
5	9.1 - 14.1	100	-	X X X X X X X X X X	14.4'-20.6' POLYHALITIC HALITE: clear to moderate reddish-orange (10R 6/6), medium to coarsely crystalline, moderately hard. Polyhalite ranges from 0-20% and occurs as blebs and stringers throughout. At 18.0', hard, dense, 1/4" thick polyhalite seam. Trace of clay from 19.5'-19.9' with 1/2" thick gray clay seam at 19.5'.	
6	14.1 - 19.7	100	-	X X X X X X X	20.6'-21.8' HALITE: argillaceous, clear and medium gray (N5), medium to coarsely crystalline, moderately hard. Clay content ranges from 0-5% and occurs interstitially. Gray clay breaks at 20.9', 21.1', 21.2' and 21.5'.	
	19.7 - 25.0			X X	(see description on next sheet)	



# WIPP-SPDV

# ROCK CORING LOG



WASTE ISOLATION PILOT PLANT

BORING NO. DO-206 INSTRUMENT TYPE & NUMBER None HOLE SIZE NY  
 LOCATION 0 East Drift, 1410' N of Exploratory Shaft centerline,  
12 1/2' from E rib

STATION N1410, E0 COLLAR ELEV. 1308.0' DIRECTION OF DRILLING vertical down

MINE COORDINATES N11095, E6892 DEPTH OF BOREHOLE 50.6'

DRILLING METHOD Rotary w/brine DRILL MAKE/MODEL Joy 12B

PREPARED BY JPS/Bechtel DATE 2/22/83 SHEET 3 OF 3

RUN NUMBER	DEPTH (ft.)	RECOVERY	% RECOVERED	ROD	PROFILE	DESCRIPTION	REMARKS
11	55	3.0	100	-	-		Total Depth = 50.6' Hole completed at 14:30 hours on 21 February 1983



# WIPP-SPDV

WASTE ISOLATION PILOT PLANT

# ROCK CORING LOG UPWARD CORING



BORING NO. DO-229 INSTRUMENT TYPE & NUMBER None HOLE SIZE NX  
 LOCATION East 140 Drift, 401' S of Exploratory Shaft Centerline, 13.7' from E rib

STATIONS 401, E 153 COLLAR ELEV. 1259.8 DIRECTION OF DRILLING Vertical up  
 MINE COORDINATES N9287 E7049 BOREHOLE PENETRATION 50.6'  
 DRILLING METHOD Rotary w/Brine DRILL MAKE/MODEL Joy 12B  
 PREPARED BY RMB/Bechtel DATE 3/4/83 SHEET 1 OF 3

RUN NUMBER	PENETRATION (ft.)	RECOVERY	% RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS
8	4.0	80	-	-	X	(see description on next sheet)	<p><b>Core Loss:</b></p> <ul style="list-style-type: none"> <li>Run 1 - at 1.4'</li> <li>Run 2 - throughout</li> <li>Run 6 - throughout</li> <li>Run 7 - intermittently between 16.4'-20.0'</li> <li>Run 8 - throughout</li> </ul> <p>Stuffing box blown out of collar three times during Run #6, at approximately 12', 15', and 15.9'. Gas has high pressure but low volume. Flow lasted for about one minute in each case.</p> <p>Brief flow of gas at moderate pressure at 8.5'.</p> <p>Inner core barrel was used after 6.3'.</p> <p>Run #3 was dropped by drillers. Core was not necessarily boxed in order.</p> <p>Core Run #0 is a 5.5" diameter plug 1.0' long drilled out for stuffing box.</p> <p>Coring began at 10:00 hours, 2 March 1983.</p>
7	4.5	88	-	-	X	20.8'-23.2' <b>ARGILLACEOUS HALITE:</b> (lower contact approximate) pale brown (SYR 5/2) to moderate brown (SYR 3/4), mottled, medium to coarsely crystalline, moderately hard. Contains 2-5% brown clay, trace only from 20.8'-21.5'. Contains several clay breaks.	
					X	16.6'-20.8' <b>POLYHALITIC HALITE:</b> clear, mottled with moderate reddish-orange (10R 6/6) polyhalite, medium to coarsely crystalline. Polyhalite content varies from 1 to 5% and occurs as discrete blebs and stringers. Also contains 1-2% very light gray (N8), blebs and thin anhydrite stringers. Polyhalite absent from 18.6' to 19.3'.	
					X	15.9'-16.6' <b>ANHYDRITE:</b> (Anhydrite "a") medium light gray (N6) to white, banded, microcrystalline, hard, dense. Trace of gray clay at 15.9'.	
6	4.3	86	-	-	X	8.6'-15.9' <b>HALITE:</b> clear, medium to coarsely crystalline, moderately hard. 8.7'-8.9': light gray anhydrite stringers and reddish-orange polyhalite blebs. Very thin light gray anhydrite stringers at 9.6'. 1/8" light gray anhydrite stringer at 10.4'. Light gray anhydrite bleb and small polyhalite blebs at 14.7' and at 15.5'-15.6'.	
5	5.1	100	-	-	X	8.5'-8.6' <b>ANHYDRITE:</b> (Anhydrite "b") medium gray (N5), banded, hard, dense, microcrystalline. Trace of gray clay at 8.5'.	
					X	5.3'-8.5' <b>ARGILLACEOUS HALITE:</b> brownish-gray (SYR 4/1), medium crystalline, moderately hard. ≤2% clay from 5.3' to 6.8'. ±5% clay 6.8' to 8.5'. Brown clay breaks at 6.9', 7.1', 7.8', 7.9', 8.2', 8.3'.	
3	2.4	100	-	-	X	0.0'-5.3' <b>HALITE:</b> clear to moderate reddish-orange (10R 6/6), locally light brownish-gray (SYR 6/1), medium to coarsely crystalline, moderately hard. Trace polyhalite blebs throughout. Argillaceous (±2%) from 0.0' to 0.5'.	
2	0.6	50	-	-	X		
	0.3	75	-	-			
0	1.0	100	-	-			

# WIPP-SPDV

WASTE ISOLATION PILOT PLANT

# ROCK CORING LOG UPWARD CORING



BORING NO. DO-229 INSTRUMENT TYPE & NUMBER None HOLE SIZE NX

LOCATION East 140 Drift, 401' S of Exploratory Shaft Centerline, 13.7' from E rib

STATION S 401, E 153 COLLAR ELEV. 1259.8 DIRECTION OF DRILLING Vertical up

MINE COORDINATES N9287-E7049 BOREHOLE PENETRATION 50.6'

DRILLING METHOD Rotary w/Brine DRILL MAKE/MODEL Joy 12B

PREPARED BY RMB/Bechtel DATE 3/4/83 SHEET

2 OF 3

RUN NUMBER	PENETRATION (ft.)	RECOVERY	% RECOVERED	RQD	PROFILE	DESCRIPTION	REMARKS
13	4.0	100	-	-	X	(see description on next sheet)	
12	5.0	100	-	-	X \	45.2'-48.1' HALITE: clear, mottled locally with moderate reddish-orange (5YR 3/4) clay, medium to coarsely crystalline, moderately hard. Clay content increases upward: trace brown clay 45.2'-47.0'; 2% 47.0'-47.6'; 10% with clay breaks 47.6'-48.0'. Trace polyhalite blebs 45.2'-47.0'.	
11	5.1	100	-	-	X \	40.4'-45.2' HALITE: clear, mottled with moderate reddish-orange (10R 6/6) polyhalite, medium to coarsely crystalline, moderately hard. Contains 1-4% polyhalite as discrete blebs and stringers. Also contains trace very light gray anhydrite blebs.	
10	4.0	80	-	-	X \	39.9'-40.4' ANHYDRITE: medium gray (N5), banded with very light gray (N8), microcrystalline, hard, dense. Underlain by 1/2" thick brown clay seam.	Hit strong flow of pressurized gas at about 38'. Flow continued at moderate rate until about 41.5' (approximate 5 minute duration).
9	4.8	96	-	-	X -	30.4'-39.9' ARGILLACEOUS HALITE: pale brown (5YR 5/2) to moderate brown (5YR 3/4), locally clear mottled with moderate reddish-orange polyhalite, fine to coarsely crystalline, moderately hard. Clay content about 2-5%. Numerous brown clay breaks. Trace polyhalite without clay from 31.7'-32.2' and 38.8'-39.5'. Clear halite from 32.4'-34.0'.	Core Loss: Run 9 - intermittently between 26.5'-28.0' Run 10 - throughout.
8	4.0	100	-	-	X -	23.2'-30.4' HALITE: clear, medium to coarsely crystalline, moderately hard. Traces of polyhalite and brown clay 23.2'-26.5'. Light gray anhydrite seam underlain by brown clay partings 26.5'-26.6'. Very light gray anhydrite seam, 1/8"-1/4", at 27.6', and a few hairline anhydrite stringers throughout.	Violent bursts of pressurized gas at about 20', and again at about 31'. Stuffing box blown out of collar both times. Very high flow for 30+ seconds, then diminished to a strong flow for 2-5 minutes, then dissipated.

# WIPP-SPDV

WASTE ISOLATION PILOT PLANT

# ROCK CORING LOG UPWARD CORING



BORING NO. D0-229 INSTRUMENT TYPE & NUMBER None HOLE SIZE NX

LOCATION East 140 Drift, 401' S of Exploratory Shaft Centerline, 13.7' from E rib

STATION S 401, E 153 COLLAR ELEV. 1259.8 DIRECTION OF DRILLING Vertical up

MINE COORDINATES N9287 E7049 BOREHOLE PENETRATION 50.6'

DRILLING METHOD Rotary w/Brine DRILL MAKE/MODEL Joy 12B

PREPARED BY RMB/Bechtel DATE 3/4/83

SHEET  
3 OF 3

RUN NUMBER	PENETRATION (ft.)	RECOVERY	% RECOVERED	ROD	PROFILE	DESCRIPTION	REMARKS
13	50	4.0	100	-	X-	<p>48.1'-50.6' HALITE: predominately clear, locally mottled with moderate brown clay and moderate reddish-orange polyhalite, medium to coarsely crystalline, moderately hard. Contains trace polyhalite blebs throughout and trace brown clay 50.4'-50.6'. Possible clay break at 48.4'.</p>	<p>Hole completed at 11:30 hours on 3 March 1983.</p>



# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT \_\_\_\_\_ HOLE TYPE / SIZE 4" CORE \_\_\_\_\_ BORING NO. 0H-9

LOCATION CENTERLINE OF ROOM L-1; TEST ROOM I INTERSECTION; ROOF

STATION N1433 W231.5 COLLAR ELEV. 1310 ± DIRECTION OF DRILLING VERTICAL UP

MINE COORDINATES N11,125.6 E6662.9 DEPTH OF BOREHOLE 15.4 FT

DRILLING METHOD ROTARY/AIR DRILL MAKE/MODEL LONGYEAR 65

DATE STARTED 2-27-84 (DAY) DATE COMPLETED 2-28-84 (DAY) SHEET

LOGGED BY: J. E. GALLERANI DATE: 2-28-84 1 OF 1

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
1	0.0 - 1.85	1.85	1.85	100	X	0.0' - 4.2' HALITE: Clear, coarsely crystalline. < 1% polyhalite. 1% from 1.0 to 2.0'±.	4" dia. thin wall masonry core barrel. Used with KW rods.
2	1.85 - 5.55	3.7	3.7	100	X	4.2' - 7.3' HALITE: Clear, coarsely crystalline to 6.3'. Then medium to coarse. ≤ 1% gray inter-crystalline clay. < 1/2% dispersed polyhalite.	Hole drilled by SNL.
	5.55 - 7.45				X	7.3' - 7.45' ANHYDRITE b: Gray, microcrystalline anhydrite. Up to 1/2" halite layer at 7.4'. Trace of gray clay at 7.3'. Upper contact tightly welded. Intact core.	Dry hole. No gas. Core broken in several pieces at lower contact of anhydrite b. Unable to determine if any separation exists.
3	7.45 - 9.3	3.75	3.75	100		7.45' - 13.15' HALITE: Clear; coarsely crystalline. Scattered white stringers.	
4	9.3 - 12.35	3.05	3.05	100		13.15' - 13.95' HALITE: Clear to light gray (N7); medium to coarsely crystalline. ≤ 1% gray clay. < 1/2% dispersed polyhalite.	
5	12.35 - 15.4	3.05	3.05	100	X X X	13.95' - 14.45' ANHYDRITE a: Light gray to white anhydrite with scattered halite growths from 14.15'. Upper contact tightly welded. Lower contact has < 1/16" gray clay.	Core broken at 13.95'. Smooth, horizontal break. Unable to determine any separation from core here.
	15.4 - 15.4					14.45' - 15.4' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6); coarsely crystalline. < 1 to 3% polyhalite.	



BORING NO. 0H-9

# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE/SIZE 4" CORE BORING NO. OH-11

LOCATION CENTERLINE OF ROOM L-2 AND TEST ROOM 2 INTERSECTION; ROOF


STATION N1433 W364.5 COLLAR ELEV. 1308 ± DIRECTION OF DRILLING VERTICAL UP

MINE COORDINATES N11,125.6 E6529.6 DEPTH OF BOREHOLE 19.7 FT

DRILLING METHOD ROTARY/AIR DRILL MAKE/MODEL LONGYEAR 65

DATE STARTED 2-15-84 (DAY) DATE COMPLETED 2-16-84 (DAY) SHEET

LOGGED BY: J. E. GALLERANI DATE: 2-16-84 1 OF 1

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
1	0.0 - 1.5	1.5	1.5	100	X	0.0' - 2.3' HALITE: Clear to moderate reddish orange (10R 6/6); coarsely crystalline. < 1 to 2% polyhalite blebs and patches.	Used 4" thin wall masonry core barrel with EW rods.  Hole drilled by SNL.  Drilling time: 8-1/2 hrs. ±.     Lower contact of anhydrite b shows some core grinding. Trace of gray clay.
2	1.5 - 4.6	3.1	3.1	100	X	2.3' - 5.2' HALITE: Clear, some moderate reddish orange (10R 6/6); medium to coarsely crystalline. < 1% polyhalite. Clay break at 3.0 - 3.2'.	
3	4.6 - 7.6	3.0	3.0	100	X	5.2' - 7.6' HALITE: Clear mixed with medium light gray (M6); medium to coarsely crystalline. < 1% gray clay and polyhalite.	
4	7.6 - 10.45	2.85	2.85	100	X	7.6' - 7.8' ANHYDRITE b: White to light gray (N7) anhydrite with scattered halite growths. Slight trace clay at 7.6'. Upper contact is tightly welded. Core intact.	
5	10.45 - 14.1	3.65	3.65	100	X	7.8' - 13.0' HALITE: Clear; coarsely crystalline. Scattered white stringers.	
6	14.1 - 17.8	3.7	3.7	100	X X X X X	13.0' - 14.1' HALITE: Clear to moderate reddish orange (10R 6/6); medium to coarsely crystalline. < 1/2% dispersed polyhalite and gray clay.	
7	17.8 - 19.7	1.9	1.9	100	X X X X	14.1' - 14.8' ANHYDRITE a: White to light gray (N7) microcrystalline anhydrite with scattered halite growths, especially common from 14.6 - 14.8'. < 1/32" gray clay at 14.1'. Upper contact is irregular; tightly welded. Core intact. Grades into polyhalitic halite above.	
	19.7 - 20.0					14.8' - 18.4' POLYHALITIC HALITE: Clear to moderate reddish orange; coarsely crystalline. < 1 to 3% polyhalite. Anhydrite stringers at 15.9 and 16.05'.  18.4' - 19.7' HALITE: Clear, medium to coarsely crystalline. < 1% dispersed gray clay. Break at 18.4'.	Core broken at lower contact of anhydrite a but pieces fit together fairly well.  

BORING NO. OH-11

# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT \_\_\_\_\_ HOLE TYPE/SIZE 4" CORE BORING NO. OH-13  
 TYPE & NUMBER \_\_\_\_\_

LOCATION CENTERLINE ROOM L-1 AND TEST ROOM 1 INTERSECTION; FLOOR

STATION N1433 W231.5 COLLAR ELEV. 1298 ± DIRECTION OF DRILLING VERTICAL DOWN

MINE COORDINATES N11125.6 E6662.9 DEPTH OF BOREHOLE 9.5 FT

DRILLING METHOD ROTARY/AIR DRILL MAKE/MODEL LONGYEAR 65

DATE STARTED 2-28-84 (DAY) DATE COMPLETED 2-28-84 (DAY) SHEET \_\_\_\_\_

LOGGED BY: J. E. GALLERANI DATE: 2-28-84 1 OF 1

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
1	0.0	2.5	2.5	100	—	0.0'-0.15' FILL	4" dia. wall masonry core barrel used with EW rods.
2	2.5	3.15	3.15	100	X	0.15'-1.5' HALITE: Clear, coarsely crystalline. <1% gray intercrystalline clay.	Hole drilled by SNL.
	5				X	1.5'-4.4' HALITE: Clear with some moderate reddish orange (10R 6/6); coarsely crystalline. <1% polyhalite blebs and patches. Gray clay break at 2.5'.	
3	5.65	3.85	3.85	100	X	4.4'-4.6'± POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6); coarsely crystalline. <1% gray clay. 1 to 3% polyhalite. Some anhydrite present.	
	9.5				X	4.6'-8.1' MB-139 : Upper contact, core is broken at 15"±, <1/32" gray clay along it. Mixture of anhydrite and halite to 7.3'. From 7.3' - 7.8' is light gray (N7) to white anhydrite. Irregular pattern of white and gray color. Near-horizontal laminae present. Hard, dry gray clay 7.8 to 8.1'± (lower contact dips from 7.95 to 8.1'). <1/16" halite layer at 7.85'.	20"± break in core at 5.65' but core pieces fit together very well.  Core is broke at 7.9'± but core ends fit together.
						8.1' - 8.6' HALITE: Clear to moderate reddish orange (10R 6/6); coarsely crystalline, some medium. <1/2% polyhalite. Steeply dipping, clean fracture extends from center of core at 8.0' to outer edge at 8.5'. Core not broken completely along this.	Below clay at lower contact, core is intact, and contact is tightly welded.
						8.6' - 9.5' HALITE: Clear to light gray (N7), medium to coarsely crystalline, some fine. <1/2% polyhalite. ≤1% gray intercrystalline clay. Several steeply dipping, clean fractures in core. Core not broken completely along any fractures. Clay breaks at 8.6' and 9.3'.	

BORING NO. OH-13

# WIPP

# GEOLOGIC DRILL LOG

WASTE ISOLATION PILOT PLANT

INSTRUMENT TYPE & NUMBER \_\_\_\_\_ HOLE TYPE/SIZE 4" CORE BORING NO. OH-14

LOCATION CENTERLINE OF ROOM L-2 AND TEST ROOM 2 INTERSECTION; FLOOR

STATION N1433 W364.5 COLLAR ELEV. 1296 ± DIRECTION OF DRILLING VERTICAL DOWN

MINE COORDINATES N11,125.6 E6529.6 DEPTH OF BOREHOLE 9.7 FT

DRILLING METHOD ROTARY/AIR DRILL MAKE/MODEL LONGYEAR 65

DATE STARTED 2-16-84 (DAY) DATE COMPLETED 2-17-84 (DAY) SHEET \_\_\_\_\_

LOGGED BY: J. E. GALLERANI DATE: 2-17-84 1 OF 1

RUN NUMBER	DEPTH (ft.)	LENGTH CORE RUN	RECOVERY	% RECOVERED	PROFILE	DESCRIPTION	REMARKS
1	1.7	1.7	100	X		0.0' - 1.9' HALITE: Clear to moderate reddish orange (10R 6/6); coarsely crystalline with zones of fine to medium. <1% polyhalite. <1/2% gray intercrystalline clay.	4-inch thin wall masonry core barrel used with EW rods.
2	1.8	1.8	100	X X			Hole drilled by SML.
3	3.45	3.45	100	X X		1.9' - 4.4' POLYHALITIC HALITE: Clear to moderate reddish orange (10R 6/6); coarsely crystalline. <1 to 4% polyhalite. Scattered anhydrite from 3.8 to 4.4'. Clean, irregular break in core at 3.55'.	Dry hole. No gas. Separation noted in walls of hole at 3.55'.
4	2.75	2.75	100	X		4.4' - 6.95' MB-139: White to medium light gray (N6) with some moderate reddish orange (10R 6/6). Microcrystalline anhydrite from 4.4 - 5.4'. <1/16" halite layer at 6.75 - 6.8'. Continuous through core there is a hairline fracture 1/2" below this halite where core is broken along. Upper contact of MB-139 is tightly closed and dips 15°. Less than 1/2" below is a parallel break in core. Core pieces fit tightly along this though 1/2 to 3/4" gray clay along lower contact.	While drilling hole, just below top of MB-139, had some air and drill cuttings coming out of 51K-GE-00262 hole. Coming out of extensometer hole at 4.8' depth.
						6.95' - 9.7' HALITE: Clear to light moderate reddish orange (10R 6/6); coarsely crystalline, some medium. <1% dispersed polyhalite. <1% gray clay, intercrystalline and scattered breaks.	Core at lower contact of MB-139 is broken here. Difficult to determine any separation from looking at core.
							Put water in OH-14 and it came out in 51K-GE-00262 at 4.8' depth.

