

Appendix B

Soil Boring, Test Pit, and Well Logs

Table B1. Summary of Well Information
Union Carbide Corporation, Woodbine, Georgia

Well ID	Last Sample Date	Date Installed	Well Status	Type	Total Depth (ft btoc)	Total Depth (bgs)	Coordinate Type	X Coordinate*	Y Coordinate*	TOC Elevation (feet)*	Screen Length	Top of Screen (ft bgs)	Bottom of Screen (depth bgs)	Well Diameter (inches)	Boring Log	Well Log	Map	Notes
MW-1	9/26-28/2022	1982	Active	MW	31.37	--	NAD 1983 GA E US Ft	852435.45	346053.31	23.9	10	18.2	28.2	2.0	No	Yes	Yes	Well Location Shown on Figure 9
MW-6	9/26-28/2022	1982	Active	MW	26.78	--	NAD 1983 GA E US Ft	852171.66	347003.96	22.3	10	15.5	25.5	2.0	No	Yes	Yes	Well Location Shown on Figure 9
MW-7	9/26-28/2022	1982	Active	MW	31.55	--	NAD 1983 GA E US Ft	852845.87	347107.22	24.5	10	15.8	25.8	2.0	No	Yes	Yes	Well Location Shown on Figure 9
MW-8	9/26-28/2022	1982	Active	MW	28.23	--	NAD 1983 GA E US Ft	853272.15	347090.37	23.2	10	17.2	27.2	2.0	No	Yes	Yes	Well Location Shown on Figure 9
MW-10	9/26-28/2022	1982	Active	MW	29.78	--	NAD 1983 GA E US Ft	853527.54	345744.90	26.3	10	18.6	28.6	2.0	No	Yes	Yes	Well Location Shown on Figure 9
MW-16	9/26-28/2022	NA	Active	MW	54.59	--	NAD 1983 GA E US Ft	853279.02	347094.83	22.4	5	49.1	54.1	2.0	No	Yes	Yes	Well Location Shown on Figure 9
MW-17	9/26-28/2022	NA	Active	MW	28.74	--	NAD 1983 GA E US Ft	853339.55	347219.43	22.2	19.5	7.7	27.2	2.0	No	Yes	Yes	Well Location Shown on Figure 9
MW-18	9/26-28/2022	NA	Active	MW	48.76	--	NAD 1983 GA E US Ft	853335.05	347215.62	22.5	5	42.6	47.6	2.0	No	Yes	Yes	Well Location Shown on Figure 9
MW-19	9/26-28/2022	NA	Active	MW	48.82	--	NAD 1983 GA E US Ft	852848.49	347111.47	23.5	5	42.7	47.7	2.0	No	Yes	Yes	Well Location Shown on Figure 9
MW-20	9/26-28/2022	NA	Active	MW	28.24	--	NAD 1983 GA E US Ft	852843.63	347268.52	24.3	19.5	8.7	28.2	2.0	No	Yes	Yes	Well Location Shown on Figure 9
MW-21	9/26-28/2022	NA	Active	MW	54.59	--	NAD 1983 GA E US Ft	852838.21	347266.87	24.3	5	48.3	53.3	2.0	No	Yes	Yes	Well Location Shown on Figure 9
MW-22	9/26-28/2022	NA	Active	MW	54.29	--	NAD 1983 GA E US Ft	852164.94	347009.07	23.2	5	48.8	53.8	2.0	No	Yes	Yes	Well Location Shown on Figure 9
MW-23A	9/26-28/2022	12/15/2021	Active	MW	32.46	30.50	NAD 1983 GA E US Ft	852168.70	347333.40	25.2	20	10.0	30.0	2.0	Yes	Yes	Yes	Well Location Shown on Figure 9
MW-24A	9/26-28/2022	12/15/2021	Active	MW	57.53	55.00	NAD 1983 GA E US Ft	852153.00	347330.60	24.9	5	50.0	55.0	2.0	Yes	Yes	Yes	Well Location Shown on Figure 9
MW-25	9/26-28/2022	7/17/1986	Active	MW	72.73	--	NAD 1983 GA E US Ft	853315.03	347219.88	24.6	5	66.0	71.0	2.0	Yes	No	Yes	Well Location Shown on Figure 9
MW-31	9/26-28/2022	7/14/1986	Active	MW	52.54	--	NAD 1983 GA E US Ft	853950.33	346646.19	25.1	10	41.8	51.8	2.0	Yes	No	Yes	Well Location Shown on Figure 9
MW-32	9/26-28/2022	7/15/1986	Active	MW	32.85	--	NAD 1983 GA E US Ft	853955.31	346652.98	24.5	10	19.4	29.4	2.0	Yes	No	Yes	Well Location Shown on Figure 9
MW-33	9/26-28/2022	7/10/1986	Active	MW	53.86	--	NAD 1983 GA E US Ft	853432.76	346848.88	24.4	10	43.1	53.1	2.0	Yes	No	Yes	Well Location Shown on Figure 9
MW-34	9/26-28/2022	7/16/1986	Active	MW	26.33	--	NAD 1983 GA E US Ft	853438.85	346845.76	24.6	10	15.9	25.9	2.0	Yes	No	Yes	Well Location Shown on Figure 9
MW-35	9/26-28/2022	7/10/1986	Active	MW	54.10	--	NAD 1983 GA E US Ft	851929.37	347005.52	24.7	10	44.1	54.1	2.0	Yes	No	Yes	Well Location Shown on Figure 9
MW-36	9/26-28/2022	7/16/1986	Active	MW	32.83	--	NAD 1983 GA E US Ft	851918.29	347007.55	24.8	10	21.9	31.9	2.0	Yes	No	Yes	Well Location Shown on Figure 9
MW-37	9/26-28/2022	7/1/1986	Active	MW	55.49	--	NAD 1983 GA E US Ft	852436.47	346079.15	24.3	10	44.3	54.3	2.0	Yes	No	Yes	Well Location Shown on Figure 9
MW-38	9/26-28/2022	NA	Active	MW	32.07	--	NAD 1983 GA E US Ft	853059.12	347094.99	27.0	10	21.4	31.4	2.0	No	No	Yes	Well Location Shown on Figure 9
MW-39	9/26-28/2022	NA	Active	MW	32.83	--	NAD 1983 GA E US Ft	852517.85	347116.20	23.5	10	21.7	31.7	2.0	No	No	Yes	Well Location Shown on Figure 9
MW-40	9/26-28/2022	5/23/2006	Active	MW	58.65	--	NAD 1983 GA E US Ft	853041.18	346855.98	25.5	10	45.0	55.0	2.00	Yes	Yes	Yes	Well Location Shown on Figure 9
MW-41	9/26-28/2022	5/22/2006	Active	MW	55.98	--	NAD 1983 GA E US Ft	853517.57	347185.92	23.6	10	43.5	53.5	2.0	Yes	Yes	Yes	Well Location Shown on Figure 9
MW-42	9/26-28/2022	5/17/2006	Active	MW	33.61	--	NAD 1983 GA E US Ft	853527.14	347192.69	23.3	10	20.0	30.0	2.0	Yes	Yes	Yes	Well Location Shown on Figure 9
MW-43	9/26-28/2022	5/24/2006	Active	MW	58.48	--	NAD 1983 GA E US Ft	853313.54	345411.50	26.2	10	45.0	55.0	2.0	Yes	Yes	Yes	Well Location Shown on Figure 9
MW-44	9/26-28/2022	5/24/2006	Active	MW	32.65	--	NAD 1983 GA E US Ft	853311.29	345394.22	26.1	10	19.8	29.8	2.0	Yes	Yes	Yes	Well Location Shown on Figure 9
MW-45	9/26-28/2022	5/17/2006	Active	MW	33.83	--	NAD 1983 GA E US Ft	853031.23	346857.38	25.4	10	19.8	29.8	2.0	Yes	Yes	Yes	Well Location Shown on Figure 9
MW-46	9/26-28/2022	5/23/2006	Active	MW	56.16	--	NAD 1983 GA E US Ft	852465.72	347062.64	26.4	10	44.3	54.3	2.0	Yes	Yes	Yes	Well Location Shown on Figure 9
MW-47	9/26-28/2022	5/17/2006	Active	MW	29.81	--	NAD 1983 GA E US Ft	853481.80	346245.08	27.6	10	19.3	29.3	2.0	Yes	Yes	Yes	Well Location Shown on Figure 9
MW-48	9/26-28/2022	5/24/2006	Active	MW	58.71	--	NAD 1983 GA E US Ft	853478.58	346265.04	27.9	10	45.0	55.0	2.0	Yes	Yes	Yes	Well Location Shown on Figure 9
MW-49	9/26-28/2022	10/24/2011	Active	MW	53.81	--	NAD 1983 GA E US Ft	852692.64	347080.74	24.2	10	39.8	49.8	2.0	No	Yes	Yes	Well Location Shown on Figure 9
MW-50	9/26-28/2022	10/24/2011	Active	MW	53.69	--	NAD 1983 GA E US Ft	852783.30	347086.51	25.1	10	39.8	49.8	2.0	No	Yes	Yes	Well Location Shown on Figure 9
MW-51	9/26-28/2022	10/25/2011	Active	MW	106.09	--	NAD 1983 GA E US Ft	853526.47	347184.86	23.9	5	97.0	102.0	2.0	Yes	Yes	Yes	Well Location Shown on Figure 9
MW-52	9/26-28/2022	10/26/2011	Active	MW	94.35	--	NAD 1983 GA E US Ft	853478.79	346272.62	27.9	5	85.0	90.0	2.0	Yes	Yes	Yes	Well Location Shown on Figure 9
MW-53	10/17/2023	10/6/2023	Acitve	MW	83.37	80.00	NAVD 88 GA E US Ft	855265.60	347514.60	23.0	10	70.0	80.0	2.0	No	Yes	Yes	Well Location Map Located in Appendix B
MW-54	10/17/2023	10/6/2023	Active	MW	113.42	110.00	NAVD 88 GA E US Ft	855268.20	347506.10	22.9	10	100.0	110.0	2.0	Yes	Yes	Yes	Well Location Map Located in Appendix B
ORP-1	9/26-28/2022	11/6/1997	Active	MW	28.00	--	NAD 1983 GA E US Ft	852695.57	347081.25	23.2	10	17.0	27.0	2.0	Yes	Yes	Yes	Well Location Shown on Figure 9
ORP-2	9/26-28/2022	11/5/1997	Active	MW	29.50	--	NAD 1983 GA E US Ft	852787.67	347086.53	24.8	10	18.5	28.5	2.0	Yes	Yes	Yes	Well Location Shown on Figure 9
ORP-3	9/26-28/2022	11/5/1997	Active	MW	29.50	--	NAD 1983 GA E US Ft	852873.97	347099.26	25.0	10	18.5	28.5	2.0	Yes	Yes	Yes	Well Location Shown on Figure 9
TE-1	9/26-28/2022	11/6/1997	Active	MW	34.95	--	NAD 1983 GA E US Ft	852175.29	347111.14	24.5	10	21.5	31.5	2.0	Yes	Yes	Yes	Well Location Shown on Figure 9
TE-2	9/26-28/2022	11/6/1997	Active	MW	33.26	--	NAD 1983 GA E US Ft	852533.85	347243.04	23.2	10	18.5	28.5	2.0	Yes	Yes	Yes	Well Location Shown on Figure 9
TE-3	9/26-28/2022	11/6/1997	Active	MW	31.54	--	NAD 1983 GA E US Ft	852857.74	347229.64	25.3	10	18.5	28.5	2.0	Yes	Yes	Yes	Well Location Shown on Figure 9
OD-01	11/28/2016	10/21/2011	Active	RW	--	50.00	NAD 1983 GA E US Ft	852658.16	347064.31	21.5	30.0	20.0	50.0	2.0	No	Yes	Yes	Well Location Map Located in Appendix B
OD-02	11/28/2016	10/21/2011	Active	RW	--	50.00	NAD 1983 GA E US Ft	852677.86	347064.67	21.7	30.0	20.0	50.0	2.0	No	Yes	Yes	Well Location Map Located in Appendix B
OD-03	11/28/2016	10/21/2011	Active	RW	--	50.00	NAD 1983 GA E US Ft	852699.02	347066.72	21.8	30.0	20.0	50.0	2.0	No	Yes	Yes	Well Location Map Located in Appendix B
OD-04	11/28/2016	10/21/2011	Active	RW	--	50.00	NAD 1983 GA E US Ft	852718.32	347069.23	22.2	30.0	20.0	50.0	2.0	No	Yes	Yes	Well Location Map Located in Appendix B
OD-05	11/28/2016	10/22/2011	Active	RW	--	50.00	NAD 1983 GA E US Ft	852738.89	347068.90	22.3	30.0	20.0	50.0	2.0	No	Yes	Yes	Well Location Map Located in Appendix B
OD-06	11/28/2016	10/22/2011	Active	RW	--	50.00	NAD 1983 GA E US Ft	852758.80	347070.15	22.4	30.0	20.0	50.0	2.0	No	Yes	Yes	Well Location Map Located in Appendix B
OD-07	11/28/2016	10/22/2011	Active	RW	--	50.00	NAD 1983 GA E US Ft	852779.38	347071.18	22.8	30.0	20.0	50.0	2.0	No	Yes	Yes	Well Location Map Located in Appendix B
OD-08	11/28/2016	10/22/2011	Active	RW	--	50.00	NAD 1983 GA E US Ft	852798.25	347072.64	23.2	30.0	20.0	50.0	2.0	No	Yes	Yes	Well Location Map Located in Appendix B

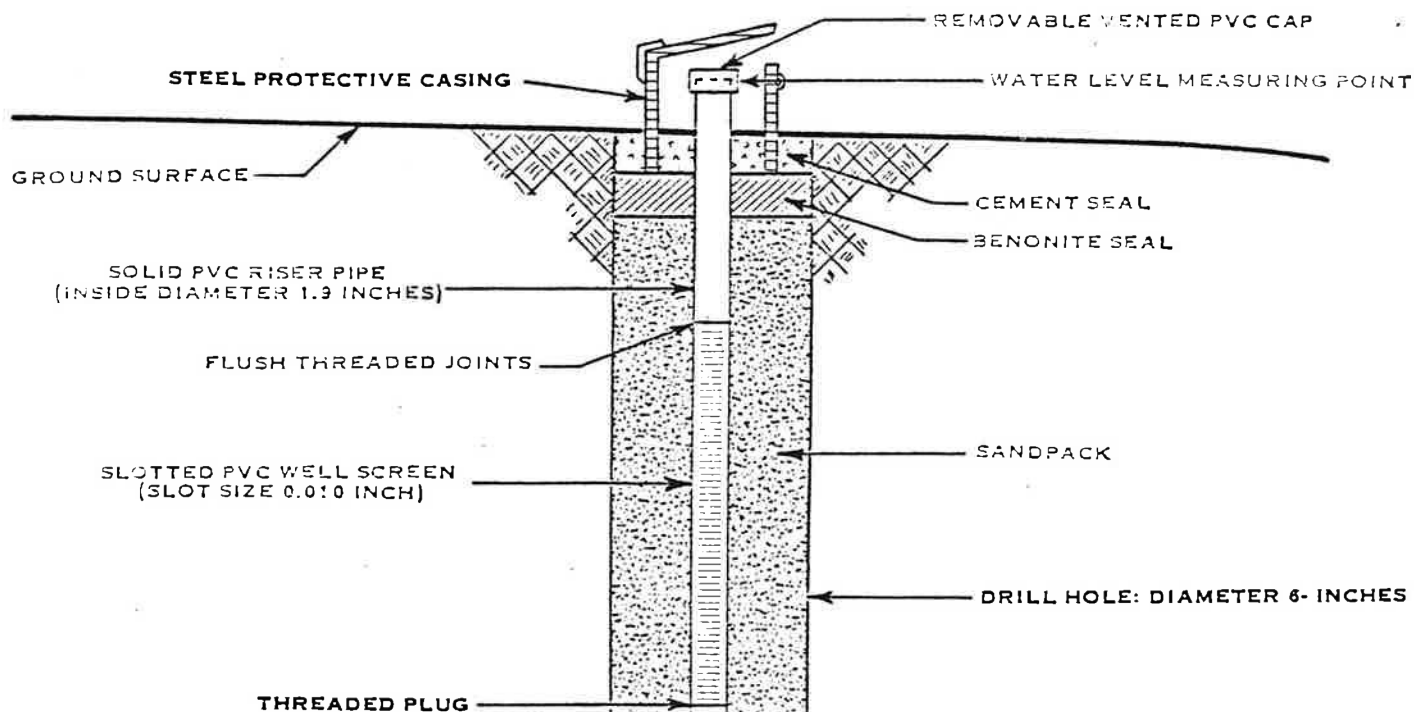
Table B1. Summary of Well Information
Union Carbide Corporation, Woodbine, Georgia

Well ID	Last Sample Date	Date Installed	Well Status	Type	Total Depth (ft btoc)	Total Depth (bgs)	Coordinate Type	X Coordinate*	Y Coordinate*	TOC Elevation (feet)*	Screen Length	Top of Screen (ft bgs)	Bottom of Screen (depth bgs)	Well Diameter (inches)	Boring Log	Well Log	Map	Notes
OD-09	11/28/2016	10/23/2011	Active	RW	--	50.00	NAD 1983 GA E US Ft	852818.69	347073.54	23.3	30.0	20.0	50.0	2.0	No	Yes	Yes	Well Location Map Located in Appendix B
OD-10	11/28/2016	10/23/2011	Active	RW	--	50.00	NAD 1983 GA E US Ft	852838.58	347073.97	22.9	30.0	20.0	50.0	2.0	No	Yes	Yes	Well Location Map Located in Appendix B
OD-11	11/28/2016	10/23/2011	Active	RW	--	50.00	NAD 1983 GA E US Ft	852858.27	347078.11	22.9	30.0	20.0	50.0	2.0	No	Yes	Yes	Well Location Map Located in Appendix B
OD-12	11/28/2016	10/23/2011	Active	RW	--	50.00	NAD 1983 GA E US Ft	852865.41	347085.56	22.6	30.0	20.0	50.0	2.0	No	Yes	Yes	Well Location Map Located in Appendix B
OD-13	11/28/2016	10/23/2011	Active	RW	--	50.00	NAD 1983 GA E US Ft	852874.78	347089.09	22.7	30.0	20.0	50.0	2.0	No	Yes	Yes	Well Location Map Located in Appendix B
OD-14	11/28/2016	10/24/2011	Active	RW	--	50.00	NAD 1983 GA E US Ft	852884.81	347092.46	22.8	30.0	20.0	50.0	2.0	No	Yes	Yes	Well Location Map Located in Appendix B
OD-15	11/28/2016	10/24/2011	Active	RW	--	50.00	NAD 1983 GA E US Ft	852893.93	347096.37	22.9	30.0	20.0	50.0	2.0	No	Yes	Yes	Well Location Map Located in Appendix B
MW-2	--	1982	Abandoned/Lost	MW	30.00	29.50	NA	NA	NA	27.9	10.0	19.5	29.5	2.0	No	Yes	Yes	Well Location Map Located in Appendix B
MW-3	--	1982	Abandoned/Lost	MW	30.00	29.50	NA	NA	NA	28.5	10.0	19.5	29.5	2.0	No	Yes	Yes	Well Location Map Located in Appendix B
MW-4	--	1982	Abandoned/Lost	MW	30.00	29.50	NA	NA	NA	27.5	10.0	19.5	29.5	2.0	No	Yes	Yes	Well Location Map Located in Appendix B
MW-5	--	1982	Abandoned/Lost	MW	32.00	30.00	NA	NA	NA	21.1	10.0	30.0	20.0	NA	No	Yes	Yes	Well Location Map Located in Appendix B
MW-9	--	1982	Abandoned/Lost	MW	30.00	29.50	NA	NA	NA	27.7	10.0	29.5	19.5	NA	No	Yes	Yes	Well Location Map Located in Appendix B
MW-11	--	1982	Abandoned/Lost	MW	30.00	29.50	NA	NA	NA	27.5	10.0	29.5	19.5	NA	No	Yes	Yes	Well Location Map Located in Appendix B
MW-23	9/10/2019	1984	Abandoned (7/28/2021)	MW	--	28.30	NAD 1983 GA E US Ft	852158.31	347384.27	23.9	19.5	9.2	28.7	2.0	No	Yes	Yes	Well Location Shown on Figure 9
MW-24	3/20/2019	1984	Abandoned (7/28/2021)	MW	--	52.40	NAD 1983 GA E US Ft	852153.64	347389.88	23.8	5.0	49.2	54.2	NA	No	Yes	Yes	Well Location Shown on Figure 9
MW-27	--	7/9/1986	Lost to Bank Erosion	MW	54.60	51.50	NA	NA	NA	13.9	5.0	46.0	51.0	NA	Yes	Yes	Yes	Well Location Map Located in Appendix B
MW-28	--	7/1/1986	Lost to Bank Erosion	MW	17.90	15.50	NA	NA	NA	13.6	10.0	5.0	15.0	NA	Yes	Yes	Yes	Well Location Map Located in Appendix B
MW-29	--	7/18/1986	Lost to Bank Erosion	MW	53.80	51.50	NA	NA	NA	18.7	5.0	46.0	51.0	NA	Yes	Yes	Yes	Well Location Map Located in Appendix B
MW-30	--	7/18/1986	Lost to Bank Erosion	MW	20.50	18.40	NA	NA	NA	18.5	10.0	7.9	17.9	NA	Yes	Yes	Yes	Well Location Map Located in Appendix B
IW-1	--	10/28/1997	Abandoned (10/20/2011)	RW	--	29.00	NA	346948.12	696435.22	24.7	1.0	27.5	28.5	1.0	Yes	Yes	Yes	Well Location Map Located in Appendix B
IW-2	--	10/29/1997	Abandoned (10/20/2011)	RW	--	28.50	NA	346948.36	696455.19	24.9	1.0	27.0	28.0	1.0	Yes	Yes	Yes	Well Location Map Located in Appendix B
IW-3	--	10/30/1997	Abandoned (10/20/2011)	RW	--	28.50	NA	346949.58	696475.14	25.1	1.0	27.0	28.0	1.0	Yes	Yes	Yes	Well Location Map Located in Appendix B
IW-4	--	10/30/1997	Abandoned (10/20/2011)	RW	--	28.50	NA	346950.18	696494.61	25.3	1.0	27.0	28.0	1.0	Yes	Yes	Yes	Well Location Map Located in Appendix B
IW-5	--	10/30/1997	Abandoned (10/20/2011)	RW	--	28.50	NA	346951.22	696515.09	25.6	1.0	27.0	28.0	1.0	Yes	Yes	Yes	Well Location Map Located in Appendix B
IW-6	--	10/31/1997	Abandoned (10/20/2011)	RW	--	29.00	NA	346951.70	696535.44	25.6	1.0	27.5	28.5	1.0	Yes	Yes	Yes	Well Location Map Located in Appendix B
IW-7	--	10/31/1997	Abandoned (10/20/2011)	RW	--	29.00	NA	346952.67	696554.64	26.1	1.0	27.5	28.5	1.0	Yes	Yes	Yes	Well Location Map Located in Appendix B
IW-8	--	11/3/1997	Abandoned (10/20/2011)	RW	--	29.00	NA	346953.75	696574.92	26.2	1.0	27.5	28.5	1.0	Yes	Yes	Yes	Well Location Map Located in Appendix B
IW-9	--	11/3/1997	Abandoned (10/20/2011)	RW	--	29.00	NA	346954.70	696594.84	26.5	1.0	27.5	28.5	1.0	Yes	Yes	Yes	Well Location Map Located in Appendix B
IW-10	--	11/3/1997	Abandoned (10/20/2011)	RW	--	29.00	NA	346955.03	696614.74	26.5	1.0	27.5	28.5	1.0	Yes	Yes	Yes	Well Location Map Located in Appendix B
IW-11	--	11/3/1997	Abandoned (10/20/2011)	RW	--	29.00	NA	346956.15	696635.05	26.1	1.0	27.5	28.5	1.0	Yes	Yes	Yes	Well Location Map Located in Appendix B
IW-12	--	11/4/1997	Abandoned (10/20/2011)	RW	--	29.00	NA	346962.66	696653.17	26.0	1.0	27.5	28.5	1.0	Yes	Yes	Yes	Well Location Map Located in Appendix B
IW-13	--	11/4/1997	Abandoned (10/20/2011)	RW	--	29.00	NA	346969.13	696672.61	26.2	1.0	27.5	28.5	1.0	Yes	Yes	Yes	Well Location Map Located in Appendix B
IW-14	--	11/4/1997	Abandoned (10/20/2011)	RW	--	29.00	NA	346975.62	696691.48	26.4	1.0	27.5	28.5	1.0	Yes	Yes	Yes	Well Location Map Located in Appendix B
IW-15	--	11/5/1997	Abandoned (10/20/2011)	RW	--	29.00	NA	346982.16	696711.29	26.6	1.0	27.5	28.5	1.0	Yes	Yes	Yes	Well Location Map Located in Appendix B
MW-301	2/26/1997	10/4/1992	Inactive	MW	19.49	17.50	NAD 1983 GA E US Ft	854900.19	346342.03	20.2	8.9	7.5	16.4	2.0	No	No	Yes	Well Location Map Located in Appendix B
MW-302	2/26/1997	10/4/1992	Inactive	MW	21.20	19.30	NAD 1983 GA E US Ft	855021.72	346411.37	21.6	8.9	9.2	18.1	2.0	No	No	Yes	Well Location Map Located in Appendix B
MW-303	2/26/1997	10/5/1992	Inactive	MW	20.10	18.20	NAD 1983 GA E US Ft	855069.3	346310.79	20.9	8.9	8.1	17.0	2.0	No	No	Yes	Well Location Map Located in Appendix B
MW-304	2/26/1997	5/9/1996	Inactive	MW	--	15.00	NA	NA	NA	NA	10.00	5.0	15.0	2.0	No	Yes	Yes	Well Location Map Located in Appendix B
MW-305	2/26/1997	3/4/1996	Inactive	MW	--	17.00	NA	NA	NA	NA	9.00	8.0	17.0	2.0	No	Yes	Yes	Well Location Map Located in Appendix B
MW-306	10/27/2022	10/25/2022	Active	MW	--	21.00	NAVD 88 GA E US Ft	855167.30	346345.95	20.8	10.00	9.0	19.0	2.0	Yes	Yes	Yes	Well Location Shown on Figure 61
MW-401	2/26/1997	10/2/1992	Inactive	MW	15.00	13.20	NA	NA	NA	21.2	9.0	3.1	12.1	NA	No	No	Yes	Well Location Map Located in Appendix B
MW-402	2/26/1997	10/2/1992	Inactive	MW	17.72	13.10	NA	NA	NA	23.9	9.0	3.0	12.0	NA	No	No	Yes	Well Location Map Located in Appendix B
MW-403	2/26/1997	10/18/1992	Inactive	MW	16.21	15.50	NA	NA	NA	23.0	9.0	5.4	14.4	NA	No	No	Yes	Well Location Map Located in Appendix B
MW-404	2/26/1997	10/18/1992	Inactive	MW	17.63	15.20	NA	NA	NA	23.3	8.9	5.1	14.0	NA	No	No	Yes	Well Location Map Located in Appendix B
MW-501	2/26/1997	10/14/1992	Inactive	MW	19.33	17.60	NA	NA	NA	22.4	9.0	7.5	16.5	NA	No	No	Yes	Well Location Map Located in Appendix B
MW-601	2/26/1997	10/16/1992	Inactive	MW	18.46	16.30	NA	NA	NA	21.8	9.0	6.2	15.2	NA	No	No	Yes	Well Location Map Located in Appendix B
MW-602	2/26/1997	10/16/1992	Inactive	MW	17.47	15.60	NA	NA	NA	22.5	9.0	5.5	14.5	NA	No	No	Yes	Well Location Map Located in Appendix B
MW-603	2/26/1997	10/17/1992	Inactive	MW	19.53	19.00	NA	NA	NA	23.2	9.0	8.9	17.9	NA	No	No	Yes	Well Location Map Located in Appendix B
MW-604	2/26/1997	10/17/1992	Inactive	MW	17.13	15.70	NA	NA	NA	21.3	9.0	5.7	14.7	NA	No	No	Yes	Well Location Map Located in Appendix B
MW-701	2/26/1997	10/14/1992	Inactive	MW	17.42	16.00	NA	NA	NA	19.3	9.0	5.9	14.9	NA	No	No	Yes	Well Location Map Located in Appendix B
MW-702	2/26/1997	10/14/1992	Inactive	MW	18.88	17.00	NA	NA	NA	19.8	9.1	6.7	15.8	NA	No	No	Yes	Well Location Map Located in Appendix B
MW-703	2/26/1997	10/15/1992	Inactive	MW	17.55	15.60	NA	NA	NA	19.4	9.0	5.5	14.5	NA	No	No	Yes	Well Location Map Located in Appendix B
MW-704	2/26/1997	10/15/1992	Inactive	MW	17.54	15.60	NA	NA	NA	17.6	9.0	5.5	14.5	NA	No	No	Yes	Well Location Map Located in Appendix B

Table B1. Summary of Well Information
Union Carbide Corporation, Woodbine, Georgia

Well ID	Last Sample Date	Date Installed	Well Status	Type	Total Depth (ft btoc)	Total Depth (bgs)	Coordinate Type	X Coordinate*	Y Coordinate*	TOC Elevation (feet)*	Screen Length	Top of Screen (ft bgs)	Bottom of Screen (depth bgs)	Well Diameter (inches)	Boring Log	Well Log	Map	Notes
---------	------------------	----------------	-------------	------	-----------------------	-------------------	-----------------	---------------	---------------	-----------------------	---------------	------------------------	------------------------------	------------------------	------------	----------	-----	-------

Notes:
bgs = below ground surface
ft = feet
-- = Not Applicable
NA = not available
MW = monitoring well
RW = remediation well
TOC = top of casing
Active = Well is part of current groundwater monitoring well network for sampling
Inactive = Well exists, however, it is not part of the current well network for sampling.
Abandoned/Lost = Well can no longer be found and is presumed to have been abandoned (no abandonment record was located)



TYPICAL DIAGRAM OF MONITORING WELLS
(NOT TO SCALE)

MONITORING WELL INSTALLATION DETAILS

WELL NUMBER	MW-1	MW-2	MW-3	MW-4	
GROUND ELEVATION (FT.)	26.9	27.4	28.0	27.0	
GROUND WATER ELEVATION (FT.) (2/25/82)	17.84	11.35	11.49	11.82	
TOTAL DEPTH OF WELL (FT.)	30.0	29.5	29.5	29.5	
MEASURING POINT ELEVATION (FT.)	28.94	27.85	28.54	27.52	
SCREEN LENGTH (FT.)	10.0	10.0	10.0	10.0	
SOLID RISER LENGTH (FT.)	20.0	19.5	19.5	19.5	
PVC HEIGHT ABOVE GROUND (FT.)	2.0	0.5	0.5	0.5	
THICKNESS OF BENTONITE SEAL	0.5	0.5	1.0	0.5	
THICKNESS OF CEMENT SEAL (FT.)	16.8	16.8	17.2	18.3	

UNION CARBIDE
CORPORATION

WOODBINE PLANT



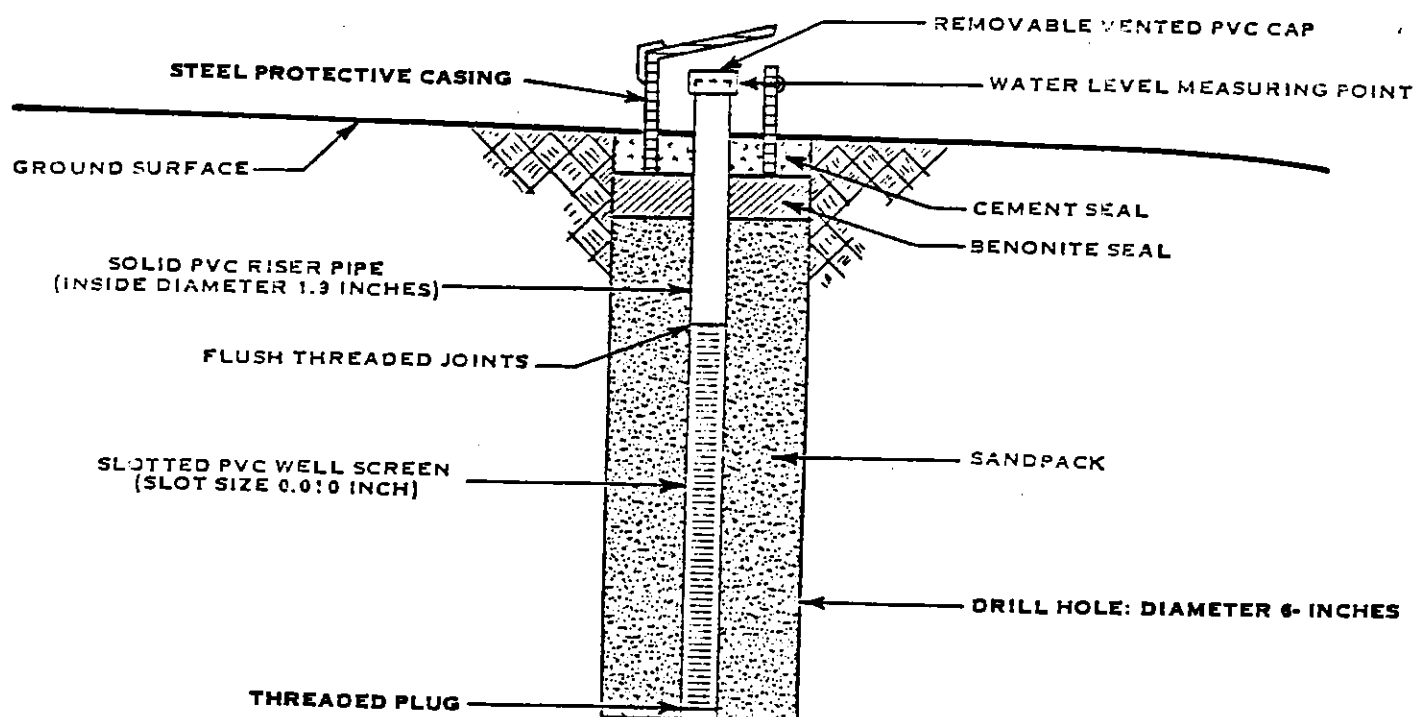
LAW ENGINEERING TESTING
COMPANY

MARIETTA, GEORGIA

MONITORING WELL
INSTALLATION DETAILS
RCRA PROGRAM SYSTEM

JOB NO. MH1407

FIGURE 8



TYPICAL DIAGRAM OF MONITORING WELLS
(NOT TO SCALE)

MONITORING WELL INSTALLATION DETAILS

WELL NUMBER	MW-5	MW-6	MW-7	MW-8	
GROUND ELEVATION (FT.)	19.1	26.8	27.5	26.8	
GROUND WATER ELEVATION (FT.) (2/25/82)	4.59	9.74	11.09	7.83	
TOTAL DEPTH OF WELL (FT.)	30.0	29.5	30.0	29.5	
MEASURING POINT ELEVATION (FT.)	21.09	27.34	29.49	27.33	
SCREEN LENGTH (FT.)	10.0	10.0	10.0	10.0	
SOLID RISER LENGTH (FT.)	20.0	19.5	20.0	19.5	
PVC HEIGHT ABOVE GROUND (FT.)	2.0	0.5	2.0	0.5	
THICKNESS OF BENTONITE SEAL	0.5	0.5	3.4	1.4	
THICKNESS OF CEMENT SEAL (FT.)	15.8	16.9	16.5	17.2	

UNION CARBIDE
CORPORATION

WOODBINE PLANT



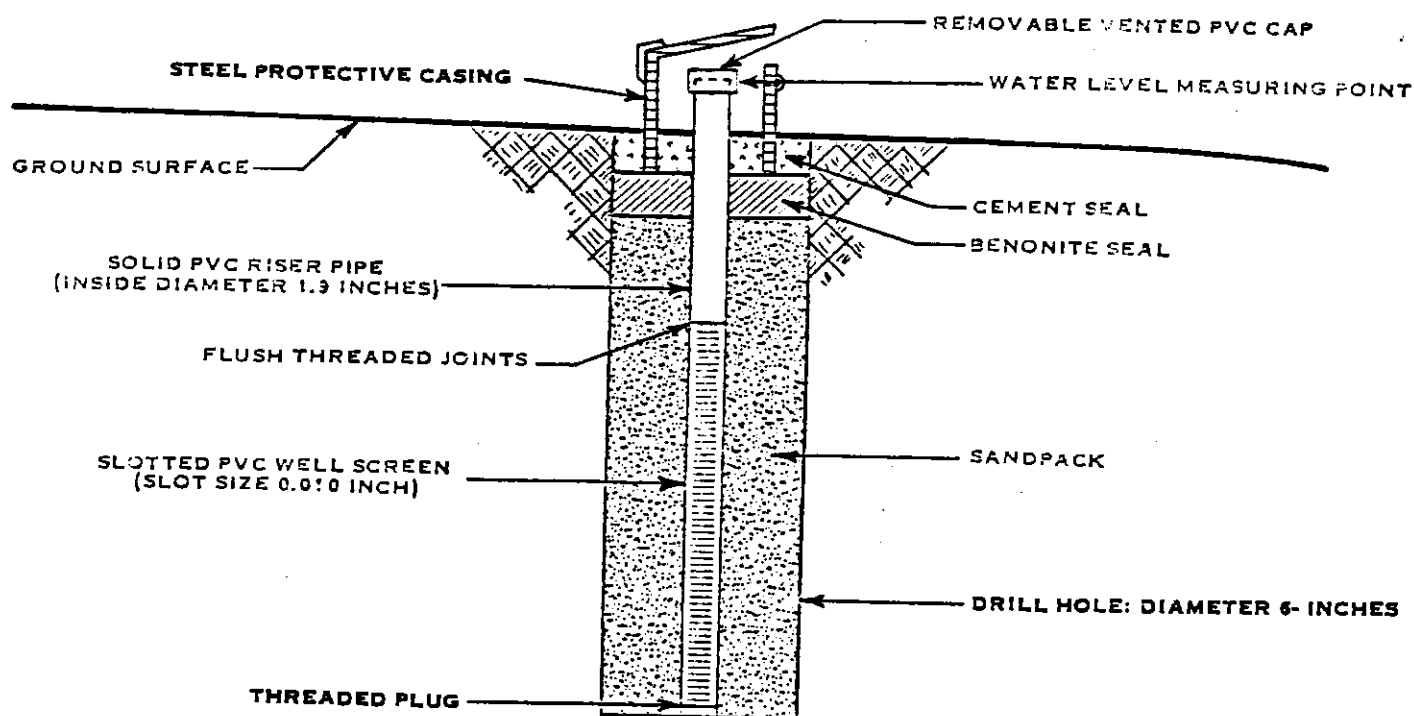
LAW ENGINEERING TESTING
COMPANY

MARIETTA, GEORGIA

MONITORING WELL
INSTALLATION DETAILS
AUXILIARY SYSTEM
LANDFILL AREA

JOB NO. MH1407

FIGURE A-3



TYPICAL DIAGRAM OF MONITORING WELLS
(NOT TO SCALE)

MONITORING WELL INSTALLATION DETAILS

WELL NUMBER	MW-9	MW-10	MW-11		
GROUND ELEVATION (FT.)	27.2	27.6	27.0		
GROUND WATER ELEVATION (FT.) (2/25/82)	11.52	15.88	13.44		
TOTAL DEPTH OF WELL (FT.)	29.5	29.5	29.5		
MEASURING POINT ELEVATION (FT.)	27.67	28.08	27.54		
SCREEN LENGTH (FT.)	10.0	10.0	10.0		
SOLID RISER LENGTH (FT.)	19.5	19.5	19.5		
PVC HEIGHT ABOVE GROUND (FT.)	0.5	0.5	0.5		
THICKNESS OF BENTONITE SEAL	0.7	0.5	0.6		
THICKNESS OF CEMENT SEAL (FT.)	17.0	15.0	16.8		

UNION CARBIDE
CORPORATION

WOODBINE PLANT

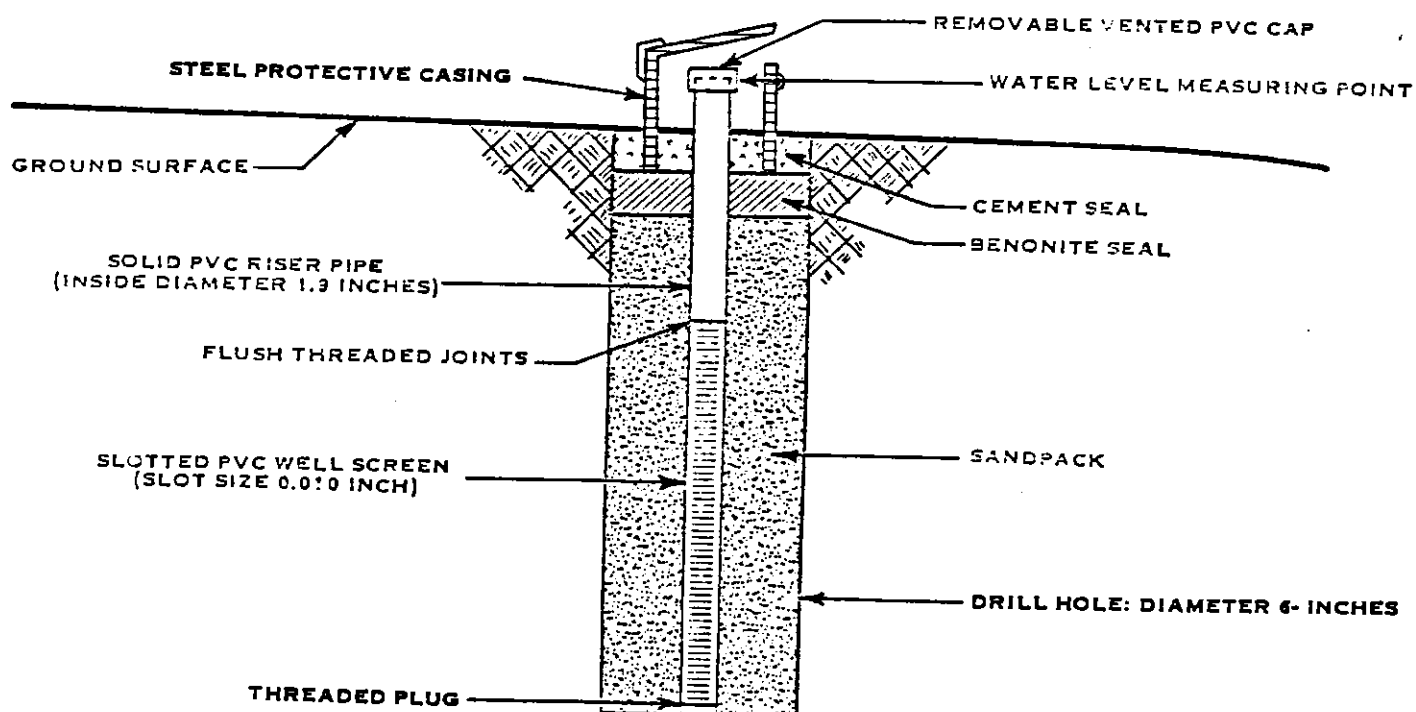


LAW ENGINEERING TESTING
COMPANY

MARIETTA, GEORGIA

MONITORING WELL
INSTALLATION DETAILS
AUXILIARY SYSTEM
LANDFILL AREA

JOB NO. MH1407 · FIGURE A-3



TYPICAL DIAGRAM OF MONITORING WELLS
(NOT TO SCALE)

MONITORING WELL INSTALLATION DETAILS

WELL NUMBER	MW- 12	MW- 13	MW- 14	MW- 15	
GROUND ELEVATION (FT.)	12.9	15.9	16.6	14.8	
GROUND WATER ELEVATION (FT.) (2/25/82)	11.22	13.69	13.12	13.54	
TOTAL DEPTH OF WELL (FT.)	8.0	8.4	8.5	10.0	
MEASURING POINT ELEVATION (FT.)	14.37	17.69	18.02	15.26	
SCREEN LENGTH (FT.)	5.0	5.0	5.0	5.0	
SOLID RISER LENGTH (FT.)	3.0	3.4	3.5	5.0	
PVC HEIGHT ABOVE GROUND (FT.)	1.5	1.75	1.4	0.5	
THICKNESS OF BENTONITE SEAL	1.0	0.75	0.5	0.6	
THICKNESS OF CEMENT SEAL (FT.)	1.0	1.50	1.5	3.2	

UNION CARBIDE
CORPORATION

WOODBINE PLANT



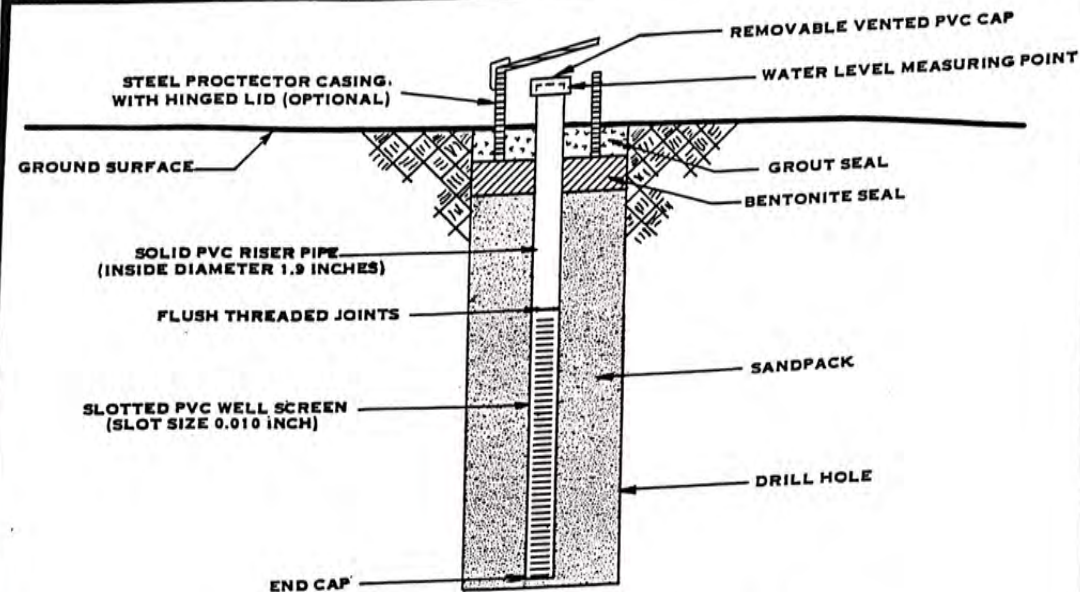
LAW ENGINEERING TESTING
COMPANY

MARIETTA, GEORGIA

MONITORING WELL
INSTALLATION DETAILS
AUXILIARY SYSTEM
HOLDING POND AREA

JOB NO. MH1407

FIGURE A-5



TYPICAL DIAGRAM OF MONITORING WELLS
(NOT TO SCALE)

MONITORING WELL INSTALLATION DETAILS

WELL NUMBER	MW-16	MW-17	MW-18	MW-19	MW-20
GROUND ELEVATION (FT.)	27.0	26.0	26.4	27.5	28.4
GROUND WATER ELEVATION (FT.) MEASURED ON: (2/84)	9.97	8.03	9.01	10.82	8.81
TOTAL DEPTH OF WELL BELOW GROUND SURFACE (FT.)	53.3	28.6	52.4	52.5	28.3
MEASURING POINT ELEVATION (FT.)	27.15	27.17	27.49	28.53	29.32
SCREEN LENGTH (FT.)	5.0	19.5	5.0	5.0	19.5
SOLID RISER LENGTH BELOW GROUND SURFACE (FT.)	48.3	9.1	47.4	47.5	8.8
PVC HEIGHT ABOVE GROUND (FT.)	0.2	0.6	1.1	1.0	0.9
THICKNESS OF BENTONITE SEAL (FT.)	2.0	1.5	2.0	2.0	1.5
THICKNESS OF CEMENT SEAL (FT.)	46.0	6.5	45.0	45.0	3.5

NOTES:

UNION CARBIDE CORPORATION
WOODBINE, GEORGIA



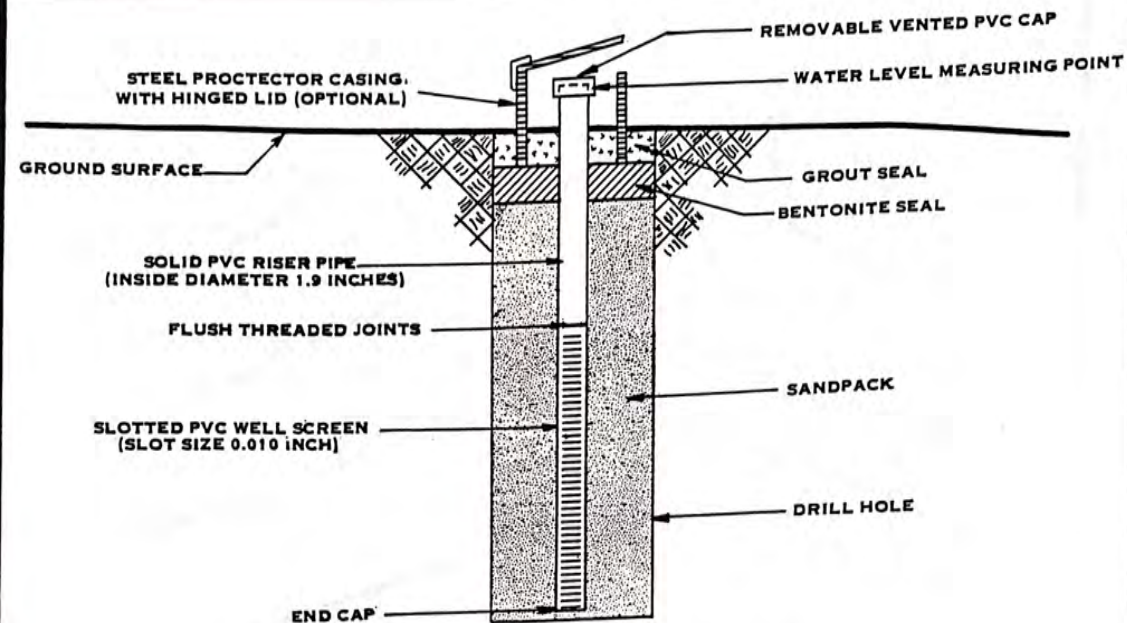
LAW ENGINEERING TESTING
COMPANY

MARIETTA, GEORGIA

MONITORING WELL
INSTALLATION DETAILS

JOB NO. WM3276

FIGURE 8



TYPICAL DIAGRAM OF MONITORING WELLS
(NOT TO SCALE)

MONITORING WELL INSTALLATION DETAILS

WELL NUMBER	MW-21	MW-22	MW-23	MW-24	
GROUND ELEVATION (FT.)	28.3	27.2	27.9	27.6	
GROUND WATER ELEVATION (FT.) MEASURED ON: (2/84)	9.61	13.66	8.89	9.41	
TOTAL DEPTH OF WELL BELOW GROUND SURFACE (FT.)	52.5	52.5	28.3	52.4	
MEASURING POINT ELEVATION (FT.)	29.31	28.21	28.82	28.73	
SCREEN LENGTH (FT.)	5.0	5.0	19.5	5.0	
SOLID RISER LENGTH BELOW GROUND SURFACE (FT.)	47.5	47.5	8.8	47.4	
PVC HEIGHT ABOVE GROUND (FT.)	1.0	1.0	0.9	1.1	
THICKNESS OF BENTONITE SEAL (FT.)	2.0	2.0	2.0	2.0	
THICKNESS OF CEMENT SEAL (FT.)	45.0	45.0	5.0	45.0	

NOTES:



Jacobs

PROJECT NUMBER

WOO017DW

WELL NUMBER

MW-23

WELL ABANDONMENT FORM

PROJECT : Todd Creek Bank Stabilization / Monitoring Well Abandonment

LOCATION: Woodbine Georgia

DRILLING CONTRACTOR Barnett Southern

EQUIPMENT USED : CAT 336F

JACOBS EMPLOYEE: MARK SHERPILL, GA PG

DATE OF ABANDONMENT:

7/28/21

WELL REMOVAL:

TYPE OF WELL:

2" diameter PVC monitoring well

TOTAL DEPTH CASING PULLED (ft bgs):

29.22 FT

SURFACE COMPLETION REMOVAL (Y/N):

PLUG:

PLUG TYPE:

3/8" DIA Bentrite Pellets

AMOUNT OF GROUT / CHIPS:

225 lbs

GROUTING METHOD:

By hand.

NOTES:

Removed Top Cover, pad, riser &
Screen.



PROJECT NUMBER

W00017DW

WELL NUMBER

MW-24

WELL ABANDONMENT FORM

PROJECT : Todd Creek Bank Stabilization / Monitoring Well Abandonment

LOCATION: Woodbine Georgia

DRILLING CONTRACTOR Barnett Southern

EQUIPMENT USED : CAT 336F Trac H&E

JACOBS EMPLOYEE: MARK SHERILL, GA PG

DATE OF ABANDONMENT:

7/28/21

WELL REMOVAL:

TYPE OF WELL:

2" diameter PVC Monitoring Well

TOTAL DEPTH CASING PULLED (ft bgs):

5' out of 54.70'

SURFACE COMPLETION REMOVAL (Y/N):

Protective Casing &
Concrete Pad.

PLUG:

PLUG TYPE:

3/8" DA Bentonite Pellets

AMOUNT OF GROUT / CHIPS:

75 50lbs ^{MS}

GROUTING METHOD:

By Hand

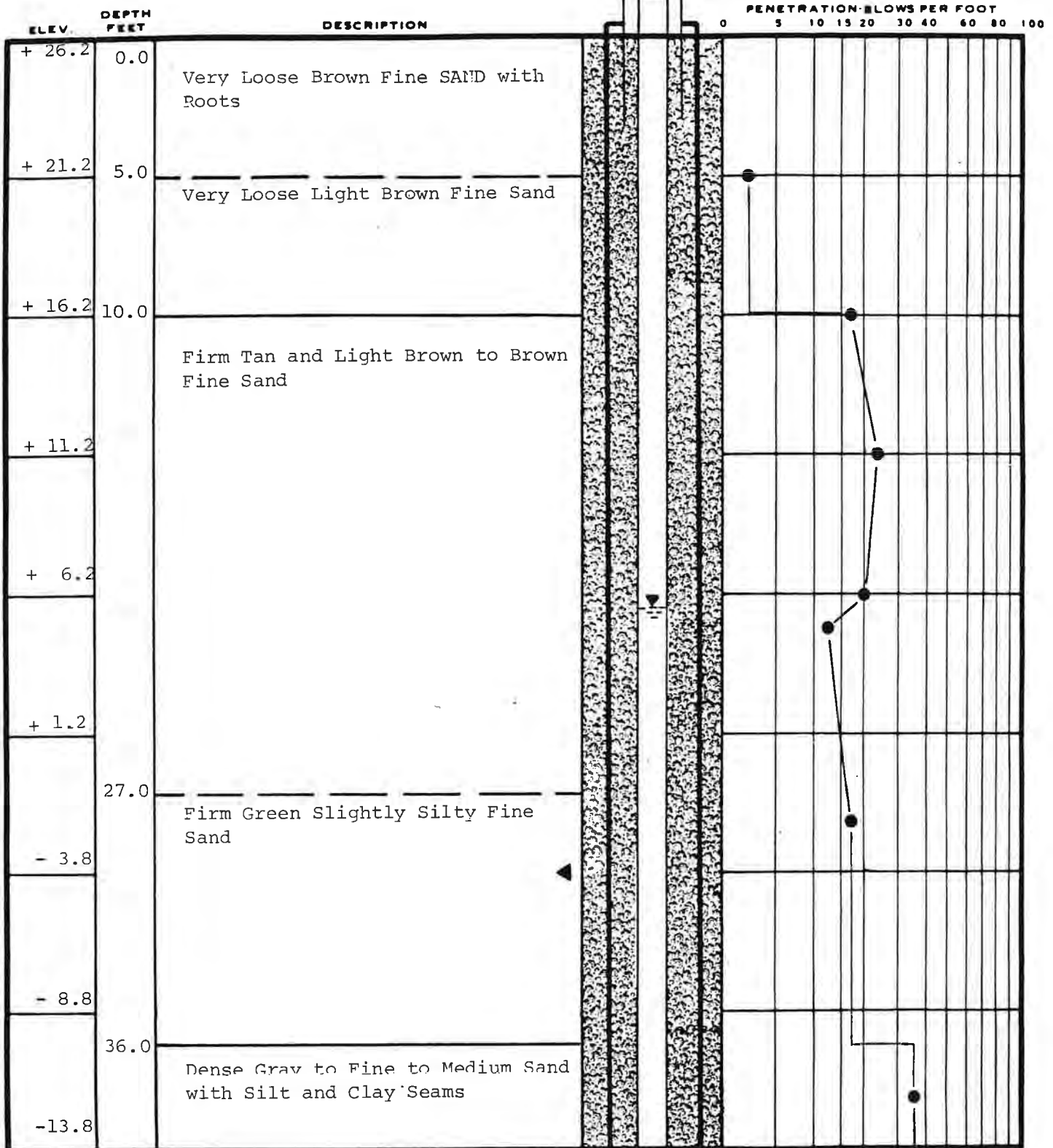
NOTES:

Only able to remove protective casing,
concrete pad, and upper 5' of PVC riser.
Filled upper 5' ft of bore hole w/
Bentonite.

Datum Elevation: 29.58 feet
Riser Stick Up: 3.4 feet

TEST BORING RECORD

8-inch PVC outer casing

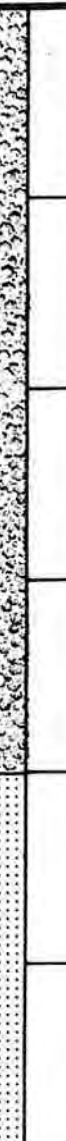
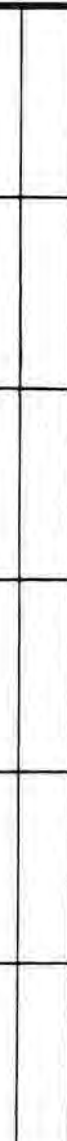
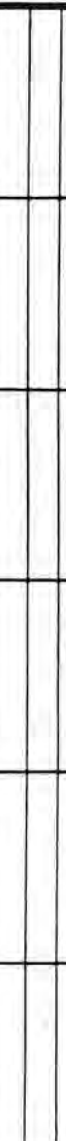
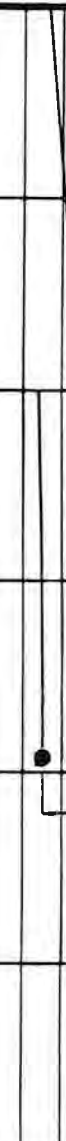
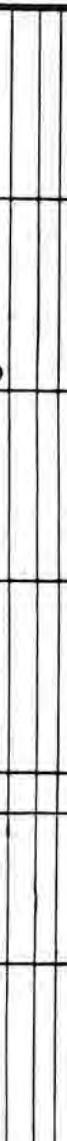
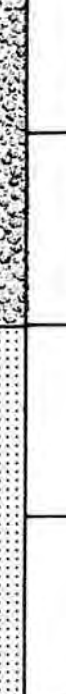
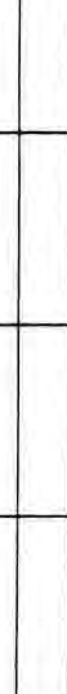
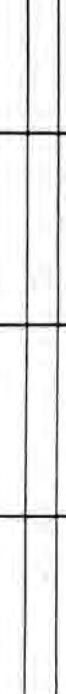
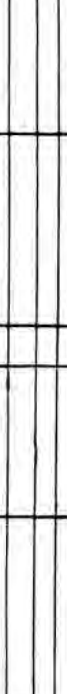
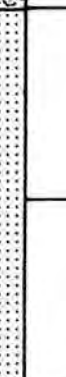
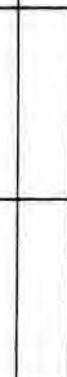
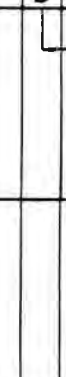


REMARKS: Drilling Techniques
12-inch hollow stem auger 0-20'
8-inch Rotary with Bentonite
mud: 20-60'
4-inch rotary with potable water
60-70'

DRILLED BY JH/JA
LOGGED BY CZ
CHECKED BY TLC

BORING NUMBER MT-25
DATE STARTED 7/14/86
DATE COMPLETED 7/17/86
JOB NUMBER EC5287

TEST BORING RECORD

ELEV.	DEPTH FEET		DESCRIPTION	PENETRATION-BLOWS PER FOOT										
				0	5	10	15	20	30	40	60	80	100	
-13.8	40.0	42.0	Dense Gray Slightly Clayey Coarse to Fine Sand											
-18.8														
-23.8	50.0													
-28.8	61.0	Dense Gray Slightly Silty Coarse Sand with Shell Fragments												
-33.8														
-38.8														
-43.8	70.0	Dense to Very Dense Slightly Silty Coarse Sand with Shell Fragments												
		Boring Terminated												

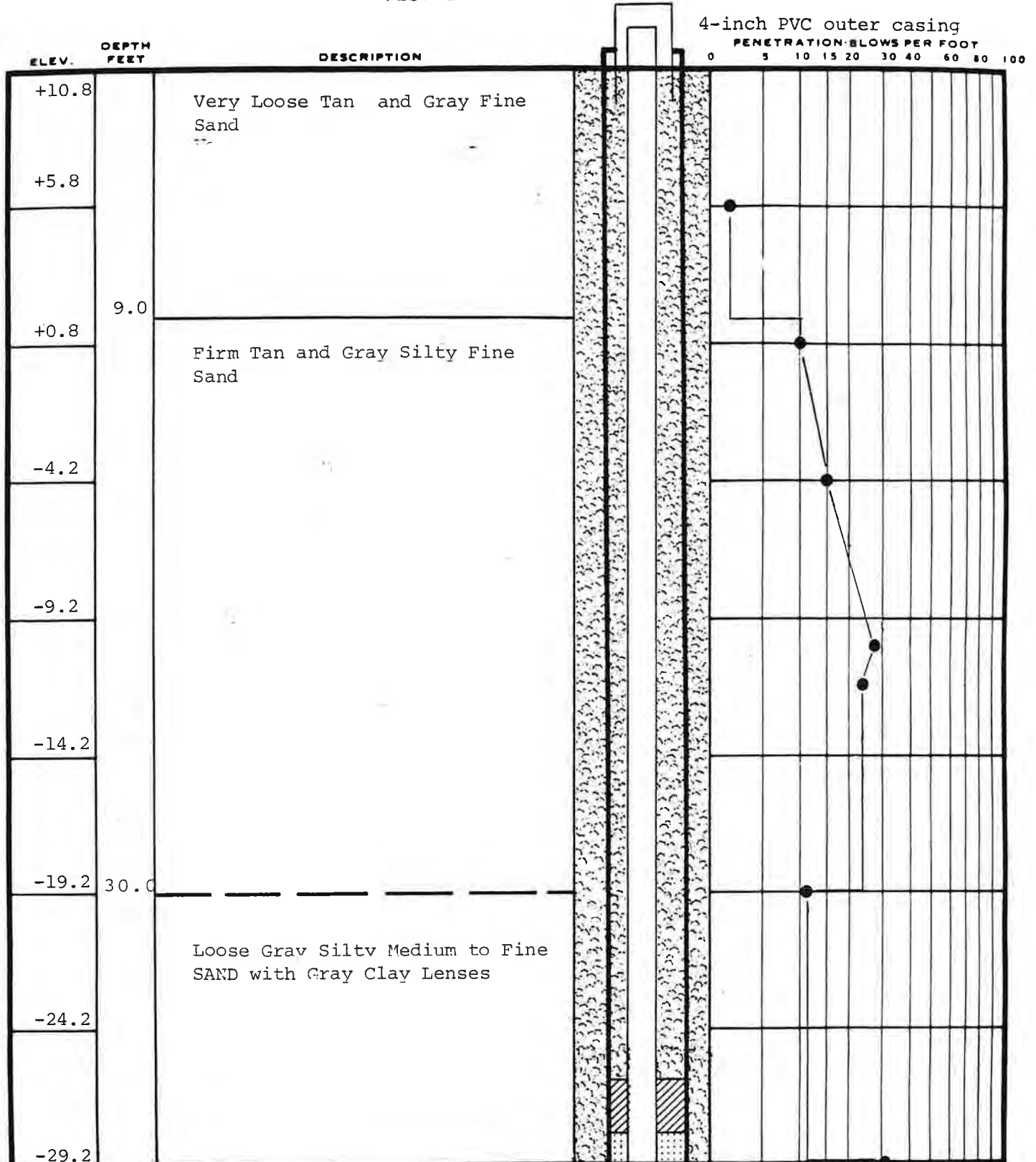
REMARKS:

DRILLED BY JH/JA
 LOGGED BY CZ
 CHECKED BY TLC

BORING NUMBER MI-25
 DATE STARTED 7/14/86
 DATE COMPLETED 7/17/86
 JOB NUMBER EC5287

Datum Elevation: 13.94 feet
PVC Riser Stickup: 3.1 feet

TEST BORING RECORD



REMARKS: Drilling Techniques:

6- inch rotary with bentonite
mud 0-40'
3-inch temporary casing with
water 40-51.5'
Natural Soil Sandpack

DRILLED BY
LOGGED BY
CHECKED BY

JA

CZ

TLC

BORING NUMBER

MW-27

DATE STARTED

7/2/86

DATE COMPLETED

7/9/86

JOB NUMBER

EC5287

TEST BORING RECORD

[illegible]

REMARKS:

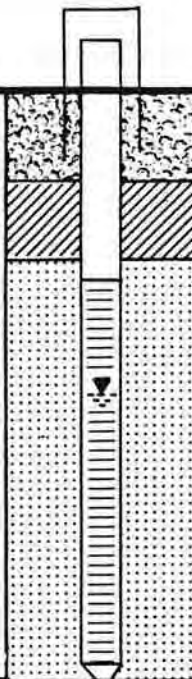
Ground water during well development was occasionally foamy with a strong odor

DRILLED BY JA
LOGGED BY CZ
CHECKED BY TLC

BORING NUMBER	MW-27
DATE STARTED	7/2/86
DATE COMPLETED	7/9/86
JOB NUMBER	EC5287

Datum Elevation: 13.62 feet
PVC Riser Stick Up: 2.4 feet

TEST BORING RECORD

ELEV.	DEPTH FEET	DESCRIPTION	PENETRATION-BLOWS PER FOOT										
			0	5	10	15	20	30	40	60	80	100	
+11.2		Loose Gray Green Fine SAND											
+ 6.2													
+ 1.2													
- 3.8	15.5	Boring Terminated											
- 8.8													

REMARKS: Drilling Techniques:
6-inch hollow stem augers
Strong odor during well
development

DRILLED BY JA
LOGGED BY CZ
CHECKED BY TLC

BORING NUMBER MI-28
DATE STARTED 7/1/06
DATE COMPLETED 7/1/06
JOB NUMBER EC5287

Datum Elevation: 18.74 feet
PVC Riser Stick Up: 2.3 feet

Datum Elevation: 18.74 feet
PVC Riser Stick Up: 2.3 feet

PENETRATION-BLOWS PER FOOT

REMARKS: Drilling Techniques:

DRILLED BY JA
LOGGED BY CZ
CHECKED BY TLC

BORING NUMBER	MW-29
DATE STARTED	7/14/86
DATE COMPLETED	7/18/86
JOB NUMBER	EC5287

Sheet 1 of 2

TEST BORING RECORD

[illegible]

REMARKS:

DRILLED BY JA
LOGGED BY CZ
CHECKED BY TLC

BORING NUMBER MW-29
DATE STARTED 7/14/86
DATE COMPLETED 7/18/86
JOB NUMBER EC5287

Datum Elevation: 18.49 feet
PVC Riser Stick Up: 2.1 feet

TEST BORING RECORD

TEST BORING RECORD												
ELEV.	DEPTH FEET	DESCRIPTION	PENETRATION-BLOWS PER FOOT									
			0	5	10	15	20	30	40	60	80	100
+16.4		Loose Brown to Gray Silty Fine SAND										
+11.4												
+ 6.4												
+ 1.4												
18.4												
- 3.6		Boring Terminated										
</												

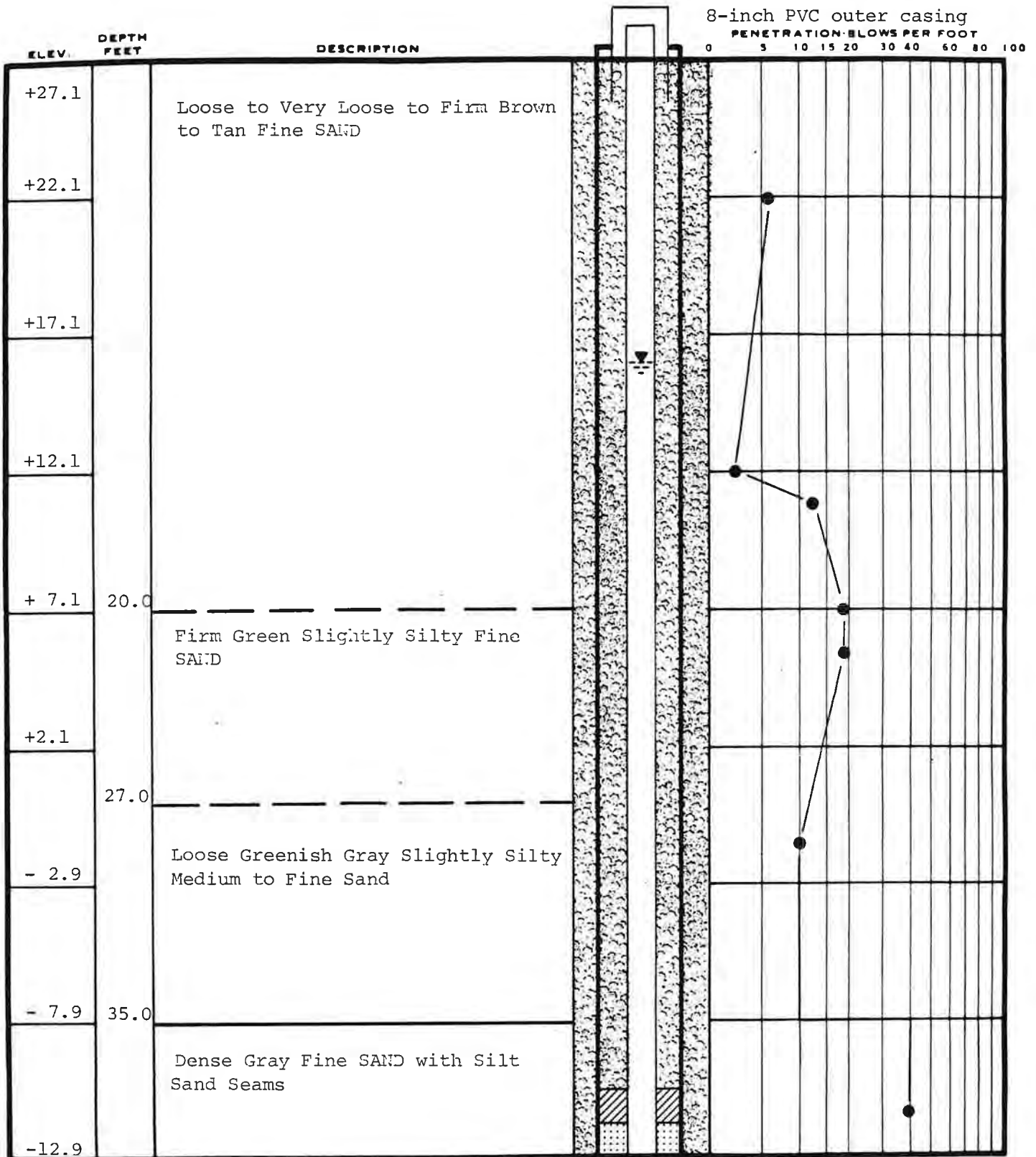
REMARKS: Drilling Techniques:
4-inch rotary with thin
bentonite mud 0-18.4'

DRILLED BY JA
LOGGED BY CZ
CHECKED BY TLC

BORING NUMBER MW-30
DATE STARTED 7/13/86
DATE COMPLETED 7/13/86
JOB NUMBER EC5287

Datum Elevation: 30.07 feet
PVC Riser Stick Up: 3.0 feet

TEST BORING RECORD



REMARKS: Drilling Techniques:

12-inch hollow stem augers
8-inch rotary with bentonite
mud 15-40'
4-inch rotary with water
40-51.5'

DRILLED BY JH
LOGGED BY CZ
CHECKED BY TLC

BORING NUMBER MW-31
DATE STARTED 7/11/86
DATE COMPLETED 7/14/86
JOB NUMBER EC5287

TEST BORING RECORD

[illegible]

REMARKS:

DRILLED BY _____ JH
LOGGED BY _____ CZ
CHECKED BY _____ TLC

BORING NUMBER	MW-31
DATE STARTED	7/11/86
DATE COMPLETED	7/14/86
JOB NUMBER	EC5287

Datum Elevation: 29.26 feet
PVC Riser Stick Up: 2.5 feet

TEST BORING RECORD

ELEV.	DEPTH FEET	DESCRIPTION	PENETRATION-BLOWS PER FOOT										
			0	5	10	15	20	30	40	60	80	100	
+26.8													
+21.8													
+16.8													
+11.8													
+ 6.8													
+ 1.8													
- 3.2	30.5												
		Boring Terminated											
- 8.2													

REMARKS: Drilling Techniques:

6-inch hollow stem augers
Borehole cored below the water
table after the bentonite seal was
installed

DRILLED BY JA
LOGGED BY CZ
CHECKED BY TLC

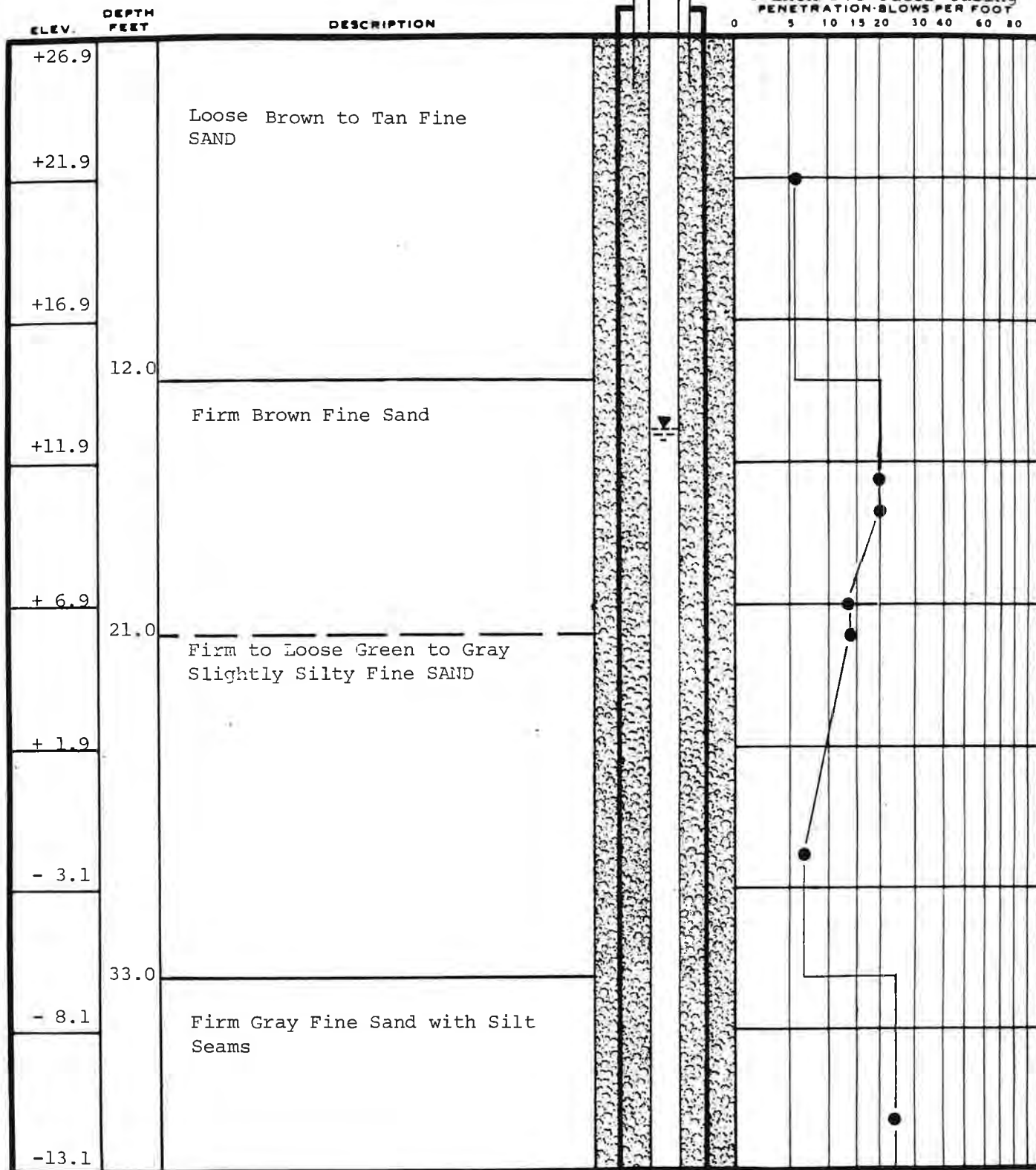
BORING NUMBER MW-32
DATE STARTED 7/15/86
DATE COMPLETED 7/15/86
JOB NUMBER EC5287

TEST BORING RECORD

Datum Elevation: 29.39 feet
PVC Riser Stick Up: 2.5 feet

8-inch PVC outer casing
PENETRATION-BLOWS PER FOOT

0 5 10 15 20 30 40 60 80 100



REMARKS: Drilling Techniques:

12-inch hollow stem augers
8-inch rotary with bentonite
mud 15-40'
4-inch rotary with water
40-52.5'

DRILLED BY
LOGGED BY
CHECKED BY

JH
CZ
TLC

BORING NUMBER
DATE STARTED
DATE COMPLETED
JOB NUMBER

MW-33
7/7/86
7/10/86
EC5287

TEST BORING RECORD

[illegible]

REMARKS:

DRILLED BY JH
LOGGED BY CZ
CHECKED BY TLC

BORING NUMBER MW-33
DATE STARTED 7/7/86
DATE COMPLETED 7/10/86
JOB NUMBER EC5287

Datum Elevation: 29.35 feet
PVC Riser Stick Up: 2.5 feet

TEST BORING RECORD

ELEV.	DEPTH FEET	DESCRIPTION	PENETRATION-BLOWS PER FOOT																
			0	5	10	15	20	30	40	60	80	100							
+26.9		Firm Light Brown Fine SAND																	
+21.9																			
+16.9																			
+11.9																			
+ 6.9																			
+ 1.9																			
- 3.1	30.5																		
		Boring Terminated																	
- 8.1																			

REMARKS: Drilling Techniques:

4-inch rotary with
bentonite mud 0-20'
4-inch rotary with water
20-30.5'

DRILLED BY JA
LOGGED BY CZ
CHECKED BY TLC

BORING NUMBER MW-34
DATE STARTED 7/16/86
DATE COMPLETED 7/16/86
JOB NUMBER EC5287

TEST BORING RECORD

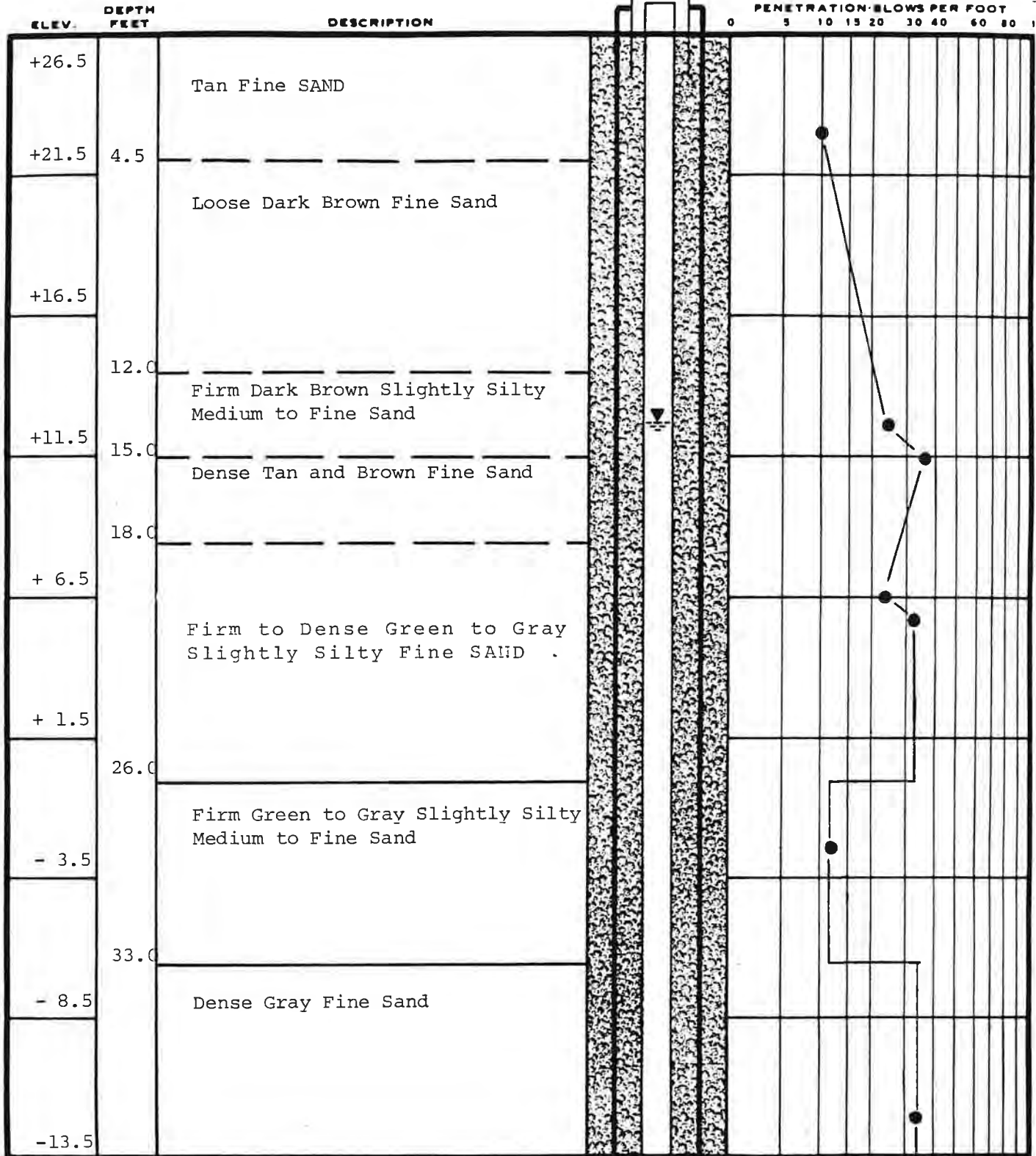
Datum Elevation: 29.60 feet

PVC Riser Stick Up: 3.1 feet

3-inch PVC outer casing

PENETRATION-BLOWS PER FOOT

0 5 10 15 20 30 40 60 80 100



REMARKS: Drilling Techniques:

12-inch hollow stem auger
0-15'

8-inch rotary with bentonite
mud 15-40'

4-inch rotary with water 40-52.5'

DRILLED BY JH

LOGGED BY CZ

CHECKED BY TLC

BORING NUMBER MW-35

DATE STARTED 7/3/86

DATE COMPLETED 7/10/86

JOB NUMBER EC5287

TEST BORING RECORD

[illegible]

REMARKS:

DRILLED BY JH
LOGGED BY CZ
CHECKED BY TLC

BORING NUMBER MW-35
DATE STARTED 7/3/86
DATE COMPLETED 7/10/86
JOB NUMBER EC5287

TEST BORING RECORD

Datum Elevation: 29.72 feet
PVC Riser Stick Up: 3.0 feet

ELEV.	DEPTH FEET	DESCRIPTION	PENETRATION-BLOWS PER FOOT										
			0	5	10	15	20	30	40	60	80	100	
+26.7		Dense Brown Fine SAND											
+21.7													
													
+16.7													
													
+11.7													
+ 6.7													
+ 1.7													
- 3.3	30.5	Boring Terminated											
- 8.3													
													

REMARKS: Drilling Techniques:
4-inch rotary with
bentonite mud 0-30.5'

DRILLED BY JA
LOGGED BY CZ
CHECKED BY TLC

BORING NUMBER MW-36
DATE STARTED 7/16/86
DATE COMPLETED 7/16/86
JOB NUMBER EC5287

Datum Elevation: 29.40 feet

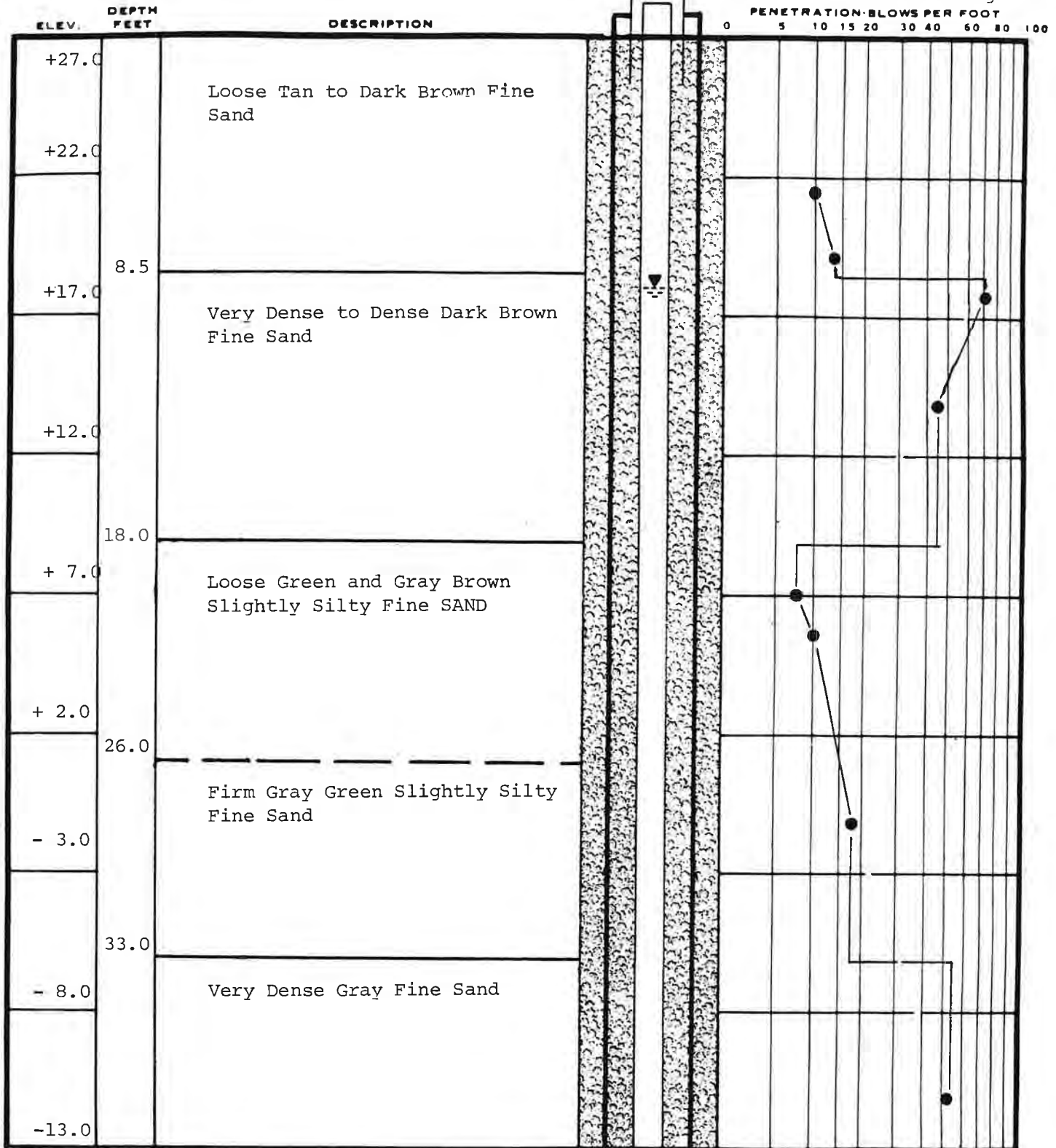
PVC Riser Stick Up: 2.4 feet

TEST BORING RECORD

8-inch PVC outer casing

PENETRATION-BLOWS PER FOOT

0 5 10 15 20 30 40 60 80 100



REMARKS: Drilling Techniques:

12-inch hollow stem augers

8-inch rotary with bentonite mud 15-40'

4-inch rotary with water 40-52.5'

DRILLED BY JH
 LOGGED BY CZ
 CHECKED BY TLC

BORING NUMBER MW-37
 DATE STARTED 7/1/86
 DATE COMPLETED 7/9/86
 JOB NUMBER EC5287

TEST BORING RECORD

DEPTH FEET		DESCRIPTION	PENETRATION-BLOWS PER FOOT										
ELEV.			0	5	10	15	20	30	40	60	80	100	
-13.0		Very Dense Gray Fine Sand											
	43.5												
-18.0		Firm Gray Slightly Silty Medium to Fine Sand with Gray Clay Seams											
-23.0	50.0	Firm Gray Silty Medium to Fine Sand with Shell Fragments											
	52.5												
-28.0		Boring Terminated											



15850 CRABBS BRANCH WAY
SUITE 300
ROCKVILLE, MARYLAND 20855
TELEPHONE: (301) 417-0200

Project: Thiokol - Woodbine facility

Job No.: 097.001

Location: 377.5 N / 139.3 E

Date: 5/9/96

SWMU: Mark Corbin

Well ID:

MW-304

Start Date: 3/4/96

Complete Date: 3/4/96

HOLE DIAMETER: 6"

CASING DIAMETER: 2"

WELL CAP:
locking

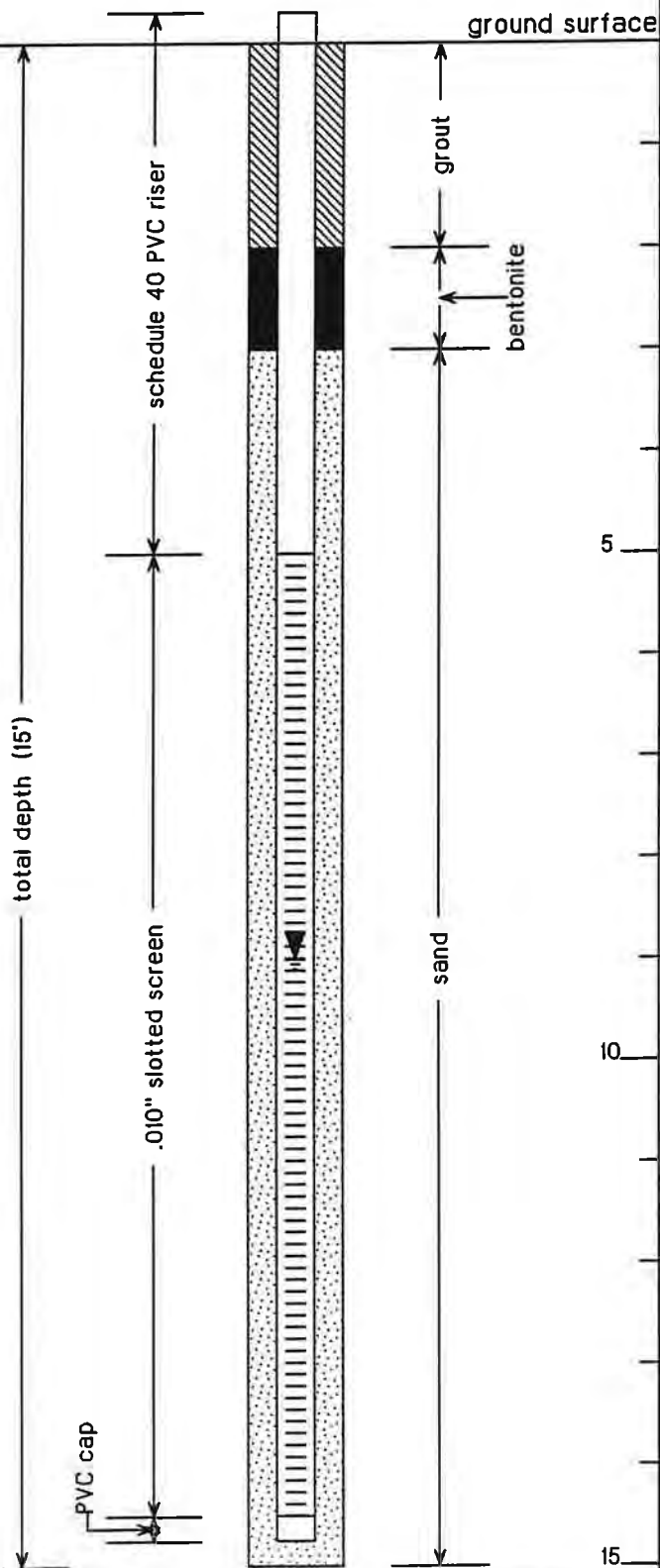
SECURITY BOX:
stick-up

DRILLING COMPANY:
Ellis and Associates

DRILLING METHOD:
Hollow Stem Auger

COMMENTS:

Evidence of groundwater in soils at 25 feet below grade.



Geologist: M Landsman

15850 CRABBS BRANCH WAY
SUITE 300
ROCKVILLE, MARYLAND 20855
TELEPHONE: (301) 417-0200

Project: Thiokol – Woodbine facility

Job No.: 097.001

Location: 994 N / 226 E

Date: 5/9/96

SWMU: Mark Corbin

Well ID:

MW-305

Start Date: 3/4/96

Complete Date: 3/4/96

HOLE DIAMETER: 6"

CASING DIAMETER: 2"

WELL CAP:
locking

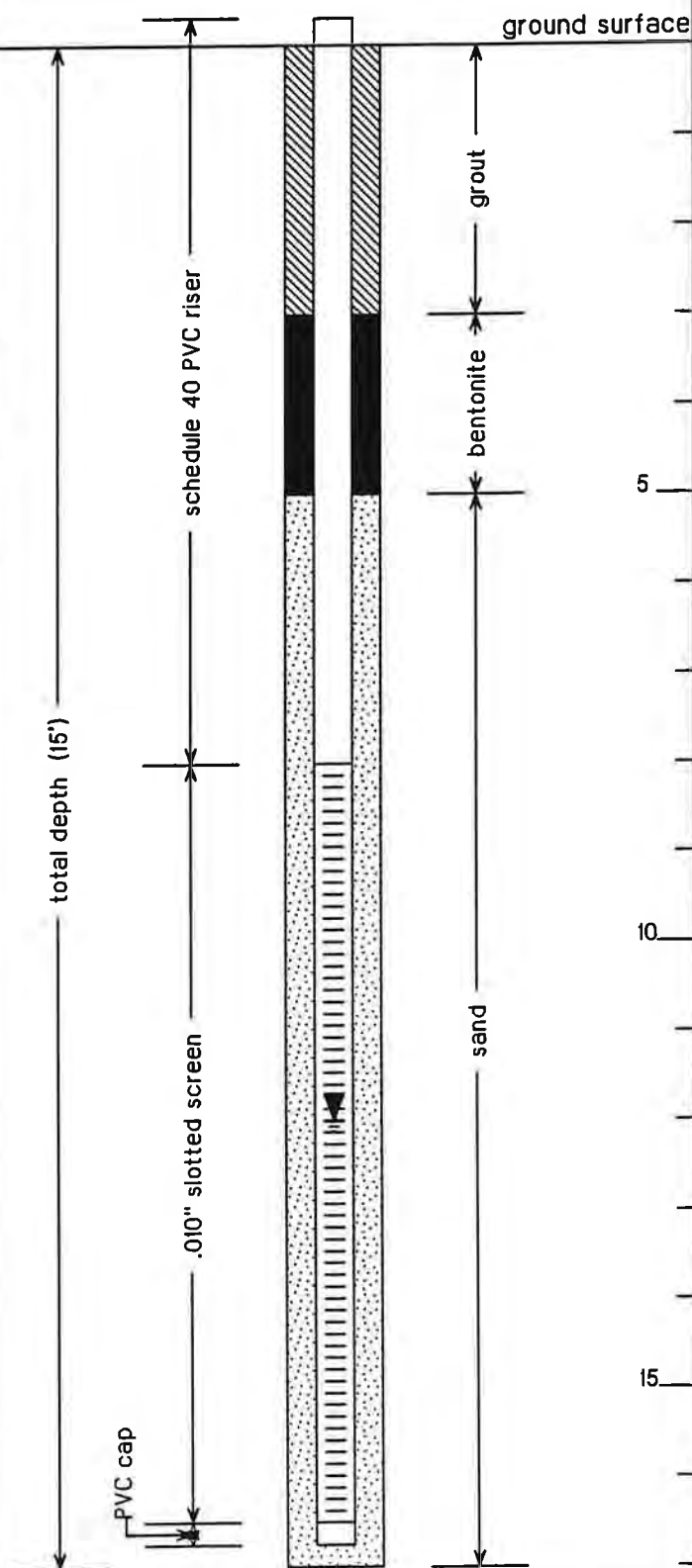
SECURITY BOX:
stick-up

DRILLING COMPANY:
Ellis and Associates

DRILLING METHOD:
Hollow Stem Auger

COMMENTS:

Evidence of groundwater in soils at 25 feet below grade.

Geologist: M Landsman

MONITORING WELL INSTALLATION REPORT						WELL NUMBER (AAA.NNN.AA)	
Page 1 of 4						IW	#1
GENERAL							
Project Name <i>Landfill Bio Sparging System at Union Carbide Co., Woodbine Landfill</i>							
Project Manager (last name, first initial) <i>Longaker, J</i>				Department			
Installation Purpose (Monitoring, Piezometer, etc.) <i>Injection well</i>			County <i>Carroll</i>		Location Description		
North Grid Coordinate	East Grid Coordinate	Latitude (decimal degrees)	Longitude (decimal degrees)	Ground Elev.	Top Casing Elev.	Liq. Level Pipe Elev.	
DRILLING & SAMPLING							
Drilling Start Date <i>28 Oct 92</i>	Drilling Comp Date <i>28 Oct 92</i>	Total Drilled Depth <i>29.5'</i>		Ink. Static Water Level/Date <i>16.4' / 28 Oct 92</i>		Total Borehole Deviation (angle/direction) <i>NA</i>	
Drilling/Sampling Method	Top Depth	Bot Depth	Diameter	*	Drilling/Sampling Method	Top Depth	Bot Depth
<i>2 1/4" ID HSA</i>	<i>0</i>	<i>29.5</i>	<i>6"</i>				
Drilling Company <i>Partridge</i>		Driller (last name, initial) <i>Kelly, A</i>		Oversight Company <i>SATC</i>		Oversight (last name, initial) <i>Phelps, B</i>	
Drilling & Sampling Comments (drilling muds used, source of water, lost circulation zones, etc.) <i>V. moist - wet soils observed during drilling @ 20 ft b/s</i>							
GEOPHYSICAL LOGGING							
Date Logged <i>NA</i>	Logging Top Depth		Logging Bottom Depth		Logging Subcontractor		Logging Truck Operator
Geophysical Logs ☐ Caliper ☐ Gamma ☐ Natural Gamma ☐ Neutron Density ☐ Resistivity ☐ Single Pt. Resistivity ☐ L&S Normal Resistivity ☐ Spontaneous Potential							
Other Geophysical Logs (list)							
Backfill Top Depth <i>29.02</i>	Backfill Bot Depth <i>29.5</i>		Backfill Material (include type quantity and units) <i>Native Soils</i>				

ms measured from height above MSL.

Depths measured from ground surface to r

1 ft.

* Enter an "X" if cuttings were taken.

MONITORING WELL INSTALLATION REPORT

Page 2 of 4

WELL NUMBER (AAA.NNN.AA)

IW

01

WELL INSTALLATION (WELL MATERIALS)

Date Well Installed 25 Oct 97		Installed By S.A.R.		Oversight Brend Baker		No. of Casing N/A		Centralizer Type N/A		Sieve Analysis? ☐ Yes ☒ No	
CASING	Top Depth	Bot Depth	Material and Schedule		Diameter	Joint Type					
	3.5 ft keep	27.5	PVC	Sch 40	1"	Flush Threads					
SCREEN	Top Depth	Bot Depth	Material		Diameter	Slot Size	Slot Type				
	27.5	28.5	PVC Sch 40		1"	0.010	Manufactured				
BUMP	Top Depth	Bot Depth	Material and Schedule		Diameter	Joint Type					
	28.5	29.02	PVC Sch 40		1"	Flush Threads					
BUMP CAP	Top Depth	Bot Depth	Material and Schedule		Diameter	Cap Type					
		29.02	Snap industrial cap		1"	PVC Sch 40					

WELL INSTALLATION (ANNULAR MATERIALS)

FILTER PACK	Top Depth	Bot Depth	Trade Name	Grain Size (mm)	Amount (sacks)	Sack Size (lbs)	Installation Method	
	26.9	29.02	Standard Gravel	20-30	1/2	50 lbs	Tremied through HSA	
FINE SAND SEAL	Top Depth	Bot Depth	Trade Name	Grain Size (mm)	Amount (sacks)	Sack Size (lbs)	Installation Method	
	N/A		Leak Bore - both sides chips					
BENTONITE SEAL	Top Depth	Bot Depth	Hydration Time (hrs)	Amount	Units and Size (sacks, buckets, etc.)		Installation Method	
	24.0	26.9	1 3/4 hrs	1/3 bag	Sack = 50 lbs		Tremied through HSA Bore - both sides chips	
GROUT	Top Depth	Bot Depth	Grout Mix		Amount (sacks)	Sack Size (lbs)	Grout Date	Installation Method
	9.0	24.0	Pulverized Type I Cement / H ₂ O / Bentonite ~ 2 1/2 gal ~ 8 lbs		3	94-lbs	25 Oct 97	Tremied
	Surface	9.0	Pulverized Type I / H ₂ O / Bentonite ~ 1 gal ~ 5 lbs		1	94-lbs	25 Oct 97	Tremied

Report Prepared By

Brend Baker

Date

25 Oct 97

Well Accepted By

Date

MONITORING WELL INSTALLATION REPORT

Page 3 of 4

WELL NUMBER (AAA NNN AA)

IW 01

WELL DEVELOPMENT

Develop. Start Date 11 Nov 97	Develop. End Date 11 Nov 97	Well Developed By Portridge	Development Oversight Brod Baker / SAI
Tot. Hours Developed 15 min	Development Method (check one or more) ☒ Air Lift ☐ Bailing ☐ Jetting ☒ Pumping ☐ Surging ☐ Swabbing		Est. Volume of Water Removed During Development (gals) 10 gals

START OF DEVELOPMENT					END OF DEVELOPMENT				
pH	Conductivity	Turbidity	Water Level Depth	Well Yield (gpm)	pH	Conductivity	Turbidity	Water Level Depth	Well Yield (gpm)
—	—	—	16.4 ft b/s	~2	—	—	—	16.24 ft b/s	16.24 ~2 7/11/97

ADDITIVES

Additive Type	Amount/Units	Additive Type	Amount/Units	Additive Type	Amount/Units
NA					

Well Development Comments

Electric pump attached to top of casing w/ additional PVC fittings

1120 Began pumping Well volume including saturated fittings: $1.40 \text{ gals} \times 5 = 7.03 \text{ gal}$

1136 Stopped pumping 10 gals removed; measured by in line flow meter

Note H.C. started off clogging and cleared after ~2 well volumes had been removed

Report Prepared By

Brod Baker

Date

11 Nov 97

MONITORING WELL INSTALLATION REPORT

Page 4 of 4

WELL NUMBER (AAA,NNN,AA)

PUMP INSTALLATION

Pump Installation Date	Pump Installed By	Pump Installation Contractor	Depth to Pump from Grnd. Surf.	Depth from Pump to Top Casing
Pump Type	Manufacturer		Model No.	Depth to Static Water Level
Capacity (gpm)	Horsepower	Voltage	Diameter (in)	

Pump Installation Comments

N/A

Report Prepared By

Date

MONITORING WELL CONSTRUCTION DIAGRAM

DRILLING SUBCONTRACTOR Partridge

WELL NUMBER Ind-01

DRILLER Allen Kelly

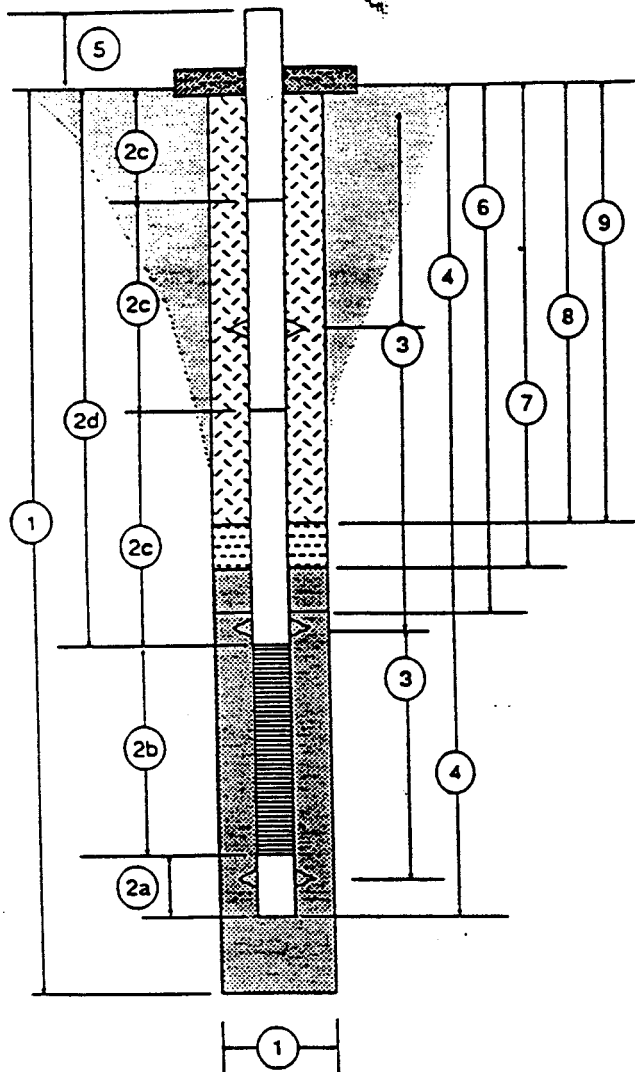
COORDINATES _____

DATE OF WELL INSTALLATION 25 Oct 97

SANITARY SEAL ELEVATION _____

TECH. O.S./CO. NAME Brad Baker / BASC

NOTE: ALL MEASUREMENTS ARE FROM GROUND SURFACE AT START OF BORING - MEASUREMENTS TO NEAREST 0.1 FOOT.



1) Total Drilled Depth/Hole Diameter 29.5 ft 1 1/2 / 6"

2) Casing/Screen Tally (Measured to Nearest 0.01 Foot)

(a) Sump & Plug Length 0.52 ft

(b) Screen Length 1.0 ft

(c) Casing Joint Lengths (Measured in Up-hole Sequence From Top of Screen)

7.9', 9.9', 9.9' and 5 ft segment added to allow for wicking screen cut to 3.5 ft above ground level

(d) Depth to Top of Screen 27.5 ft

3) Depths to Centralizers NA

4) Total Depth of Installed Well 29.02 ft

5) Casing Stick Up (Standard 2.5' A.G.S.) 3.5 ft stick up

6) Depth to Top of Filter Pack 26.9

7) Depth to Top of Fine Sand Seal NA

8) Depth to Top of Bentonite Seal 24.0

9) Thickness of Grout 24.0'

FIELD GEOLOGIC LOG

PROJECT <i>Landfill Bypassing System @ Union Carbide Co.</i> <i>Woodbine Landfill</i>		DATE <i>25 Oct 92</i>	SHEET <i>1 of 1</i>
WELL NO. <i>IW-01</i>		REFERENCE DATUM	DRILLING CONTRACTOR <i>Kirtledge</i>
LOGGED BY <i>Brian Butler</i>		COORDINATES	DRILLER <i>Allen Kelly</i>
COMPANY <i>S.A.F.C.</i>		DRILLING METHOD <i>H.S.A.</i>	

RUN NUMBER	DEPTH, FEET	LITHOLOGY	PERCENT RECOVERY	SAMPLE DESCRIPTION	DRILLING COMMENTS
	0			<i>Gray Black - Organic rich top soil</i>	
	1			<i>SAND; sand: med-coarse ~ 90% silt ~ 10%; tan; subrounded; med sorted; moist</i>	<i>No detections on P.D. or LEL throughout drilling</i>
	2				
	3				
	4				
	5				
	6				
	7				
	8				
	9				
	10				
	11				
	12				
	13				
	14				
	15				
	16				
	17				
	18				
	19				
	20				
	21			<i>SAND; sand: v. fine - med grained sand ~ 90% silt ~ 10% Lt Yellowish Green; med sorted; subrounded; v. moist - wet.</i>	<i>H₂O tagged @ 16 ft H₂ b/s open before completion</i>
	22				
	23				
	24				
	25				
	26				
	27				
	28				
	29				
	29.5				
	30				

Soil Casing Description

TD=29.5 ft

MONITORING WELL INSTALLATION REPORT

Page 1 of 4

WELL NUMBER (AAA.NNN.AA)

IN 02

GENERAL

Project Name
Landfill Bypassing System @ Union Carbide Co.

Project Manager (last name, first initial)

Longaker, J

Department

Installation Purpose (Monitoring, Piezometer, etc.)

Bypassing

County

Camden

Location Description

North Grid Coordinate

East Grid Coordinate

Latitude (decimal degrees)

Longitude (decimal degrees)

Ground Elev.

Top Casing Elev.

Liq. Level Pipe Elev.

DRILLING & SAMPLING

Drilling Start Date

29 Oct 97

Drilling Comp Date

29 Oct 97

Total Drilled Depth

29.0 ft

Ink. Static Water Level/Date

16.7 ft b/s 29 Oct 97

Total Borehole Deviation (angle/direction)

NA

Drilling/Sampling Method

4 1/2" ID NSA

Top Depth

0

Bot Depth

29.0

Diameter

9"

Drilling/Sampling Method

Top Depth

Bot Depth

Diameter

Drilling Company

Partridge

Driller (name, initials)

Kelly, A.

Oversight Company

S.A.P.C.

Oversight (name, initials)

Baker, B.

Drilling & Sampling Comments (drilling muds used, source of water, lost circulation zones, etc.)

Running sands encountered ~16 ft to 29 ft b/s; originally drilled w/ 2 1/2" ID NSAs, reamed w/ 4 1/2" ID NSA; for well construction

GEOPHYSICAL LOGGING

Date Logged

NA

Logging Top Depth

Logging Bottom Depth

Logging Subcontractor

Logging Truck Operator

Geophysical Logs

☐ Calliper ☐ Gamma ☐ Natural Gamma ☐ Neutron Density ☐ Resistivity ☐ Single Pt. Resistivity ☐ L&S Normal Resistivity ☐ Spontaneous Potential

Other Geophysical Logs (list)

Backfill Top Depth

29.5 ft

Backfill Bot Depth

29.0 ft

Backfill Material (include type quantity and units)

Native Soil

ons measured from height above MSL.

Depths measured from ground surface to

1 ft.

* Enter an "X" if cuttings were taken.

MONITORING WELL INSTALLATION REPORT

Page 2 of 4

WELL NUMBER (AAA,NNN,AA)

IW 02

WELL INSTALLATION (WELL MATERIALS)

Date Well Installed 29 Oct 97		Installed By SAIC		Oversight B. and B. Baker		No. of Casing NA		Centralizer Type		Sieve Analysis? ☐ Yes ☒ No	
CASING	Top Depth	Bot Depth	Material and Schedule		Diameter	Joint Type					
	4.25 ft below	27.0 ft	1" Sch 40 PVC		1"	Flush Thread					
SCREEN	Top Depth	Bot Depth	Material		Diameter	Slot Size	Slot Type				
	27.0	28.0	PVC Sch 40		1"	0.010	Manufactured				
BUMP	Top Depth	Bot Depth	Material and Schedule		Diameter	Joint Type					
	28.0	28.5	PVC Sch 40		1"	Flush Thread					
BUMP CAP	Top Depth	Bot Depth	Material and Schedule		Diameter	Cap Type					
	—	28.5	Cap, bump, screen and one unit		1"	PVC Sch 40					

WELL INSTALLATION (ANNULAR MATERIALS)

FILTER PACK	Top Depth	Bot Depth	Trade Name	Grain Size (mm)	Amount (sacks)	Sack Size (lbs)	Installation Method	
	25.7	28.5	Standard Sand and Gravel Co.	20-30	2 1/2	50 lbs	Tremied thru HSA's	
FINE SAND SEAL	Top Depth	Bot Depth	Trade Name	Grain Size (mm)	Amount (sacks)	Sack Size (lbs)	Installation Method	
	—	—						
BENTONITE SEAL	Top Depth	Bot Depth	Hydration Time (hrs)	Amount	Units and Size (sacks, buckets, etc.)	Installation Method		
	23.5	25.7	1 hr	1/2 bag	50 lbs	Tremied thru auger's		
GROUT	Top Depth	Bot Depth	Grout Mix		Amount (sacks)	Sack Size (lbs)	Grout Date	Installation Method
	27.0 ft	27.5 ft	Packed Type I Cement / H ₂ O / Bentonite		3	94 lbs	29 Oct 97	Tremied
	6 ft below	23.5	3 bags / ~20 gal / ~6 lbs					
	Surface	6 ft	Packed Type I / H ₂ O / Bentonite		2	94 lbs	5 Nov 97	Tremied

Report Prepared By
B. and B. Baker

Date
29 Oct 97

Well Accepted By

Date

MONITORING WELL INSTALLATION REPORT

Page 3 of 4

WELL NUMBER (AAA.NNN.AA)

IW 02

WELL DEVELOPMENT

Develop. Start Date 11 Nov 97	Develop. End Date 11 Nov 97	Well Developed By L. F. Fidge	Development Oversight Brian Baker / S. E. C.
Tot. Hours Developed 10 min	Development Method (check one or more) ☐ Air Lift ☐ Bailing ☐ Jetting ☒ Pumping ☐ Surging ☐ Swabbing		Est. Volume of Water Removed During Development (gals) 20 gal

START OF DEVELOPMENT					END OF DEVELOPMENT				
pH	Conductivity	Turbidity	Water Level Depth	Well Yield (gpm)	pH	Conductivity	Turbidity	Water Level Depth	Well Yield (gpm)
—	—	—	16.55 ft b/s	2' gpm	—	—	—	16.55 ft b/s	2' gpm

ADDITIVES

Additive Type	Amount/Units	Additive Type	Amount/Units	Additive Type	Amount/Units
N/A					

Well Development Comments

Above ground electric pump attached to top of casing w/ additional PVC fittings.

1158 H₂O let @ 16.55 ft b/s; 1 well volume including submersed filter pack = 3.21 gal
 Volume to be removed (3.21)(5) = 16.05 gal

1207 Begin pumping H₂O v. cloudy - dk greyish green
 H₂O began clearing after ~10 min removal

1217 Stop pumping 20 gal removed (flow meter) H₂O still slightly cloudy

Report Prepared By

Brian Baker

Date

11 Nov 97

MONITORING WELL INSTALLATION REPORT

Page 4 of 4

WELL NUMBER (AAA.NNN.AA)

PUMP INSTALLATION

Pump Installation Date	Pump Installed By	Pump Installation Contractor	Depth to Pump from Grnd. Surf.	Depth from Pump to Top Casing
Pump Type	Manufacturer		Model No.	Depth to Static Water Level
Capacity (gpm)	Horsepower	Voltage	Diameter (in)	

Pump Installation Comments

N/A

Report Prepared By

Date

MONITORING WELL CONSTRUCTION DIAGRAM

DRILLING SUBCONTRACTOR Portledge

WELL NUMBER IW-02

DRILLER Allen Kelly

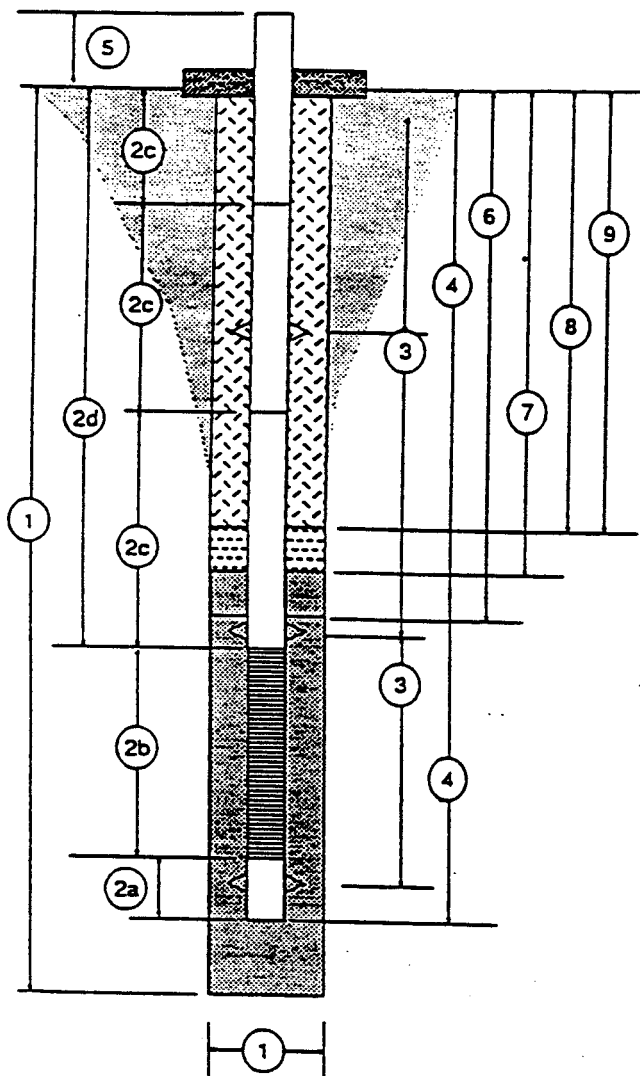
COORDINATES _____

DATE OF WELL INSTALLATION 29 Oct 97

SANITARY SEAL ELEVATION _____

TECH. O.S./CO. NAME Paul B. / SDC

NOTE: ALL MEASUREMENTS
ARE FROM GROUND
SURFACE AT START
OF BORING - MEASUREMENTS
TO NEAREST 0.1 FOOT.



1) Total Drilled Depth/Hole Diameter 29.0 ft / 9"

2) Casing/Screen Tally (Measured to Nearest 0.01 Foot)

(a) Sump & Plug Length 0.5 ft

(b) Screen Length 1.0 ft

(c) Casing Joint Lengths (Measured in Up-hole Sequence From Top of Screen)

3 segments @ 9.9 ft each
5.0 ft segment added and not for
4.25 ft sticking (working room)

(d) Depth to Top of Screen 27.0 ft

3) Depths to Centralizers N/A

4) Total Depth of Installed Well 28.5 ft

5) Casing Stick Up (Standard 2.5' A.G.S.) 4.25 ft

6) Depth to Top of Filter Pack 25.7 ft

7) Depth to Top of Fine Sand Seal N/A

8) Depth to Top of Bentonite Seal 23.5 ft

9) Thickness of Grout 23.5 ft

FIELD GEOLOGIC LOG

PROJECT <i>Landfill Biotransforming System</i> <i>at Union Carbide Co.</i>		DATE <i>29 Oct 97</i>	SHEET <i>1 of 1</i>
WELL NO. <i>IW-02</i>		REFERENCE DATUM	DILLING CONTRACTOR <i>Parti-Lite</i>
LOGGED BY <i>Brad Baker</i>		COMPANY <i>SAIL</i>	DILLING METHOD <i>2 1/4" ID HSA / 4 1/4" ID HSA</i>

RUN NUMBER	DEPTH, FEET	LITHOLOGY	PERCENT RECOVERY	SAMPLE DESCRIPTION	DILLING COMMENTS
	0			(0-10.4) Organic Top Soil - Black	LEL and PED
	1			(1-4.0 FT) SAND; sand: fine - 85% g/H - 15%; Brownish Black; subangular; med sorted; moist	No detectable metals otherwise noted
	2			(4.0-16.0 FT) SAND; sand: fine - 85% g/H - 15%; Tan; subangular; med sorted; moist	
	3				
	4			(16.0-25.0 FT) SAND; sand: fine - 85% g/H - 15%; Lt brownish yellow; med sorted; subangular; moist	Wet cuttings present during drilling @ 19.4 ft
	5				
	6			(25.0-29.0 FT) SAND; fine - 85% g/H - 15%; Yellowish Green; med sorted; subangular; v. moist - wet	Tagged 14.0 @ 17' Find by 0.16
	7				
	8			TD = 29.0 ft b/s	
	9				
	0				Reamed hole w/ 4 1/4" ID HSA; for well installation TD = 29.0 ft b/s
	1				
	2				
	3				
	4				
	5				
	6				
	7				
	8				
	9				
	0				

Soil Cuttings

MONITORING WELL INSTALLATION REPORT

Page 1 of 4

WELL NUMBER (AAA.NNN.AA)

IW 03

GENERAL

Project Name <i>Landfill Bypassing System @ Union Carbide Co</i>						
Project Manager (last name, first initial) <i>Longaker, J.</i>				Department		
Installation Purpose (Monitoring, Piezometer, etc.) <i>Bypassing</i>			County <i>Garden</i>		Location Description	
North Grid Coordinate	East Grid Coordinate	Latitude (decimal degrees)	Longitude (decimal degrees)	Ground Elev.	Top Casing Elev.	Liq. Level Pipe Elev.

DRILLING & SAMPLING

Drilling Start Date <i>30 Oct 97</i>	Drilling Comp Date <i>30 Oct 97</i>	Total Drilled Depth <i>29.0 ft</i>	Init. Static Water Level/Date <i>17.5 ft / 30 Oct 97</i>	Total Borehole Deviation (angle/direction) <i>NA</i>					
Drilling/Sampling Method	Top Depth	Bot Depth	Diameter	*	Drilling/Sampling Method	Top Depth	Bot Depth	Diameter	*
<i>4 1/2" ID HSA</i>	<i>0</i>	<i>29.0</i>	<i>9"</i>						

Drilling Company <i>Partidge</i>	Driller (last name, first initial) <i>Kelly, A</i>	Oversight Company <i>J.A.C.</i>	Oversight (last name, first initial) <i>Baker, B</i>
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Drilling & Sampling Comments (drilling fluids used, source of water, lost circulation zones, etc.)

Running sands present from ~16-29 ft bbls; No lost fluid @ 17.5 ft bbls

GEOPHYSICAL LOGGING

Date Logged <i>NA</i>	Logging Top Depth	Logging Bottom Depth	Logging Subcontractor	Logging Truck Operator
--------------------------	-------------------	----------------------	-----------------------	------------------------

Geophysical Logs

☐ Calliper ☐ Gamma ☐ Natural Gamma ☐ Neutron Density ☐ Resistivity ☐ Single Pt. Resistivity ☐ L&S Normal Resistivity ☐ Spontaneous Potential

Other Geophysical Logs (ft)

Backfill Top Depth <i>28.5</i>	Backfill Bot Depth <i>29.0</i>	Backfill Material (include type quantity and units) <i>Native Soils</i>
-----------------------------------	-----------------------------------	--

Elevations measured from height above MSL.

Depths measured from ground surface to nearest 0.1 ft.

* Enter an "X" if cuttings were taken

MONITORING WELL INSTALLATION REPORT

Page 2 of 4

WELL NUMBER (AAA.NNN.AA)

IW 03

WELL INSTALLATION (WELL MATERIALS)

Date Well Installed	Installed By	Oversight	No. of Casing	Centralizer Type	Sieve Analysis?	
IW-03	S.A.I.C.	Rand Rabin	N/A		☐ Yes ☒ No	
CASING	Top Depth	Bot Depth	Material and Schedule	Diameter	Joint Type	
	4.25A sticking	27.0	PVC Sch 40	1"	Flange Threaded	
SCREEN	Top Depth	Bot Depth	Material	Diameter	Slot Size	Slot Type
	27.0	28.0	PVC Sch 40	1"	0.010	Manufactured
BUMP	Top Depth	Bot Depth	Material and Schedule	Diameter	Joint Type	
	28.0	28.5	PVC Sch 40	1"	Plush Threaded	
BUMP CAP	Top Depth	Bot Depth	Material and Schedule	Diameter	Cap Type	
			Bump and Bottom Cap - inclusive	1"		

WELL INSTALLATION (ANNULAR MATERIALS)

FILTER PACK	Top Depth	Bot Depth	Trade Name	Grain Size (mm)	Amount (sacks)	Sack Size (lbs)	Installation Method
	24.7	28.5	Hydrated Lime	20-30 grade	2	50	Tremie thru casing
FINE SAND SEAL	Top Depth	Bot Depth	Trade Name	Grain Size (mm)	Amount (sacks)	Sack Size (lbs)	Installation Method
	N/A						
BENTONITE SEAL	Top Depth	Bot Depth	Hydration Time (hrs)	Amount	Units and Size (sacks, buckets, etc.)	Installation Method	
	24.7	22.7	1 hr	1/3	bag - 50 lbs	Tremie thru H.S.A	
GROUT	Top Depth	Bot Depth	Grout Mix	Amount (sacks)	Sack Size (lbs)	Grout Date	Installation Method
	10.0	22.7	Portland Type I Cement / H ₂ O / Bentonite 9 bags / ~30 gal / ~9 H ₂ O	4	94	30 Oct 97	Tremie
	3.0	10.0	Portland Type I Cement / H ₂ O / Bentonite	2	94	30 Oct 97	Tremie
	3.0	3.0	Portland Type I Cement / H ₂ O / Bentonite	1	94	5 Nov 97	Tremie

Prepared By

Rand Rabin

Date

30 Oct 97

Well Accepted By

Date

MONITORING WELL INSTALLATION REPORT

Page 3 of 4

WELL NUMBER (AAA,NN,AA)

IW 03

WELL DEVELOPMENT

Develop. Start Date 11 Nov 97	Develop. End Date 11 Nov 97	Well Developed By P. J. J. J.	Development Oversight B. J. J. J.
Tot. Hours Developed 15 min	Development Method (check one or more) ☐ Air Lift ☐ Bailing ☐ Jetting ☒ Pumping ☐ Surging ☐ Swabbing		Est. Volume of Water Removed During Development (gals) 31 gal

START OF DEVELOPMENT					END OF DEVELOPMENT				
pH	Conductivity	Turbidity	Water Level Depth	Well Yield (gpm)	pH	Conductivity	Turbidity	Water Level Depth	Well Yield (gpm)
—	—	—	16.6 ft bbs	2+ gpm	—	—	—	16.9 ft bbs	2+ gpm

ADDITIVES

Additive Type	Amount/Units	Additive Type	Amount/Units	Additive Type	Amount/Units
NA					

Well Development Comments

Electric pump above ground connected to well using w/ PVC fittings

1228 H₂O level @ 16.6 ft bbs
 well volume including saturated ft. H₂O = 6.14 gal
 Volume to be removed: 5 x 6.14 gal = 30.7 gal

1235 Pump running - H₂O initially v. cloudy - dk greenish green,
 1246 Stop pumping 31 gal. removed; 1st. H₂O slightly cloudy
 1248 H₂O level @ 21.15 ft bbs :: 16.9 ft bbs

Report Prepared By

Brad Baker

Date

11 Nov 97

MONITORING WELL INSTALLATION REPORT

Page 4 of 4

WELL NUMBER (AAA,NNN,AA)

PUMP INSTALLATION

Pump Installation Date	Pump Installed By	Pump Installation Contractor	Depth to Pump from Grnd. Surf.	Depth from Pump to Top Casing
Pump Type	Manufacturer		Model No.	Depth to Static Water Level
Capacity (gpm)	Horsepower	Voltage	Diameter (In)	

Pump Installation Comments

N/A

Report Prepared By

Date

MONITORING WELL CONSTRUCTION DIAGRAM

DRILLING SUBCONTRACTOR Cartledge

WELL NUMBER IW-03

DRILLER Allen Kelly

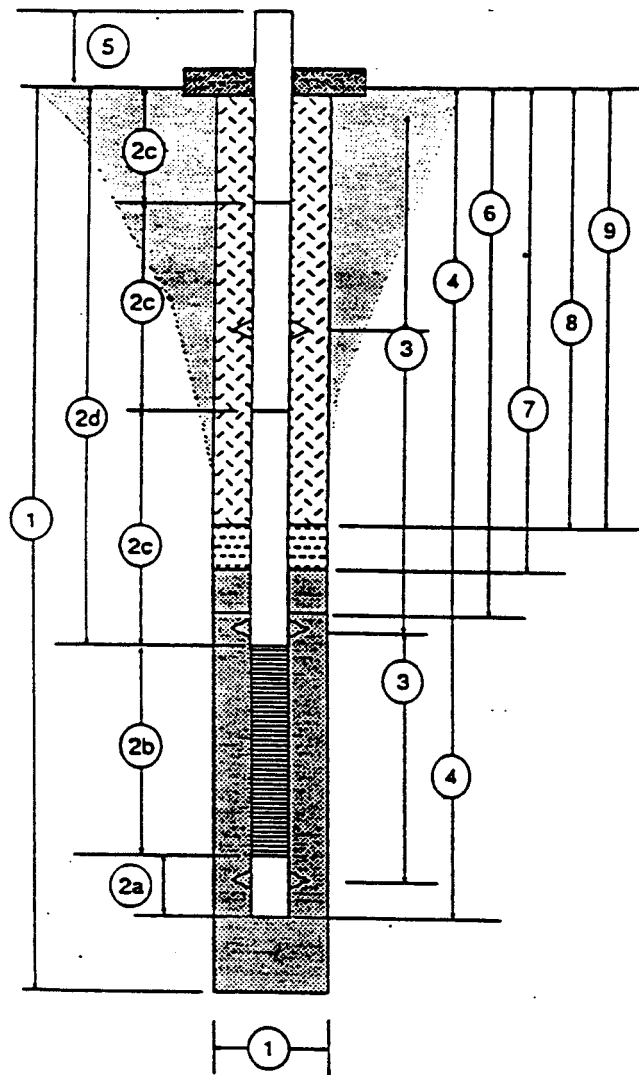
COORDINATES _____

DATE OF WELL INSTALLATION 30 Oct 97

SANITARY SEAL ELEVATION _____

TECH. O.S./CO. NAME Paul Baker / BAC

NOTE: ALL MEASUREMENTS
ARE FROM GROUND
SURFACE AT START
OF BORING - MEASUREMENTS
TO NEAREST 0.1 FOOT.



1) Total Drilled Depth/Hole Diameter 27.4 / 9"

2) Casing/Screen Tally (Measured to Nearest 0.01 Foot)

(a) Sump & Plug Length 0.5 ft

(b) Screen Length 1.0 ft

(c) Casing Joint Lengths (Measured in Up-hole Sequence From Top of Screen)

9.9 ft - 3 segments
1 - 5.0 ft section added to 4.25 ft
sticking

(d) Depth to Top of Screen 27.0 ft

3) Depths to Centralizers NA

4) Total Depth of Installed Well 28.5 ft

5) Casing Stick Up (Standard 2.5' A.G.S.) 4.25 ft

6) Depth to Top of Filter Pack 24.7 ft

7) Depth to Top of Fine Sand Seal NA

8) Depth to Top of Bentonite Seal 22.7

9) Thickness of Grout 22.7 ft

FIELD GEOLOGIC LOG

PROJECT <i>Landfill Bypassing System @ Union Carbide Co.</i>		DATE <i>30 Oct 97</i>	SHEET <i>1</i> of <i>1</i>
WELL NO. <i>IW-03</i>		REFERENCE DATUM	DRILLING CONTRACTOR <i>Portridge</i>
LOGGED BY <i>Brad Barber</i>		COORDINATES	DRILLER <i>Allen Kelly</i>
		COMPANY <i>SATC</i>	DRILLING METHOD <i>4 1/2" ID HSA</i>

RUN NUMBER	DEPTH, FEET	LITHOLOGY	PERCENT RECOVERY	SAMPLE DESCRIPTION	DRILLING COMMENTS
	0			SEE IW-02 Soil Descriptions	LEL and PID: no detection unless otherwise noted
	1			IW-03: SAME	
	2				BZ = Boulding Zone
	3				PID: BZ: 0.0 ppm 5.4 @ 10 ft; 2.5 ppm
	4				
	5				Target H.O. level 112 17.5 ft bls
	6				
	7				
	8				
	9				
2	0				
	1				
	2				
	3				
	4				
2	5				
	6				
	7				
	8				
1	9				
	0				
				TD = 29 ft bls	

MONITORING WELL INSTALLATION REPORT

Page 1 of 4

WELL NUMBER (AAA,NNN,AA)

TW 04

GENERAL

Project Name
Landfill Bypassing System @ Union Carbide Co.

Project Manager (last name, first initial)

Longaker, T

Department

Installation Purpose (Monitoring, Piezometer, etc.)

Bypassing System

County *San Diego*

San Diego

Location Description

North Grid Coordinate

East Grid Coordinate

Latitude (decimal degrees)

Longitude (decimal degrees)

Ground Elev.

Top Casing Elev.

Liq. Level Pipe Elev.

DRILLING & SAMPLING

Drilling Start Date

30 Oct 92

Drilling Comp Date

30 Oct 92

Total Drilled Depth

29.0 ft

Int. Static Water Level/Date

17.4 ft @ 30 Oct 92

Total Borehole Deviation (angle/direction)

NA

Drilling/Sampling Method

4 1/2" ID HSA

Top Depth

0

Bot Depth

29.0 ft

Diameter

9"

Drilling/Sampling Method

Top Depth

Bot Depth

Diameter

*

Drilling Company

Partridge

Driller (last name, first initial)

Kelly, A

Oversight Company

S.A.I.C.

Oversight (last name, first initial)

Baker, B.

Drilling & Sampling Comments (drilling fluids used, source of water, lost circulation zones, etc.)

Running sands from ~16-29 ft b/s; initial H₂O level first triggered @ 17.4 ft b/s

GEOPHYSICAL LOGGING

Date Logged

NA

Logging Top Depth

Logging Bottom Depth

Logging Subcontractor

Logging Truck Operator

Geophysical Logs

☐ Caliper ☐ Gamma ☐ Natural Gamma ☐ Neutron Density ☐ Resistivity ☐ Single Pt. Resistivity ☐ L&S Normal Resistivity ☐ Spontaneous Potential

Other Geophysical Logs (list)

Backfill Top Depth

28.5 ft

Backfill Bot Depth

29.0 ft

Backfill Material (include type quantity and units)

Native Soils

Elevations measured from height above MSL.

Depths measured from ground surface to nearest 0.1 ft.

* Enter an "X" if cuttings were taken.

MONITORING WELL INSTALLATION REPORT

Page 2 of 4

WELL NUMBER (AAA.NNN.AA)

IW 04

WELL INSTALLATION (WELL MATERIALS)

Date Well Installed	Installed By	Overight	No of Casing	Centralizer Type	Sieve Analysis?	
30 Oct 97	SADC	Bruce Parker	NA		☐ Yes ☒ No	
CASING	Top Depth	Bot Depth	Material and Schedule	Diameter	Joint Type	
	4.05A sticky	27.0 ft	PVC Sch 40	1"	Flush Thread	
SCREEN	Top Depth	Bot Depth	Material	Diameter	Slot Size	Slot Type
	27.0	28.0	PVC Sch 40	1"	0.010	Manufactured
SUMP	Top Depth	Bot Depth	Material and Schedule	Diameter	Joint Type	
	28.0	28.5	PVC Sch 40	1"	Flush Thread	
SUMP CAP	Top Depth	Bot Depth	Material and Schedule	Diameter	Cap Type	
	—	28.5	Sump & Cap Inclusive	1"		

WELL INSTALLATION (ANNULAR MATERIALS)

FILTER PACK	Top Depth	Bot Depth	Trade Name	Grain Size (mm)	Amount (sacks)	Sack Size (lbs)	Installation Method	
	24.8	28.5	Sh. of Bent Seal and Filter	20-30 graded	2 1/2	50 lbs	Tremied thru N5A's	
FINE SAND SEAL	Top Depth	Bot Depth	Trade Name	Grain Size (mm)	Amount (sacks)	Sack Size (lbs)	Installation Method	
	NA							
BENTONITE SEAL	Top Depth	Bot Depth	Hydration Time (hrs)	Amount	Units and Size (sacks, buckets, etc.)	Installation Method		
	22.2	24.8	1 hr	2/3	bag - 50 lbs	Tremied thru N5A's		
GROUT	Top Depth	Bot Depth	Grout Mix		Amount (sacks)	Sack Size (lbs)	Grout Date	Installation Method
	3	22.2	Portland Type I, Portland, H ₂ O		5	94	30 Oct 97	Tremied
	Surface	3	Portland Type I & Portland / H ₂ O		2	94	3 Nov 97	Tremied
			1 - 4 1/2" / - 1 1/2"					

Prepared By
Bruce Parker

Date
30 Oct 97

Well Accepted By

Date

MONITORING WELL INSTALLATION REPORT

Page 3 of 4

WELL NUMBER (AAA.NNN.AA)

IW 04

WELL DEVELOPMENT

Develop. Start Date 11 Nov 97	Develop. End Date 11 Nov 97	Well Developed By Portridge	Development Oversight Brad Baker / SAJC
Tot. Hours Developed 10 min.	Development Method (check one or more) ☐ Air Lift ☐ Bailing ☐ Jetting ☒ Pumping ☐ Surging ☐ Swabbing		Est. Volume of Water Removed During Development (gals) 2.1 gal

START OF DEVELOPMENT					END OF DEVELOPMENT				
pH	Conductivity	Turbidity	Water Level Depth	Well Yield (gpm)	pH	Conductivity	Turbidity	Water Level Depth	Well Yield (gpm)
—	—	—	17.03 ft b/s	2+	—	—	—	16.07 ft b/s	2+

ADDITIVES

Additive Type	Amount/Units	Additive Type	Amount/Units	Additive Type	Amount/Units
N/A					

Well Development Comments

Electric pump above ground connected to well casing w/ PVC fittings

1244 H₂O @ 17.03 ft b/s

One well volume including estimated fill pack = 4.07 gal

Volume to be removed: 5 x 14.07 gal = 20.35 gal

1300 Pump purging - H₂O slightly cloudy - dk orange green

1305 Stop purging 21 gal removed (the rest) - H₂O still slightly cloudy

1314 H₂O level topped @ 16.07 ft b/s

Report Prepared By

Brad Baker

Date

11 Nov 97

MONITORING WELL INSTALLATION REPORT

Page 4 of 4

WELL NUMBER (AAA,NNN,AA)

PUMP INSTALLATION

Pump Installation Date	Pump Installed By	Pump Installation Contractor	Depth to Pump from Grnd. Surf.	Depth from Pump to Top Casing
Pump Type	Manufacturer		Model No.	Depth to Static Water Level
Capacity (gpm)	Horsepower	Voltage	Diameter (in)	

Pump Installation Comments

N/A

Report Prepared By

Date

MONITORING WELL CONSTRUCTION DIAGRAM

DRILLING SUBCONTRACTOR

Partidge

WELL NUMBER

IA-04

DRILLER

Allen Kelly

COORDINATES

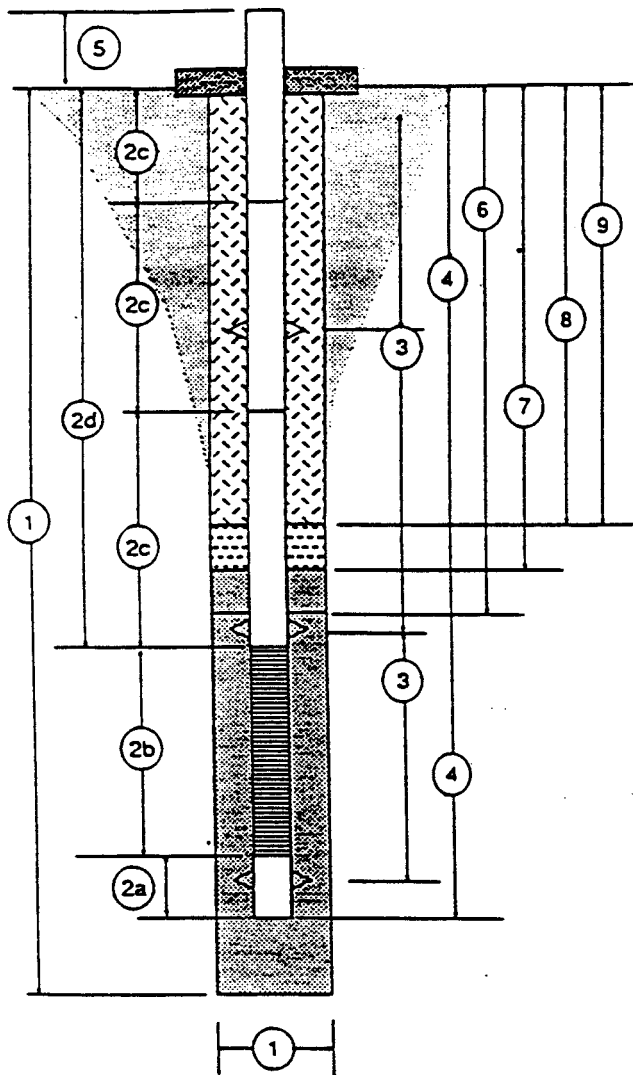
DATE OF WELL INSTALLATION

SANITARY SEAL ELEVATION

TECH. O.S./CO. NAME

Paul Baker / SATE

NOTE: ALL MEASUREMENTS
ARE FROM GROUND
SURFACE AT START
OF BORING - MEASUREMENTS
TO NEAREST 0.1 FOOT.



1) Total Drilled Depth/Hole Diameter

29.0 ft / 9" 6

2) Casing/Screen Tally (Measured to Nearest 0.01 Foot)

(a) Sump & Plug Length

0.5 ft

(b) Screen Length

1.0 ft

(c) Casing Joint Lengths (Measured in Up-hole Sequence From Top of Screen)

*3 segments @ 9.9 ft each
1 - 5.0 ft segment added for 4.05 ft
stickup (working room)*

(d) Depth to Top of Screen

27.0 ft

3) Depths to Centralizers

NA

4) Total Depth of Installed Well

28.5

5) Casing Stick Up (Standard 2.5" A.G.S.)

4.05 ft

6) Depth to Top of Filter Pack

24.8

7) Depth to Top of Fine Sand Seal

NA

8) Depth to Top of Bentonite Seal

22.2 ft

9) Thickness of Grout

22.2 ft

FIELD GEOLOGIC LOG

PROJECT <i>Landfill Dispersing System @ Union Carbide Co</i>				DATE <i>30 Oct 97</i>	SHEET <i>1</i> OF <i>1</i>
WELL NO. <i>IW-04</i>				REFERENCE DATUM	DRILLING CONTRACTOR <i>Partidge</i>
LOGGED BY <i>B. B. B.</i>				COORDINATES	DRILLER <i>Alan Kelly</i>
COMPANY <i>SAIC</i>				DRILLING METHOD <i>4 1/2" ID HSA</i>	

RUN NUMBER	DEPTH, FEET	LITHOLOGY	PERCENT RECOVERY	SAMPLE DESCRIPTION	DRILLING COMMENTS
	0			<i>See IW-07 log</i>	<i>CEL and PFD</i>
	1			<i>SAME Lithology</i>	<i>No observations</i>
	2				<i>unless otherwise note</i>
	3				
	4				<i>H.C. had first</i>
	5				<i>sample @ 17.4 ft</i>
	6				<i>bls</i>
	7				
	8				
	9				
	20				
	1				
	2				
	3				
	4				
	25				
	6				
	7				
	8				
	29			<i>TD = 29.0 ft bls</i>	
	0				

MONITORING WELL INSTALLATION REPORT

Page 1 of 4

WELL NUMBER (AAA.NNN.AA)

Ih/ 5

GENERAL

Project Name *Low Hill Bioregion System @ Union Carbide Co.*

Project Manager (last name, first initial)

Lengauer, J

Department

Installation Purpose (Monitoring, Piezometer, etc.)

Bioregion System

County

Condon

Location Description

North Grid Coordinate

East Grid Coordinate

Latitude (decimal degrees)

Longitude (decimal degrees)

Ground Elev.

Top Casing Elev.

Liq. Level Pipe Elev.

DRILLING & SAMPLING

Drilling Start Date

30 Oct 97

Drilling Comp Date

Total Drilled Depth

Int. Static Water Level/Date

Total Borehole Deviation (angle/direction)

NA

Drilling/Sampling Method	Top Depth	Bot Depth	Diameter	*	Drilling/Sampling Method	Top Depth	Bot Depth	Diameter	*
<i>4 1/2 ID HSA</i>	<i>0</i>	<i>29</i>	<i>9"</i>						

Drilling Company

Partridge

Driller (last name, first initial)

Kelly, A

Oversight Company

SATC

Oversight (last name, first initial)

Baker, B.

Drilling & Sampling Comments (drilling fluids used, source of water, lost circulation zones, etc.)

Running sands from ~16-29 ft b/s; H₂O cemented @ 17.7 ft b/s.

GEOPHYSICAL LOGGING

Date Logged

NA

Logging Top Depth

Logging Bottom Depth

Logging Subcontractor

Logging Truck Operator

Geophysical Logs

☐ Calliper ☐ Gamma ☐ Natural Gamma ☐ Neutron Density ☐ Resistivity ☐ Single Pt. Resistivity ☐ L&S Normal Resistivity ☐ Spontaneous Potential

Other Geophysical Logs (list)

Backfill Top Depth

28.5 ft

Backfill Bot Depth

29.0 ft

Backfill Material (include type quantity and units)

Native Soils

Depths measured from height above MSL.

Depths measured from ground surface to n

3.1 ft.

* Enter an "X" if cuttings were taken.

MONITORING WELL INSTALLATION REPORT

Page 2 of 4

WELL NUMBER (AAA.NNN.AA)

1W 05

WELL INSTALLATION (WELL MATERIALS)

Date Well Installed 30 Oct 92	Installed By SAFC	Oversight B. and B. Baker	No. of Casing N/A	Centralizer Type	Sieve Analysis? ☐ Yes ☒ No	
CASING	Top Depth	Bot Depth	Material and Schedule	Diameter	Joint Type	
	4.25 ft sticky	27.0	PVC Sch 40	1"	Flare Thread	
SCREEN	Top Depth	Bot Depth	Material	Diameter	Slot Size	Slot Type
	27.0	28.0	PVC Sch 40	1"	0.010	Manufactured
SUMP	Top Depth	Bot Depth	Material and Schedule	Diameter	Joint Type	
	29.0	29.5	PVC Sch 40	1"	Flare Thread	
SUMP CAP	Top Depth	Bot Depth	Material and Schedule	Diameter	Cap Type	
	—	—	Sump & Cap inclusive	1"		

WELL INSTALLATION (ANNULAR MATERIALS)

FILTER PACK	Top Depth	Bot Depth	Trade Name	Grain Size (mm)	Amount (sacks)	Sack Size (lbs)	Installation Method	
	25.8	28.5	Standard Sand and Silica Co.	20-30 grade	2 1/2	50	Tremied thru HSA's	
FINE SAND SEAL	Top Depth	Bot Depth	Trade Name	Grain Size (mm)	Amount (sacks)	Sack Size (lbs)	Installation Method	
	N/A							
BENTONITE SEAL	Top Depth	Bot Depth	Hydration Time (hrs)	Amount	Units and Size (sacks, buckets, etc.)	Installation Method		
	23.3	25.8	1 hr	1 bag	50 lb bags	Tremied thru HSA's		
GROUT	Top Depth	Bot Depth	Grout Mix		Amount (sacks)	Sack Size (lbs)	Grout Date	Installation Method
	4	23.3	P. Fluid Type I Grout / Bentonite / H₂O		5	94	30 Oct 92	Tremied
			5 bags / ~10 lbs / ~35 gal					
	Surface	4	P. Fluid Type I / Bentonite / H₂O		2	94	5 Oct 92	Tremied
			2 / ~4 lbs / ~14 gal					

Report Prepared By

B. and B. Baker

Date

30 Oct 92

Well Accepted By

Date

MONITORING WELL INSTALLATION REPORT

Page 3 of 4

WELL NUMBER (AAA NNN AA)

IW 05

WELL DEVELOPMENT

Develop. Start Date 11 Nov 97	Develop. End Date 11 Nov 97	Well Developed By R. Baker	Development Oversight R. Baker / S. A. C.
Tot. Hours Developed 10 min	Development Method (check one or more) ☐ Air Lift ☐ Bailing ☐ Jetting ☒ Pumping ☐ Surging ☐ Swabbing		Est. Volume of Water Removed During Development (gals) 16 gal

START OF DEVELOPMENT					END OF DEVELOPMENT				
pH	Conductivity	Turbidity	Water Level Depth	Well Yield (gpm)	pH	Conductivity	Turbidity	Water Level Depth	Well Yield (gpm)
—	—	—	17.45 ft H ₂ O	2+	—	—	—	17.55 ft H ₂ O	2+

ADDITIVES

Additive Type	Amount/Units	Additive Type	Amount/Units	Additive Type	Amount/Units
N/A					

Well Development Comments

Electric pump above ground connected to well casing w/ PVC fittings

1320 H₂O level @ 17.45 ft H₂O

1328 Begin pumping

1 well volume including saturated H₂O pack = 3.08 gal
 Surge volume = 5 x 3.08 = 15.4 gal

Initially H₂O v.c. heads - all present going

1335 Stop pumping 16 gal removed (Ammar -)

1337 H₂O level stopped @ 17.55 ft H₂O

Report Prepared By

R. Baker

Date

11 Nov 97

MONITORING WELL INSTALLATION REPORT

Page 4 of 4

WELL NUMBER (AAA,NNN,AA)

PUMP INSTALLATION

Pump Installation Date	Pump Installed By	Pump Installation Contractor	Depth to Pump from Grnd. Surf.	Depth from Pump to Top Casing
Pump Type	Manufacturer		Model No.	Depth to Static Water Level
Capacity (gpm)	Horsepower	Voltage	Diameter (in)	

Pump Installation Comments

N/A

Report Prepared By

Date

MONITORING WELL CONSTRUCTION DIAGRAM

DRILLING SUBCONTRACTOR Leitig

WELL NUMBER IW-05

DRILLER Allen Kelly

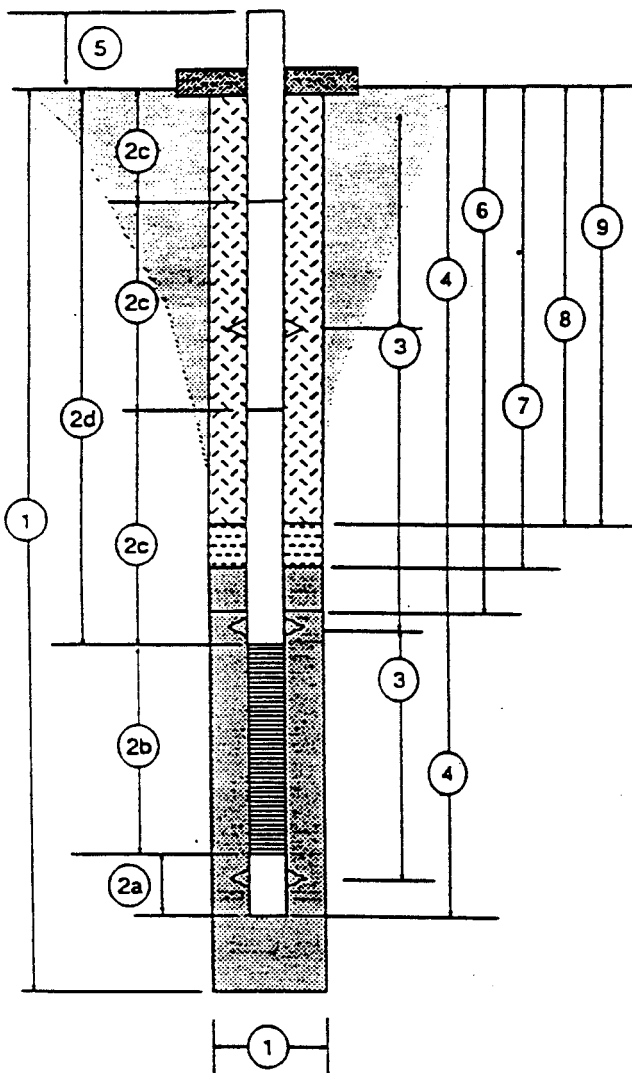
COORDINATES _____

DATE OF WELL INSTALLATION 30 Oct 97

SANITARY SEAL ELEVATION _____

TECH. O.S./CO. NAME Paul Baker / SATC

NOTE: ALL MEASUREMENTS
ARE FROM GROUND
SURFACE AT START
OF BORING - MEASUREMENTS
TO NEAREST 0.1 FOOT.



1) Total Drilled Depth/Hole Diameter 29.0 ft / 9"

2) Casing/Screen Tally (Measured to Nearest 0.01 Foot)

(a) Sump & Plug Length 0.5 ft

(b) Screen Length 1.0 ft

(c) Casing Joint Lengths (Measured in Up-hole Sequence From Top of Screen)

3 segments @ 9.9 ft each
1 - 5.0 ft segment added and cut
for 4.25 ft sticking

(d) Depth to Top of Screen 27.0 ft

3) Depths to Centralizers NA

4) Total Depth of Installed Well 28.5 ft

5) Casing Stick Up (Standard 2.5' A.G.S.) 4.25 ft

6) Depth to Top of Filter Pack 25.8

7) Depth to Top of Fine Sand Seal NA

8) Depth to Top of Bentonite Seal 23.3

9) Thickness of Grout 23.3

FIELD GEOLOGIC LOG

PROJECT <i>Landfill Biotransforming System @ Union Carbide Co.</i>		DATE <i>30 Oct 97</i>	SHEET <i>1 of 1</i>
WELL NO. <i>IW-05</i>		REFERENCE DATUM	DRILLING CONTRACTOR <i>Karlidge</i>
LOGGED BY <i>Brian Baker</i>		COORDINATES	DRILLER <i>Allen Kelly</i>
		COMPANY <i>SAIC</i>	DRILLING METHOD <i>4 1/2 ID HSA</i>

RUN NUMBER	DEPTH, FEET	LITHOLOGY	PERCENT# RECOVERY	SAMPLE DESCRIPTION	DRILLING COMMENTS
	0			<i>SEE IW-02 log</i>	<i>LEL and PID:</i>
	1			<i>SAME Lithology</i>	<i>no detections</i>
	2				<i>unless otherwise noted</i>
	3				
	4				
	5				
	6				<i>First turned</i>
	7				<i>to 17.7 ft bbl</i>
	8				
	9				
	20				
	1				
	2				
	3				
	4				
	25				
	6				
	7				
	8				
	29			<i>TD: 29.0 ft</i>	
	0				

MONITORING WELL INSTALLATION REPORT

Page 1 of 4

WELL NUMBER (AAA,NNN,AA)

ILW 46

GENERAL

Project Name <i>Landfill Borepiling System @ Union Carbide Co.</i>						
Project Manager (last name, first initial) <i>Longaker, T</i>				Department		
Installation Purpose (Monitoring, Piezometer, etc.) <i>Borepiling System</i>		County <i>London</i>		Location Description		
North Grid Coordinate	East Grid Coordinate	Latitude (decimal degrees)	Longitude (decimal degrees)	Ground Elev.	Top Casing Elev.	Liq. Level Pipe Elev.

DRILLING & SAMPLING

Drilling Start Date <i>31 Oct 97</i>		Drilling Comp Date <i>31 Oct 97</i>		Total Drilled Depth <i>29.5 ft</i>		Int. Static Water Level/Date <i>17.5 ft 6/5 31 Oct 97</i>		Total Borehole Deviation (angle/direction) <i>NA</i>			
Drilling/Sampling Method		Top Depth	Bot Depth	Diameter	*	Drilling/Sampling Method		Top Depth	Bot Depth	Diameter	*
<i>4 1/2" SD HSA's</i>		<i>0</i>	<i>29.5</i>	<i>9"</i>							

Drilling Company <i>Parkridge</i>		Driller (last name, initial) <i>Kelly, A</i>		Oversight Company <i>S.A.I.</i>		Oversight (last name, initial) <i>Bohler, B.</i>	
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Drilling & Sampling Comments (drilling muds used, source of water, lost circulation zones, etc.)
Running sands from ~16.0 ft - 29.5 ft

GEOPHYSICAL LOGGING

Date Logged <i>NA</i>	Logging Top Depth	Logging Bottom Depth	Logging Subcontractor	Logging Truck Operator
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Geophysical Logs
☐ Caliper ☐ Gamma ☐ Natural Gamma ☐ Neutron Density ☐ Resistivity ☐ Single Pt. Resistivity ☐ L&S Normal Resistivity ☐ Spontaneous Potential

Other Geophysical Logs (list)

Backfill Top Depth <i>29.0</i>	Backfill Bot Depth <i>29.5</i>	Backfill Material (include type quantity and units) <i>Native Soils</i>
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Elevations measured from height above MSL.

Depths measured from ground surface to nearest 0.1 ft

* Enter an "X" if cuttings were taken.

MONITORING WELL INSTALLATION REPORT

Page 2 of 4

WELL NUMBER (AAA,NNN,AA)

IW 06

WELL INSTALLATION (WELL MATERIALS)

Date Well Installed 31 Oct 97	Installed By SAIC	Oversight B. B. B.	No. of Casing N/A	Centralizer Type	Sieve Analysis? ☐ Yes ☒ No	
CASING	Top Depth	Bot Depth	Material and Schedule	Diameter	Joint Type	
	436.9	27.5	PVC Sch 40	1"	Flange Threaded	
SCREEN	Top Depth	Bot Depth	Material	Diameter	Slot Size	Slot Type
	27.5	28.5	PVC Sch 40	1"	0.010	Manufactured
SUMP	Top Depth	Bot Depth	Material and Schedule	Diameter	Joint Type	
	28.5	29.0	PVC Sch 40	1"	Flange Threaded	
SUMP CAP	Top Depth	Bot Depth	Material and Schedule	Diameter	Cap Type	
	—	—	Sump & Cap inclusive	1"		

WELL INSTALLATION (ANNULAR MATERIALS)

FILTER PACK	Top Depth	Bot Depth	Trade Name	Grain Size (mm)	Amount (sacks)	Sack Size (lbs)	Installation Method
	25.5	29.0	Standard	20-30 g. sand	2	50	Trammed thru HSA's
FINE SAND SEAL	Top Depth	Bot Depth	Trade Name	Grain Size (mm)	Amount (sacks)	Sack Size (lbs)	Installation Method
	N/A						
BENTONITE SEAL	Top Depth	Bot Depth	Hydration Time (hrs)	Amount	Units and Size (sacks, buckets, etc.)	Installation Method	
	23.3	25.5	1 hr	1/2 bag	bag = 50 lbs	Trammed thru HSA's	
GROUT	Top Depth	Bot Depth	Grout Mix	Amount (sacks)	Sack Size (lbs)	Grout Date	Installation Method
	5	23.3	P. 1 Hard Type I Cement / Portland / H₂O	5	94	31 Oct 97	Trammed thru 1" PVC
	Surface	5	1 Hard Type I Cement / H₂O / Portland	2	94	5 Nov 97	Trammed

Report Prepared By B. B. B.	Date 31 Oct 97	Well Accepted By	Date
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MONITORING WELL INSTALLATION REPORT

Page 3 of 4

WELL NUMBER (AAA.NNN.AA)

FW 06

WELL DEVELOPMENT

Develop. Start Date 11 Nov 97	Develop. End Date 11 Nov 97	Well Developed By K. L. T. J.	Development Oversight K. L. T. J.
Tot. Hours Developed 15 min	Development Method (check one or more) ☐ Air Lift ☐ Bailing ☐ Jetting ☒ Pumping ☐ Surging ☐ Swabbing		Est. Volume of Water Removed During Development (gals) 20 gal

START OF DEVELOPMENT					END OF DEVELOPMENT				
pH	Conductivity	Turbidity	Water Level Depth	Well Yield (gpm)	pH	Conductivity	Turbidity	Water Level Depth	Well Yield (gpm)
—	—	—	17.52 ft b/s	2+ gpm	—	—	—	17.85 ft b/s	2+ gpm

ADDITIVES

Additive Type	Amount/Units	Additive Type	Amount/Units	Additive Type	Amount/Units
NA					

Well Development Comments

Electric pump above ground connected to well casing w/ PVC fittings.

1343 H₂O tapped @ 17.52 ft b/s ; One well volume including installed filter pack is 3.85 gal
 Pump volume 5 x 3.85 gal = 19.4 gal

1351 Pump running; H₂O initially v. cloudy - dk greenish grey

1354 70 gal pumped (flow meter) H₂O still slightly cloudy

1400 H₂O level tapped @ 17.85 ft b/s

Report Prepared By

Bruce B. B.

Date

11 Nov 97

MONITORING WELL INSTALLATION REPORT

Page 4 of 4

WELL NUMBER (AAA.NNN.AA)

PUMP INSTALLATION

Pump Installation Date	Pump Installed By	Pump Installation Contractor	Depth to Pump from Grnd. Surf.	Depth from Pump to Top Casing
Pump Type	Manufacturer		Model No.	Depth to Static Water Level
Capacity (gpm)	Horsepower	Voltage	Diameter (in)	

Pump Installation Comments

N/A

Report Prepared By

Date

MONITORING WELL CONSTRUCTION DIAGRAM

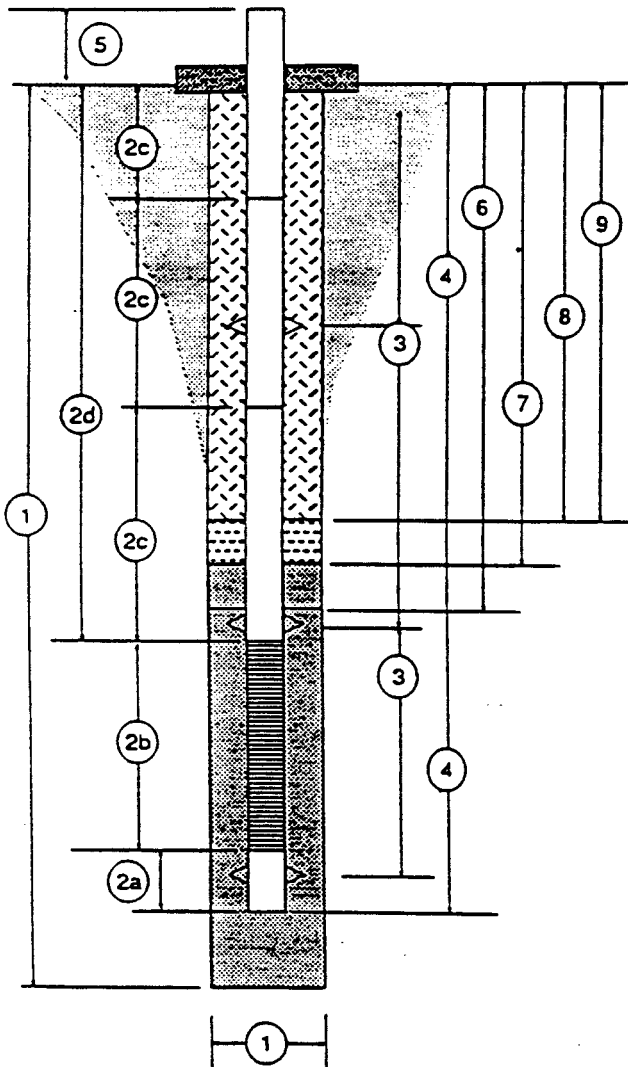
DRILLING SUBCONTRACTOR Partridge
 DRILLER Alvin Kelly
 DATE OF WELL INSTALLATION 31 Oct 97
 TECH. O.S./CO. NAME Red Blk. / SALS

WELL NUMBER DW-06

COORDINATES _____

SANITARY SEAL ELEVATION _____

NOTE: ALL MEASUREMENTS
 ARE FROM GROUND
 SURFACE AT START
 OF BORING - MEASUREMENTS
 TO NEAREST 0.1 FOOT.



- 1) Total Drilled Depth/Hole Diameter 29.5 ft / 9" 6
- 2) Casing/Screen Tally (Measured to Nearest 0.01 Foot)
 - (a) Sump & Plug Length 0.5 ft
 - (b) Screen Length 1.0 ft
 - (c) Casing Joint Lengths (Measured in Up-hole Sequence From Top of Screen)
 - 3 segments @ 9.9 ft each
 - 1-5.0 ft sand added and cut to
 - 4.38 ft stickup.
 - (d) Depth to Top of Screen 27.5 ft
- 3) Depths to Centralizers NA
- 4) Total Depth of Installed Well 29.0 ft
- 5) Casing Stick Up (Standard 2.5' A.G.S.) 4.38
- 6) Depth to Top of Filter Pack 25.5 ft
- 7) Depth to Top of Fine Sand Seal NA
- 8) Depth to Top of Bentonite Seal 23.3 ft
- 9) Thickness of Grout 23.3 ft

FIELD GEOLOGIC LOG

PROJECT		Landfill Bioremediation System @ Union Carbide Co.		DATE	31 Oct 97	SHEET	1 of 1
WELL NO.		IW-06		REFERENCE DATUM	DRILLING CONTRACTOR		
LOGGED BY		Paul B. Lee		COORDINATES	DRILLER		
COMPANY		SAIC		DRILLING METHOD		4 1/2" ID H.S.A.	

RUN NUMBER	DEPTH, FEET	LITHOLOGY	PERCENT RECOVERY	SAMPLE DESCRIPTION	DRILLING COMMENTS
	0			SEE IW-02 Log	LEL + PED :
	1			SAME LITHOLOGY	No detection
	2				no loss of pressure
	3				noted
	4				
	5				
	6				
	7				H ₂ O level found
	8				@ 17.5 ft b/s
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TD: 29.5 ft

MONITORING WELL INSTALLATION REPORT

Page 1 of 4

WELL NUMBER (AAA.NNN.AA)

IW 07

GENERAL

Project Name

Landfill Biotransforming System @ Union Carbide Co

Project Manager (last name, first initial)

Lengacher, J

Department

Installation Purpose (Monitoring, Piezometer, etc.)

Biotransforming System

County

London

Location Description

North Grid Coordinate

East Grid Coordinate

Latitude (decimal degrees)

Longitude (decimal degrees)

Ground Elev.

Top Casing Elev.

Liq. Level Pipe Elev.

DRILLING & SAMPLING

Drilling Start Date

31 Oct 97

Drilling Comp Date

31 Oct 97

Total Drilled Depth

29.5 ft

Int. Static Water Level/Date

18.1 ft b/s 31 Oct 97

Total Borehole Deviation (angle/direction)

NA

Drilling/Sampling Method

4 1/4" ID. HSAI

Top Depth

0

Bot Depth

29.5

Diameter

9"

Drilling/Sampling Method

Top Depth

Bot Depth

Diameter

*

Drilling Company

Partidge

Driller (last name, first initial)

Kelly, A

Oversight Company

SATC

Oversight (last name, first initial)

Baker, P.

Drilling & Sampling Comments (drilling muds used, source of water, lost circulation zones, etc.)

Running sands from ~16 ft - 29.5 ft b/s.

GEOPHYSICAL LOGGING

Date Logged

NA

Logging Top Depth

Logging Bottom Depth

Logging Subcontractor

Logging Truck Operator

Geophysical Logs

☐ Calliper ☐ Gamma ☐ Natural Gamma ☐ Neutron Density ☐ Resistivity ☐ Single Pt. Resistivity ☐ L&S Normal Resistivity ☐ Spontaneous Potential

Other Geophysical Logs (list)

Backfill Top Depth

29.0

Backfill Bot Depth

29.5

Backfill Material (include type quantity and units)

Native Soils

Elevations measured from height above MSL.

Depths measured from ground surface to nearest ft.

* Enter an "X" if cuttings were taken.

MONITORING WELL INSTALLATION REPORT

Page 2 of 4

WELL NUMBER (AAA.NNN.AA)

IW

07

WELL INSTALLATION (WELL MATERIALS)

Date Well Installed 31 Oct 97		Installed By SAIC		Oversight Brian Baker		No. of Casing NA		Centralizer Type		Sieve Analysis? ☐ Yes ☒ No	
CASING	Top Depth	Bot Depth	Material and Schedule		Diameter	Joint Type					
	436.8 ft	27.5	PVC Sch 40		1"	Flush Threaded					
SCREEN	Top Depth	Bot Depth	Material		Diameter	Slot Size	Slot Type				
	27.5	28.5	PVC Sch 40		1"	0.010	Manufactured				
BUMP	Top Depth	Bot Depth	Material and Schedule		Diameter	Joint Type					
	28.5	29.0	PVC Sch 40		1"	Flush Threaded					
BUMP CAP	Top Depth	Bot Depth	Material and Schedule		Diameter	Cap Type					
			Bump and Cap inclusive		1"						

WELL INSTALLATION (ANNULAR MATERIALS)

FILTER PACK	Top Depth	Bot Depth	Trade Name	Grain Size (mm)	Amount (sacks)	Sack Size (lbs)	Installation Method	
	25.8	29.0	Starbuck and Blaine Co	20-30 grade	3	50 lbs	Tremie thru HSA's	
FINE SAND SEAL	Top Depth	Bot Depth	Trade Name	Grain Size (mm)	Amount (sacks)	Sack Size (lbs)	Installation Method	
	NA							
BENTONITE SEAL	Top Depth	Bot Depth	Hydration Time (hrs)	Amount	Units and Size (sacks, buckets, etc.)		Installation Method	
	22.0	25.8	1 hr	1 bag	bag = 50 lbs		Tremie thru HSA's	
GROUT	Top Depth	Bot Depth	Grout Mix		Amount (sacks)	Sack Size (lbs)	Grout Date	Installation Method
	5	22.0	Portland Type 3 / Portland / H ₂ O 5' ~ 10 lbs / ~ 35 gal		5	94	31 Oct 97	Tremie thru HSA's 31 Oct 97 1" PVC
	Surface	5	Portland Type 3 / H ₂ O / Portland		2	94	5 Nov 97	Tremie

Report Prepared By

Brian Baker

Date

31 Oct 97

Well Accepted By

Date

MONITORING WELL INSTALLATION REPORT

Page 3 of 4

WELL NUMBER (AAA.NNN.AA)

IW 07

WELL DEVELOPMENT

Develop. Start Date 11 Nov 97	Develop. End Date 11 Nov 97	Well Developed By T. Bridges	Development Oversight B. R. Baker / SAIC
Tot. Hours Developed 15 min	Development Method (check one or more) ☐ Air Lift ☐ Bailing ☐ Jetting ☒ Pumping ☐ Surging ☐ Swabbing		Est. Volume of Water Removed During Development (gals) 22 gal

START OF DEVELOPMENT					END OF DEVELOPMENT				
pH	Conductivity	Turbidity	Water Level Depth	Well Yield (gpm)	pH	Conductivity	Turbidity	Water Level Depth	Well Yield (gpm)
—	—	—	18.01 ft b/s	2+	—	—	—	17.95 ft b/s	2+

ADDITIVES					
Additive Type	Amount/Units	Additive Type	Amount/Units	Additive Type	Amount/Units
16/1A					

Well Development Comments

Electric pump above ground connected to well casing w/ PVC fittings

1407 H₂O tested @ 18.01 ft b/s

One well volume = 3.57 gals (including static H₂O) Pump Volume = 5 x 3.57 gal = 17.85 gal

1416 Began pumping

H₂O v. cloudy - dk. grayish green

1424 Pumping stopped 22 gal removed (flow meter); H₂O slightly cloudy

1426 H₂O tested @ 17.95 ft b/s

Report Prepared By B. R. Baker	Date 11 Nov 97
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MONITORING WELL INSTALLATION REPORT

Page 4 of 4

WELL NUMBER (AAA.NNN.AA)

PUMP INSTALLATION

Pump Installation Date	Pump Installed By	Pump Installation Contractor	Depth to Pump from Grnd. Surf.	Depth from Pump to Top Casing
Pump Type	Manufacturer		Model No.	Depth to Static Water Level
Capacity (gpm)	Horsepower	Voltage	Diameter (in)	

Pump Installation Comments

N/A

Report Prepared By

Date

MONITORING WELL CONSTRUCTION DIAGRAM

DRILLING SUBCONTRACTOR Partridge

WELL NUMBER IW-07

DRILLER Allen Kelly

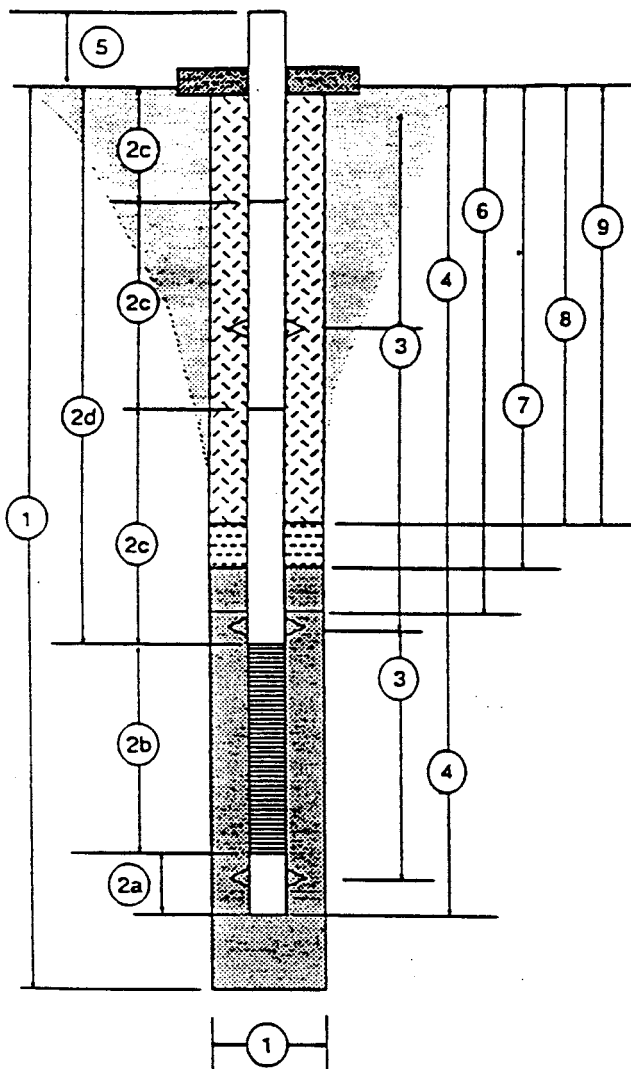
COORDINATES _____

DATE OF WELL INSTALLATION 31 Oct 97

SANITARY SEAL ELEVATION _____

TECH. O.S./CO. NAME Brad Baker / SAIC

NOTE: ALL MEASUREMENTS
ARE FROM GROUND
SURFACE AT START
OF BORING - MEASUREMENTS
TO NEAREST 0.1 FOOT.



1) Total Drilled Depth/Hole Diameter 29.5 ft / 9" Ø

2) Casing/Screen Tally (Measured to Nearest 0.01 Foot)

(a) Sump & Plug Length 0.5 ft

(b) Screen Length 1.0 ft

(c) Casing Joint Lengths (Measured in Up-hole Sequence From Top of Screen)

3 segments @ 9.9 ft each
1 - 5.0 ft section added on cut
for 4.35 ft sticking (working room)

(d) Depth to Top of Screen 27.5'

3) Depths to Centralizers NA

4) Total Depth of Installed Well 29.0'

5) Casing Stick Up (Standard 2.5' A.G.S.) 4.35

6) Depth to Top of Filter Pack 25.8'

7) Depth to Top of Fine Sand Seal NA

8) Depth to Top of Bentonite Seal 22.0'

9) Thickness of Grout 22.0'

FIELD GEOLOGIC LOG

PROJECT <i>Landfill Biorpaving System @ Hunter-Lord & Co.</i>		DATE <i>31 Oct 97</i>	SHEET <i>1</i> of <i>1</i>
WELL NO. <i>IV-07</i>		REFERENCE DATUM	DRILLING CONTRACTOR <i>Partidge</i>
LOGGED BY <i>Bar Bar</i>		COORDINATES	DRILLER <i>Allan Kelly</i>
COMPANY <i>SATC</i>		DRILLING METHOD <i>4 1/4" ID HSA</i>	

RUN NUMBER	DEPTH, FEET	LITHOLOGY	PERCENT RECOVERY	SAMPLE DESCRIPTION	DRILLING COMMENTS
	0			see IV-02 log	LEL & PID:
	1			SAME LITHOLOGY	No detections
	2				unless otherwise
	3				noted
	4				
	5				
	6				1st level tested
	7				@ 18.1 ft b/s
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MONITORING WELL INSTALLATION REPORT

Page 1 of 4

WELL NUMBER (AAA.NNN.AA)

IW 08

GENERAL

Project Name

Landfill Biotransforming System @ Union Carbide Co

Project Manager (last name, first initial)

Longaker, J

Department

Installation Purpose (Monitoring, Piezometer, etc.)

Biotransforming System

County

Camden

Location Description

North Grid Coordinate

East Grid Coordinate

Latitude (decimal degrees)

Longitude (decimal degrees)

Ground Elev.

Top Casing Elev.

Liq. Level Pipe Elev.

DRILLING & SAMPLING

Drilling Start Date

3 Nov 97

Drilling Comp Date

3 Nov 97

Total Drilled Depth

29.5 ft

Init. Static Water Level/Date

18.1 ft b/s / 3 Nov 97

Total Borehole Deviation (angle/direction)

NA

Drilling/Sampling Method

4 1/2" ID HSA

Top Depth

0

Bot Depth

29.5

Diameter

9"

Drilling/Sampling Method

Top Depth

Bot Depth

Diameter

*

Drilling Company

Partridge

Driller (last name, first initial)

Kelly, A

Oversight Company

SAIC

Oversight (last name, first initial)

Baker, B

Drilling & Sampling Comments (drilling fluids used, source of water, lost circulation zones, etc.)

Remixing sands from ~ 16 - 29.5 ft b/s

GEOPHYSICAL LOGGING

Date Logged

NA

Logging Top Depth

Logging Bottom Depth

Logging Subcontractor

Logging Truck Operator

Geophysical Logs

☐ Caliper ☐ Gamma ☐ Natural Gamma ☐ Neutron Density ☐ Resistivity ☐ Single Pt. Resistivity ☐ L&S Normal Resistivity ☐ Spontaneous Potential

Other Geophysical Logs (list)

Backfill Top Depth

29.0

Backfill Bot Depth

29.5

Backfill Material (include type quantity and units)

Native Soils

Elevations measured from height above MSL.

Depths measured from ground surface to nearest 0.1 ft.

* Enter an "X" if cuttings were taken.

MONITORING WELL INSTALLATION REPORT

Page 2 of 4

WELL NUMBER (AAA.NNN.AA)

IW 08

WELL INSTALLATION (WELL MATERIALS)

Date Well Installed	Installed By	Overight	No of Casing	Centralizer Type	Slave Analysis?	
3 Nov 97	SAIC	Brad Baker	NA		☐ Yes ☒ No	
CASING	Top Depth	Bot Depth	Material and Schedule	Diameter	Joint Type	
	4.25 ft shy	27.5	PVC Sch 40	1"	Flare Throated	
SCREEN	Top Depth	Bot Depth	Material	Diameter	Slot Size	Slot Type
	27.5	28.5	PVC Sch 40	1"	0.010	Manufactured
BUMP	Top Depth	Bot Depth	Material and Schedule	Diameter	Joint Type	
	28.5	29.0	PVC Sch 40	1"	Flare Throated	
BUMP CAP	Top Depth	Bot Depth	Material and Schedule	Diameter	Cap Type	
			Bump Cap inclusive	1"	PVC Sch 40	

WELL INSTALLATION (ANNULAR MATERIALS)

FILTER PACK	Top Depth	Bot Depth	Trade Name	Grain Size (mm)	Amount (sacks)	Sack Size (lbs)	Installation Method	
	25.8	29.0	Standard Silica	20-30 grade	13 1/4	50	Tremie thru HSA's	
FINE SAND SEAL	Top Depth	Bot Depth	Trade Name	Grain Size (mm)	Amount (sacks)	Sack Size (lbs)	Installation Method	
			NA		1 bag	50	Tremie	
BENTONITE SEAL	Top Depth	Bot Depth	Hydration Time (hrs)	Amount	Units and Size (sacks, buckets, etc.)	Installation Method		
	23.4	25.8	1 hr	1 bag	1 - 50 lb bag	Tremie thru HSA's		
GROUT	Top Depth	Bot Depth	Grout Mix		Amount (sacks)	Sack Size (lbs)	Grout Date	Installation Method
	6	23.4	P. H. H. Type 1 Cement / Bentonite / H ₂ O		5	94	3 Nov 97	Tremie
			5 bags - 10 lbs - 2 1/2 gal					
	Surface	6	P. H. H. Type 1 / Bentonite / H ₂ O		2	94	5 Nov 97	Tremie

Report Prepared By

Brad Baker

Date

3 Nov 97

Well Accepted By

Date

MONITORING WELL INSTALLATION REPORT

Page 3 of 4

WELL NUMBER (AAA.NNN.AA)

IW 08

WELL DEVELOPMENT

Develop. Start Date 11 Nov 97	Develop. End Date 11 Nov 97	Well Developed By Bertidee	Development Oversight Bertidee - 1545C
Tot. Hours Developed 10 min	Development Method (check one or more) ☐ Air Lift ☐ Bailing ☐ Jetting ☒ Pumping ☐ Surging ☐ Swabbing		Est. Volume of Water Removed During Development (gals) 20 gal

START OF DEVELOPMENT					END OF DEVELOPMENT				
pH	Conductivity	Turbidity	Water Level Depth	Well Yield (gpm)	pH	Conductivity	Turbidity	Water Level Depth	Well Yield (gpm)
—	—	—	18.15 ft bls	2+	—	—	—	18.05 ft bls	2+

ADDITIVES

Additive Type	Amount/Units	Additive Type	Amount/Units	Additive Type	Amount/Units
—	—	—	—	—	—

Well Development Comments

Electric pump cable ground connected to well casing w/ PVC fittings

1442 H₂O Tagged @ 18.15 ft bls

1100 well volume including saturated filter pack = 3.56 gal

Purge Volume = 5 x 3.56 gal = 17.8 gal

1447 Pump purging, H₂O initially v. cloudy - dls greenish grey

1449 20 gal returned, H₂O still slightly cloudy

1453 Tagged water level @ 18.05 ft bls

Report Prepared By

Bertidee

Date

11 Nov 97

MONITORING WELL INSTALLATION REPORT

Page 4 of 4

WELL NUMBER (AAA,NNN,AA)

PUMP INSTALLATION

Pump Installation Date	Pump Installed By	Pump Installation Contractor	Depth to Pump from Grnd. Surf.	Depth from Pump to Top Casing
Pump Type	Manufacturer		Model No.	Depth to Static Water Level
Capacity (gpm)	Horsepower	Voltage	Diameter (in)	

Pump Installation Comments

N/A

Report Prepared By

Date

MONITORING WELL CONSTRUCTION DIAGRAM

DRILLING SUBCONTRACTOR Partridge

WELL NUMBER IV-03

DRILLER Allen Kelly

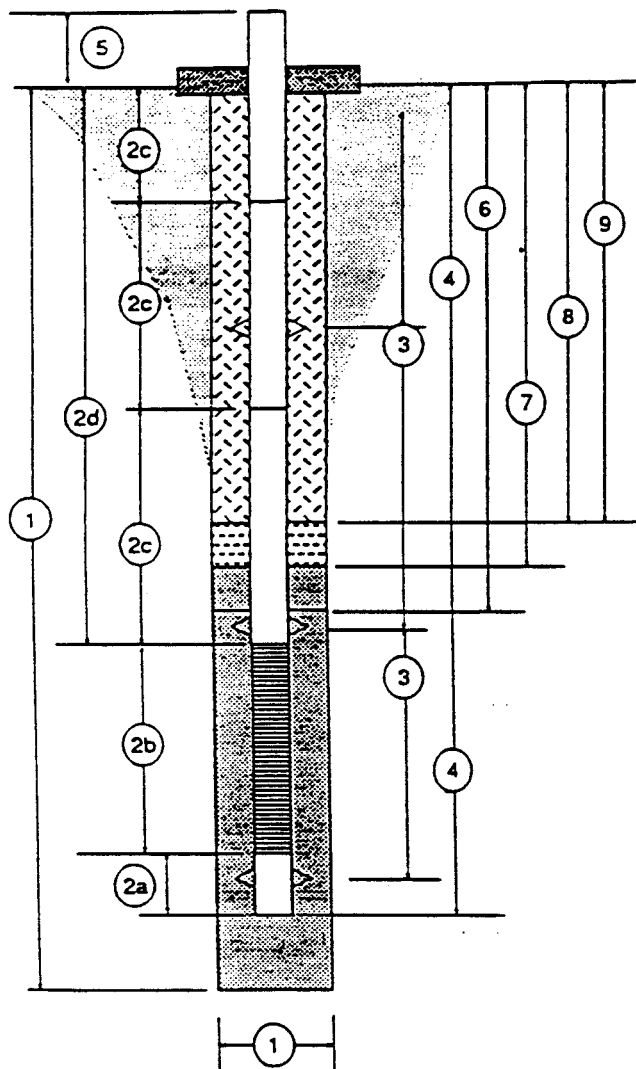
COORDINATES _____

DATE OF WELL INSTALLATION 3 Nov 94

SANITARY SEAL ELEVATION _____

TECH. O.S./CO. NAME D. J. Baker / SAIC

NOTE: ALL MEASUREMENTS
ARE FROM GROUND
SURFACE AT START
OF BORING - MEASUREMENTS
TO NEAREST 0.1 FOOT.



- 1) Total Drilled Depth/Hole Diameter 29.5 ft 1 1/2" / 9"
- 2) Casing/Screen Tally (Measured to Nearest 0.01 Foot)
 - (a) Sump & Plug Length 0.5 ft
 - (b) Screen Length 1.0 ft
 - (c) Casing Joint Lengths (Measured in Up-hole Sequence From Top of Screen)
 3 segments @ 9.9 ft each
1 - 5.0 ft section with 1 inch and 1/2 inch
for 4.25 ft sticking (working room)
 - (d) Depth to Top of Screen 27.5 ft
- 3) Depths to Centralizers NA
- 4) Total Depth of Installed Well 29.0 ft
- 5) Casing Stick Up (Standard 2.5' A.G.S.) 4.25 ft
- 6) Depth to Top of Filter Pack 25.5 ft
- 7) Depth to Top of Fine Sand Seal NA
- 8) Depth to Top of Bentonite Seal 23.4 ft
- 9) Thickness of Grout 23.4 ft

FIELD GEOLOGIC LOG

PROJECT <i>Landfill Biotransforming System @ Union Carbide Co.</i>		DATE <i>3.16.97</i>	SHEET <i>1</i> OF <i>1</i>
WELL NO. <i>JW-08</i>		REFERENCE DATUM	DRILLING CONTRACTOR <i>Portridge</i>
LOGGED BY <i>Brian B. B.</i>		COORDINATES	DRILLER <i>Allen Kelly</i>
COMPANY <i>SATC</i>		DRILLING METHOD <i>4 1/2" ID HSA's</i>	

RUN NUMBER	DEPTH, FEET	LITHOLOGY	PERCENT RECOVERY	SAMPLE DESCRIPTION	DRILLING COMMENTS
	0				LEL & PID
	1			see JW-02 log same lithology	see descriptions unless otherwise noted
	2				
	3				
	4				
	5				
	6				Had first layer @ 15.1 ft/bb
	7				
	8				
	9				
	0				
	1				
	2				
	3				
	4				
	5				
	6				
	7				
	8				
	9				
296	0			TD = 29.5 ft/bb.	

MONITORING WELL INSTALLATION REPORT

Page 1 of 4

WELL NUMBER (AAA.NNN.AA)

IW 09

GENERAL

Project Name

Landfill Gas Recovery System @ Union Carbide Co.

Project Manager (last name, first initial)

Longaker, J

Department

Installation Purpose (Monitoring, Piezometer, etc.)

Gas Recovery System

County

Location Description

North Grid Coordinate

East Grid Coordinate

Latitude (decimal degrees)

Longitude (decimal degrees)

Ground Elev.

Top Casing Elev.

Liq. Level Pipe Elev.

DRILLING & SAMPLING

Drilling Start Date

3 Nov 97

Drilling Comp Date

3 Nov 97

Total Drilled Depth

29.5 ft

Int. Static Water Level/Date

18.4 ft / 3 Nov 97

Total Borehole Deviation (angle/direction)

NA

Drilling/Sampling Method

4 1/2" ID HSA's

Top Depth

0

Bot Depth

29.5 ft

Diameter

9"

Drilling/Sampling Method

Top Depth

Bot Depth

Diameter

*

Drilling Company

Partridge

Driller (name, initials)

Kelly, A.

Oversight Company

USDC

Oversight (name, initials)

Brake, B

Drilling & Sampling Comments (drilling muds used, source of water, lost circulation zones, etc.)

Running sands from ~16 ft - 29.5 ft

GEOPHYSICAL LOGGING

Date Logged

NA

Logging Top Depth

Logging Bottom Depth

Logging Subcontractor

Logging Truck Operator

Geophysical Logs

☐ Caliper ☐ Gamma ☐ Natural Gamma ☐ Neutron Density ☐ Resistivity ☐ Single Pt. Resistivity ☐ L&S Normal Resistivity ☐ Spontaneous Potential

Other Geophysical Logs (list)

Backfill Top Depth

29.0

Backfill Bot Depth

29.5

Backfill Material (include type, quantity and units)

Native Soil

Elevations measured from height above MSL.

Depths measured from ground surface to nearest 0.1 ft.

* Enter an "X" if cuttings were taken.

MONITORING WELL INSTALLATION REPORT

Page 2 of 4

WELL NUMBER (AAA.NNN.AA)

IV

09

WELL INSTALLATION (WELL MATERIALS)

Date Well Installed 3 Nov 97		Installed By S.A.I.C.		Oversight Brad Parker	No. of Casing N/A	Centralizer Type —	Sieve Analysis? ☐ Yes ☒ No	
CASING	Top Depth	Bot Depth	Material and Schedule		Diameter	Joint Type		
	43.8' slushy	27.5	PVC Sch 40		1"	Flush Threaded		
SCREEN	Top Depth	Bot Depth	Material		Diameter	Slot Size	Slot Type	
	27.5	28.5	PVC Sch 40		1"	0.010	Manufactured	
SUMP	Top Depth	Bot Depth	Material and Schedule		Diameter	Joint Type		
	28.5	29.0	PVC Sch 40		1"	Flush Threaded		
SUMP CAP	Top Depth	Bot Depth	Material and Schedule		Diameter	Cap Type		
	—	—	Sump Cap Inclusive		1"	PVC Sch 40		

WELL INSTALLATION (ANNULAR MATERIALS)

FILTER PACK	Top Depth	Bot Depth	Trade Name	Grain Size (mm)	Amount (sacks)	Sack Size (lbs)	Installation Method	
	25.8	29.0	Standard Sand and Silica Co.	20-30 grade	2 1/2	50	Tremied Area HSA's	
FINE SAND SEAL	Top Depth	Bot Depth	Trade Name	Grain Size (mm)	Amount (sacks)	Sack Size (lbs)	Installation Method	
	NA							
BENTONITE SEAL	Top Depth	Bot Depth	Hydration Time (hrs)	Amount	Units and Size (sacks, buckets, etc.)		Installation Method	
	22.8	25.6	1 hr.	1 bag	50 lbs		Tremied Area HSA's	
GROUT	Top Depth	Bot Depth	Grout Mix		Amount (sacks)	Sack Size (lbs)	Grout Date	Installation Method
	5	22.8	Wellhead Type I Cement / H ₂ O / Portland 5 bags - 35 gal - 11 lbs		5	94	3 Nov 97	Tremied

Report Prepared By

Brad Parker

Date

3 Nov 97

Well Accepted By

Date

MONITORING WELL INSTALLATION REPORT

Page 3 of 4

WELL NUMBER (AAA.NNN.AA)

IW 09

WELL DEVELOPMENT

Develop. Start Date 11 Nov 97	Develop. End Date 11 Nov 97	Well Developed By P. A. Baker	Development Oversight P. A. Baker / SATC
Tot. Hours Developed 15 min	Development Method (check one or more) ☐ Air Lift ☐ Bailing ☐ Jetting ☒ Pumping ☐ Surging ☐ Swabbing		Est. Volume of Water Removed During Development (gals) 20 gal

START OF DEVELOPMENT					END OF DEVELOPMENT				
pH	Conductivity	Turbidity	Water Level Depth	Well Yield (gpm)	pH	Conductivity	Turbidity	Water Level Depth	Well Yield (gpm)
—	—	—	15.6 ft b/s	2+	—	—	—	15.45 ft b/s	2+

ADDITIVES

Additive Type	Amount/Units	Additive Type	Amount/Units	Additive Type	Amount/Units
N/A					

Well Development Comments

Electric pump above ground connected to well using w/ PVC fittings.

1459 H₂O level reached @ 15.6 ft b/s

One well volume = 3.54 gal

Purge Volume = 5 x 3.54 gal = 17.7 gal
includes sediment to the pack

1530 Pump purging; H₂O initially v. cloudy - dk greenish gray

1543 20 gall pumped - flow better - H₂O still slightly cloudy

1545 H₂O level higher @ 15.43 ft b/s

Report Prepared By

P. A. Baker

Date

11 Nov 97

MONITORING WELL INSTALLATION REPORT

Page 4 of 4

WELL NUMBER (AAA,NNN,AA)

PUMP INSTALLATION

Pump Installation Date	Pump Installed By	Pump Installation Contractor	Depth to Pump from Grnd. Surf.	Depth from Pump to Top Casing
Pump Type	Manufacturer		Model No.	Depth to Static Water Level
Capacity (gpm)	Horsepower	Voltage	Diameter (in)	

Pump Installation Comments

N/A

Report Prepared By

Date

MONITORING WELL CONSTRUCTION DIAGRAM

DRILLING SUBCONTRACTOR Portledge

WELL NUMBER IW-09

DRILLER Allan V. King

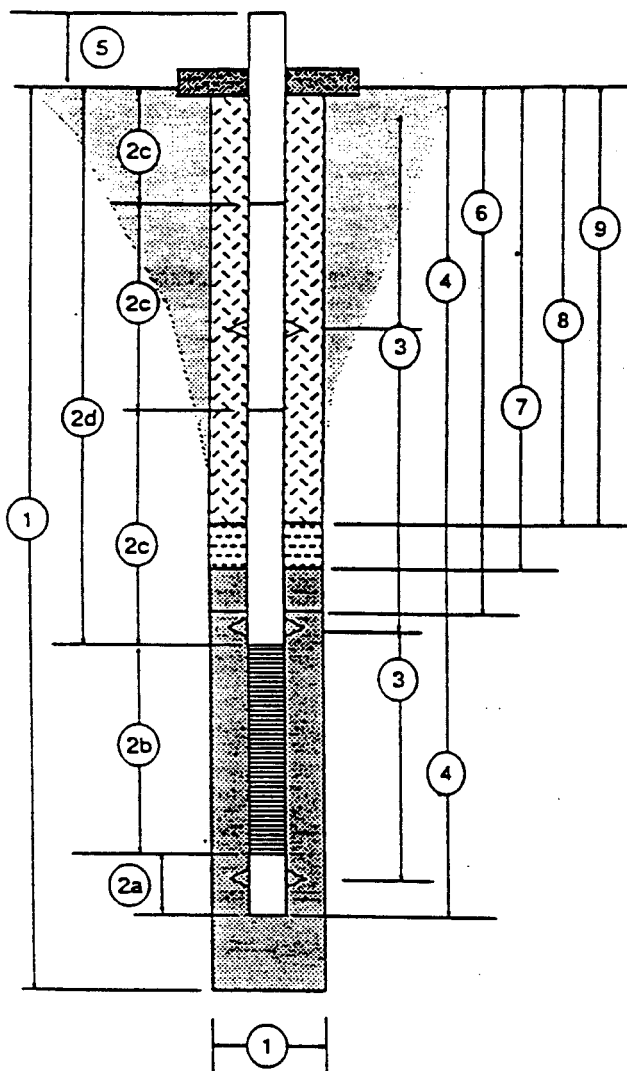
COORDINATES _____

DATE OF WELL INSTALLATION 3 Nov 97

SANITARY SEAL ELEVATION _____

TECH. O.S./CO. NAME Broad Baker / SAEL

NOTE: ALL MEASUREMENTS
ARE FROM GROUND
SURFACE AT START
OF BORING - MEASUREMENTS
TO NEAREST 0.1 FOOT.



1) Total Drilled Depth/Hole Diameter 29.5 ft / 9" ϕ

2) Casing/Screen Tally (Measured to Nearest 0.01 Foot)

(a) Sump & Plug Length 0.5 ft

(b) Screen Length 1.0 ft

(c) Casing Joint Lengths (Measured in Up-hole Sequence From Top of Screen)

3 synthetic 9.9 ft each
1- 5.0 ft section collar and
cut to 4.3 ft sticking

(d) Depth to Top of Screen 27.5 ft

3) Depths to Centralizers NA

4) Total Depth of Installed Well 29.0 ft

5) Casing Stick Up (Standard 2.5' A.G.S.) 4.3 ft

6) Depth to Top of Filter Pack 25.8 ft

7) Depth to Top of Fine Sand Seal NA

8) Depth to Top of Bentonite Seal 22.8 ft

9) Thickness of Grout 22.8 ft

FIELD GEOLOGIC LOG

PROJECT <i>Landfill Biotransforming System @ Urmia Lake Co.</i>				DATE <i>3 Nov 97</i>	SHEET <i>1 of 1</i>
WELL NO. <i>IW-09</i>				REFERENCE DATUM	DRILLING CONTRACTOR <i>Portridge</i>
LOGGED BY <i>Frank Baker</i>				COORDINATES	DRILLER <i>Allen Kelly</i>
COMPANY <i>SATIC</i>				DRILLING METHOD <i>4 1/4" ID H/A's</i>	

RUN NUMBER	DEPTH, FEET	LITHOLOGY	PERCENT RECOVERY	SAMPLE DESCRIPTION	DRILLING COMMENTS
	0			<i>See IW-02 log</i>	<i>LEL and PED</i>
	1			<i>SAME LITHOLOGY</i>	<i>no descriptions</i>
	2				<i>unless otherwise noted</i>
	3				
	4				
	5				
	6				
	7				<i>First H₂O layer @ 18.4 H/A's</i>
	8				
	9				
	0				
	1				
	2				
	3				
	4				
	5				
	6				
	7				
	8				
	29			<i>TD = 29.5 H/A's</i>	
	0				

MONITORING WELL INSTALLATION REPORT

Page 1 of 4

WELL NUMBER (AAA.NNN.AA)

IW

10

GENERAL

Project Name

East A Discharge System at Union Carbide Co.

Project Manager (last name, first initial)

Longaker, J

Department

Installation Purpose (Monitoring, Piezometer, etc.)

Discharge System

County

Camden

Location Description

North Grid Coordinate

East Grid Coordinate

Latitude (decimal degrees)

Longitude (decimal degrees)

Ground Elev.

Top Casing Elev.

Liq. Level Pipe Elev.

DRILLING & SAMPLING

Drilling Start Date

3 Nov 97

Drilling Comp Date

3 Nov 97

Total Drilled Depth

29.5 ft bgs

Int. Static Water Level/Date

14.5 ft bgs 13 Nov 97

Total Borehole Deviation (angle/direction)

N/A

Drilling/Sampling Method

4 1/2" ID HSA's

Top Depth

0

Bot Depth

29.5

Diameter

9"

Drilling/Sampling Method

Top Depth

Bot Depth

Diameter

*

Drilling Company

Portage

Driller (last name, first initial)

Kelly, A

Oversight Company

SATC

Oversight (last name, first initial)

Frank B.

Drilling & Sampling Comments (drilling muds used, source of water, lost circulation zones, etc.)

Running sand ~ 16 - 29.5 ft bgs

GEOPHYSICAL LOGGING

Date Logged

N/A

Logging Top Depth

Logging Bottom Depth

Logging Subcontractor

Logging Truck Operator

Geophysical Logs

☐ Caliper ☐ Gamma ☐ Natural Gamma ☐ Neutron Density ☐ Resistivity ☐ Single Pt. Resistivity ☐ L&S Normal Resistivity ☐ Spontaneous Potential

Other Geophysical Logs (list)

Backfill Top Depth

29.0 ft

Backfill Bot Depth

29.5 ft

Backfill Material (include type quantity and units)

Native Soils

Elevations measured from height above MSL.

Depths measured from ground surface to nearest 0.1 ft.

* Enter an 'X' if cuttings were taken.

MONITORING WELL INSTALLATION REPORT

Page 2 of 4

WELL NUMBER (AAA.NNN.AA)

IW 10

WELL INSTALLATION (WELL MATERIALS)

Date Well Installed	Installed By	Oversight	No. of Casing	Centralizer Type	Sieve Analysis?	
3 Nov 97	SATC	Bral Baker	N/A		☐ Yes ☒ No	
CASING	Top Depth	Bot Depth	Material and Schedule	Diameter	Joint Type	
	4.25 ft	27.5	PVC Sch 40	1"	Flange Thread	
SCREEN	Top Depth	Bot Depth	Material	Diameter	Slot Size	Slot Type
	27.5	28.5	PVC Sch 40	1"	0.010	Manufactured
SUMP	Top Depth	Bot Depth	Material and Schedule	Diameter	Joint Type	
	28.5	29.0	PVC Sch 40	1"	Flange Thread	
SUMP CAP	Top Depth	Bot Depth	Material and Schedule	Diameter	Cap Type	
	—	—	Sample Cap inclusive	1"	PVC Sch 40	

WELL INSTALLATION (ANNULAR MATERIALS)

FILTER PACK	Top Depth	Bot Depth	Trade Name	Grain Size (mm)	Amount (sacks)	Sack Size (lbs)	Installation Method	
	26.1		Blended Sand and Silica Gel	20-30 grade	2	50	Tremie thru HSA's	
FINE SAND SEAL	Top Depth	Bot Depth	Trade Name	Grain Size (mm)	Amount (sacks)	Sack Size (lbs)	Installation Method	
	N/A							
BENTONITE SEAL	Top Depth	Bot Depth	Hydration Time (hrs)	Amount	Units and Size (sacks, buckets, etc.)	Installation Method		
	23.5	26.1	1 hr	2/3 bag	50 lbs/bag	Tremie thru pipe		
GROUT	Top Depth	Bot Depth	Grout Mix		Amount (sacks)	Sack Size (lbs)	Grout Date	Installation Method
	5	23.5	Portland Type I Cement / H ₂ O / Bentonite		5	94	3 Nov 97	Tremie
	Surface	5	Portland Type I Cement / H ₂ O / Bentonite		2	94	3 Nov 97	Tremie

Report Prepared By

Bral Baker

Date

3 Nov 97

Well Accepted By

Date

MONITORING WELL INSTALLATION REPORT

Page 3 of 4

WELL NUMBER (AAA,NNN,AA)

IW

10

WELL DEVELOPMENT

Develop. Start Date 11 Nov 97	Develop. End Date 11 Nov 97	Well Developed By K. Fidge	Development Oversight Brend Baker / SATC
----------------------------------	--------------------------------	-------------------------------	---

Tot. Hours Developed 10 min	Development Method (check one or more) ☐ Air Lift ☐ Bailing ☐ Jetting ☒ Pumping ☐ Surging ☐ Swabbing	Est. Volume of Water Removed During Development (gals) 2.1 gal
--------------------------------	--	---

START OF DEVELOPMENT					END OF DEVELOPMENT				
pH	Conductivity	Turbidity	Water Level Depth	Well Yield (gpm)	pH	Conductivity	Turbidity	Water Level Depth	Well Yield (gpm)
—	—	—	18.63 ft H ₂ O	2+	—	—	—	18.63 ft H ₂ O	2+

ADDITIVES

Additive Type	Amount/Units	Additive Type	Amount/Units	Additive Type	Amount/Units
N/A					

Well Development Comments

Electric pump down ground connected to well casing w/ 1/2" fittings.
 1553 H₂O level tested @ 18.63 ft H₂O
 One well volume = 3.24 gal. Pump Volume: 5 x 3.24 gal = 16.2 gal. Initial saturation
 1606 Began pumping; H₂O initially v. cloudy; all greenish grey
 1614 20 gals pumped; H₂O slightly cloudy
 1616 H₂O level @ 18.63 ft H₂O

Report Prepared By

Brend Baker

Date

11 Nov 97

MONITORING WELL INSTALLATION REPORT

Page 4 of 4

WELL NUMBER (AAA.NNN.AA)

PUMP INSTALLATION

Pump Installation Date	Pump Installed By	Pump Installation Contractor	Depth to Pump from Grnd. Surf.	Depth from Pump to Top Casing
Pump Type	Manufacturer		Model No.	Depth to Static Water Level
Capacity (gpm)	Horsepower	Voltage	Diameter (in)	

Pump Installation Comments

N/A

Report Prepared By

Date

MONITORING WELL CONSTRUCTION DIAGRAM

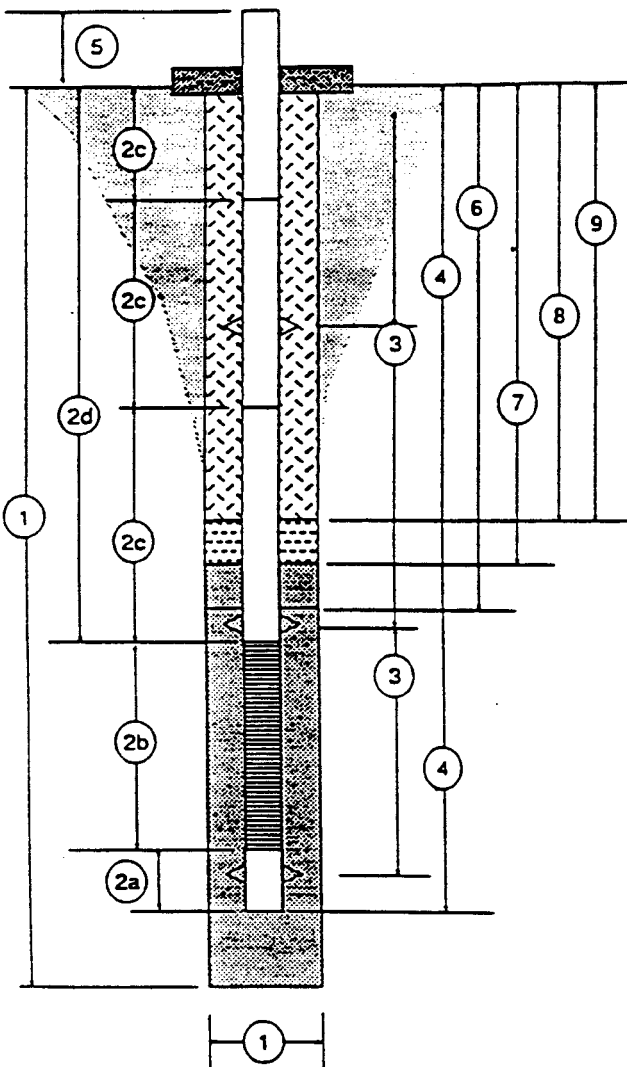
DRILLING SUBCONTRACTOR Portridge
 DRILLER Allen Kelley
 DATE OF WELL INSTALLATION 3 Nov 97
 TECH. O.S./CO. NAME Paul Porter / SADC

WELL NUMBER IW-10

COORDINATES _____

SANITARY SEAL ELEVATION _____

NOTE: ALL MEASUREMENTS
 ARE FROM GROUND
 SURFACE AT START
 OF BORING - MEASUREMENTS
 TO NEAREST 0.1 FOOT.



- 1) Total Drilled Depth/Hole Diameter 29.5 ft / 9" d
- 2) Casing/Screen Tally (Measured to Nearest 0.01 Foot)
 - (a) Sump & Plug Length 0.5 ft
 - (b) Screen Length 1.0 ft
 - (c) Casing Joint Lengths (Measured in Up-hole Sequence From Top of Screen)
 3 segments @ 9.9 ft each
1 - 5.0 ft segment added and cut
for 4.25 ft sticking
 - (d) Depth to Top of Screen 27.5 ft
- 3) Depths to Centralizers NA
- 4) Total Depth of Installed Well 29.0 ft
- 5) Casing Stick Up (Standard 2.5' A.G.S.) 4.25 ft
- 6) Depth to Top of Filter Pack 26.1 ft
- 7) Depth to Top of Fine Sand Seal NA
- 8) Depth to Top of Bentonite Seal 23.5 ft
- 9) Thickness of Grout 23.5 ft

FIELD GEOLOGIC LOG

PROJECT <i>Landfill Bypassing System @ Union Carbide Co.</i>		DATE <i>3 Nov 97</i>		SHEET <i>1</i> OF <i>1</i>	
WELL NO. <i>IW-10</i>		REFERENCE DATUM		DRILLING CONTRACTOR <i>Castro Dye</i>	
LOGGED BY <i>Paul Bahr</i>		COORDINATES		DRILLER <i>Allen Kelly</i>	
		COMPANY <i>SAIC</i>		DRILLING METHOD <i>4 1/2" ID HSA's</i>	

RUN NUMBER	DEPTH, FEET	LITHOLOGY	PERCENT RECOVERY	SAMPLE DESCRIPTION	DRILLING COMMENTS
	0				<i>LEL and PID:</i>
	1			<i>See IW-02 log</i>	<i>no detections noted</i>
	2			<i>SAME LITHOLOGY</i>	<i>otherwise noted</i>
	3				
	4				
	5				
	6				
	7				
	8				<i>Initial H₂O tested</i>
	9				<i>@ 15.5 ft</i>
	10				
	11				
	12				
	13				
	14				
	15				
	16				
	17				
	18				
	19				
	20				
	21				
	22				
	23				
	24				
	25				
	26				
	27				
	28				
	29				
	<i>29.5</i>			<i>TD = 29.5 ft</i>	
	30				

MONITORING WELL INSTALLATION REPORT

Page 1 of 4

WELL NUMBER (AAA.NNN.AA)

JW 11

GENERAL

Project Name

Landfill Bypassing System @ Union Carbide Co.

Project Manager (last name, first initial)

Longaker, J

Department

Installation Purpose (Monitoring, Piezometer, etc.)

Bypassing System

County

Camden

Location Description

North Grid Coordinate

East Grid Coordinate

Latitude (decimal degrees)

Longitude (decimal degrees)

Ground Elev.

Top Casing Elev.

Liq. Level Pipe Elev.

DRILLING & SAMPLING

Drilling Start Date

3 Nov 97

Drilling Comp Date

3 Nov 97

Total Drilled Depth

29.5 ft

Init. Static Water Level/Date

18.2 ft / 3 Nov 97

Total Borehole Deviation (angle/direction)

N/A

Drilling/Sampling Method

4 1/2" ID HSA

Top Depth

0

Bot Depth

29.5 ft

Diameter

9"

Drilling/Sampling Method

Top Depth

Bot Depth

Diameter

Drilling Company

Partidge

Driller (last name, first initial)

Kelly, Allan

Oversight Company

SAIC

Oversight (last name, first initial)

Brake, B

Drilling & Sampling Comments (drilling muds used, source of water, lost circulation zones, etc.)

Remain sands ~16-29.5 ft

GEOPHYSICAL LOGGING

Date Logged

N/A

Logging Top Depth

Logging Bottom Depth

Logging Subcontractor

Logging Truck Operator

Geophysical Logs

☐ Caliper ☐ Gamma ☐ Natural Gamma ☐ Neutron Density ☐ Resistivity ☐ Single Pt. Resistivity ☐ L&S Normal Resistivity ☐ Spontaneous Potential

Other Geophysical Logs (list)

Backfill Top Depth

29.0 ft

Backfill Bot Depth

29.5 ft

Backfill Material (include type quantity and units)

Native Soils

Elevations measured from height above MSL.

Depths measured from ground surface to nearest 0.1 ft.

* Enter an "X" if cuttings were taken.

MONITORING WELL INSTALLATION REPORT

Page 2 of 4

WELL NUMBER (AAA,NNN,AA)

IW

11

WELL INSTALLATION (WELL MATERIALS)

Date Well Installed 3 Nov 97		Installed By SAIC		Oversight Brad Baker	No of Casing NA	Centralizer Type —	Sieve Analysis? ☐ Yes ☒ No	
CASING	Top Depth	Bot Depth	Material and Schedule		Diameter	Joint Type		
	4.25 ft deep	27.5	PVC Sch 40		1"	Flush Threaded		
SCREEN	Top Depth	Bot Depth	Material		Diameter	Slot Size	Slot Type	
	27.5	28.5	PVC Sch 40		1"	0.010	Manufactured	
SUMP	Top Depth	Bot Depth	Material and Schedule		Diameter	Joint Type		
	28.5	29.0	PVC Sch 40		1"	Flush Threaded		
SUMP CAP	Top Depth	Bot Depth	Material and Schedule		Diameter	Cap Type		
	—	—	Sump & Cap Inclusive		1"	PVC Sch 40		

WELL INSTALLATION (ANNULAR MATERIALS)

FILTER PACK	Top Depth	Bot Depth	Trade Name	Grain Size (mm)	Amount (sacks)	Sack Size (lbs)	Installation Method	
	26.4	29.0	Industrial Sand and Silica Co	20-30 grade	2 1/4	50	Tremied thru HSA's	
FINE SAND SEAL	Top Depth	Bot Depth	Trade Name	Grain Size (mm)	Amount (sacks)	Sack Size (lbs)	Installation Method	
	NA							
BENTONITE SEAL	Top Depth	Bot Depth	Hydration Time (hrs)	Amount	Units and Size (sacks, buckets, etc.)		Installation Method	
	23.6	26.4	1 hr	3/4 bag	50 lb bag		Tremied thru HSA's	
GROUT	Top Depth	Bot Depth	Grout Mix		Amount (sacks)	Sack Size (lbs)	Grout Date	Installation Method
	5	23.6	P. H. H. Type I Cement / H ₂ O / bentonite		5	94	3 Nov 97	Tremied
			5 bags - 35 gal - 16 lbs					
	Surface	5	P. H. H. Type I / H ₂ O / bentonite		2	94	5 Nov 97	Tremied

Report Prepared By

Brad Baker

Date

3 Nov 97

Well Accepted By

Date

MONITORING WELL INSTALLATION REPORT

Page 3 of 4

WELL NUMBER (AAA.NNN.AA)

IW

11

WELL DEVELOPMENT

Develop. Start Date 12 Nov 97	Develop. End Date 12 Nov 97	Well Developed By B. Bahr	Development Oversight B. Bahr
Tot. Hours Developed 10 min	Development Method (check one or more) ☐ Air Lift ☐ Bailing ☐ Jetting ☒ Pumping ☐ Surging ☐ Swabbing		Est. Volume of Water Removed During Development (gals) 16 gal

START OF DEVELOPMENT					END OF DEVELOPMENT				
pH	Conductivity	Turbidity	Water Level Depth	Well Yield (gpm)	pH	Conductivity	Turbidity	Water Level Depth	Well Yield (gpm)
—	—	—	15.25 ft b/s	+ 2	—	—	—	18.30 ft b/s	+ 2

ADDITIVES

Additive Type	Amount/Units	Additive Type	Amount/Units	Additive Type	Amount/Units
NA					

Well Development Comments

Electric pump above ground connected to well casing w/ PVC fittings

0840 H₂O @ 15.25 ft b/s

Well volume: 2.96 gal

Purge Volume: 14.8 gal

0914 Begin purging; H₂O initially v. cloudy; dk greenish green

0924 16 gals purged - (flow meter) H₂O: slightly cloudy

0926 H₂O level topped @ 18.30 ft b/s

Report Prepared By

B. Bahr

Date

12 Nov 97

MONITORING WELL INSTALLATION REPORT

Page 4 of 4

WELL NUMBER (AAA,NNN,AA)

PUMP INSTALLATION

Pump Installation Date	Pump Installed By	Pump Installation Contractor	Depth to Pump from Grnd. Surf.	Depth from Pump to Top Casing
Pump Type	Manufacturer		Model No.	Depth to Static Water Level
Capacity (gpm)	Horsepower	Voltage		Diameter (in)

Pump Installation Comments

N/A

Report Prepared By

Date

MONITORING WELL CONSTRUCTION DIAGRAM

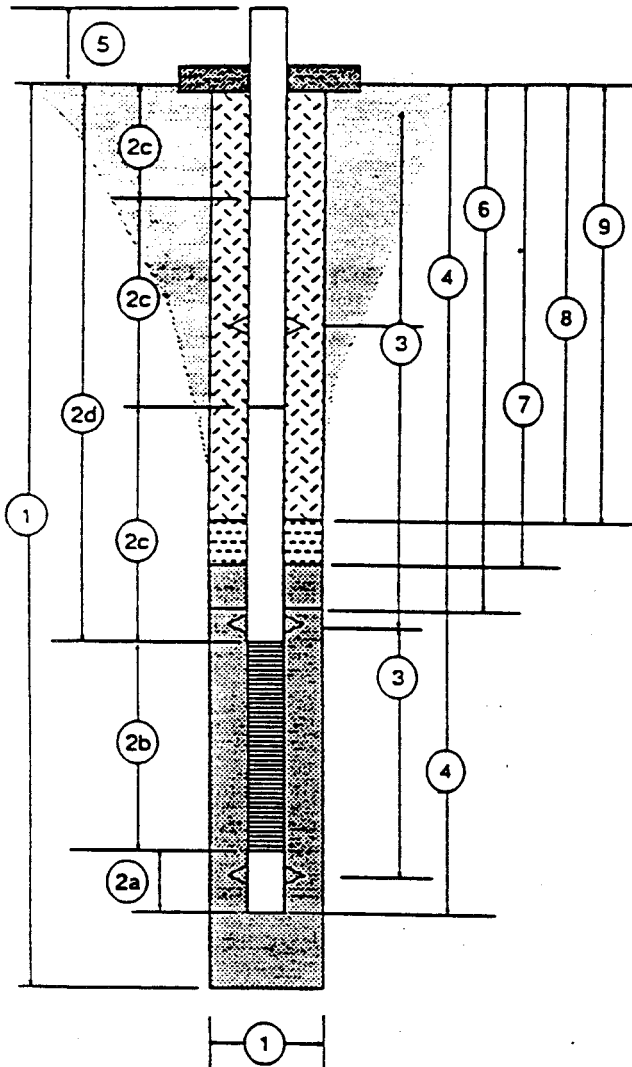
DRILLING SUBCONTRACTOR Portridge
 DRILLER Allen Kelly
 DATE OF WELL INSTALLATION 3 Nov 97
 TECH. O.S./CO. NAME Brad B. / S.A.I.C.

WELL NUMBER DW-11

COORDINATES _____

SANITARY SEAL ELEVATION _____

NOTE: ALL MEASUREMENTS
ARE FROM GROUND
SURFACE AT START
OF BORING - MEASUREMENTS
TO NEAREST 0.1 FOOT.



- 1) Total Drilled Depth/Hole Diameter 29.5 ft / 9" d
- 2) Casing/Screen Tally (Measured to Nearest 0.01 Foot)
 - (a) Sump & Plug Length 0.5 ft
 - (b) Screen Length 1.0 ft
 - (c) Casing Joint Lengths (Measured in Up-hole Sequence From Top of Screen)

3 segments @ 9.9 ft each
1 - 5.0 ft section, adding to 4.25 ft
stick up
 - (d) Depth to Top of Screen 27.5 ft
- 3) Depths to Centralizers N/A
- 4) Total Depth of Installed Well 29.0 ft
- 5) Casing Stick Up (Standard 2.5' A.G.S.) 4.25 ft
- 6) Depth to Top of Filter Pack 26.4 ft
- 7) Depth to Top of Fine Sand Seal N/A
- 8) Depth to Top of Bentonite Seal 23.6 ft
- 9) Thickness of Grout 23.6 ft

FIELD GEOLOGIC LOG

PROJECT <i>Landfill Bypassing System @ Union Carbide Co.</i>		DATE <i>3 Nov 97</i>	SHEET <i>1 a</i>
WELL NO. <i>IW-11</i>		REFERENCE DATUM	DRILLING CONTRACTOR <i>Portridge</i>
LOGGED BY <i>B. and B. Baker</i>		COORDINATES	DRILLER <i>Allen Kelley</i>
		COMPANY <i>SATC</i>	DRILLING METHOD <i>4 1/2" ID HSA</i>

RUN NUMBER	DEPTH, FEET	LITHOLOGY	PERCENT RECOVERY	SAMPLE DESCRIPTION	DRILLING COMMENTS
	0				LEL and PDI:
	1			<i>See IW-02 log</i>	<i>no detection of H₂S unless</i>
	2			<i>SAME LITHOLOGY</i>	<i>otherwise noted</i>
	3				
	4				
	5				
	6				<i>H₂S kept in 1.5 lb</i>
	7				<i>bag at 18.25 ft</i>
	8				
	9				
	0				
	1				
	2				
	3				
	4				
	5				
	6				
	7				
	8				
	29				
	29.5			<i>TD - 29.5 ft</i>	
	0				

MONITORING WELL INSTALLATION REPORT						WELL NUMBER (AAA.NNN.AA)	
Page 1 of 4						JW	12
GENERAL							
Project Name <i>Biosparging System @ Union Carbide Co.</i>							
Project Manager (last name, first initial) <i>Longaker, J</i>				Department			
Installation Purpose (Monitoring, Piezometer, etc.) <i>Biosparging System</i>			County <i>Corder</i>		Location Description <i>A</i>		
North Grid Coordinate		East Grid Coordinate		Latitude (decimal degrees)		Longitude (decimal degrees)	
						Ground Elev.	
						Top Casing Elev.	
						Liq. Level Pipe Elev.	
DRILLING & SAMPLING							
Drilling Start Date <i>4 Nov 97</i>		Drilling Comp Date <i>4 Nov 97</i>		Total Drilled Depth <i>29.5 ft</i>		Int. Static Water Level/Date <i>13.2 ft / 4 Nov 97</i>	
						Total Borehole Deviation (angle/direction) <i>NA</i>	
Drilling/Sampling Method		Top Depth		Bot Depth		Diameter	
<i>4 1/2" ID HDA's</i>		<i>0</i>		<i>29.5</i>		<i>9"</i>	
Drilling Company <i>Partidge</i>				Driller (name, initial) <i>Kelly, A</i>		Oversight Company <i>SATC</i>	
						Oversight (name, initial) <i>Baker, B</i>	
Drilling & Sampling Comments (drilling muds used, source of water, lost circulation zones, etc.) <i>Running sands from ~ 16 ft to 29.5 ft bls</i>							
GEOPHYSICAL LOGGING							
Date Logged <i>NA</i>		Logging Top Depth		Logging Bottom Depth		Logging Subcontractor	
						Logging Truck Operator	
Geophysical Logs ☐ Calliper ☐ Gamma ☐ Natural Gamma ☐ Neutron Density ☐ Resistivity ☐ Single Pt. Resistivity ☐ L&S Normal Resistivity ☐ Spontaneous Potential							
Other Geophysical Logs (list) _____							
Backfill Top Depth <i>29.0</i>		Backfill Bot Depth <i>29.5</i>		Backfill Material (include type quantity and units) <i>Native Soils</i>			

Elevations measured from height above MSL.

Depths measured from ground surface to nearest 0.1 ft.

* Enter an "X" if cuttings were taken.

MONITORING WELL INSTALLATION REPORT

Page 2 of 4

WELL NUMBER (AAA.NNN.AA)

IW 12

WELL INSTALLATION (WELL MATERIALS)

Date Well Installed 4 Nov 97		Installed By SAEL		Oversight B. Baker	No of Casing NA	Centralizer Type _____	Sieve Analysis? ☐ Yes ☒ No
CASING	Top Depth	Bot Depth	Material and Schedule		Diameter	Joint Type	
	4.30 ft d.b.h.	27.5	PVC Sch 40		1"	Flare Thread	
SCREEN	Top Depth	Bot Depth	Material		Diameter	Slot Size	Slot Type
	27.5	28.5	PVC Sch 40		1"	0.050	Manufactured
SUMP	Top Depth	Bot Depth	Material and Schedule		Diameter	Joint Type	
	28.5	29.0	PVC Sch 40		1"	Flare Thread	
SUMP CAP	Top Depth	Bot Depth	Material and Schedule		Diameter	Cap Type	
	—	—	Sump & Cap inclusive		1"	PVC Sch 40	

WELL INSTALLATION (ANNULAR MATERIALS)

FILTER PACK	Top Depth	Bot Depth	Trade Name	Grain Size (mm)	Amount (sacks)	Sack Size (lbs)	Installation Method	
	26.2	29.0	Standard Sand #20/30	20-30 grade	2 1/2	50 lbs	Tremie Mix HSA's	
FINE SAND SEAL	Top Depth	Bot Depth	Trade Name	Grain Size (mm)	Amount (sacks)	Sack Size (lbs)	Installation Method	
	NA							
BENTONITE SEAL	Top Depth	Bot Depth	Hydration Time (hrs)	Amount	Units and Size (sacks, buckets, etc.)		Installation Method	
	24.0	26.2	1 hr	1/2 bag	50 lbs		Tremie Mix HSA's	
GROUT	Top Depth	Bot Depth	Grout Mix		Amount (sacks)	Sack Size (lbs)	Grout Date	Installation Method
	6	24.0	P. H. Type I (sand) / H ₂ O / Bentonite		5	94	4 Nov 97	Tremie
	Surface	6	P. H. Type I (sand) / H ₂ O / Bentonite		2	94	5 Nov 97	Tremie

Report Prepared By

B. Baker

Date

4 Nov 97

Well Accepted By

Date

MONITORING WELL INSTALLATION REPORT

Page 3 of 4

WELL NUMBER (AAA.NNN.AA)

IW 12

WELL DEVELOPMENT

Develop. Start Date 12 Nov 97	Develop. End Date 12 Nov 97	Well Developed By K. H. Hodge	Development Oversight B. J. Baker / S. A. I. C.
Tot. Hours Developed 10 min	Development Method (check one or more) ☐ Air Lift ☐ Bailing ☐ Jetting ☒ Pumping ☐ Surging ☐ Swabbing		Est. Volume of Water Removed During Development (gals) 20 gal

START OF DEVELOPMENT					END OF DEVELOPMENT				
pH	Conductivity	Turbidity	Water Level Depth	Well Yield (gpm)	pH	Conductivity	Turbidity	Water Level Depth	Well Yield (gpm)
—	—	—	18.32 ft b/s	2+	—	—	—	18.22 ft b/s	2+

ADDITIVES

Additive Type	Amount/Units	Additive Type	Amount/Units	Additive Type	Amount/Units
NA					

Well Development Comments:

Electric pump above ground connected to well casing w/ Pvc fittings

0932 H₂O level began to 18.32 ft b/s

One well volume: 3.16 gal. Pumping large volume 15.8 gal

0937 Pump running; H₂O initially v. cloudy; dk grayish green; leak found in fittings

0951 Resume pumping

1001 20 gal removed; H₂O slightly cloudy

1003 H₂O level began to 18.22 ft b/s

Report Prepared By

B. J. Baker

Date

12 Nov 97

MONITORING WELL INSTALLATION REPORT

Page 4 of 4

WELL NUMBER (AAA,NNN,AA)

PUMP INSTALLATION

Pump Installation Date	Pump Installed By	Pump Installation Contractor	Depth to Pump from Grnd. Surf.	Depth from Pump to Top Casing
Pump Type	Manufacturer		Model No.	Depth to Static Water Level
Capacity (gpm)	Horsepower	Voltage	Diameter (in)	

Pump Installation Comments

N/A

Report Prepared By

Date

MONITORING WELL CONSTRUCTION DIAGRAM

DRILLING SUBCONTRACTOR Partidge

WELL NUMBER IW-12

DRILLER Alvin Kelly

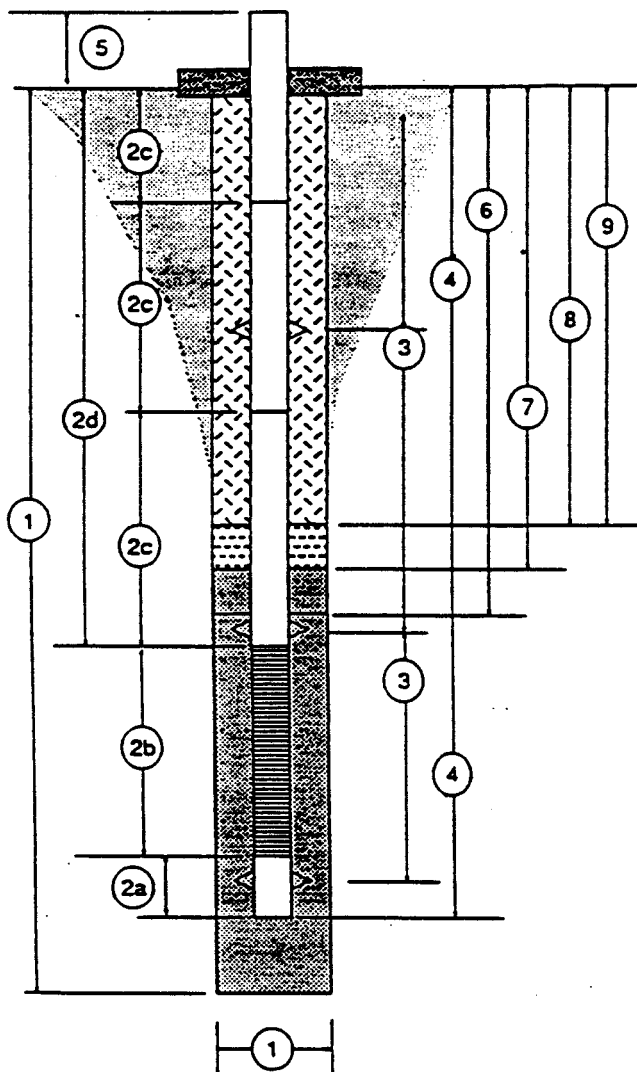
COORDINATES _____

DATE OF WELL INSTALLATION 4 Nov 97

SANITARY SEAL ELEVATION _____

TECH. O.S./CO. NAME Bob Bole 13APC

NOTE: ALL MEASUREMENTS
ARE FROM GROUND
SURFACE AT START
OF BORING - MEASUREMENTS
TO NEAREST 0.1 FOOT.



1) Total Drilled Depth/Hole Diameter 29.5 ft / 9" Ø

2) Casing/Screen Tally (Measured to Nearest 0.01 Foot)

(a) Sump & Plug Length 0.5 ft

(b) Screen Length 1.0 ft

(c) Casing Joint Lengths (Measured in Up-hole Sequence From Top of Screen)

3 segments @ 9.9 ft each
1 - 5.0 ft segment added and cut
to 4.30 ft string

(d) Depth to Top of Screen 27.5 ft

3) Depths to Centralizers NA

4) Total Depth of Installed Well 29.0

5) Casing Stick Up (Standard 2.5' A.G.S.) 4.30 ft

6) Depth to Top of Filter Pack 26.2 ft

7) Depth to Top of Fine Sand Seal NA

8) Depth to Top of Bentonite Seal 24.0 ft

9) Thickness of Grout 24.0 ft

FIELD GEOLOGIC LOG

PROJECT <i>Landfill Biotransforming Systems @ Union Co. W. Va.</i>		DATE <i>4 Nov 97</i>	SHEET <i>1 c 5</i>
WELL NO. <i>IW-12</i>		REFERENCE DATUM	DRILLING CONTRACTOR <i>Leitch</i>
LOGGED BY <i>Paul Baker</i>		COORDINATES	DRILLER <i>Allen Kelly</i>
COMPANY <i>SASL</i>		DRILLING METHOD <i>4 1/2" ID HSA</i>	

RUN NUMBER	DEPTH, FEET	LITHOLOGY	PERCENT RECOVERY	SAMPLE DESCRIPTION	DRILLING COMMENTS
	0				<i>LEL & PED!</i>
	1			<i>See IW-02 log</i>	<i>No detections under</i>
	2			<i>SAME LITHOLOGY</i>	<i>otherwise noted</i>
	3				
	4				
	5				
	6				<i>H2O first traced @ 16.2 ft</i>
	7				
	8				
	9				
	0				
	1				
	2				
	3				
	4				
	5				
	6				
	7				
	8				
	29				
	29.5				
	0			<i>TD = 29.5 ft</i>	

MONITORING WELL INSTALLATION REPORT

Page 1 of 4

WELL NUMBER (AAA,NNN,AA)

IW 13

GENERAL

Project Name <i>Conf. #1 Bisspring System @ Union Corbide Co.</i>						
Project Manager (last name, first initial) <i>Longene, J</i>				Department		
Installation Purpose (Monitoring, Piezometer, etc.) <i>Bisspring System</i>		County <i>London</i>		Location Description		
☒ North Grid Coordinate	☒ East Grid Coordinate	Latitude (decimal degrees)	Longitude (decimal degrees)	Ground Elev.	Top Casing Elev.	Liq. Level Pipe Elev.

DRILLING & SAMPLING

Drilling Start Date <i>4 Nov 97</i>	Drilling Comp Date <i>4 Nov 97</i>	Total Drilled Depth <i>29.5 ft</i>	Init. Static Water Level/Date <i>14.6 ft / 4 Nov 97</i>	Total Borehole Deviation (angle/direction) <i>NA</i>
Drilling/Sampling Method <i>4 1/2" SD HSA's</i>	Top Depth <i>0</i>	Bot Depth <i>29.5</i>	Diameter <i>9"</i>	*
Drilling Company <i>Partidge</i>	Driller (last name, initial) <i>Kelly, A</i>	Oversight Company <i>S.A.I.C.</i>	Oversight (last name, initial) <i>Baker, B</i>	
Drilling & Sampling Comments (drilling fluids used, source of water, lost circulation zones, etc.) <i>Running sands from ~16 ft. 29.5 ft</i>				

GEOPHYSICAL LOGGING

Date Logged <i>NA</i>	Logging Top Depth	Logging Bottom Depth	Logging Subcontractor	Logging Truck Operator
Geophysical Logs ☐ Caliper ☐ Gamma ☐ Natural Gamma ☐ Neutron Density ☐ Resistivity ☐ Single Pt. Resistivity ☐ L&S Normal Resistivity ☐ Spontaneous Potential Other Geophysical Logs (list) _____				
Backfill Top Depth <i>29.0 ft</i>	Backfill Bot Depth <i>29.5 ft</i>	Backfill Material (include type quantity and units) <i>Native Spills</i>		

Elevations measured from height above MSL.

Depths measured from ground surface to nearest 0.1 ft.

* Enter an "X" if cuttings were taken.

MONITORING WELL INSTALLATION REPORT

Page 2 of 4

WELL NUMBER (AAA.NNN.AA)

JW 13

WELL INSTALLATION (WELL MATERIALS)

Date Well Installed 4 Nov 97	Installed By SAEC	Oversight Brad Baker	No. of Casing NA	Centralizer Type —	Sieve Analysis? ☐ Yes ☒ No	
CASING	Top Depth	Bot Depth	Material and Schedule	Diameter	Joint Type	
	420A, 1st day	27.5	PVC Sch 40	1"	Flush Threaded	
SCREEN	Top Depth	Bot Depth	Material	Diameter	Slot Size	Slot Type
	27.5	28.5	PVC Sch 40	1"	0.010	Manufactured
BUMP	Top Depth	Bot Depth	Material and Schedule	Diameter	Joint Type	
	28.5	29.0	PVC Sch 40	1"	Flush Threaded	
BUMP CAP	Top Depth	Bot Depth	Material and Schedule	Diameter	Cap Type	
	—	—	Bump & cap inclusive	1"	PVC Sch 40	

WELL INSTALLATION (ANNULAR MATERIALS)

FILTER PACK	Top Depth	Bot Depth	Trade Name	Grain Size (mm)	Amount (sacks)	Sack Size (lbs)	Installation Method	
	25.8	29.0	Hydrant Sand with fines	20-30 grade	2 1/2	50 lbs	Tremied thru HSA	
FINE SAND SEAL	Top Depth	Bot Depth	Trade Name	Grain Size (mm)	Amount (sacks)	Sack Size (lbs)	Installation Method	
	NA				2 1/2	50 lbs		
BENTONITE SEAL	Top Depth	Bot Depth	Hydration Time (hrs)	Amount	Units and Size (sacks, buckets, etc.)	Installation Method		
	28.3	29.8	1 hr	2 1/2 bags	50 lbs	Tremied thru HSA		
GROUT	Top Depth	Bot Depth	Grout Mix		Amount (sacks)	Sack Size (lbs)	Grout Date	Installation Method
	6	22.3	1 pt Portland Cement / 1 pt Portland 5 bags ~ 35 gal ~ 10 lbs		5	94	4 Nov 97	Tremied
	5 ft face	6	1 pt Portland Type I / 1 pt H ₂ O / 1 pt water		2	94	5 Nov 97	Tremied

Prepared By

Brad Baker

Date

4 Nov 97

Well Accepted By

Date

MONITORING WELL INSTALLATION REPORT

Page 3 of 4

WELL NUMBER (AAA.NNN.AA)

IW 13

WELL DEVELOPMENT

Develop. Start Date 17 Nov 97	Develop. End Date 12 Nov 97	Well Developed By T. B. B. B.	Development Oversight R. B. B. B.
Tot. Hours Developed 20 min	Development Method (check one or more) ☐ Air Lift ☐ Bailing ☐ Jetting ☒ Pumping ☐ Surging ☐ Swabbing		Est. Volume of Water Removed During Development (gals) 40 gal

START OF DEVELOPMENT					END OF DEVELOPMENT				
pH	Conductivity	Turbidity	Water Level Depth	Well Yield (gpm)	pH	Conductivity	Turbidity	Water Level Depth	Well Yield (gpm)
—	—	—	18.70 ft	2+	—	—	—	18.15 ft	2+

ADDITIVES					
Additive Type	Amount/Units	Additive Type	Amount/Units	Additive Type	Amount/Units
NA					

Well Development Comments

Electric pump down ground connected to well casing w/ PVC fittings

1003 H₂O test @ 18.70 ft H₂O
well volume: 3.54 gal

1016 Pumping: H₂O v/c cloudy, dk grayish green

1033 Pump 40 gal; H₂O slightly cloudy

1035 H₂O test @ 18.15 ft H₂O
Purge volume: 17.7 gal

Report Prepared By R. B. B. B.	Date R. Nov 97
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MONITORING WELL INSTALLATION REPORT

Page 4 of 4

WELL NUMBER (AAA.NNN.AA)

PUMP INSTALLATION

Pump Installation Date	Pump Installed By	Pump Installation Contractor	Depth to Pump from Grnd. Surf.	Depth from Pump to Top Casing
Pump Type	Manufacturer		Model No.	Depth to Static Water Level
Capacity (gpm)	Horsepower	Voltage	Diameter (in)	

Pump Installation Comments

N/A

Report Prepared By

Date

MONITORING WELL CONSTRUCTION DIAGRAM

DRILLING SUBCONTRACTOR Parti-Lys

WELL NUMBER IW-13

DRILLER Allen Kelly

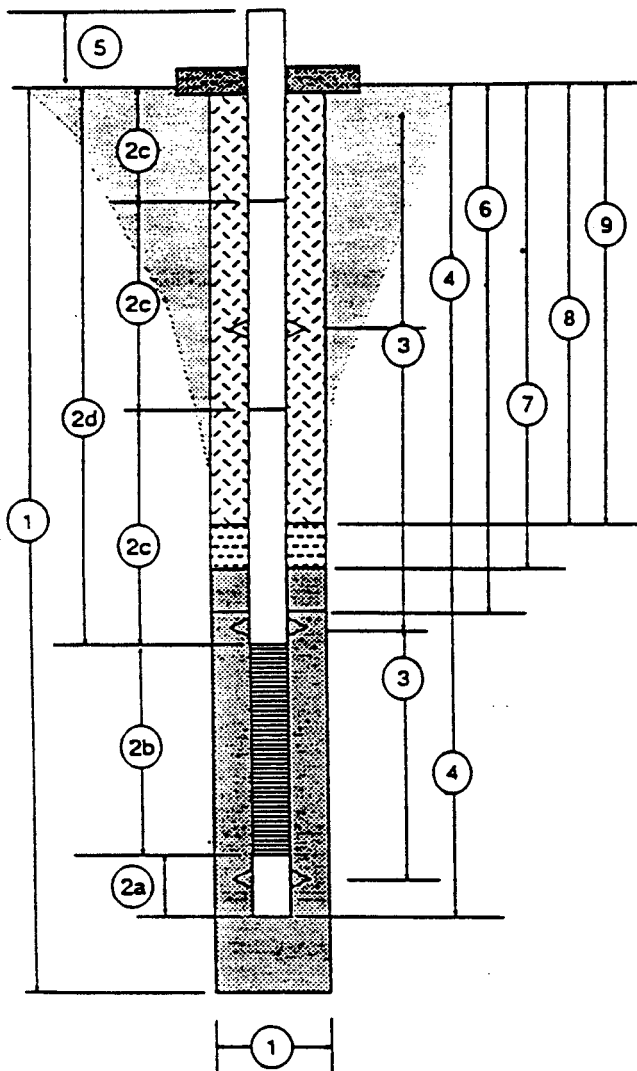
COORDINATES _____

DATE OF WELL INSTALLATION 4 Nov 97

SANITARY SEAL ELEVATION _____

TECH. O.S./CO. NAME B. J. Bohm 15A/C

NOTE: ALL MEASUREMENTS
ARE FROM GROUND
SURFACE AT START
OF BORING - MEASUREMENTS
TO NEAREST 0.1 FOOT.



1) Total Drilled Depth/Hole Diameter 29.5 ft 9" ϕ

2) Casing/Screen Tally (Measured to Nearest 0.01 Foot)

(a) Sump & Plug Length 0.5 ft

(b) Screen Length 1.0 ft

(c) Casing Joint Lengths (Measured in Up-hole Sequence From Top of Screen)

3 segments @ 9.9 ft
1 - 15.0 ft segment added and cut
to 4.20 ft sticking

(d) Depth to Top of Screen 27.5 ft

3) Depths to Centralizers NA

4) Total Depth of Installed Well 29.0 ft

5) Casing Stick Up (Standard 2.5' A.G.S.) 4.20 ft

6) Depth to Top of Filter Pack 25.8 ft

7) Depth to Top of Fine Sand Seal NA

8) Depth to Top of Bentonite Seal 22.3 ft

9) Thickness of Grout 22.3 ft

FIELD GEOLOGIC LOG

PROJECT <i>Landfill Biotransforming System within Landfill Co.</i>		DATE <i>4/16/97</i>	SHEET <i>1 of 1</i>
WELL NO. <i>IW-13</i>		REFERENCE DATUM	DRILLING CONTRACTOR <i>Partidge</i>
LOGGED BY <i>Brian Baker</i>		COORDINATES	DRILLER <i>Alvin Kelly</i>
COMPANY <i>SATC</i>		DRILLING METHOD <i>4 1/2" ID HSA's</i>	

RUN NUMBER	DEPTH, FEET	LITHOLOGY	PERCENT RECOVERY	SAMPLE DESCRIPTION	DRILLING COMMENTS
	0				<i>LEL and PID:</i>
	1			<i>See IW-02 log</i>	<i>no detections</i>
	2			<i>See Lithology</i>	<i>unless otherwise noted</i>
	3				
	4				
	5				
	6				
	7				<i>Hit first target</i>
	8				<i>@ 18.6 ft H/S</i>
	9				
	0				
	1				
	2				
	3				
	4				
	5				
	6				
	7				
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MONITORING WELL INSTALLATION REPORT

Page 1 of 4

WELL NUMBER (AAA.NNN.AA)

IW

14

GENERAL

Project Name

Landfill Biosparging System @ Union Carbide Co.

Project Manager (last name, first initial)

Lomaha, J

Department

Installation Purpose (Monitoring, Piezometer, etc.)

Biosparging System

County

Carroll

Location Description

North Grid Coordinate

East Grid Coordinate

Latitude (decimal degrees)

Longitude (decimal degrees)

Ground Elev.

Top Casing Elev.

Liq. Level Pipe Elev.

DRILLING & SAMPLING

Drilling Start Date

4 Nov 97

Drilling Comp Date

4 Nov 97

Total Drilled Depth

29.5 ft

Init. Static Water Level/Date

15.9 ft / 4 Nov 97

Total Borehole Deviation (angle/direction)

N/A

Drilling/Sampling Method

4 1/2" ID HSAI

Top Depth

0

Bot Depth

29.5 ft - 9"

Diameter

Drilling/Sampling Method

Top Depth

Bot Depth

Diameter

Drilling Company

Portridge

Driller (last name, first initial)

Kelly, A

Oversight Company

SATC

Oversight (last name, first initial)

Porter, B

Drilling & Sampling Comments (drilling muds used, source of water, lost circulation zones, etc.)

Running sands from ~16 ft. 29.5 ft b/s

GEOPHYSICAL LOGGING

Date Logged

N/A

Logging Top Depth

Logging Bottom Depth

Logging Subcontractor

Logging Truck Operator

Geophysical Logs

☐ Caliper ☐ Gamma ☐ Natural Gamma ☐ Neutron Density ☐ Resistivity ☐ Single Pt. Resistivity ☐ L&S Normal Resistivity ☐ Spontaneous Potential

Other Geophysical Logs (list)

Backfill Top Depth

29.0 ft

Backfill Bot Depth

29.5 ft

Backfill Material (include type quantity and units)

Native Soil

Elevations measured from height above MSL.

Depths measured from ground surface to nearest 0.1 ft.

* Enter an 'X' if cuttings were taken.

MONITORING WELL INSTALLATION REPORT

Page 2 of 4

WELL NUMBER (AAA.NNN.AA)

IW 14

WELL INSTALLATION (WELL MATERIALS)

Date Well Installed	Installed By	Overnight	No. of Casing	Centralizer Type	Sieve Analysis?	
4 Nov 97	SATC	Brad Baker	NA		☐ Yes ☒ No	
CASING	Top Depth	Bot Depth	Material and Schedule	Diameter	Joint Type	
	4.3A shldy	27.5A	PVC Sch 40	1"	Flank Threaded	
SCREEN	Top Depth	Bot Depth	Material	Diameter	Slot Size	Slot Type
	27.5A	28.5A	PVC Sch 40	1"	0.010	Manufactured
BUMP	Top Depth	Bot Depth	Material and Schedule	Diameter	Joint Type	
	28.5A	29.0A	PVC Sch 40	1"	Flank Threaded	
BUMP CAP	Top Depth	Bot Depth	Material and Schedule	Diameter	Cap Type	
			Bump & cap inclusive	1"	PVC Sch 40	

WELL INSTALLATION (ANNULAR MATERIALS)

FILTER PACK	Top Depth	Bot Depth	Trade Name	Grain Size (mm)	Amount (sacks)	Sack Size (lbs)	Installation Method	
	25.5A	29.0A	Hydrant Seal	20-30 grade	3	50 lbs	Tremat thru HSA's	
FINE SAND SEAL	Top Depth	Bot Depth	Trade Name	Grain Size (mm)	Amount (sacks)	Sack Size (lbs)	Installation Method	
	NA							
BENTONITE SEAL	Top Depth	Bot Depth	Hydration Time (hrs)	Amount	Units and Size (sacks, buckets, etc.)	Installation Method		
	23.0A	25.5A	1 hr	2/3	50 lbs	Tremat thru HSA's		
GROUT	Top Depth	Bot Depth	Grout Mix		Amount (sacks)	Sack Size (lbs)	Grout Date	Installation Method
	6	23.0A	Portland Type I Cement / H ₂ O / Bentonite		5	94	4 Nov 97	Tremat
			1" 5 bag ~35 wt ~10 lbs					
	Surface	6	Portland Type I / H ₂ O / Bentonite		2	94	5 Nov 97	Tremat

Prepared By: Brad Baker Date: 4 Nov 97

Well Accepted By

Date

MONITORING WELL INSTALLATION REPORT

Page 3 of 4

WELL NUMBER (AAA.NNN.AA)

IW 14

WELL DEVELOPMENT

Develop. Start Date 12 Nov 97	Develop. End Date 12 Nov 97	Well Developed By P. L. L. L.	Development Oversight B. J. Baker / S. J. L.
Tot. Hours Developed 10 min	Development Method (check one or more) ☐ Air Lift ☐ Bailing ☐ Jetting ☒ Pumping ☐ Surging ☐ Swabbing		Est. Volume of Water Removed During Development (gals) 30 gal

START OF DEVELOPMENT					END OF DEVELOPMENT				
pH	Conductivity	Turbidity	Water Level Depth	Well Yield (gpm)	pH	Conductivity	Turbidity	Water Level Depth	Well Yield (gpm)
—	—	—	19.02 ft	2+	—	—	—	19.99 ft	2+

ADDITIVES

Additive Type	Amount/Units	Additive Type	Amount/Units	Additive Type	Amount/Units
NA					

Well Development Comments

Electric pump above ground connected to well casing w/ PVC fittings

1042 H₂O tested @ 19.02 ft b/s

One well volume: 3.82 gal

1859 Begin pumping; H₂O initially v. cloudy, after 10 min clear

1114 30 gal. phos-gel, H₂O slightly cloudy

1112 H₂O tested @ 19.99 ft b/s

Report Prepared By

B. J. Baker

Date

12 Nov 97

MONITORING WELL INSTALLATION REPORT

Page 4 of 4

WELL NUMBER (AAA,NNN,AA)

PUMP INSTALLATION

Pump Installation Date	Pump Installed By	Pump Installation Contractor	Depth to Pump from Grnd. Surf.	Depth from Pump to Top Casing
Pump Type	Manufacturer		Model No.	Depth to Static Water Level
Capacity (gpm)	Horsepower	Voltage	Diameter (in)	

Pump Installation Comments

N/A

Report Prepared By

Date

MONITORING WELL CONSTRUCTION DIAGRAM

DRILLING SUBCONTRACTOR

Partridge

WELL NUMBER

ILW-14

DRILLER

Allen Kelly

COORDINATES

DATE OF WELL INSTALLATION

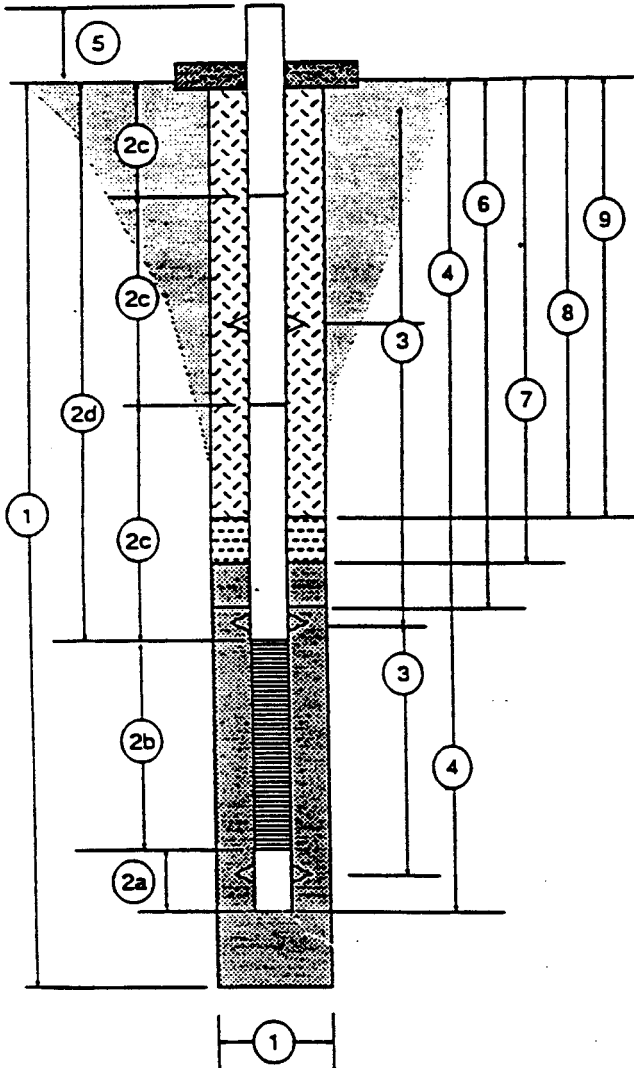
4 Nov 97

SANITARY SEAL ELEVATION

TECH. O.S./CO. NAME

Bob Baker BSEE

NOTE: ALL MEASUREMENTS ARE FROM GROUND SURFACE AT START OF BORING - MEASUREMENTS TO NEAREST 0.1 FOOT.



1) Total Drilled Depth/Hole Diameter

27.5 ft / 9"

2) Casing/Screen Tally (Measured to Nearest 0.01 Foot)

(a) Sump & Plug Length

0.5 ft

(b) Screen Length

1.0 ft

(c) Casing Joint Lengths (Measured in Up-hole Sequence From Top of Screen)

3 segments @ 9.9 ft

1 = 5.0 ft segment all as cut

to 4.30 ft still top

(d) Depth to Top of Screen

27.5 ft

3) Depths to Centralizers

NA

4) Total Depth of Installed Well

29.0 ft

5) Casing Stick Up (Standard 2.5' A.G.S.)

4.30 ft

6) Depth to Top of Filter Pack

25.5 ft

7) Depth to Top of Fine Sand Seal

NA

8) Depth to Top of Bentonite Seal

23.0 ft

9) Thickness of Grout

23.0 ft

FIELD GEOLOGIC LOG

PROJECT <i>Landfill Bypassing System @ Union Carbide Co.</i>				DATE <i>4/16/97</i>	SHEET <i>1</i> OF <i>1</i>
WELL NO. <i>IW-14</i>				REFERENCE DATUM	DRILLING CONTRACTOR <i>Leitch</i>
LOGGED BY <i>Paul Baker</i>				COORDINATES	DRIILLER <i>Alan Kelly</i>
COMPANY <i>SATC</i>				DRILLING METHOD <i>4 1/2" DD 112 A's</i>	

RUN NUMBER	DEPTH, FEET	LITHOLOGY	PERCENT RECOVERY	SAMPLE DESCRIPTION	DRILLING COMMENTS
	0				
	1			<i>See IW-02 log</i>	<i>TD and LEL:</i>
	2			<i>Same lithology</i>	<i>No detection</i>
	3				<i>unless otherwise noted.</i>
	4				
	5				
	6				<i>160 feet target</i>
	7				<i>@ 18.9 ft 61s</i>
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MONITORING WELL INSTALLATION REPORT

Page 1 of 4

WELL NUMBER (AAA.NNN.AA)

IW 15

GENERAL

Project Name *Landfill Bioremediation System @ Union Carbide Co.*

Project Manager (last name, first initial)

Longaker, J

Department

Installation Purpose (Monitoring, Piezometer, etc.)

Bioremediation System

County

Camden

Location Description

North Grid Coordinate

East Grid Coordinate

Latitude (decimal degrees)

Longitude (decimal degrees)

Ground Elev.

Top Casing Elev.

Liq. Level Pipe Elev.

DRILLING & SAMPLING

Drilling Start Date

5 Nov 97

Drilling Comp Date

5 Nov 97

Total Drilled Depth

29.5 ft

Int. Static Water Level/Date

19.1 ft b/s / 5 Nov 97

Total Borehole Deviation (angle/direction)

N/A

Drilling/Sampling Method

4 1/2" 3D HSA

Top Depth

0

Bot Depth

29.5 ft

Diameter

9"

Drilling/Sampling Method

Top Depth

Bot Depth

Diameter

*

Drilling Company

Partridge

Driller (last name, initial)

Kelly, A

Oversight Company

S.A.D.C.

Oversight (last name, initial)

Bohler, B

Drilling & Sampling Comments (drilling muds used, source of water, lost circulation zones, etc.)

Running sands @ -16 - 29.5 ft b/s

GEOPHYSICAL LOGGING

Date Logged

N/A

Logging Top Depth

Logging Bottom Depth

Logging Subcontractor

Logging Truck Operator

Geophysical Logs

☐ Calliper ☐ Gamma ☐ Natural Gamma ☐ Neutron Density ☐ Resistivity ☐ Single Pt. Resistivity ☐ L&S Normal Resistivity ☐ Spontaneous Potential

Other Geophysical Logs (list)

Backfill Top Depth

29.0 ft

Backfill Bot Depth

29.5 ft

Backfill Material (include type quantity and units)

Native soils

Elevations measured from height above MSL.

Depths measured from ground surface to nearest 0.1 ft.

* Enter an "X" if cuttings were taken.

MONITORING WELL INSTALLATION REPORT

Page 2 of 4

WELL NUMBER (AAA.NNN.AA)

ILW

15

WELL INSTALLATION (WELL MATERIALS)

Date Well Installed 5 Nov 97		Installed By S.A.J.C.		Oversight Brad Bohner		No. of Casing N/A		Centralizer Type _____		Sieve Analysis? ☐ Yes ☒ No	
CASING	Top Depth	Bot Depth	Material and Schedule		Diameter	Joint Type					
	4.15 ft	27.5	PVC Sch 40		1"	Flush Threaded					
SCREEN	Top Depth	Bot Depth	Material		Diameter	Slot Size	Slot Type				
	27.5	28.5	PVC Sch 40		1"	0.010	Manufactured				
BUMP	Top Depth	Bot Depth	Material and Schedule		Diameter	Joint Type					
	28.5	29.0	PVC Sch 40		1"	Flush Threaded					
BUMP CAP	Top Depth	Bot Depth	Material and Schedule		Diameter	Cap Type					
	—	—	Sump Cap Inclusive		1"	PVC Sch 40					

WELL INSTALLATION (ANNULAR MATERIALS)

FILTER PACK	Top Depth	Bot Depth	Trade Name	Grain Size (mm)	Amount (sacks)	Sack Size (lb)	Installation Method	
	25.8 ft	29.0 ft	20-30 grade	20-30 grade	3	50 lbs	Tremied thru HSA's	
FINE SAND SEAL	Top Depth	Bot Depth	Trade Name	Grain Size (mm)	Amount (sacks)	Sack Size (lb)	Installation Method	
	N/A							
BENTONITE SEAL	Top Depth	Bot Depth	Hydration Time (hrs)	Amount	Units and Size (sacks, buckets, etc.)		Installation Method	
	23.5 ft	25.8 ft	1 hr 20 min	2/3 bag	50 lbs		Tremied thru HSA's	
GROUT	Top Depth	Bot Depth	Grout Mix		Amount (sacks)	Sack Size (lb)	Grout Date	Installation Method
	6 ft	23.5 ft	1/2 Portland / 1/2 H ₂ O / 1/2 Bentonite		5	94	6 Nov 97	Tremied
			1/2 bags / 1-25 gal / 1-10 lbs					

Report Prepared By

Brad Bohner

Date

5 Nov 97

Well Accepted By

Date

MONITORING WELL INSTALLATION REPORT

Page 3 of 4

WELL NUMBER (AAA.NNN.AA)

JW 15

WELL DEVELOPMENT

Develop. Start Date 12 Nov 97	Develop. End Date 12 Nov 97	Well Developed By Kortridge	Development Oversight B. J. B. / S. J. C.
Tot. Hours Developed 10 min	Development Method (check one or more) ☐ Air Lift ☐ Bailing ☐ Jetting ☒ Pumping ☐ Surging ☐ Swabbing		Est. Volume of Water Removed During Development (gals) 2.6 gal

START OF DEVELOPMENT					END OF DEVELOPMENT				
pH	Conductivity	Turbidity	Water Level Depth	Well Yield (gpm)	pH	Conductivity	Turbidity	Water Level Depth	Well Yield (gpm)
—	—	—	19.31 ft b/s	2+	—	—	—	19.75 ft b/s	2+

ADDITIVES					
Additive Type	Amount/Units	Additive Type	Amount/Units	Additive Type	Amount/Units
NA					

Well Development Comments

Electric pump above ground connected to well casing w/ PVC fittings

1123 H₂O level tagged @ 19.31 ft b/s
One well volume: 3.52 gal Pump volume: 17.6 gal

1139 Pump running, H₂O indicates v. cloudy; dk grayish green

1149 Tagged 26 gal, H₂O slightly cloudy

1151 H₂O tagged @ 19.75 ft b/s

H5 Nov 12 Nov 97

Report Prepared By B. J. B.	Date 12 Nov 97
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MONITORING WELL INSTALLATION REPORT

Page 4 of 4

WELL NUMBER (AAA,NNN,AA)

PUMP INSTALLATION

Pump Installation Date	Pump Installed By	Pump Installation Contractor	Depth to Pump from Grnd. Surf.	Depth from Pump to Top Casing
Pump Type	Manufacturer		Model No.	Depth to Static Water Level
Capacity (gpm)	Horsepower	Voltage	Diameter (in)	

Pump Installation Comments

N/A

Report Prepared By

Date

MONITORING WELL CONSTRUCTION DIAGRAM

RILLING SUBCONTRACTOR Peritige

WELL NUMBER IV-15

DRILLER Allen Kelly

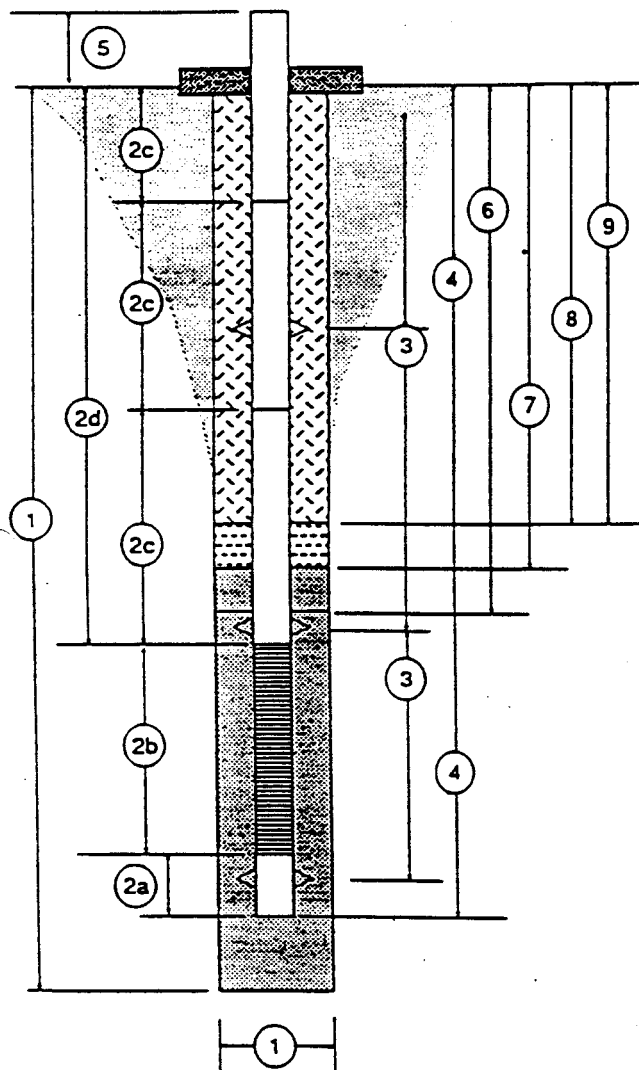
COORDINATES _____

DATE OF WELL INSTALLATION 5 Nov 97

SANITARY SEAL ELEVATION _____

TECH. O.S./CO. NAME R. B. H. / SAE

NOTE: ALL MEASUREMENTS
ARE FROM GROUND
SURFACE AT START
OF BORING - MEASUREMENTS
TO NEAREST 0.1 FOOT.



1) Total Drilled Depth/Hole Diameter 29.5 ft / 9" φ

2) Casing/Screen Tally (Measured to Nearest 0.01 Foot)

(a) Sump & Plug Length 0.5 ft

(b) Screen Length 1.0 ft

(c) Casing Joint Lengths (Measured in Up-hole Sequence From Top of Screen)

3 segments @ 9.9 ft each
1 - 5.0 ft segment above and below
for 4.15 ft stick up

(d) Depth to Top of Screen 27.5 ft

3) Depths to Centralizers N/A

4) Total Depth of Installed Well 29.0 ft

5) Casing Stick Up (Standard 2.5" A.G.S.) 4.15 ft

6) Depth to Top of Filter Pack 25.8 ft

7) Depth to Top of Fine Sand Seal N/A

8) Depth to Top of Bentonite Seal 23.5 ft

9) Thickness of Grout 23.5 ft

FIELD GEOLOGIC LOG

PROJECT <i>Landfill Bypassing System & Union Carbide Co.</i>		DATE <i>5 Nov 92</i>	SHEET <i>1 of 1</i>
WELL NO. <i>IW-15</i>		REFERENCE DATUM	DRILLING CONTRACTOR <i>K. L. Lyle</i>
LOGGED BY <i>Brian Baker</i>		COORDINATES	DRILLER <i>Allen Kelley</i>
COMPANY <i>SATC</i>		DRILLING METHOD <i>4 1/2" ID HSA</i>	

RUN NUMBER	DEPTH, FEET	LITHOLOGY	PERCENT RECOVERY	SAMPLE DESCRIPTION	DRILLING COMMENTS
	0			<i>IE IW-02 log</i>	<i>LOG = FID:</i>
	1			<i>SAME LITHOLOGY</i>	<i>11' defecting</i>
	2				<i>when also: wise</i>
	3				<i>noted</i>
	4				
	5				
	6				
	7				<i>the first tested</i>
	8				<i>@ 19.1 ft</i>
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MONITORING WELL INSTALLATION REPORT

Page 1 of 4

WELL NUMBER (AAA.NNN.AA)

ORP 01

GENERAL

Project Name <i>Landfill Gasping System @ Union Carbide Co.</i>					
Project Manager (last name, first initial) <i>Longaker, J</i>			Department		
Installation Purpose (Monitoring, Piezometer, etc.) <i>Gasping System (monitoring)</i>		County <i>Camden</i>		Location Description	
North Grid Coordinate	East Grid Coordinate	Latitude (decimal degrees)	Longitude (decimal degrees)	Ground Elev.	Top Casing Elev.
					Liq. Level Pipe Elev.

DRILLING & SAMPLING

Drilling Start Date <i>6/16/97</i>		Drilling Comp Date <i>6/16/97</i>		Total Drilled Depth <i>28.0 ft</i>		Inl. Static Water Level/Date <i>16.1 ft / 6/16/97</i>		Total Borehole Deviation (angle/direction) <i>NA</i>	
Drilling/Sampling Method	Top Depth	Bot Depth	Diameter	*	Drilling/Sampling Method	Top Depth	Bot Depth	Diameter	*
<i>4 1/2" ID HSA's</i>	<i>0</i>	<i>28.0</i>	<i>9"</i>						
Drilling Company <i>Portridge</i>			Driller (last name, initials) <i>Kelly, A</i>		Oversight Company <i>SATC</i>			Oversight (last name, initials) <i>Baker, B</i>	
Drilling & Sampling Comments (drilling muds used, source of water, lost circulation zones, etc.) <i>Running sands from ~16 ft to 28.0 ft.</i>									

GEOPHYSICAL LOGGING

Date Logged <i>NA</i>	Logging Top Depth	Logging Bottom Depth	Logging Subcontractor	Logging Truck Operator
Geophysical Logs ☐ Calliper ☐ Gamma ☐ Natural Gamma ☐ Neutron Density ☐ Resistivity ☐ Single Pt. Resistivity ☐ L&S Normal Resistivity ☐ Spontaneous Potential				
Other Geophysical Logs (list)				
Backfill Top Depth <i>NA</i>	Backfill Bot Depth	Backfill Material (include type quantity and units) <i>NA</i>		

Elevations measured from height above MSL.

Depths measured from ground surface to nearest 0.1 ft.

* Enter an "X" if cuttings were taken.

MONITORING WELL INSTALLATION REPORT

Page 2 of 4

WELL NUMBER (AAA,NNN,AA)

ORP

01

WELL INSTALLATION (WELL MATERIALS)

Date Well Installed	Installed By	Oversight	No of Casing	Centralizer Type	Sieve Analysis?	
6 Nov 97	SATC	Brad Bohm	1/4		☐ Yes ☒ No	
CASING	Top Depth	Bot Depth	Material and Schedule	Diameter	Joint Type	
	2.5 ft sticky	17.0	PVC Sch 40	2"	Flange Threaded	
SCREEN	Top Depth	Bot Depth	Material	Diameter	Slot Size	Slot Type
	17.0	27.0	PVC Sch 40	2"	0.010	Manufactured
SUMP	Top Depth	Bot Depth	Material and Schedule	Diameter	Joint Type	
	27.0	28.0	PVC Sch 40	2"	Flange Threaded	
SUMP CAP	Top Depth	Bot Depth	Material and Schedule	Diameter	Cap Type	
			Cap & sump inclusive	2"	PVC Sch 40	

WELL INSTALLATION (ANNULAR MATERIALS)

FILTER PACK	Top Depth	Bot Depth	Trade Name	Grain Size (mm)	Amount (sacks)	Sack Size (lbs)	Installation Method	
	14.3	28.0	Standard Sand and Silica	20-50 grade	7 1/2	50	Tremied thru HSA's	
FINE SAND SEAL	Top Depth	Bot Depth	Trade Name	Grain Size (mm)	Amount (sacks)	Sack Size (lbs)	Installation Method	
	NA							
BENTONITE SEAL	Top Depth	Bot Depth	Hydration Time (hrs)	Amount	Units and Size (sacks, buckets, etc.)	Installation Method		
	12.1	14.3	3 hrs	1	50 lbs	Tremied thru HSA's		
GROUT	Top Depth	Bot Depth	Grout Mix		Amount (sacks)	Sack Size (lbs)	Grout Date	Installation Method
	Surface	12.1	Portland Cement / H ₂ O / Bentonite		4 bags	94	6 Nov 97	Tremied

Report Prepared By

Brad Bohm

Date

6 Nov 97

Well Accepted By

Date

MONITORING WELL INSTALLATION REPORT

Page 3 of 4

WELL NUMBER (AAA.NNN.AA)

CRP 01

WELL DEVELOPMENT

Develop. Start Date 10 Nov 97	Develop. End Date 10 Nov 97	Well Developed By Partidge	Development Oversight B. J. B. / SAIC
Tot. Hours Developed 30 min	Development Method (check one or more) ☐ Air Lift ☐ Bailing ☐ Jetting ☒ Pumping ☐ Surging ☐ Swabbing		Est. Volume of Water Removed During Development (gals) 60 gal

START OF DEVELOPMENT					END OF DEVELOPMENT				
pH	Conductivity	Turbidity	Water Level Depth	Well Yield (gpm)	pH	Conductivity	Turbidity	Water Level Depth	Well Yield (gpm)
—	—	—	15.79 ft b/s	2+ gpm	—	—	—	16.06 ft b/s	2+ gpm

ADDITIVES

Additive Type	Amount/Units	Additive Type	Amount/Units	Additive Type	Amount/Units
NA					

Well Development Comments

2" submersible pump placed ~2" off bottom of well

1313 Began pumping - 5x well volume including filter pads = 36.7 gal
As well was pumped, water collected in 5-gal bucket to determine
gate removal, and discharged on the ground.

1341 60 gals removed; H₂O cloudy & first - dk gray, cleared after ~20 gal removed
1345 Trigger H₂O level @ 16.06 ft H₂O.

Report Prepared By

B. J. B.

Date

10.11.97

MONITORING WELL INSTALLATION REPORT

Page 4 of 4

WELL NUMBER (AAA,NNN,AA)

PUMP INSTALLATION

Pump Installation Date	Pump Installed By	Pump Installation Contractor	Depth to Pump from Grnd. Surf.	Depth from Pump to Top Casing
Pump Type	Manufacturer		Model No.	Depth to Static Water Level
Capacity (gpm)	Horsepower	Voltage	Diameter (in)	

Pump Installation Comments

N/A

Report Prepared By

Date

MONITORING WELL CONSTRUCTION DIAGRAM

DRILLING SUBCONTRACTOR Petrol

WELL NUMBER CRP-01

DRILLER Allen V. King

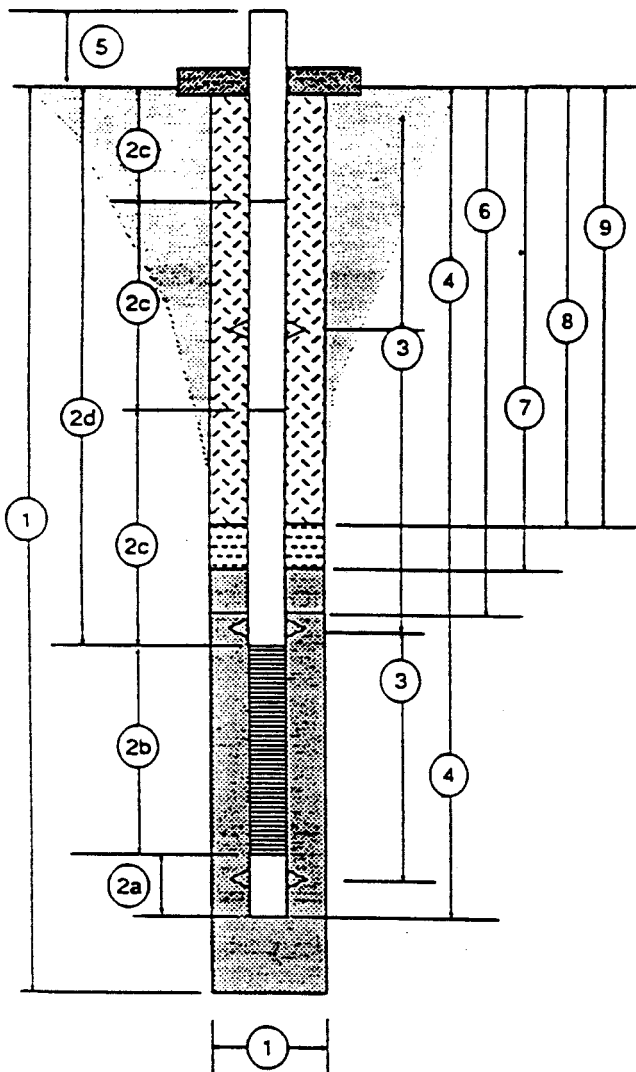
COORDINATES _____

DATE OF WELL INSTALLATION 6 Nov 97

SANITARY SEAL ELEVATION _____

TECH. O.S./CO. NAME Frank E. H. / S.H.C.

NOTE: ALL MEASUREMENTS
ARE FROM GROUND
SURFACE AT START
OF BORING - MEASUREMENTS
TO NEAREST 0.1 FOOT.



1) Total Drilled Depth/Hole Diameter 26.0 ft 6.9"

2) Casing/Screen Tally (Measured to Nearest 0.01 Foot)

(a) Sump & Plug Length 1.0 ft

(b) Screen Length 10.0 ft

(c) Casing Joint Lengths (Measured in Up-hole Sequence from Top of Screen)

2 segments @ 10.0 ft each

(d) Depth to Top of Screen 17.0 ft

3) Depths to Centralizers N/A

4) Total Depth of Installed Well 26.0 ft

5) Casing Stick Up (Standard 2.5' A.G.S.) 2.5 ft

6) Depth to Top of Filter Pack 14.3 ft

7) Depth to Top of Fine Sand Seal N/A

8) Depth to Top of Bentonite Seal 12.1 ft

9) Thickness of Grout 12.1 ft

FIELD GEOLOGIC LOG

PROJECT <i>Landfill Bypassing System @ Union Carbide Co.</i>		DATE <i>6.16.97</i>	SHEET <i>1</i> of <i>1</i>
WELL NO. <i>ORP-01</i>		REFERENCE DATUM	DRILLING CONTRACTOR <i>Partidge</i>
LOGGED BY <i>B. J. Baker</i>		COORDINATES	DRILLER <i>A. Van Kelly</i>
		COMPANY <i>SAIC</i>	DRILLING METHOD <i>4 1/2" ID HSA</i>

RUN NUMBER	DEPTH, FEET	LITHOLOGY	PERCENT RECOVERY	SAMPLE DESCRIPTION	DRILLING COMMENTS
	0				<i>PSD and CEL:</i>
	1			<i>See IW-02 log</i>	<i>to determine</i>
	2			<i>same lithology</i>	<i>unless otherwise</i>
	3				<i>noted</i>
	4				
	5				
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	7				<i>H₂O first seen</i>
	8				<i>@ 16.1 ft bbl</i>
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MONITORING WELL INSTALLATION REPORT

Page 1 of 4

WELL NUMBER (AAA.NNN.AA)

ORP #2

GENERAL

Project Name

Landfill Bypassing System @ Union Carbide Co.

Project Manager (last name, first initial)

Lorymer, J

Department

Installation Purpose (Monitoring, Piezometer, etc.)

Bypassing System Monitoring

County

London

Location Description

North Grid Coordinate

East Grid Coordinate

Latitude (decimal degrees)

Longitude (decimal degrees)

Ground Elev.

Top Casing Elev.

Liq. Level Pipe Elev.

DRILLING & SAMPLING

Drilling Start Date

5 Nov 97

Drilling Comp Date

5 Nov 97

Total Drilled Depth

29.5 ft

Int. Static Water Level/Date

17.6 ft 6/5/97

Total Borehole Deviation (angle/direction)

NA

Drilling/Sampling Method

4 1/2" ID HSA's

Top Depth

0

Bot Depth

29.5

Diameter

9"

Drilling/Sampling Method

Top Depth

Bot Depth

Diameter

*

Drilling Company

Portridge

Driller (name, initials)

Kelly, A.

Oversight Company

SATC

Oversight (name, initials)

Baker, E.

Drilling & Sampling Comments (drilling muds used, source of water, lost circulation zones, etc.)

Running muds ~16-29.5 ft

GEOPHYSICAL LOGGING

Date Logged

NA

Logging Top Depth

Logging Bottom Depth

Logging Subcontractor

Logging Truck Operator

Geophysical Logs

☐ Calliper ☐ Gamma ☐ Natural Gamma ☐ Neutron Density ☐ Resistivity ☐ Single Pt. Resistivity ☐ L&S Normal Resistivity ☐ Spontaneous Potential

Other Geophysical Logs (list)

Backfill Top Depth

NA

Backfill Bot Depth

NA

Backfill Material (include type quantity and units)

NA

Elevations measured from height above MSL.

Depths measured from ground surface to nearest 0.1 ft.

* Enter an "X" if cuttings were taken.

MONITORING WELL INSTALLATION REPORT

Page 2 of 4

WELL NUMBER (AAA.NNN.AA)

ORP 02

WELL INSTALLATION (WELL MATERIALS)

Date Well Installed 5 Nov 97		Installed By SALC		Oversight B. B. B.		No of Casing N/A		Centralizer Type —		Sieve Analysis? ☐ Yes ☒ No	
CASING	Top Depth	Bot Depth	Material and Schedule			Diameter	Joint Type				
	2.5 above CL	18.5	PVC Sch 40			2"	Flare Thread				
SCREEN	Top Depth	Bot Depth	Material			Diameter	Slot Size	Slot Type			
	18.5	28.5	PVC Sch 40			2"	0.010	Manufactured			
SUMP	Top Depth	Bot Depth	Material and Schedule			Diameter	Joint Type				
	28.5	29.5	PVC Sch 40			2"	Flare Thread				
SUMP CAP	Top Depth	Bot Depth	Material and Schedule			Diameter	Cap Type				
	—	—	Sump & Cap inclusive			2"	PVC Sch 40				

WELL INSTALLATION (ANNULAR MATERIALS)

FILTER PACK	Top Depth	Bot Depth	Trade Name	Grain Size (mm)	Amount (sacks)	Sack Size (lbs)	Installation Method	
	16.0	29.5	Standard Sand S.S. 15/10	20-30 grade	7 1/2	80	Tremied from HSA's	
FINE SAND SEAL	Top Depth	Bot Depth	Trade Name	Grain Size (mm)	Amount (sacks)	Sack Size (lbs)	Installation Method	
	—	—						
BENTONITE SEAL	Top Depth	Bot Depth	Hydration Time (hrs)	Amount	Units and Size (sacks, buckets, etc.)		Installation Method	
	13.8	16.0	1 hr	1	50 lbs		Tremied from HSA's	
GROUT	Top Depth	Bot Depth	Grout Mix		Amount (sacks)	Sack Size (lbs)	Grout Date	Installation Method
	Surface	13.8	P.C. 1/2" Type II Cement / H.S. 2" Bentonite		4	94	5 Nov 97	Tremied

Report Prepared By
B. B. B.

Date
5 Nov 97

Well Accepted By

Date

MONITORING WELL INSTALLATION REPORT

Page 3 of 4

WELL NUMBER (AAA.NNN.AA)

OKP 02

WELL DEVELOPMENT

Develop. Start Date 10 Nov 97	Develop. End Date 10 Nov 97	Well Developed By Partidge	Development Oversight B. B. / SATC
Tot. Hours Developed 30 min	Development Method (check one or more) ☐ Air Lift ☐ Bailing ☐ Jetting ☒ Pumping ☐ Surging ☐ Swabbing		Est. Volume of Water Removed During Development (gals) 65 gal

START OF DEVELOPMENT					END OF DEVELOPMENT				
pH	Conductivity	Turbidity	Water Level Depth	Well Yield (gpm)	pH	Conductivity	Turbidity	Water Level Depth	Well Yield (gpm)
—	—	—	17.66 ft	2+ gal/min	—	—	—	17.9 ft	2+ gal/min

ADDITIVES

Additive Type	Amount/Units	Additive Type	Amount/Units	Additive Type	Amount/Units
NA					

Well Development Comments

2" ϕ submersible pump placed ~2 in. off well bottom
 5x well volume = 63.95 gal
 1422 Began pumping; water V. cloudy - dk. grayish green at first
 H₂O clear to the eye after ~30 gals
 1426 65 gal removed - discharged on ground

Report Prepared By

B. B.

Date

10 Nov 97

MONITORING WELL INSTALLATION REPORT

Page 4 of 4

WELL NUMBER (AAA,NNN,AA)

PUMP INSTALLATION

Pump Installation Date	Pump Installed By	Pump Installation Contractor	Depth to Pump from Grnd. Surf.	Depth from Pump to Top Casing
Pump Type	Manufacturer		Model No.	Depth to Static Water Level
Capacity (gpm)	Horsepower	Voltage	Diameter (in)	

Pump Installation Comments

N/A

Report Prepared By

Date

MONITORING WELL CONSTRUCTION DIAGRAM

DRILLING SUBCONTRACTOR Portridge

WELL NUMBER CRP-#2

DRILLER Allen Kelly

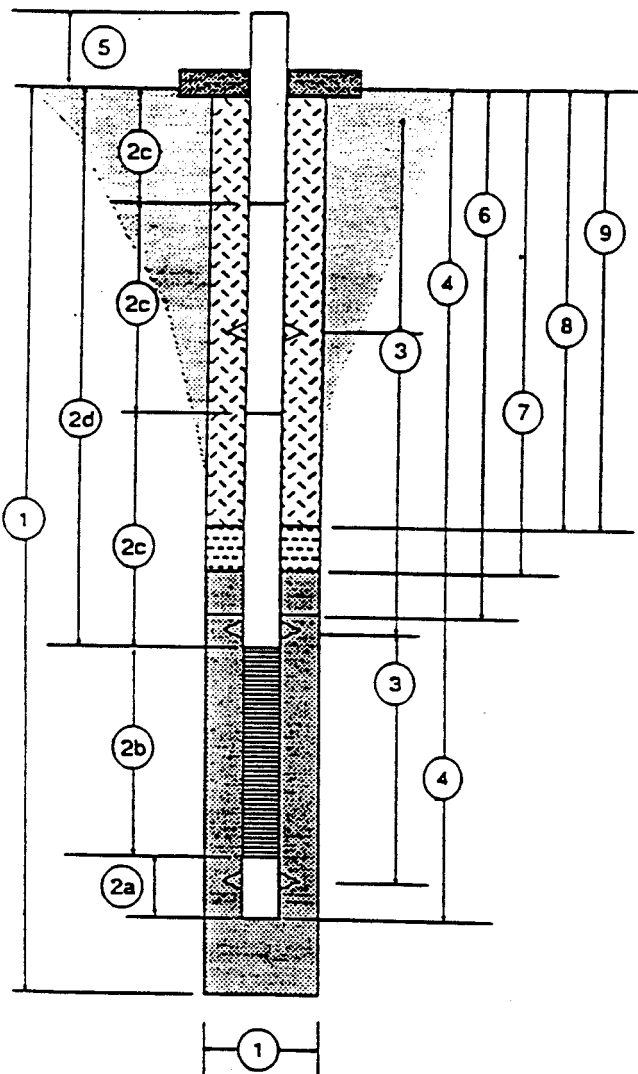
COORDINATES _____

DATE OF WELL INSTALLATION 5.5.97

SANITARY SEAL ELEVATION _____

TECH. O.S./CO. NAME Bob Brown (SAR)

NOTE: ALL MEASUREMENTS
ARE FROM GROUND
SURFACE AT START
OF BORING - MEASUREMENTS
TO NEAREST 0.1 FOOT.



1) Total Drilled Depth/Hole Diameter 29.5 ft / 9" Ø

2) Casing/Screen Tally (Measured to Nearest 0.01 Foot)

(a) Sump & Plug Length 1.0 ft

(b) Screen Length 10.0 ft

(c) Casing Joint Lengths (Measured in Up-hole Sequence From Top of Screen)

2 segments @ 10.0 ft each
3 segment added to 2.5 ft stick up

(d) Depth to Top of Screen 18.5 ft

3) Depths to Centralizers NA

4) Total Depth of Installed Well 29.5 ft

5) Casing Stick Up (Standard 2.5' A.G.S.) 2.5 ft

6) Depth to Top of Filter Pack 16.0 ft

7) Depth to Top of Fine Sand Seal NA

8) Depth to Top of Bentonite Seal 13.8 ft

9) Thickness of Grout 13.8 ft

FIELD GEOLOGIC LOG

PROJECT		Landfill Binspurging System @ Union Carbide Co.		DATE	5 Nov 92	SHEET	1 of 1
WELL NO.		ORP-02		REFERENCE DATUM	DRILLING CONTRACTOR		
LOGGED BY		B. B. B.		COORDINATES	DRILLER		
COMPANY		SATIC		DRILLING METHOD		4 1/2" ID HSA	

RUN NUMBER	DEPTH, FEET	LITHOLOGY	PERCENT RECOVERY	SAMPLE DESCRIPTION	DRILLING COMMENTS
	0			See DW-02 log	LEL and PED!
	1			SAME LITHOLOGY	As detected in unders
	2				otherwise noted
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	5				
	6				H ₂ O level first log
	7				@ 12.6 ft hls
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MONITORING WELL INSTALLATION REPORT

Page 1 of 4

WELL NUMBER (AAA.NNN.AA)

ORP 23

GENERAL

Project Name *Lambert Biospring System at Union Carbide Co*

Project Manager (last name, first initial)

Kongor, J

Department

Installation Purpose (Monitoring, Piezometer, etc.)

Biospring System Monitoring

County

Camden

Location Description

North Grid Coordinate

East Grid Coordinate

Latitude (decimal degrees)

Longitude (decimal degrees)

Ground Elev.

Top Casing Elev.

Liq. Level Pipe Elev.

DRILLING & SAMPLING

Drilling Start Date

5/16/92

Drilling Comp Date

5/16/92

Total Drilled Depth

29.5 ft

Int. Static Water Level/Date

18.3 ft 6/15/92

Total Borehole Deviation (angle/direction)

N/A

Drilling/Sampling Method

4 1/2" ID HSA

Top Depth

0

Bot Depth

29.5'

Diameter

9"

Drilling/Sampling Method

Top Depth

Bot Depth

Diameter

*

Drilling Company

Portage

Driller (last name, first initial)

Kelly, A.

Oversight Company

S.A.K.

Oversight (last name, first initial)

Baker, B.

Drilling & Sampling Comments (drilling fluids used, source of water, lost circulation zones, etc.)

Running rods from ~16 ft to 29.5 ft 6/15

GEOPHYSICAL LOGGING

Date Logged

N/A

Logging Top Depth

Logging Bottom Depth

Logging Subcontractor

Logging Truck Operator

Geophysical Logs

☐ Calliper ☐ Gamma ☐ Natural Gamma ☐ Neutron Density ☐ Resistivity ☐ Single Pt. Resistivity ☐ L&S Normal Resistivity ☐ Spontaneous Potential

Other Geophysical Logs (list)

Backfill Top Depth

N/A

Backfill Bot Depth

N/A

Backfill Material (include type quantity and units)

N/A

Elevations measured from height above MSL.

Depths measured from ground surface to nearest 0.1 ft.

* Enter an "X" if cuttings were taken.

MONITORING WELL INSTALLATION REPORT

Page 2 of 4

WELL NUMBER (AAA.NNN.AA)

ORP 03

WELL INSTALLATION (WELL MATERIALS)

Date Well Installed	Installed By	Oversight	No. of Casing	Centrifuge Type	Sieve Analysis?	
5 Nov 97	SATC	Frank Baker	N/A		☐ Yes ☒ No	
CASING	Top Depth	Bot Depth	Material and Schedule	Diameter	Joint Type	
	2.5 ft. shy	18.5	PVC Sch 40	2"	Flare Thread	
SCREEN	Top Depth	Bot Depth	Material	Diameter	Slot Size	Slot Type
	18.5 ft	28.5 ft	PVC Sch 40	2"	0.010	Manufactured
SUMP	Top Depth	Bot Depth	Material and Schedule	Diameter	Joint Type	
	28.5	29.5 ft	PVC Sch 40	2"	Flare Thread	
SUMP CAP	Top Depth	Bot Depth	Material and Schedule	Diameter	Cap Type	
			Sump Cap Inclusive	2"	PVC Sch 40	

WELL INSTALLATION (ANNULAR MATERIALS)

FILTER PACK	Top Depth	Bot Depth	Trade Name	Grain Size (mm)	Amount (sacks)	Sack Size (lbs)	Installation Method
	16.4	29.5 ft	Standard 50/100	20-30 grade	7.5	50	Trammed thru HSA's
FINE SAND SEAL	Top Depth	Bot Depth	Trade Name	Grain Size (mm)	Amount (sacks)	Sack Size (lbs)	Installation Method
BENTONITE SEAL	Top Depth	Bot Depth	Hydration Time (hrs)	Amount	Units and Size (sacks, buckets, etc.)	Installation Method	
	13.9	16.4	1 hr	1 bag	50 lb	Trammed thru HSA's	
GROUT	Top Depth	Bot Depth	Grout Mix	Amount (sacks)	Sack Size (lbs)	Grout Date	Installation Method
	Surface	13.9	Part 1: Type 3 Cement / Part 2: 40 / Part 3: 40 / Part 4: 40	4	94	3 Nov 97	Trammed

Report Prepared By

Frank Baker

Date

5 Nov 97

Well Accepted By

Date

MONITORING WELL INSTALLATION REPORT

Page 3 of 4

WELL NUMBER (AAA.NNN.AA)

ORF 03

WELL DEVELOPMENT

Develop. Start Date 10 Nov 97	Develop. End Date 10 Nov 97	Well Developed By Kortridge	Development Oversight B. B. / S. A. S. C.
Tot. Hours Developed 30 min	Development Method (check one or more) ☐ Air Lift ☐ Bailing ☐ Jetting ☒ Pumping ☐ Surging ☐ Swabbing		Est. Volume of Water Removed During Development (gals) 60 gal

START OF DEVELOPMENT					END OF DEVELOPMENT				
pH	Conductivity	Turbidity	Water Level Depth	Well Yield (gpm)	pH	Conductivity	Turbidity	Water Level Depth	Well Yield (gpm)
—	—	—	18.24 ft b/s	2+ gpm	—	—	—	18.61 ft b/s	2+ gpm

ADDITIVES

Additive Type	Amount/Units	Additive Type	Amount/Units	Additive Type	Amount/Units
N/A					

Well Development Comments

2" submersible pump placed ~ 3 inches above well bottom
 1 - well volume including filter pack = 12.17 x 5 = 60.85 gals to be removed
 1436 H₂O level @ 18.24 ft b/s
 1439 Begin pumping
 1503 Stopper removed by 60 gal removed; H₂O initially very murky (grainy green) clear to the eye
 after ~ 30 gal removed
 1505 Target H₂O level @ 18.61 ft b/s

Report Prepared By

B. B. B.

Date

10 Nov 97

MONITORING WELL INSTALLATION REPORT

Page 4 of 4

WELL NUMBER (AAA,NNN,AA)

PUMP INSTALLATION

Pump Installation Date	Pump Installed By	Pump Installation Contractor	Depth to Pump from Grnd. Surf.	Depth from Pump to Top Casing
Pump Type	Manufacturer		Model No.	Depth to Static Water Level
Capacity (gpm)	Horsepower	Voltage	Diameter (in)	

Pump Installation Comments

N/A

Report Prepared By

Date

MONITORING WELL CONSTRUCTION DIAGRAM

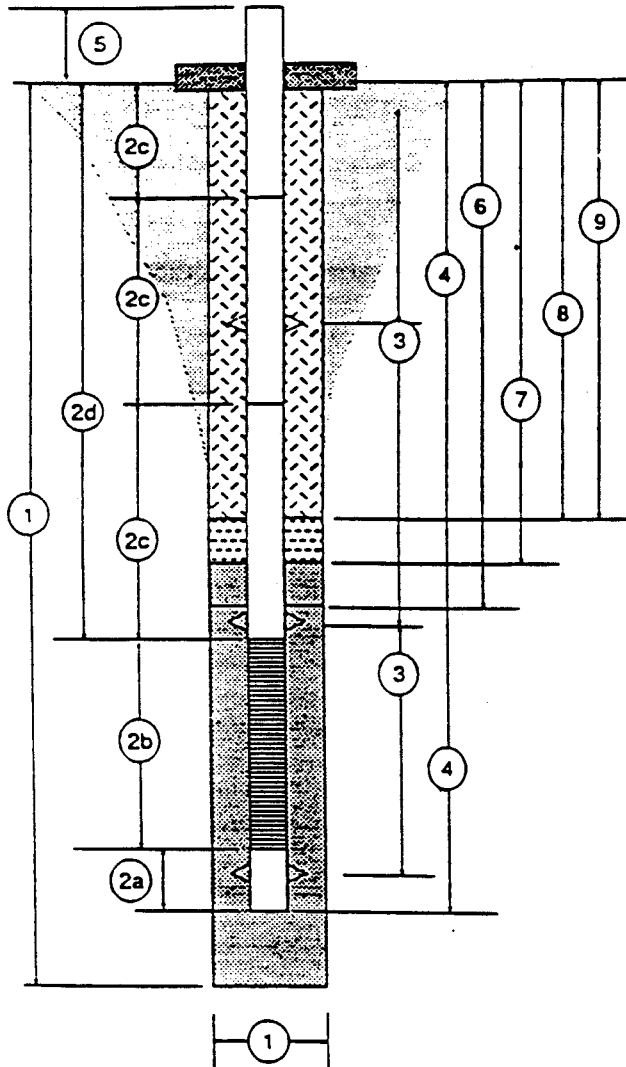
DRILLING SUBCONTRACTOR Peddy's
 DRILLER Allen Kelly
 DATE OF WELL INSTALLATION 5 Nov 97
 TECH. O.S./CO. NAME P. J. Baker / S.H.I.C.

WELL NUMBER 01P-43

COORDINATES _____

SANITARY SEAL ELEVATION _____

NOTE: ALL MEASUREMENTS
 ARE FROM GROUND
 SURFACE AT START
 OF BORING - MEASUREMENTS
 TO NEAREST 0.1 FOOT.



- 1) Total Drilled Depth/Hole Diameter 29.5 ft / 9" 8
- 2) Casing/Screen Tally (Measured to Nearest 0.01 Foot)
 - (a) Sump & Plug Length 1.0 ft
 - (b) Screen Length 10.0 ft
 - (c) Casing Joint Lengths (Measured in Up-hole Sequence From Top of Screen)
 - 2 segments @ 10.0 ft each
 - 1 riser segment cut to bring sticks to 2.5 ft above grade
 - (d) Depth to Top of Screen 18.5 ft
- 3) Depths to Centralizers N/A
- 4) Total Depth of Installed Well 29.5 ft
- 5) Casing Stick Up (Standard 2.5' A.G.S.) 2.5 ft
- 6) Depth to Top of Filter Pack 16.4 ft
- 7) Depth to Top of Fine Sand Seal N/A
- 8) Depth to Top of Bentonite Seal 13.9 ft
- 9) Thickness of Grout 13.9 ft

FIELD GEOLOGIC LOG

PROJECT <i>Hardwell Drilling System @ Union Carbide Co.</i>		DATE <i>5 Nov 97</i>	SHEET <i>1</i> of <i>1</i>
WELL NO. <i>ORP-03</i>		REFERENCE DATUM	DRILLING CONTRACTOR <i>Leetridge</i>
LOGGED BY <i>Brian Bell</i>		COORDINATES	DRILLER <i>Allen Kelly</i>
COMPANY <i>SAFL</i>		DRILLING METHOD <i>4 1/2" ID HSA's</i>	

RUN NUMBER	DEPTH, FEET	LITHOLOGY	PERCENT RECOVERY	SAMPLE DESCRIPTION	DRILLING COMMENTS
	0			<i>See IW-07 log</i>	<i>LEL and T.D.:</i>
	1			<i>See lithology</i>	<i>no alteration</i>
	2				<i>values otherwise</i>
	3				<i>noted</i>
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	7				<i>H.P. first trace</i>
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MONITORING WELL INSTALLATION REPORT

Page 1 of 4

WELL NUMBER (AAA.NNN.AA)

TE 01

GENERAL

Project Name *Bioremediation System @ Union Carbide Co.*

Project Manager (last name, first initial)

Longaker, J

Department

Installation Purpose (Monitoring, Piezometer, etc.)

Monitoring / Perforated Casing

County

London

Location Description

North Grid Coordinate

East Grid Coordinate

Latitude (decimal degrees)

Longitude (decimal degrees)

Ground Elev.

Top Casing Elev.

Liq. Level Pipe Elev.

DRILLING & SAMPLING

Drilling Start Date

6/16/97

Drilling Comp Date

6/16/97

Total Drilled Depth

32.5 ft

Int. Static Water Level/Date

17.0 ft / 6/16/97

Total Borehole Deviation (angle/direction)

N/A

Drilling/Sampling Method

4 1/2" ID HSA's

Top Depth

0

Bot Depth

32.5 ft

Diameter

9"

Drilling/Sampling Method

Top Depth

Bot Depth

Diameter

*

Drilling Company

Partidge

Driller (last name, first initial)

Kelly, A

Oversight Company

SAIC

Oversight (last name, first initial)

Baker, B

Drilling & Sampling Comments (drilling muds used, source of water, lost circulation zones, etc.)

Running soils from ~23-32.5 ft bbs

GEOPHYSICAL LOGGING

Date Logged

NA

Logging Top Depth

Logging Bottom Depth

Logging Subcontractor

Logging Truck Operator

Geophysical Logs

☐ Caliper ☐ Gamma ☐ Natural Gamma ☐ Neutron Density ☐ Resistivity ☐ Single Pt. Resistivity ☐ L&S Normal Resistivity ☐ Spontaneous Potential

Other Geophysical Logs (list)

Backfill Top Depth

NA

Backfill Bot Depth

—

Backfill Material (include type quantity and units)

NA

Elevation

measured from height above MSL

Depths measured from ground surface to nearest 0.

* Enter an "X" if cuttings were taken.

MONITORING WELL INSTALLATION REPORT

Page 2 of 4

WELL NUMBER (AAA.NNN.AA)

TE 01

WELL INSTALLATION (WELL MATERIALS)

Date Well Installed 6 Nov 97	Installed By SAFE	Overight Brind Baker	No of Catches N/A	Centrifuger Type —	Sieve Analysis? ☐ Yes ☒ No	
CASING	Top Depth	Bot Depth	Material and Schedule	Diameter	Joint Type	
	25.5 Ashby	21.5 A	PVC Sch 40	2"	Flush Thread	
SCREEN	Top Depth	Bot Depth	Material	Diameter	Slot Size	Slot Type
	21.5	31.5	PVC Sch 40	2"	0.010	Manufactured
BUMP	Top Depth	Bot Depth	Material and Schedule	Diameter	Joint Type	
	31.5	32.5	PVC Sch 40	2"	Flush Thread	
BUMP CAP	Top Depth	Bot Depth	Material and Schedule	Diameter	Cap Type	
	—	—	Sample inclusive	2"	PVC Sch 40	

WELL INSTALLATION (ANNULAR MATERIALS)

FILTER PACK	Top Depth	Bot Depth	Trade Name	Grain Size (mm)	Amount (sacks)	Sack Size (lbs)	Installation Method	
	17.8	32.5	Hydrus 6	20-30 grade	7	50	Trimmed from HSPs	
FINE SAND SEAL	Top Depth	Bot Depth	Trade Name	Grain Size (mm)	Amount (sacks)	Sack Size (lbs)	Installation Method	
	NA							
BENTONITE SEAL	Top Depth	Bot Depth	Hydration Time (hrs)	Amount	Units and Size (sacks, buckets, etc.)	Installation Method		
	15.7	17.8	1.5 hr	1	50 lbs	Trimmed from HSPs		
GROUT	Top Depth	Bot Depth	Grout Mix		Amount (sacks)	Sack Size (lbs)	Grout Date	Installation Method
	Surface	15.7	1 part Type I Cement / 1 H₂O / 1 bucket		4	94	6 Nov 97	Trimmed

Report Prepared By

Brind Baker

Date

6 Nov 97

Well Accepted By

Date

MONITORING WELL INSTALLATION REPORT

Page 3 of 4

WELL NUMBER (AAA.NNN.AA)

TE 01

WELL DEVELOPMENT

Develop. Start Date 10 Nov 92	Develop. End Date 12 Nov 92	Well Developed By R. B. B.	Development Oversight R. B. B.
Tot. Hours Developed 30 min	Development Method (check one or more) ☐ Air Lift ☐ Bailing ☐ Jetting ☒ Pumping ☐ Surging ☐ Swabbing		Est. Volume of Water Removed During Development (gals) 80.25 gal

START OF DEVELOPMENT					END OF DEVELOPMENT				
pH	Conductivity	Turbidity	Water Level Depth	Well Yield (gpm)	pH	Conductivity	Turbidity	Water Level Depth	Well Yield (gpm)
—	—	—	16.68 ft b/s	2+ gpm	—	—	—	16.79 ft b/s	2+ gpm

ADDITIVES

Additive Type	Amount/Units	Additive Type	Amount/Units	Additive Type	Amount/Units
N/A					

Well Development Comments

2" submersible pump placed ~2" above well bottom

1216 began pumping; well volume $\times 5 = 80.25$ gal

Pumped into 5-gal bucket and discharged on ground to measure gallons removed

Initially water v. cloudy (dk green), after ~20 gal H₂O is clear to the eye

1246 Pumping complete 80+ gals

1254 H₂O level tagged @ 16.7 ft b/s

Report Prepared By

R. B. B.

Date

10 Nov 92

MONITORING WELL INSTALLATION REPORT

Page 4 of 4

WELL NUMBER (AAA,NNN,AA)

PUMP INSTALLATION

Pump Installation Date	Pump Installed By	Pump Installation Contractor	Depth to Pump from Grnd. Surf.	Depth from Pump to Top Casing
Pump Type	Manufacturer		Model No.	Depth to Static Water Level
Capacity (gpm)	Horsepower	Voltage	Diameter (in)	

Pump Installation Comments

N/A

Report Prepared By

Date

MONITORING WELL CONSTRUCTION DIAGRAM

DRILLING SUBCONTRACTOR P. L. Hodge

DRIILLER Allen Kelley

DATE OF WELL INSTALLATION 6 Nov 97

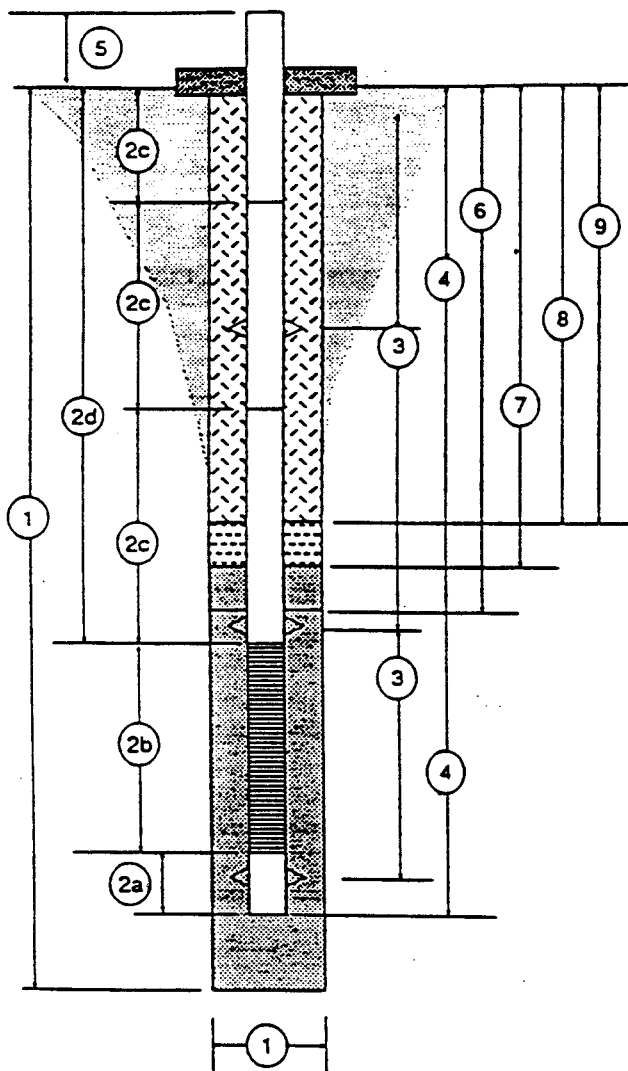
TECH. O.S./CO. NAME Brindley/SAIC

WELL NUMBER TE-61

COORDINATES _____

SANITARY SEAL ELEVATION _____

NOTE: ALL MEASUREMENTS
ARE FROM GROUND
SURFACE AT START
OF BORING - MEASUREMENTS
TO NEAREST 0.1 FOOT.



1) Total Drilled Depth/Hole Diameter 32.5 ft / 9" ϕ

2) Casing/Screen Tally (Measured to Nearest 0.01 Foot)

(a) Sump & Plug Length 1.0 ft

(b) Screen Length 10.0 ft

(c) Casing Joint Lengths (Measured in Up-hole Sequence From Top of Screen)

2 segments @ 10.0 ft
1 segment @ 5.0 ft cut to 2.5 ft
stickup

(d) Depth to Top of Screen 21.5 ft

3) Depths to Centralizers N/A

4) Total Depth of Installed Well 32.5 ft

5) Casing Stick Up (Standard 2.5' A.G.S.) 2.5 ft

6) Depth to Top of Filter Pack 17.8 ft

7) Depth to Top of Fine Sand Seal N/A

8) Depth to Top of Bentonite Seal 15.7 ft

9) Thickness of Grout 15.7 ft

FIELD GEOLOGIC LOG

PROJECT <i>Landfill Bypassing System @ Union Carbide Co</i>				DATE <i>6 Nov 97</i>	SHEET <i>1</i> OF <i>1</i>
REFERENCE DATUM				DRILLING CONTRACTOR <i>P. J. H. Inc.</i>	
WELL NO. <i>4466197</i> <i>AW-23 TE-43</i>	COORDINATES			DRILLER <i>Allen Kelly</i>	
LOGGED BY <i>Brian Baker</i>	COMPANY <i>SATC</i>			DRILLING METHOD <i>4 1/2" ID 145 ft</i>	

RUN NUMBER	DEPTH, FEET	LITHOLOGY	PERCENT RECOVERY	SAMPLE DESCRIPTION	DRILLING COMMENTS
	0				<i>TEL and PLD:</i>
	1			<i>0 - 6.0 ft: sand, sand: fine grained ~ 85% silt ~ 15%; ft yellowish tan; med sorted; sub rounded; moist</i>	<i>16' detection cables otherwise noted</i>
	2				
	3			<i>6.0 - 11.0 ft: SAND; fine grained ~ 85% silt ~ 15%; tan; med sorted; sub rounded; moist</i>	
	4				
	5				
	6			<i>11.0 - 16.0 ft DK reddish brown SAND; sand: fine med - 80% silt ~ 20%; appears organic rich; DK reddish brown poorly sorted; sub rounded; moist</i>	
	7				
	8				
	9			<i>16.0 - 23.0 ft SAND: sand: fine ~ 85% silt ~ 15%, DK yellowish brown; med sorted; sub rounded; moist</i>	
	10				
	11			<i>23.0 - 29.0 ft SAME AS ABOVE w/ note - change to med. TAN; wet</i>	<i>23.4 ft first excavated and wet cutting</i>
	12				
	13			<i>29.0 - 32.5 ft SAME AS ABOVE color change to DK yellowish green saturated</i>	<i>saturated cuttings @ 29.0 ft b/s</i>
	14				
	15				<i>H₂O trapped @ 17.0 ft b/s</i>
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	99				
	100				

4466197
TD = 29.0 - 32.5 ft b/s

MONITORING WELL INSTALLATION REPORT

Page 1 of 4

WELL NUMBER (AAA,NNN,AA)

TE 02

GENERAL

Project Name *Landfill Biosparging System @ Union Carbide Co.*

Project Manager (last name, first initial)

Longaker, J

Department

Installation Purpose (Monitoring, Piezometer, etc.)

Monitoring

County

London

Location Description

North Grid Coordinate

East Grid Coordinate

Latitude (decimal degrees)

Longitude (decimal degrees)

Ground Elev.

Top Casing Elev.

Liq. Level Pipe Elev.

DRILLING & SAMPLING

Drilling Start Date

6 Nov 97

Drilling Comp Date

6 Nov 97

Total Drilled Depth

29.5 ft

Int. Static Water Level/Date

17.4 ft / 6 Nov 97

Total Borehole Deviation (angle/direction)

N/A

Drilling/Sampling Method

4 1/2" ID HSA's

Top Depth

0

Bot Depth

9"

Diameter

Drilling/Sampling Method

Top Depth

Bot Depth

Diameter

Drilling Company

Partidge

Driller (last name, initial)

Kelly, Alton

Oversight Company

SAE

Oversight (last name, initial)

Brady, B.

Drilling & Sampling Comments (drilling muds used, source of water, lost circulation zones, etc.)

Running sand encountered ~15 - 29.5 ft

GEOPHYSICAL LOGGING

Date Logged

N/A

Logging Top Depth

Logging Bottom Depth

Logging Subcontractor

Logging Truck Operator

Geophysical Logs

☐ Caliper ☐ Gamma ☐ Natural Gamma ☐ Neutron Density ☐ Resistivity ☐ Single Pt. Resistivity ☐ L&S Normal Resistivity ☐ Spontaneous Potential

Other Geophysical Logs (list)

Backfill Top Depth

NA

Backfill Bot Depth

NA

Backfill Material (include type quantity and units)

NA

Elevation measured from height above MSL.

Depths measured from ground surface to nearest 0.1 ft.

* Enter an "X" if cuttings were taken.

MONITORING WELL INSTALLATION REPORT

Page 2 of 4

WELL NUMBER (AAA,NNN,AA)

TE

φ2-

WELL INSTALLATION (WELL MATERIALS)

Date Well Installed <i>6 Nov 97</i>	Installed By <i>SAYC</i>	Oversight <i>Brian Baker</i>	No of Cuts —	Centrifuge Type —	Sieve Analysis? ☐ Yes ☒ No	
CASING	Top Depth	Bot Depth	Material and Schedule	Diameter	Joint Type	
	<i>25 ft stickup</i>	<i>18.5</i>	<i>PVC Sch 40</i>	<i>2"</i>	<i>Flush Threaded</i>	
SCREEN	Top Depth	Bot Depth	Material	Diameter	Slot Size	Slot Type
	<i>18.5</i>	<i>28.5</i>	<i>PVC Sch 40</i>	<i>2"</i>	<i>0.010</i>	<i>Manufactured</i>
SUMP	Top Depth	Bot Depth	Material and Schedule	Diameter	Joint Type	
	<i>28.5</i>	<i>29.5</i>	<i>PVC Sch 90</i>	<i>2"</i>	<i>Flush Threaded</i>	
SUMP CAP	Top Depth	Bot Depth	Material and Schedule	Diameter	Cap Type	
	—	—	<i>Sump and cap inclusive</i>	<i>2"</i>	<i>PVC Sch 40</i>	

WELL INSTALLATION (ANNULAR MATERIALS)

FILTER PACK	Top Depth	Bot Depth	Trade Name	Grain Size (mm)	Amount (sacks)	Sack Size (lbs)	Installation Method	
	<i>16.3 ft</i>	<i>27.5 ft</i>	<i>Hydrant Seal</i>	<i>20-30 grade</i>	<i>7 1/2</i>	<i>50 lbs</i>	<i>Tremie thru HSA's</i>	
FINE SAND SEAL	Top Depth	Bot Depth	Trade Name	Grain Size (mm)	Amount (sacks)	Sack Size (lbs)	Installation Method	
	<i>NA</i>	—						
BENTONITE SEAL	Top Depth	Bot Depth	Hydration Time (hrs)	Amount	Units and Size (sacks, buckets, etc.)	Installation Method		
	<i>14.1</i>	<i>16.3 ft</i>	<i>2 hrs</i>	<i>"1 bag</i>	<i>50 lbs</i>	<i>Tremie thru HSA's</i>		
GROUT	Top Depth	Bot Depth	Grout Mix		Amount (sacks)	Sack Size (lbs)	Grout Date	Installation Method
	<i>Surface</i>	<i>14.1</i>	<i>Grout Type I (sand/H₂O/Bentonite)</i>		<i>4</i>	<i>94</i>	<i>6 Nov 97</i>	<i>Tremie</i>

Report Prepared By

Brian Baker

Date

6 Nov 97

Well Accepted By

Date

MONITORING WELL INSTALLATION REPORT

Page 3 of 4

WELL NUMBER (AAA.NNN.AA)

TE 02

WELL DEVELOPMENT

Develop. Start Date 10 Nov 97	Develop. End Date 10 Nov 97	Well Developed By Paul Baker	Development Oversight Paul Baker (SALC)
Tot. Hours Developed 45 min	Development Method (check one or more) ☐ Air Lift ☐ Bailing ☐ Jetting ☒ Pumping ☐ Surging ☐ Swabbing		Est. Volume of Water Removed During Development (gals) 70.95 gal

START OF DEVELOPMENT					END OF DEVELOPMENT				
pH	Conductivity	Turbidity	Water Level Depth	Well Yield (gpm)	pH	Conductivity	Turbidity	Water Level Depth	Well Yield (gpm)
—	—	—	17.32 ft	> 2 gpm	—	—	—	17.40 ft	> 2 gpm

ADDITIVES

Additive Type	Amount/Units	Additive Type	Amount/Units	Additive Type	Amount/Units
N/A					

Well Development Comments

2" submersible
 2" submersible pump placed to ~ 2 inches at well bottom
 purged 5 well volumes = 70+ gals.
 started v. cloudy dk gray; cleared after ~ 25 gals; water discharged on ground

Report Prepared By

Paul Baker

Date

10 Nov 97

MONITORING WELL INSTALLATION REPORT

Page 4 of 4

WELL NUMBER (AAA,NNN,AA)

PUMP INSTALLATION

Pump Installation Date	Pump Installed By	Pump Installation Contractor	Depth to Pump from Grnd. Surf.	Depth from Pump to Top Casing
Pump Type	Manufacturer		Model No.	Depth to Static Water Level
Capacity (gpm)	Horsepower	Voltage	Diameter (in)	

Pump Installation Comments

N/A

Report Prepared By

Date

MONITORING WELL CONSTRUCTION DIAGRAM

DRILLING SUBCONTRACTOR

Portledge

WELL NUMBER

TE-02

DRILLER

Allan Kelly

COORDINATES

DATE OF WELL INSTALLATION

6 Nov 97

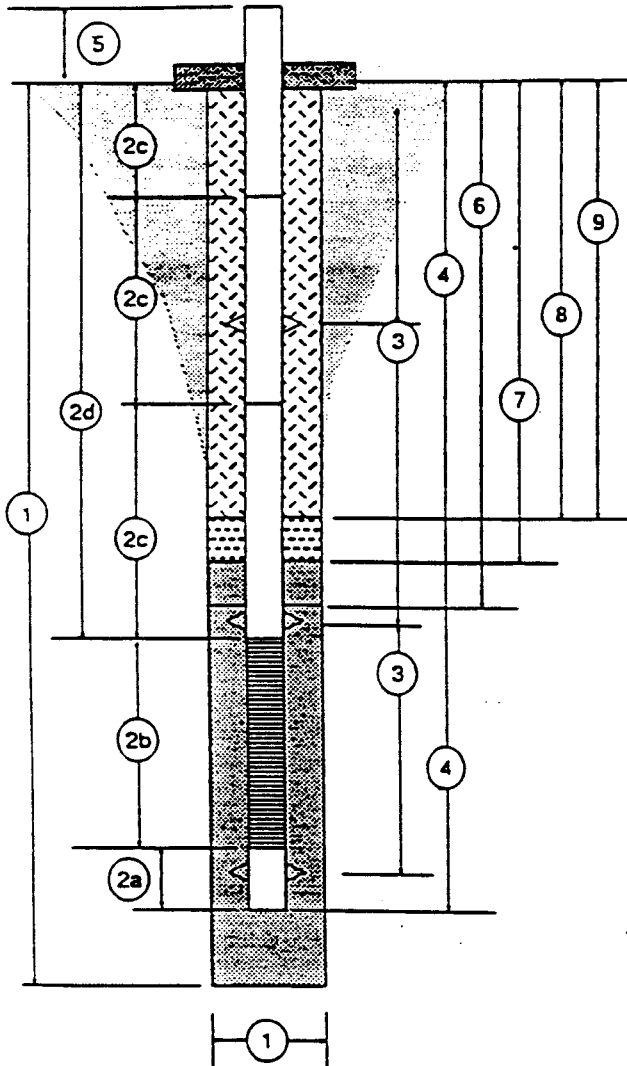
SANITARY SEAL ELEVATION

TECH. O.S./CO. NAME

R. B. H. HALL

NOTE:

ALL MEASUREMENTS
ARE FROM GROUND
SURFACE AT START
OF BORING - MEASUREMENTS
TO NEAREST 0.1 FOOT.



1) Total Drilled Depth/Hole Diameter

29.54 / 9" ϕ

2) Casing/Screen Tally (Measured to Nearest 0.01 Foot)

(a) Sump & Plug Length

1.0 ft

(b) Screen Length

10.0 ft

(c) Casing Joint Lengths (Measured in Up-hole Sequence From Top of Screen)

2 joints @ 10.0 ft each

1 joint @ 5.0 ft added and cut to allow for 2.5 ft sticking

(d) Depth to Top of Screen

18.5 ft

3) Depths to Centralizers

N/A

4) Total Depth of Installed Well

29.5

5) Casing Stick Up (Standard 2.5' A.G.S.)

2.5

6) Depth to Top of Filter Pack

16.3 ft

7) Depth to Top of Fine Sand Seal

N/A

8) Depth to Top of Bentonite Seal

14.1 ft

9) Thickness of Grout

14.1 ft

FIELD GEOLOGIC LOG

PROJECT		DATE		SHEET	
Landfill Disposal System @ Union Carbide Co.		6 Nov 97		1 of	
WELL NO.		REFERENCE DATUM		DRILLING CONTRACTOR	
TE-02				Kartledge	
LOGGED BY		COORDINATES		DRILLER	
Brad Baker		SAIC		Allan Kelly	
		COMPANY		DRILLING METHOD	
				4 1/2" ID HSA's	

RUN NUMBER	DEPTH, FEET	LITHOLOGY	PERCENT RECOVERY	SAMPLE DESCRIPTION	DRILLING COMMENTS
	0			(0 - 5.0 ft) SAND; med. fine 85%;	UEL and PID:
	1			silt ~20%; V. DK brown; organic silt;	No detections
	2			poorly sorted; subrounded; moist	under otherwise
	3			(5.0 - 9.0 ft) SAND; fine ~85%; silt ~15%;	noted.
	4			Tan; med sorted; subrounded; moist	
	5			(9.0 - 16.0 ft) SAND; med. fine ~85%; silt ~20%;	
	6			DK reddish brown; med. poorly sorted;	
	7			subrounded; moist	
	8			(16.0 - 26.0 ft) SAND; med. fine ~85%; silt ~15%;	
	9			yellowish brown; med sorted; sub-	
	0			rounded; moist	
	1			(26.0 - 29.5 ft) SAND; med. fine ~85%;	Water readings present
	2			silt ~15%; med sorted; subrounded;	@ - 20 ft b/s
	3			subrounded; yellowish green to dk green	
	4				
	5				
	6				
	7				
	8				
	9				
	0				
	29.5			TD: 29.5 ft b/s	Water level log @ 17.4 ft b/s

MONITORING WELL INSTALLATION REPORT

Page 1 of 4

WELL NUMBER (AAA,NNN,AA)

TE 03

GENERAL

Project Name *Landfill Disposing System @ Union Carbide Co.*

Project Manager (last name, first initial)

Longaker, J

Department

Installation Purpose (Monitoring, Piezometer, etc.)

Monitoring

County

Camden

Location Description

North Grid Coordinate

East Grid Coordinate

Latitude (decimal degrees)

Longitude (decimal degrees)

Ground Elev.

Top Casing Elev.

Liq. Level Pipe Elev.

DRILLING & SAMPLING

Drilling Start Date

6 Nov 97

Drilling Comp Date

6 Nov 97

Total Drilled Depth

29.5 ft

Int. Static Water Level/Date

20.3 ft / 6 Nov 97

Total Borehole Deviation (angle/direction)

NA

Drilling/Sampling Method

4 1/2" ID HSA

Top Depth

0

Bot Depth

29.5 ft

Diameter

4"

Drilling/Sampling Method

Top Depth

Bot Depth

Diameter

Drilling Company

Partridge

Driller (last name, first initial)

Kelly, Allan

Overight Company

S.A.D.C.

Overight (last name, first initial)

Bohler, B.

Drilling & Sampling Comments (drilling muds used, source of water, lost circulation zones, etc.)

Running sands from ~16 - 29.5 ft b/b

GEOPHYSICAL LOGGING

Date Logged

NA

Logging Top Depth

Logging Bottom Depth

Logging Subcontractor

Logging Truck Operator

Geophysical Logs

☐ Caliper ☐ Gamma ☐ Natural Gamma ☐ Neutron Density ☐ Resistivity ☐ Single Pt. Resistivity ☐ L&S Normal Resistivity ☐ Spontaneous Potential

Other Geophysical Logs (list)

Backfill Top Depth

NA

Backfill Bot Depth

NA

Backfill Material (include type quantity and units)

NA

Elevation

measured from height above MSL.

Depths measured from ground surface to nearest 0.

* Enter an "X" if cuttings were taken.

MONITORING WELL INSTALLATION REPORT

Page 2 of 4

WELL NUMBER (AAA.NNN.AA)

TE 03

WELL INSTALLATION (WELL MATERIALS)

Date Well Installed 6 Nov 97		Installed By BATIC		Oversight Brad Baker		No of Casing 1/4		Centralizer Type —		Sieve Analysis? ☐ Yes ☒ No	
CASING	Top Depth	Bot Depth	Material and Schedule		Diameter	Joint Type					
	25.5 ft	16.5	PVC Sch 40		2"	Flush Threaded					
SCREEN	Top Depth	Bot Depth	Material		Diameter	Slot Size	Slot Type				
	16.5	28.5	PVC Sch 40		2"	0.010	Manufactured				
SUMP	Top Depth	Bot Depth	Material and Schedule		Diameter	Joint Type					
	28.5	29.5	PVC Sch 40		2"	Flush Threaded					
SUMP CAP	Top Depth	Bot Depth	Material and Schedule		Diameter	Cap Type					
	—	—	Same as cap inclusive		2"	PVC Sch 40					

WELL INSTALLATION (ANNULAR MATERIALS)

FILTER PACK	Top Depth	Bot Depth	Trade Name	Grain Size (mm)	Amount (sacks)	Sack Size (lbs)	Installation Method	
	16.2	29.5	Standard Sand & Silica Gel	20-30 grade	7 1/4	50	Tremie thru H54's	
FINE SAND SEAL	Top Depth	Bot Depth	Trade Name	Grain Size (mm)	Amount (sacks)	Sack Size (lbs)	Installation Method	
	1/4							
BENTONITE SEAL	Top Depth	Bot Depth	Hydration Time (hrs)	Amount	Units and Size (sacks, buckets, etc.)		Installation Method	
	14.1	16.2	1.5 hrs	1	50 lbs		Tremie thru H54's	
GROUT	Top Depth	Bot Depth	Grout Mix		Amount (sacks)	Sack Size (lbs)	Grout Date	Installation Method
	Surface	16.2	Lithol Type 3 Cement / H2O / Fiberglass		4	94	6 Nov 97	Tremie

Report Prepared By

Brad Baker

Date

6 Nov 97

Well Accepted By

Date

MONITORING WELL INSTALLATION REPORT

Page 3 of 4

WELL NUMBER (AAA.NNN.AA)

TE 3

WELL DEVELOPMENT

Develop. Start Date 18 Nov 97	Develop. End Date 10 Nov 97	Well Developed By Karl Baker	Development Oversight B. Baker (SAJ)
Tot. Hours Developed 20 min	Development Method (check one or more) ☐ Air Lift ☐ Bailing ☐ Jetting ☒ Pumping ☐ Surging ☐ Swabbing		Est. Volume of Water Removed During Development (gals) 50 gal

START OF DEVELOPMENT

END OF DEVELOPMENT

pH	Conductivity	Turbidity	Water Level Depth	Well Yield (gpm)	pH	Conductivity	Turbidity	Water Level Depth	Well Yield (gpm)
—	—	—	20.26 ft	2+ gpm	—	—	—	20.46 ft	2+ gpm

ADDITIVES

Additive Type	Amount/Units	Additive Type	Amount/Units	Additive Type	Amount/Units
AA					

Well Development Comments

2" ϕ submersible pump placed ~2" off bottom of well

Calc. well volume: $7.97 \text{ gal} \times 5 = 49.85 \text{ gal}$

1135 Began pumping 1151: 50 gal purged - discharged on ground
 Dred. H₂O v. cloudy (dk grey) at first and cleared after ~20 gal of pumping

1155 H₂O topped @ 20.46 ft

Report Prepared By

Karl Baker

Date

10 Nov 97

MONITORING WELL INSTALLATION REPORT

Page 4 of 4

WELL NUMBER (AAA,NNN,AA)

PUMP INSTALLATION

Pump Installation Date	Pump Installed By	Pump Installation Contractor	Depth to Pump from Grnd. Surf.	Depth from Pump to Top Casing
Pump Type	Manufacturer	Model No.	Depth to Static Water Level	
Capacity (gpm)	Horsepower	Voltage	Diameter (In)	

Pump Installation Comments

N/A

Report Prepared By

Date

MONITORING WELL CONSTRUCTION DIAGRAM

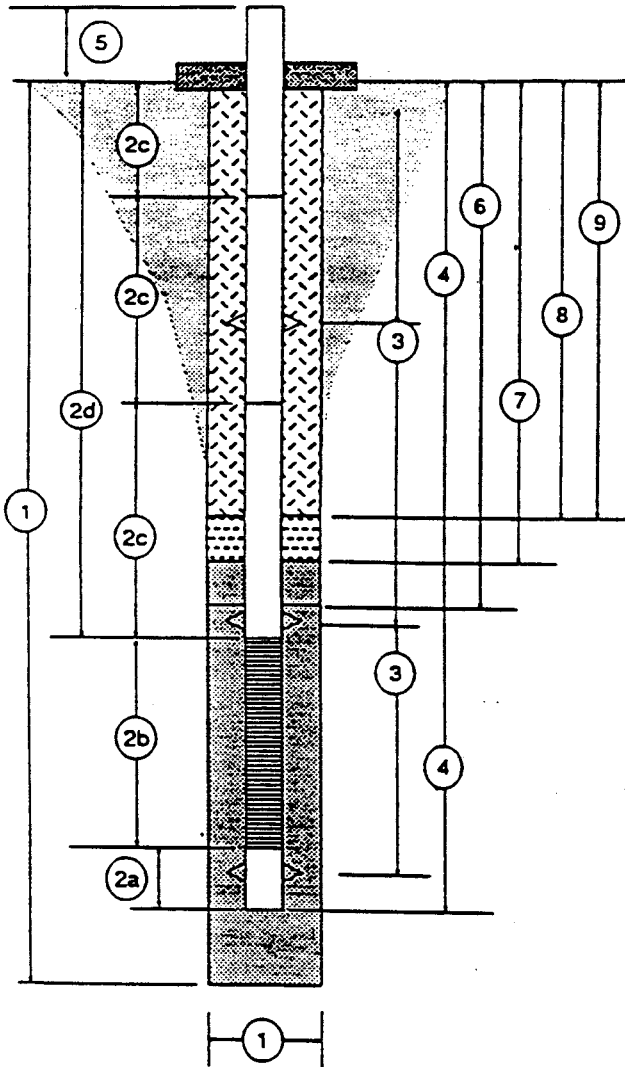
DRILLING SUBCONTRACTOR Partridge
 DRILLER Allen Kelly
 DATE OF WELL INSTALLATION 6. Nov 97
 TECH. O.S./CO. NAME David Brown / SA II

WELL NUMBER TE-03

COORDINATES _____

SANITARY SEAL ELEVATION _____

NOTE: ALL MEASUREMENTS
 ARE FROM GROUND
 SURFACE AT START
 OF BORING - MEASUREMENTS
 TO NEAREST 0.1 FOOT.



- 1) Total Drilled Depth/Hole Diameter 29.5 ft / 19" b
- 2) Casing/Screen Tally (Measured to Nearest 0.01 Foot)
 - (a) Sump & Plug Length 1.0 ft
 - (b) Screen Length 12.0 ft
 - (c) Casing Joint Lengths (Measured in Up-hole Sequence From Top of Screen)
 - 2 segments @ 10.0 ft each
 - 1 segment @ 5.0 ft cut to allow
 - for 2.5 ft stick up
 - (d) Depth to Top of Screen 15.5 ft
- 3) Depths to Centralizers N/A
- 4) Total Depth of Installed Well 29.5
- 5) Casing Stick Up (Standard 2.5' A.G.S.) 2.5 ft
- 6) Depth to Top of Filter Pack 16.2 ft
- 7) Depth to Top of Fine Sand Seal N/A
- 8) Depth to Top of Bentonite Seal 14.1 ft
- 9) Thickness of Grout 14.1 ft

FIELD GEOLOGIC LOG

PROJECT <i>Landfill Bypassing System @ Blair in Carbonate Co</i>		DATE <i>6 Nov 97</i>	SHEET <i>1</i> OF <i>1</i>
WELL NO. <i>TE-03</i>		REFERENCE DATUM	DRILLING CONTRACTOR <i>Partis, Inc.</i>
LOGGED BY <i>Paul Brown</i>		COORDINATES	DRILLER <i>Allen Kelley</i>
COMPANY <i>STATE</i>		DRILLING METHOD <i>4 1/2" ID HSA's</i>	

RUN NUMBER	DEPTH, FEET	LITHOLOGY	PERCENT RECOVERY	SAMPLE DESCRIPTION	DRILLING COMMENTS
	0			<i>SEE TE-02 log</i>	<i>TE D & LEL:</i>
	1			<i>SAME LITHOLOGY</i>	<i>16 detections</i>
	2				<i>under & otherwise</i>
	3				<i>noted</i>
	4				
	5				
	6				<i>Wet cutting present</i>
	7				<i>@ 20.3 ft</i>
	8				
	9				<i>6th Nov 97</i>
	0				<i>16 detections</i>
	1				<i>@ 20.3 ft</i>
	2				<i>Water first traced</i>
	3				<i>@ 20.3 ft</i>
	4				
	5				
	6				
	7				
	8				
	9				
	0				
	29.5			<i>TD: 29.5 ft</i>	



PROJECT NUMBER
337526.01.04

WELL NUMBER
MW-40 (deep)

SHEET 1 of 1

MONITORING WELL COMPLETION DIAGRAM

PROJECT : Refine Conceptual Site Model - UCC Landfill

LOCATION : Woodbine, GA

DRILLING CONTRACTOR : AE Drilling, LLC

NORTHING: 346711.9

DRILLING METHOD: 10.25-inch I.D. HSA & 6.25-inch I.D Mud/wash Rotary

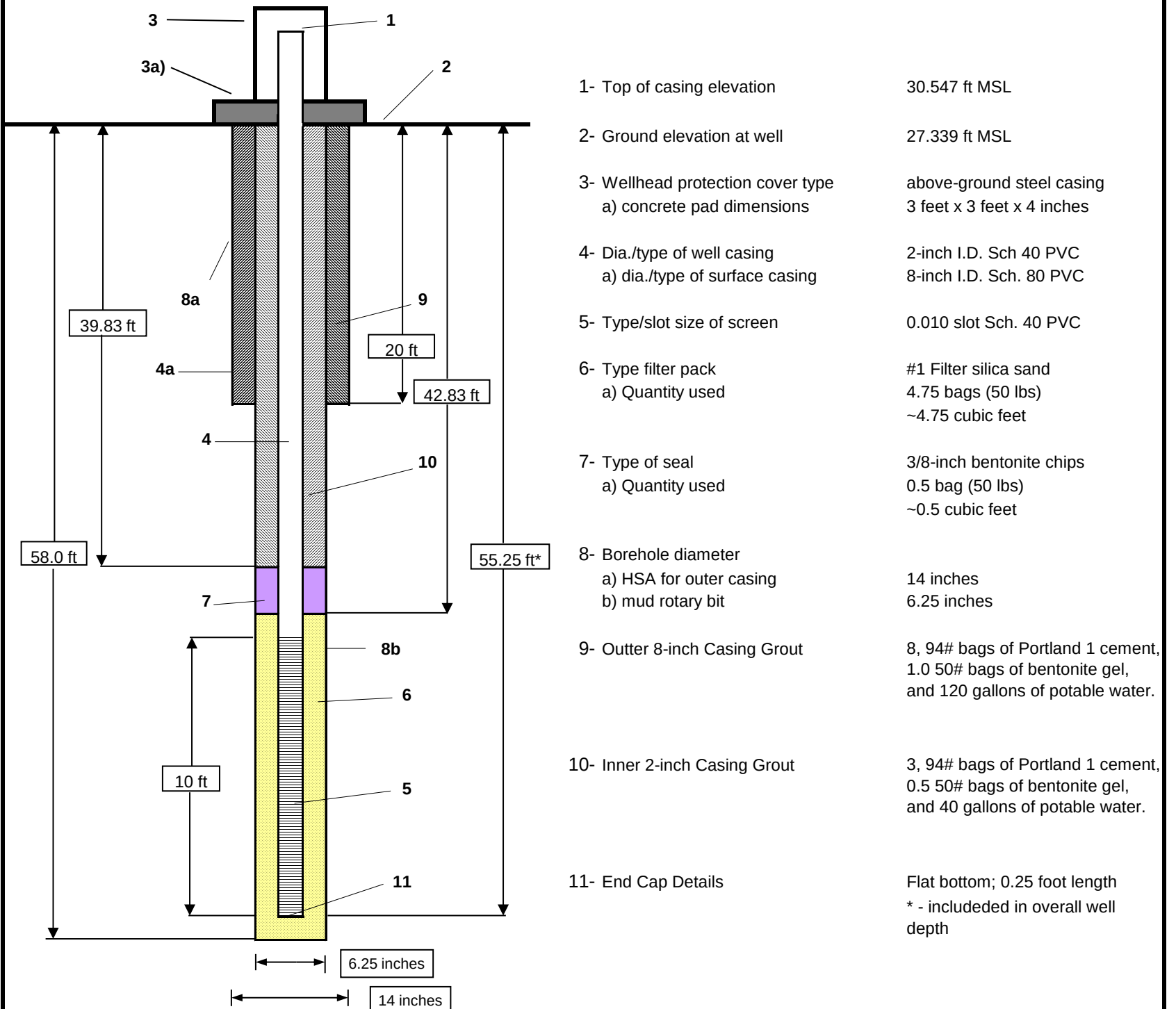
EASTING: 696805.4

WATER LEVELS : Not collected at time of install

START: 5/23/06

END : 5/23/06

LOGGER : J. Grimes/ATL



					PROJECT NUMBER 337526.01.04		BORING NUMBER MW-40 (deep)					SHEET 1 of 1	
					BORING LOG								
PROJECT : Refine Conceptual Site Model - Union Carbide Corporation Landfill							LOCATION : Woodbine, GA						
ELEVATION : Not recorded							DRILLING CONTRACTOR : A E Drilling, LLC (Greenville, SC)						
DRILLING METHOD AND EQUIPMENT USED : HSA/Mud Rotary, CME-750 ATV							DRILLER: Nate McAllister		HELPERS: Marty King & Carlos Swain				
WATER LEVELS : Not recorded					START : 05/15/06		END: 05/23/06						
DEPTH BELOW GROUND SURFACE (feet)	INTERVAL (ft bgs)	RECOVERY (%)	USCS CLASSIFICATION	GRAPHIC DESCRIPTION	SOIL DESCRIPTION	Date	Time	AIR MONITORING					
					SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, CONSISTENCY, SOIL STRUCTURE, MINERALOGY, ETC.			Micro FID		Combustible Gas Indicator			
								(VOCs ppm)		CO ppm / H2S ppm / LEL% / O2%			
								(24 hr.)	BZ	BHA	BZ	BHA	
1	0 - 5	10.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; dry; light brown	5/15/2006	1225	0	0.5	0 / 0 / 0 / 21	-		
2													
3													
4													
5													
6	5 - 10	10.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; slightly moist; very light brown	5/15/2006	1235	0	1.8	0 / 0 / 0 / 21	-		
7													
8													
9													
10													
11	10 - 15	10.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; slightly moist; very light brown	5/15/2006	1242	0	1.4	0 / 0 / 0 / 21	-		
12													
13													
14													
15													
16	15 - 20	10.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; wet; light grey	5/15/2006	1250	0	1.4	0 / 0 / 0 / 21	-		
17													
18													
19													
20													
21	20 - 24	6.25" OD Mud Rotary	-	-	No split spoon samples collected. Reference DPT-16 and-17 for the site.	5/23/2006	1541						
22							-	-	-	-			
23													
24	24		-	-		5/23/2006	1559	0	1.8	0 / 0 / 0 / 21	-		
25	24 - 29	6.25" OD Mud Rotary	-	-	No split spoon samples collected. Reference DPT-16 and-17 for the site.	-	-	-	-	-	-		
26													
27													
28													
29	29		-	-		5/23/2006	1610	0	1.8	0 / 0 / 0 / 21	-		
30	29 - 34	6.25" OD Mud Rotary	-	-	No split spoon samples collected. Reference DPT-16 and-17 for the site.	-	-	-	-	-	-		
31													
32													
33													
34	34		-	-		5/23/2006	1617	0	0.2	0 / 0 / 0 / 21	-		
35	34 - 39	6.25" OD Mud Rotary	-	-	No split spoon samples collected. Reference DPT-16 and-17 for the site.	-	-	-	-	-	-		
36													
37													
38													
39	39		-	-		5/23/2006	1643	0	0	0 / 0 / 0 / 21	-		
40	39 - 44	6.25" OD Mud Rotary	-	-	No split spoon samples collected. Reference DPT-16 and-17 for the site.	-	-	-	-	-	-		
41													
42													
43													
44	44		-	-		5/23/2006	1649	0	13.7	0 / 0 / 0 / 21	-		
45	44 - 49	6.25" OD Mud Rotary	-	-	No split spoon samples collected. Reference DPT-16 and-17 for the site.	-	-	-	-	-	-		
46													
47													
48													
49	49		-	-		5/23/2006	1654	0	3.8	0 / 0 / 0 / 21	-		
50	49 - 54	6.25" OD Mud Rotary	-	-	No split spoon samples collected. Reference DPT-16 and-17 for the site.	-	-	-	-	-	-		
51													
52													
53													
54	54		-	-		5/23/2006	1658	0	4.3	0 / 0 / 0 / 21	-		
55	54 - 58	6.25" OD Mud Rotary	-	-	No split spoon samples collected. Reference DPT-16 and-17 for the site.	-	-	-	-	-	-		
56													
57													
58	58		-	-	Total depth of boring is 58.0 feet below ground surface.	5/23/2006	1705	0	93.2	0 / 0 / 0 / 21	-		

Note:
BZ - Breathing Zone
BHA - Borehole Annulus



PROJECT NUMBER
337526.01.04

WELL NUMBER
MW-41 (deep)

SHEET 1 of 1

MONITORING WELL COMPLETION DIAGRAM

PROJECT : Refine Conceptual Site Model - UCC Landfill

LOCATION : Woodbine, GA

DRILLING CONTRACTOR : AE Drilling, LLC

NORTHING: 347041.995

DRILLING METHOD: 10.25-inch I.D. HSA & 6.25-inch I.D Mud/wash Rotary

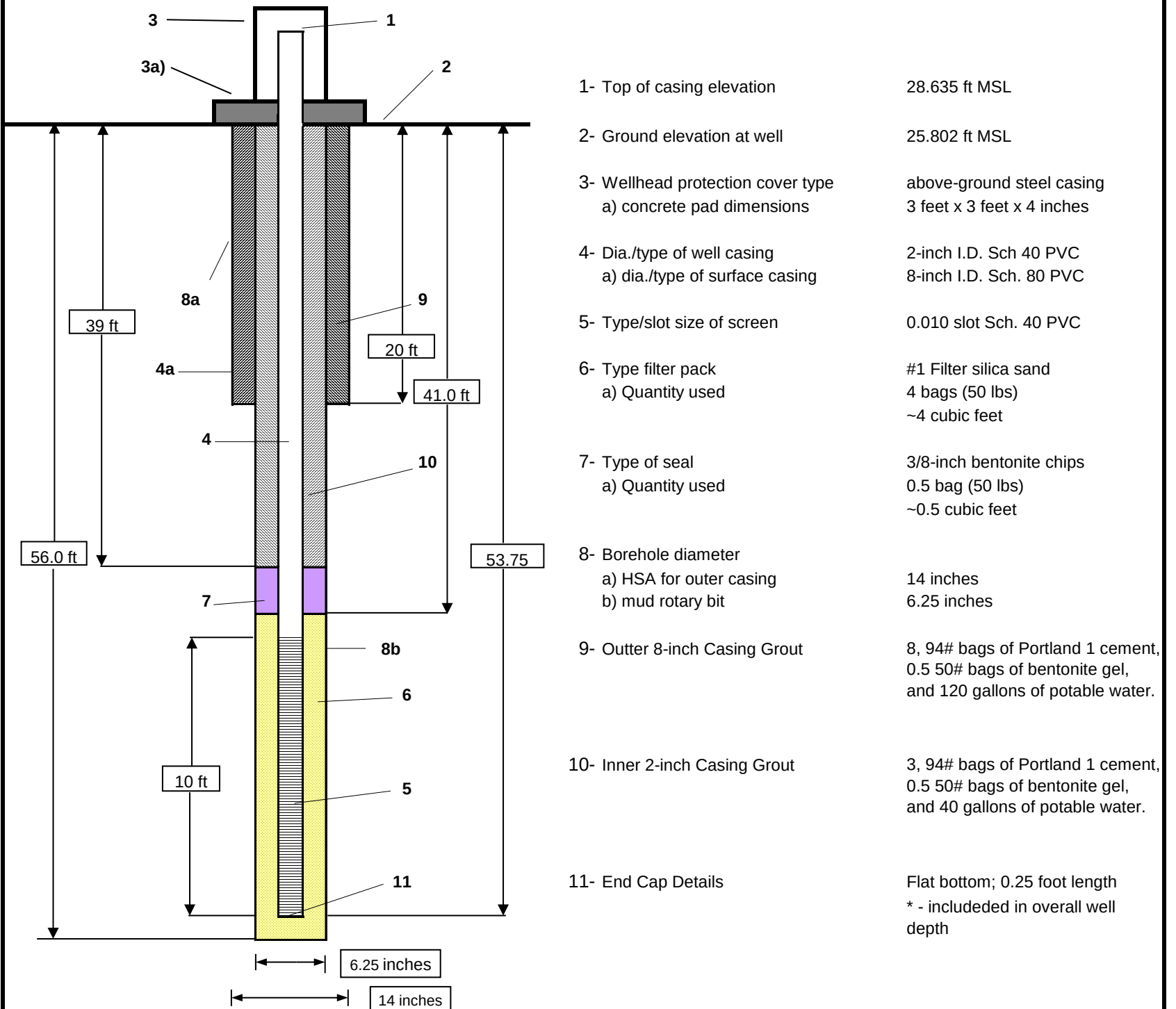
EASTING: 697282.072

WATER LEVELS : Not collected at time of install

START: 5/22/06

END : 5/22/06

LOGGER : J. Grimes/ATL





PROJECT NUMBER
337526.01.04

WELL NUMBER
MW-42 (shallow)

SHEET 1 of 1

MONITORING WELL COMPLETION DIAGRAM

PROJECT : Refine Conceptual Site Model - UCC Landfill

LOCATION : Woodbine, GA

DRILLING CONTRACTOR : AE Drilling, LLC

NORTHING: 347048.836

DRILLING METHOD: 10.25-inch I.D. HSA & 6.25-inch I.D Mud/wash Rotary

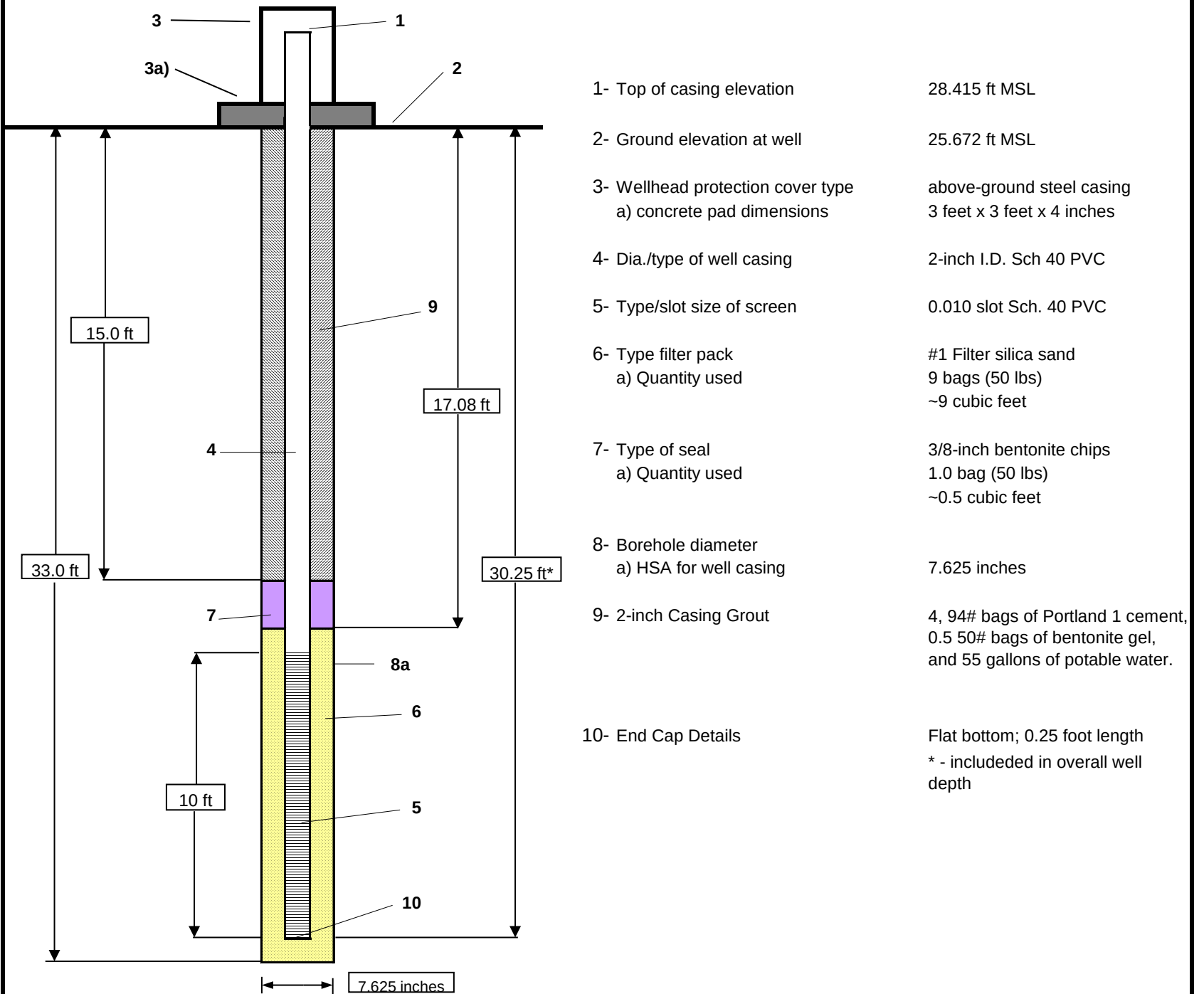
EASTING: 697291.864

WATER LEVELS : Not collected at time of install

START: 5/17/06

END : 5/17/06

LOGGER : J. Grimes/ATL



					PROJECT NUMBER 337526.01.04		BORING NUMBER MW-42 (shallow)					SHEET 1 of 1	
					BORING LOG								
PROJECT : Refine Conceptual Site Model - Union Carbide Corporation Landfill						LOCATION : Woodbine, GA							
ELEVATION : Not recorded						DRILLING CONTRACTOR : A E Drilling, LLC (Greenville, SC)							
DRILLING METHOD AND EQUIPMENT USED : HSA/Mud Rotary, CME-750 ATV						DRILLER: Nate McAllister			HELPERS: Marty King & Carlos Swain				
WATER LEVELS : Not recorded						START : 05/17/06			END: 05/17/06				
DEPTH BELOW GROUND SURFACE (feet)	INTERVAL (ft bgs)	RECOVERY (%)	USCS CLASSIFICATION	GRAPHIC DESCRIPTION	SOIL DESCRIPTION	Date	Time (24 hr.)	AIR MONITORING					
					SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, CONSISTENCY, SOIL STRUCTURE, MINERALOGY, ETC.			Micro FID		Combustible Gas Indicator			
								(VOCs ppm)		CO ppm / H2S ppm / LEL% / O2%			
								BZ	BHA	BZ	BHA		
1 _ 2 _ 3 _ 4 _ 5 _	0 - 5	4.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; dry; brown	5/17/2006	1534	0	1.1 (0.7 ppm inside of HSAs)	0 / 0 / 0 / 21	-		
6 _ 7 _ 8 _ 9 _ 10 _	5 - 10	4.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; moist; brown	5/17/2006	1539	0	0.0 (0.0 ppm inside of HSAs)	0 / 0 / 0 / 21	-		
11 _ 12 _ 13 _ 14 _ 15 _	10 - 15	4.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; moist; orange brown	5/17/2006	1546	0	0.0 (0.0 ppm inside of HSAs)	0 / 0 / 0 / 21	-		
16 _ 17 _ 18 _ 19 _ 20 _	15 - 20	4.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; wet; light tan	5/17/2006	1551	0	0. (0.1 ppm inside of HSAs)	0 / 0 / 0 / 21	-		
21 _ 22 _ 23 _ 24 _ 25 _	20 - 25	4.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; wet; light tan	5/17/2006	1557	0	0.0 (0.0 ppm inside of HSAs)	0 / 0 / 0 / 21	-		
26 _ 27 _ 28 _ 29 _ 30 _	25 - 30	4.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; wet; brown	5/17/2006	1603	0	0.0 (0.0 ppm inside of HSAs)	0 / 0 / 0 / 21	-		
31 _ 32 _ 33 _	30 - 33	4.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; wet; brown; Total depth of boring is 33.0 feet below ground surface.	5/17/2005	1026	0	0.0 (0.0 ppm inside of HSAs)	0 / 0 / 0 / 21	-		

Note:
BZ - Breathing Zone
BHA - Borehole Annulus



PROJECT NUMBER
337526.01.04

WELL NUMBER
MW-43 (deep)

SHEET 1 of 1

MONITORING WELL COMPLETION DIAGRAM

PROJECT : Refine Conceptual Site Model - UCC Landfill

LOCATION : Woodbine, GA

DRILLING CONTRACTOR : AE Drilling, LLC

NORTHING: 345267.926

DRILLING METHOD: 10.25-inch I.D. HSA & 6.25-inch I.D Mud/wash Rotary

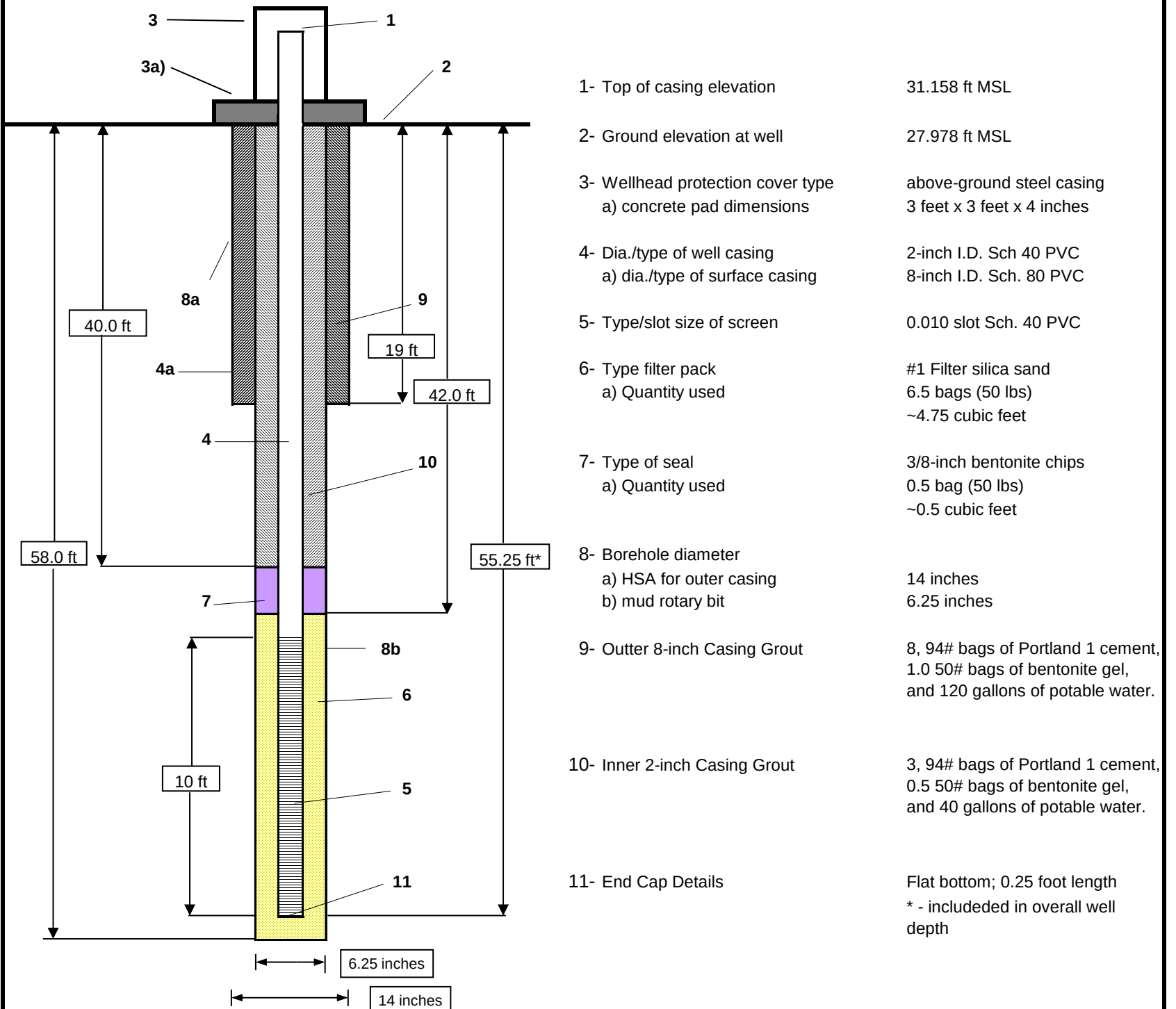
EASTING: 697078.291

WATER LEVELS : Not collected at time of install

START: 5/24/06

END : 5/24/06

LOGGER : J. Grimes/ATL



					PROJECT NUMBER 337526.01.04		BORING NUMBER MW-43 (deep)					SHEET 1 of 1	
					BORING LOG								
PROJECT : Refine Conceptual Site Model - Union Carbide Corporation Landfill							LOCATION : Woodbine, GA						
ELEVATION : Not recorded							DRILLING CONTRACTOR : A E Drilling, LLC (Greenville, SC)						
DRILLING METHOD AND EQUIPMENT USED : HSA/Mud Rotary, CME-750 ATV							DRILLER: Nate McAllister		HELPERS: Marty King & Carlos Swain				
WATER LEVELS : Not recorded					START : 05/16/06		END: 05/24/06						
DEPTH BELOW GROUND SURFACE (feet)	INTERVAL (ft bgs)	RECOVERY (%)	USCS CLASSIFICATION	GRAPHIC DESCRIPTION	SOIL DESCRIPTION	Date	Time	AIR MONITORING					
					SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, CONSISTENCY, SOIL STRUCTURE, MINERALOGY, ETC.			Micro FID		Combustible Gas Indicator			
								(VOCs ppm)		CO ppm / H2S ppm / LEL% / O2%			
								(24 hr.)	BZ	BHA	BZ	BHA	
1	0 - 5	10.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; dry to slightly moist; light brown	5/16/2006	1237	0	4.1	0 / 0 / 0 / 21	-		
2													
3													
4													
5													
6	5 - 10	10.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; wet; dark brown	5/16/2006	1247	0	47 (471 ppm inside of HSAs)	0 / 0 / 0 / 21	-		
7													
8													
9													
10													
11	10 - 15	10.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; wet to saturated; dark brown	5/16/2006	1259	0	101 (184 ppm inside of HSAs)	0 / 0 / 0 / 21	-		
12													
13													
14													
15													
16	15 - 20	10.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; wet to saturated; dark brown	5/16/2006	1317	0	4.1 (394 ppm inside of HSAs)	0 / 0 / 0 / 21	-		
17													
18													
19													
20													
21	20 - 24	6.25" OD Mud Rotary	-	-	-	5/24/2006	0850	-	-	-	-		
22													
23													
24	24 - 26	5" / 24" Split Spoon	SM	SAND	light brown; silty fine quartz SAND; Blow count 4/6/7/8	5/24/2006	1511	0	2	0 / 0 / 0 / 21	-		
25													
26	26 - 29	6.25" OD Mud Rotary	-	-	-	-	-	-	-	-	-		
27													
28													
29	29 - 31	11" / 24" Split Spoon	ML	SILT	grey; quartz SILT; Blow count 3/4/5/6	5/24/2006	1535	0	7	0 / 0 / 0 / 21	-		
30													
31													
32	31 - 34	6.25" OD Mud Rotary	-	-	-	-	-	-	-	-	-		
33													
34													
35	34 - 36	~8" / 24" Split Spoon	SM	SAND	light brown; silty fine quartz SAND; Blow count 6/9/10/11	5/24/2006	1547	0	0	0 / 0 / 0 / 21	-		
36													
37													
38	36 - 39	6.25" OD Mud Rotary	-	-	-	-	-	-	-	-	-		
39													
40													
41	39 - 41	12.5" / 24" Split Spoon	SM	SAND	grey; silty, fine quartz SAND; Blow count 12/13/17/23	5/24/2006	1606	0	4.1	0 / 0 / 0 / 21	-		
42													
43													
44	41 - 44	6.25" OD Mud Rotary	-	-	-	-	-	-	-	-	-		
45													
46													
47	44 - 46	13" / 24" Split Spoon	SC / SM	SAND	grey; clayey, fine to medium quartz SAND (13" - 21") and grey silty fine quartz SAND (21" - 24") ; Blow count 8/10/11/8	5/24/2006	1622	0	2	0 / 0 / 0 / 21	-		
48													
49													
50	46 - 49	6.25" OD Mud Rotary	-	-	-	-	-	-	-	-	-		
51													
52													
53	49 - 51	11" / 24" Split Spoon	SC / SM	SAND	grey; clayey, fine to medium quartz SAND (11" - 21"); and grey silty fine quartz SAND (21" - 24") ; Blow count 0/0/7/14	5/24/2006	1637	0	0	0 / 0 / 0 / 21	-		
54													
55													
56	51 - 54	6.25" OD Mud Rotary	-	-	-	-	-	-	-	-	-		
57													
58													
59	54 - 56	~8" / 24" Split Spoon	ML	SILT	grey; quartz SILT; Blow count 7/14/15/17	5/24/2006	1655	0	2	0 / 0 / 0 / 21	-		
60													
61													
62	56 - 58	6.25" OD Mud Rotary	-	-	Total depth of boring is 58.0 feet below ground surface.	5/24/2006	1700	-	-	-	-		
63													
64													

Note:
BZ - Breathing Zone
BHA - Borehole Annulus



PROJECT NUMBER
337526.01.04

WELL NUMBER
MW-44 (shallow)

SHEET 1 of 1

MONITORING WELL COMPLETION DIAGRAM

PROJECT : Refine Conceptual Site Model - UCC Landfill

LOCATION : Woodbine, GA

DRILLING CONTRACTOR : AE Drilling, LLC

NORTHING: 345250.615

DRILLING METHOD: 10.25-inch I.D. HSA & 6.25-inch I.D Mud/wash Rotary

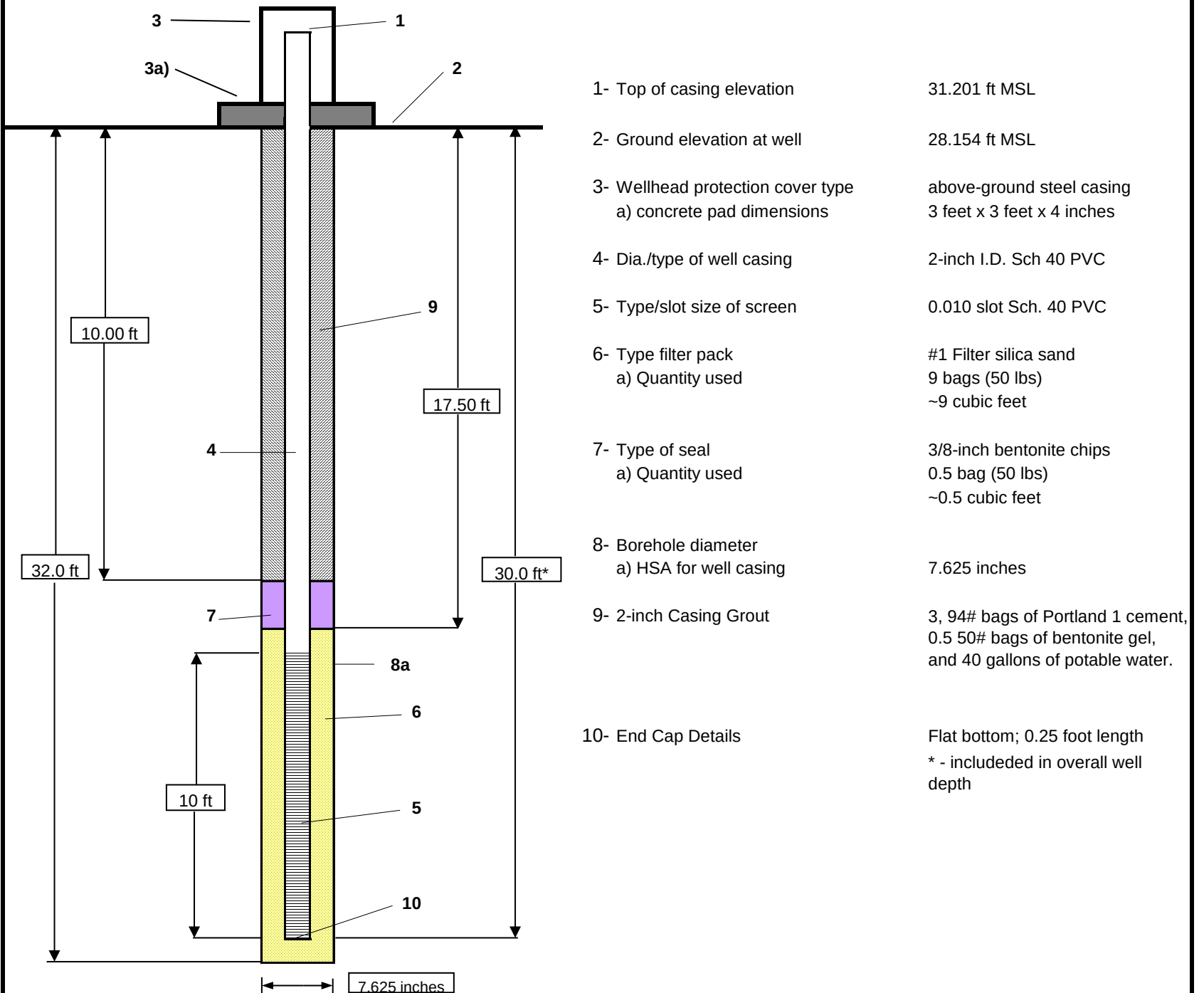
EASTING: 697076.008

WATER LEVELS : Not collected at time of install

START: 5/16/06

END : 5/16/06

LOGGER : J. Grimes/ATL



					PROJECT NUMBER 337526.01.04		BORING NUMBER MW-44 (shallow)				SHEET 1 of 1	
					BORING LOG							
PROJECT : Refine Conceptual Site Model - Union Carbide Corporation Landfill						LOCATION : Woodbine, GA						
ELEVATION : Not recorded						DRILLING CONTRACTOR : A E Drilling, LLC (Greenville, SC)						
DRILLING METHOD AND EQUIPMENT USED : HSA/Mud Rotary, CME-750 ATV						DRILLER: Nate McAllister			HELPERS: Marty King & Carlos Swain			
WATER LEVELS : Not recorded						START : 05/16/06		END: 05/16/06				
DEPTH BELOW GROUND SURFACE (feet)	INTERVAL (ft bgs)	RECOVERY (%)	USCS CLASSIFICATION	GRAPHIC DESCRIPTION	SOIL DESCRIPTION	Date	Time (24 hr.)	AIR MONITORING				
					SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, CONSISTENCY, SOIL STRUCTURE, MINERALOGY, ETC.			Micro FID		Combustible Gas Indicator		
								(VOCs ppm)		CO ppm / H2S ppm / LEL% / O2%		
									BZ	BHA	BZ	BHA
1 _ 2 _ 3 _ 4 _ 5 _	0 - 5	4.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; moist; dark brown to black	5/16/2006	1554	0	9.4	0 / 0 / 0 / 21	-	
6 _ 7 _ 8 _ 9 _ 10 _	5 - 10	4.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; moist; dark brown to black	5/16/2006	1559	0	5.9	0 / 0 / 0 / 21	-	
11 _ 12 _ 13 _ 14 _ 15 _	10 - 15	4.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; saturated; brown	5/16/2006	1605	0	33	0 / 0 / 0 / 21	-	
16 _ 17 _ 18 _ 19 _ 20 _	15 - 20	4.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; saturated; brown	5/16/2006	-	-	-	0 / 0 / 0 / 21	-	
21 _ 22 _ 23 _ 24 _ 25 _	20 - 25	4.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; saturated; brown	5/16/2006	1610	0	44.3	0 / 0 / 0 / 21	-	
26 _ 27 _ 28 _ 29 _ 30 _	25 - 30	4.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; saturated; brown	5/16/2006	1317	0	25.1	0 / 0 / 0 / 21	-	
31 _ 32 _	30 - 32	4.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; saturated; brown; Total depth of boring is 32.0 feet below ground surface.	5/16/2005	~1617	-	-	-	-	

Note:
BZ - Breathing Zone
BHA - Borehole Annulus



PROJECT NUMBER
337526.01.04

WELL NUMBER
MW-45 (shallow)

SHEET 1 of 1

MONITORING WELL COMPLETION DIAGRAM

PROJECT : Refine Conceptual Site Model - UCC Landfill

LOCATION : Woodbine, GA

DRILLING CONTRACTOR : AE Drilling, LLC

NORTHING: 346713.246

DRILLING METHOD: 10.25-inch I.D. HSA & 6.25-inch I.D Mud/wash Rotary

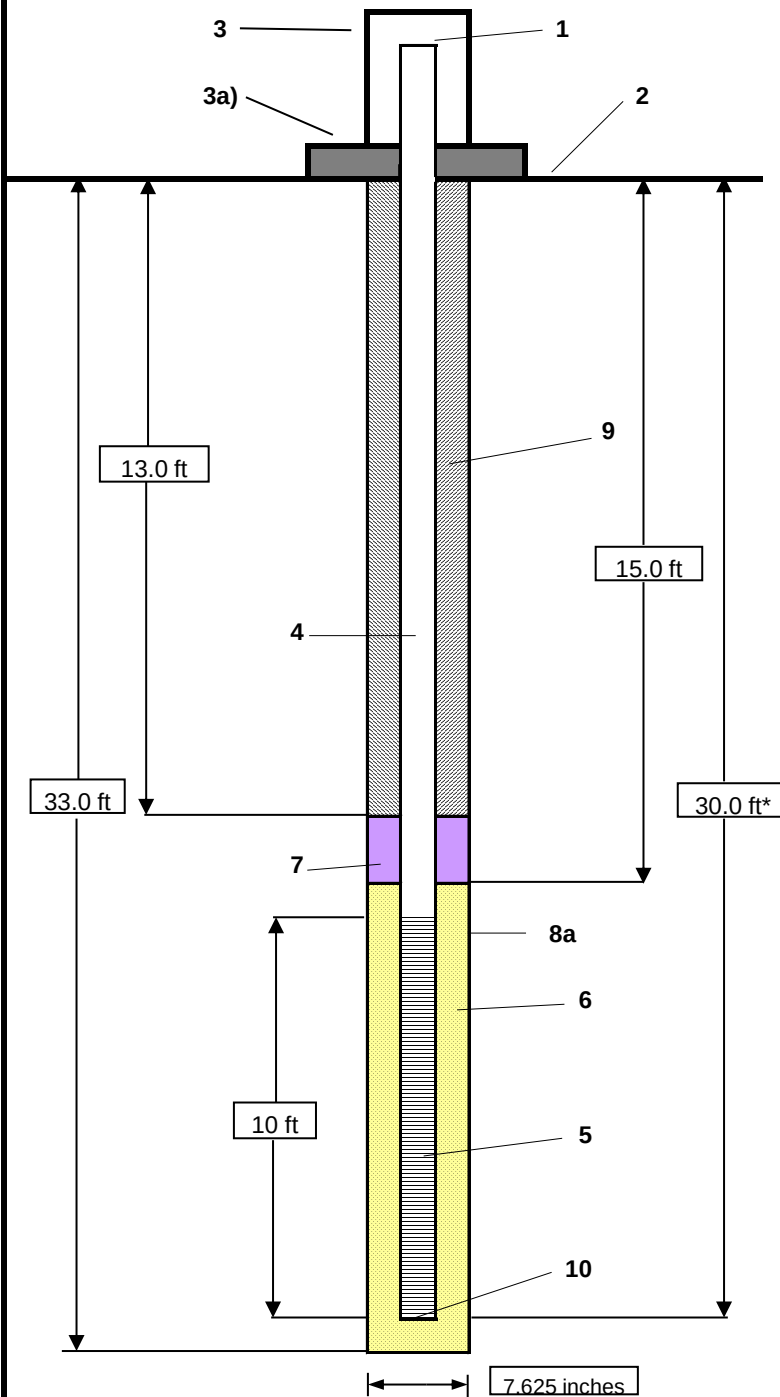
EASTING: 696795.520

WATER LEVELS : Not collected at time of install

START: 5/17/06

END : 5/17/06

LOGGER : J. Grimes/ATL



- | | |
|-----------------------------------|---|
| 1- Top of casing elevation | 30.437 ft MSL |
| 2- Ground elevation at well | 27.337 ft MSL |
| 3- Wellhead protection cover type | above-ground steel casing |
| a) concrete pad dimensions | 3 feet x 3 feet x 4 inches |
| 4- Dia./type of well casing | 2-inch I.D. Sch 40 PVC |
| 5- Type/slot size of screen | 0.010 slot Sch. 40 PVC |
| 6- Type filter pack | #1 Filter silica sand |
| a) Quantity used | 9 bags (50 lbs)
~9 cubic feet |
| 7- Type of seal | 3/8-inch bentonite chips |
| a) Quantity used | 1.0 bag (50 lbs)
~0.5 cubic feet |
| 8- Borehole diameter | 7.625 inches |
| a) HSA for well casing | |
| 9- 2-inch Casing Grout | 3, 94# bags of Portland 1 cement,
0.5 50# bags of bentonite gel,
and 40 gallons of potable water. |
| 10- End Cap Details | Flat bottom; 0.25 foot length
* - included in overall well
depth |

					PROJECT NUMBER 337526.01.04		BORING NUMBER MW-45 (shallow)					SHEET 1 of 1	
					BORING LOG								
PROJECT : Refine Conceptual Site Model - Union Carbide Corporation Landfill					LOCATION : Woodbine, GA								
ELEVATION : Not recorded					DRILLING CONTRACTOR : A E Drilling, LLC (Greenville, SC)								
DRILLING METHOD AND EQUIPMENT USED : HSA/Mud Rotary, CME-750 ATV					DRILLER: Nate McAllister			HELPERS: Marty King & Carlos Swain					
WATER LEVELS : Not recorded					START : 05/17/06		END: 05/17/06						
DEPTH BELOW GROUND SURFACE (feet)	INTERVAL (ft bgs)	RECOVERY (%)	USCS CLASSIFICATION	GRAPHIC DESCRIPTION	SOIL DESCRIPTION	Date	Time (24 hr.)	AIR MONITORING					
					SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, CONSISTENCY, SOIL STRUCTURE, MINERALOGY, ETC.			Micro FID		Combustible Gas Indicator			
								(VOCs ppm)		CO ppm / H2S ppm / LEL% / O2%			
								BZ	BHA	BZ	BHA		
1 _ 2 _ 3 _ 4 _ 5 _	0 - 5	4.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; dry to slightly moist; light brown	5/17/2006	1302	0	1.1 (1.8 ppm inside of HSAs)	0 / 0 / 0 / 21	-		
6 _ 7 _ 8 _ 9 _ 10 _	5 - 10	4.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; moist; light tan	5/17/2006	1315	0	0.0 (0.0 ppm inside of HSAs)	0 / 0 / 0 / 21	-		
11 _ 12 _ 13 _ 14 _ 15 _	10 - 15	4.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; moist; light tan	5/17/2006	1321	0	0.3 (0.9 ppm inside of HSAs)	0 / 0 / 0 / 21	-		
16 _ 17 _ 18 _ 19 _ 20 _	15 - 20	4.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; wet; creamy tan/white	5/17/2006	1327	0	0.8 (0.0 ppm inside of HSAs)	0 / 0 / 0 / 21	-		
21 _ 22 _ 23 _ 24 _ 25 _	20 - 25	4.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; wet; creamy tan/white	5/17/2006	-	-	-	0 / 0 / 0 / 21	-		
26 _ 27 _ 28 _ 29 _ 30 _	25 - 30	4.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; wet; creamy tan/white	5/17/2006	-	-	-	0 / 0 / 0 / 21	-		
31 _ 32 _ 33 _	30 - 33	4.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; saturated; creamy tan/white; Total depth of boring is 33.0 feet below ground surface.	5/17/2005	1026	1406	-	0 / 0 / 0 / 21	-		

Note:
BZ - Breathing Zone
BHA - Borehole Annulus



PROJECT NUMBER
337526.01.04

WELL NUMBER
MW-46 (deep)

SHEET 1 of 1

MONITORING WELL COMPLETION DIAGRAM

PROJECT : Refine Conceptual Site Model - UCC Landfill

LOCATION : Woodbine, GA

DRILLING CONTRACTOR : AE Drilling, LLC

NORTHING: 346918.569

DRILLING METHOD: 10.25-inch I.D. HSA & 6.25-inch I.D Mud/wash Rotary

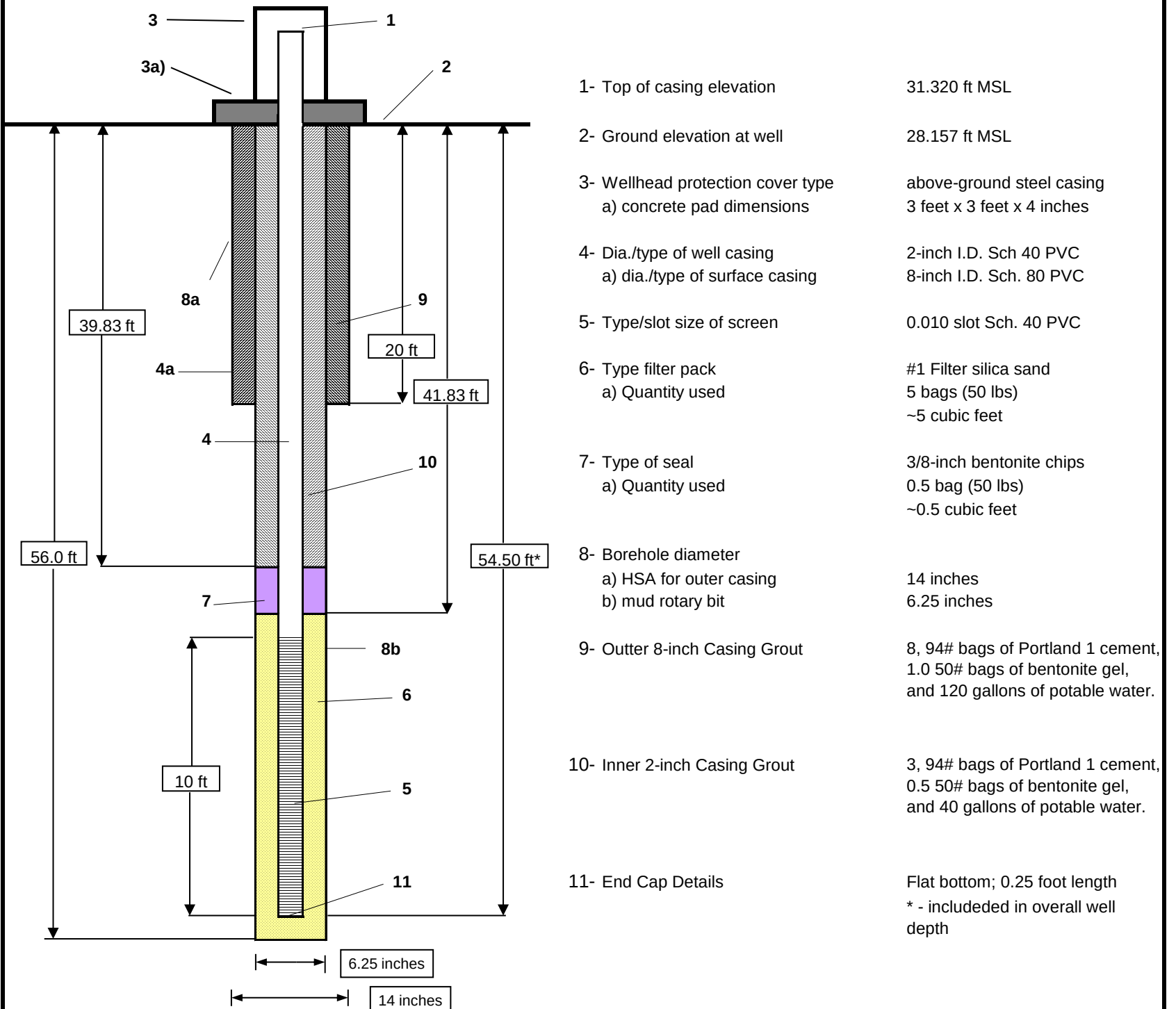
EASTING: 696230.187

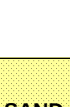
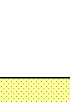
WATER LEVELS : Not collected at time of install

START: 5/23/06

END : 5/23/06

LOGGER : J. Grimes/ATL



					PROJECT NUMBER 337526.01.04		BORING NUMBER MW-46 (deep)						SHEET 1 of 1	
BORING LOG														
PROJECT : Refine Conceptual Site Model - Union Carbide Corporation Landfill							LOCATION : Woodbine, GA							
ELEVATION : Not recorded							DRILLING CONTRACTOR : A E Drilling, LLC (Greenville, SC)							
DRILLING METHOD AND EQUIPMENT USED : HSA/Mud Rotary, CME-750 ATV							DRILLER: Nate McAllister			HELPERS: Marty King & Carlos Swain				
WATER LEVELS : Not recorded					START : 05/15/06			END: 05/23/06						
DEPTH BELOW GROUND SURFACE (feet)	INTERVAL (ft bgs)	RECOVERY (%)	USCS CLASSIFICATION	GRAPHIC DESCRIPTION	SOIL DESCRIPTION	Date	Time	AIR MONITORING						
					SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, CONSISTENCY, SOIL STRUCTURE, MINERALOGY, ETC.			Micro FID (VOCs ppm)		Combustible Gas Indicator				
								(24 hr.)	BZ	BHA	CO ppm / H2S ppm / LEL% / O2%	BZ	BHA	
1_	0 - 5	10.25" ID HSA Cuttings	SM		silty fine quartz SAND; dry; brown	5/15/2006	0924	0	4.4	0 / 0 / 0 / 21	-			
2_														
3_														
4_														
5_														
6_	5 - 10	10.25" ID HSA Cuttings	SM		silty fine quartz SAND; dry; brown	5/15/2006	0938	0	1.4	0 / 0 / 0 / 21	-			
7_														
8_														
9_														
10_														
11_	10 - 15	10.25" ID HSA Cuttings	SM		silty fine quartz SAND; moist; brown	5/15/2006	0952	0	1	0 / 0 / 0 / 21	-			
12_														
13_														
14_														
15_														
16_	15 - 20	10.25" ID HSA Cuttings	SM		silty fine quartz SAND; moist; brown	5/15/2006	1002	0	9.8	0 / 0 / 0 / 21	-			
17_														
18_														
19_														
20_														
21_	20 - 24	6.25" OD Mud Rotary	-		-	5/23/2006	0850	-	-	-	-			
22_														
23_														
24_														
25_														
26_	24 - 26	4" / 24" Split Spoon	SM		grey; silty, fine quartz SAND; Blow count 2/3/4/5	5/23/2006	0928	0	1.8	0 / 0 / 0 / 21	-			
27_														
28_														
29_														
30_														
31_	29 - 31	5" / 24" Split Spoon	SM		grey; silty, fine quartz SAND; Blow count 1/1/2/5	5/23/2006	1109	0	0.5	0 / 0 / 0 / 21	-			
32_														
33_														
34_														
35_														
36_	34 - 36	4.75" / 24" Split Spoon	SM		grey; silty, fine quartz SAND; Blow count 5/7/10/11	5/23/2006	1124	0	1.9	0 / 0 / 0 / 21	-			
37_														
38_														
39_														
40_														
41_	39 - 41	4.5" / 24" Split Spoon	SM		grey; silty, fine quartz SAND; Blow count 12/13/17/23	5/23/2006	1141	0	0	0 / 0 / 0 / 21	-			
42_														
43_														
44_														
45_														
46_	44 - 46	13.5" / 24" Split Spoon	SM		grey; silty, fine quartz SAND (10.5" - 23.0") with grey clay lense at base (23.0" - 24.0") ; Blow count 8/18/21/22	5/23/2006	1204	0	0	0 / 0 / 0 / 21	-			
47_														
48_														
49_														
50_														
51_	49 - 51	18" / 24" Split Spoon	SC		grey, fine quartz sandy CLAY (6.0" - 10.5"); grey, clayey, fine quartz SAND (10.5" - 16.0"); grey; silty, fine quartz SAND (16.0" - 21.0") with grey clay lense at base (21.0" - 24.0") ; Blow count 5/7/5/7	5/23/2006	1216	0	0	0 / 0 / 0 / 21	-			
52_														
53_														
54_														
55_														
56_	54 - 56	16" / 24" Split Spoon	SC		grey; fine to medium quartz SAND with interbedded (0.5 - 1.0 cm scale bedding) fine to coarse taupe-colored shell angular fragments (1-8mm in size); Blow count 10/15/21/32. Total depth of boring is 56.0 ft bgs.	5/23/2006	1242	0	0	0 / 0 / 0 / 21	-			

Note:
BZ - Breathing Zone
BHA - Borehole Annulus



PROJECT NUMBER
337526.01.04

WELL NUMBER
MW-47 (shallow)

SHEET 1 of 1

MONITORING WELL COMPLETION DIAGRAM

PROJECT : Refine Conceptual Site Model - UCC Landfill

LOCATION : Woodbine, GA

DRILLING CONTRACTOR : AE Drilling, LLC

NORTHING: 346101.145

DRILLING METHOD: 10.25-inch I.D. HSA & 6.25-inch I.D Mud/wash Rotary

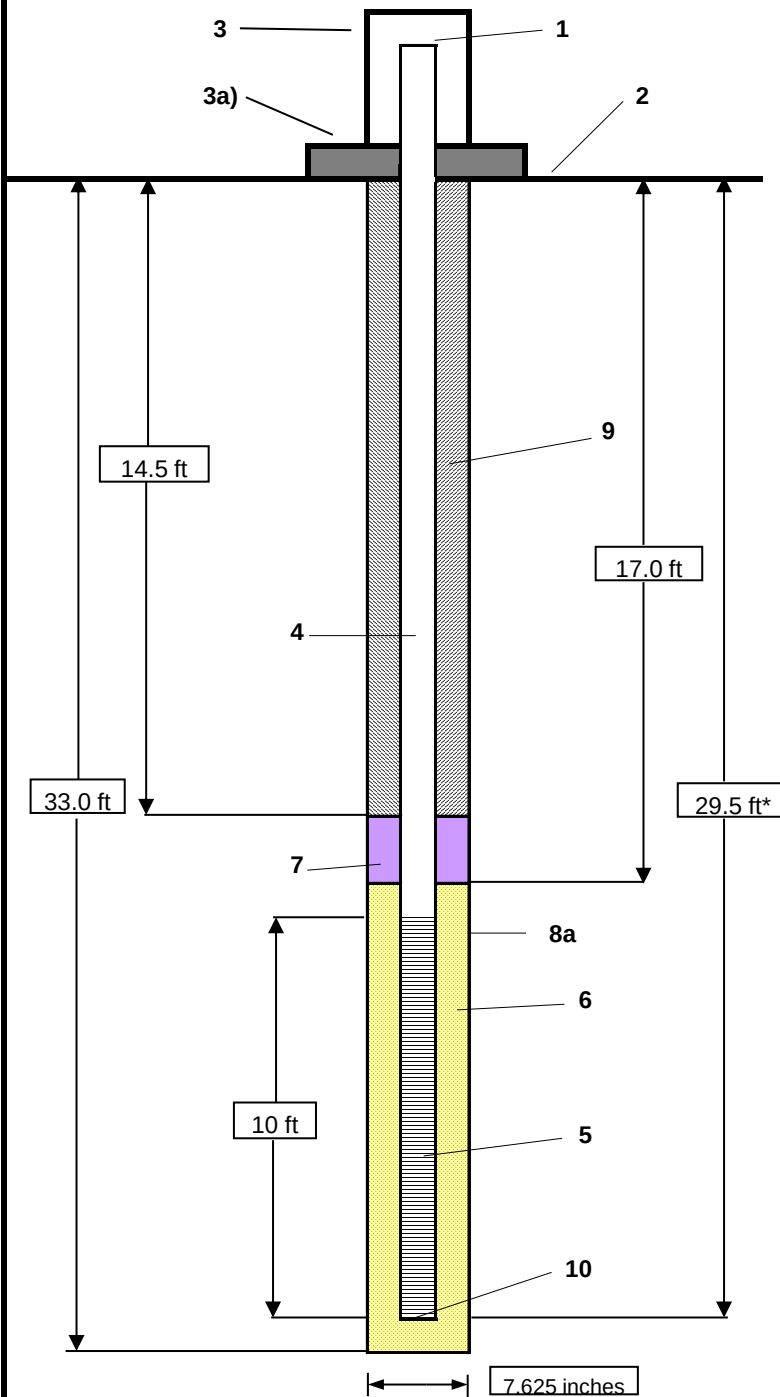
EASTING: 697246.309

WATER LEVELS : Not collected at time of install

START: 5/17/06

END : 5/17/06

LOGGER : J. Grimes/ATL



- | | |
|-----------------------------------|---|
| 1- Top of casing elevation | 32.569 ft MSL |
| 2- Ground elevation at well | 29.643 ft MSL |
| 3- Wellhead protection cover type | above-ground steel casing |
| a) concrete pad dimensions | 3 feet x 3 feet x 4 inches |
| 4- Dia./type of well casing | 2-inch I.D. Sch 40 PVC |
| 5- Type/slot size of screen | 0.010 slot Sch. 40 PVC |
| 6- Type filter pack | #1 Filter silica sand |
| a) Quantity used | 9 bags (50 lbs)
~9 cubic feet |
| 7- Type of seal | 3/8-inch bentonite chips |
| a) Quantity used | 1.0 bag (50 lbs)
~0.5 cubic feet |
| 8- Borehole diameter | |
| a) HSA for well casing | 7.625 inches |
| 9- 2-inch Casing Grout | 3, 94# bags of Portland 1 cement,
0.5 50# bags of bentonite gel,
and 40 gallons of potable water. |
| 10- End Cap Details | Flat bottom; 0.25 foot length
* - included in overall well
depth |

					PROJECT NUMBER 337526.01.04		BORING NUMBER MW-47 (shallow)					SHEET 1 of 1	
					BORING LOG								
PROJECT : Refine Conceptual Site Model - Union Carbide Corporation Landfill						LOCATION : Woodbine, GA							
ELEVATION : Not recorded						DRILLING CONTRACTOR : A E Drilling, LLC (Greenville, SC)							
DRILLING METHOD AND EQUIPMENT USED : HSA/Mud Rotary, CME-750 ATV						DRILLER: Nate McAllister			HELPERS: Marty King & Carlos Swain				
WATER LEVELS : Not recorded					START : 05/17/06		END: 05/17/06						
DEPTH BELOW GROUND SURFACE (feet)	INTERVAL (ft bgs)	RECOVERY (%)	USCS CLASSIFICATION	GRAPHIC DESCRIPTION	SOIL DESCRIPTION	Date	Time (24 hr.)	AIR MONITORING					
					SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, CONSISTENCY, SOIL STRUCTURE, MINERALOGY, ETC.			Micro FID		Combustible Gas Indicator			
								(VOCs ppm)		CO ppm / H2S ppm / LEL% / O2%			
								BZ	BHA	BZ	BHA		
1 _ 2 _ 3 _ 4 _ 5 _	0 - 5	4.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; dry; dark brown	5/17/2006	0938	0	0.5 (0.7 ppm inside of HSAs)	0 / 0 / 0 / 21	-		
6 _ 7 _ 8 _ 9 _ 10 _	5 - 10	4.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; moist; dark brown	5/17/2006	0943	0	0.9 (0.9 ppm inside of HSAs)	0 / 0 / 0 / 21	-		
11 _ 12 _ 13 _ 14 _ 15 _	10 - 15	4.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; very moist; dark brown	5/17/2006	0949	0	0.7 (0.4 ppm inside of HSAs)	0 / 0 / 0 / 21	-		
16 _ 17 _ 18 _ 19 _ 20 _	15 - 20	4.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; wet; brown	5/17/2006	0955	0	0.4 (0.0 ppm inside of HSAs)	0 / 0 / 0 / 21	-		
21 _ 22 _ 23 _ 24 _ 25 _	20 - 25	4.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; wet; brown	5/17/2006	1001	0	1.1 (0.5 ppm inside of HSAs)	0 / 0 / 0 / 21	-		
26 _ 27 _ 28 _ 29 _ 30 _	25 - 30	4.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; wet; brown	5/17/2006	1006	0	1.1 (0.5 ppm inside of HSAs)	0 / 0 / 0 / 21	-		
31 _ 32 _ 33 _	30 - 33	4.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; saturated; brown; Total depth of boring is 33.0 feet below ground surface.	5/17/2005	1026	-	-	-	-		

Note:
BZ - Breathing Zone
BHA - Borehole Annulus



PROJECT NUMBER
337526.01.04

WELL NUMBER
MW-48 (deep)

SHEET 1 of 1

MONITORING WELL COMPLETION DIAGRAM

PROJECT : Refine Conceptual Site Model - UCC Landfill

LOCATION : Woodbine, GA

DRILLING CONTRACTOR : AE Drilling, LLC

NORTHING: 346121.048

DRILLING METHOD: 10.25-inch I.D. HSA & 6.25-inch I.D Mud/wash Rotary

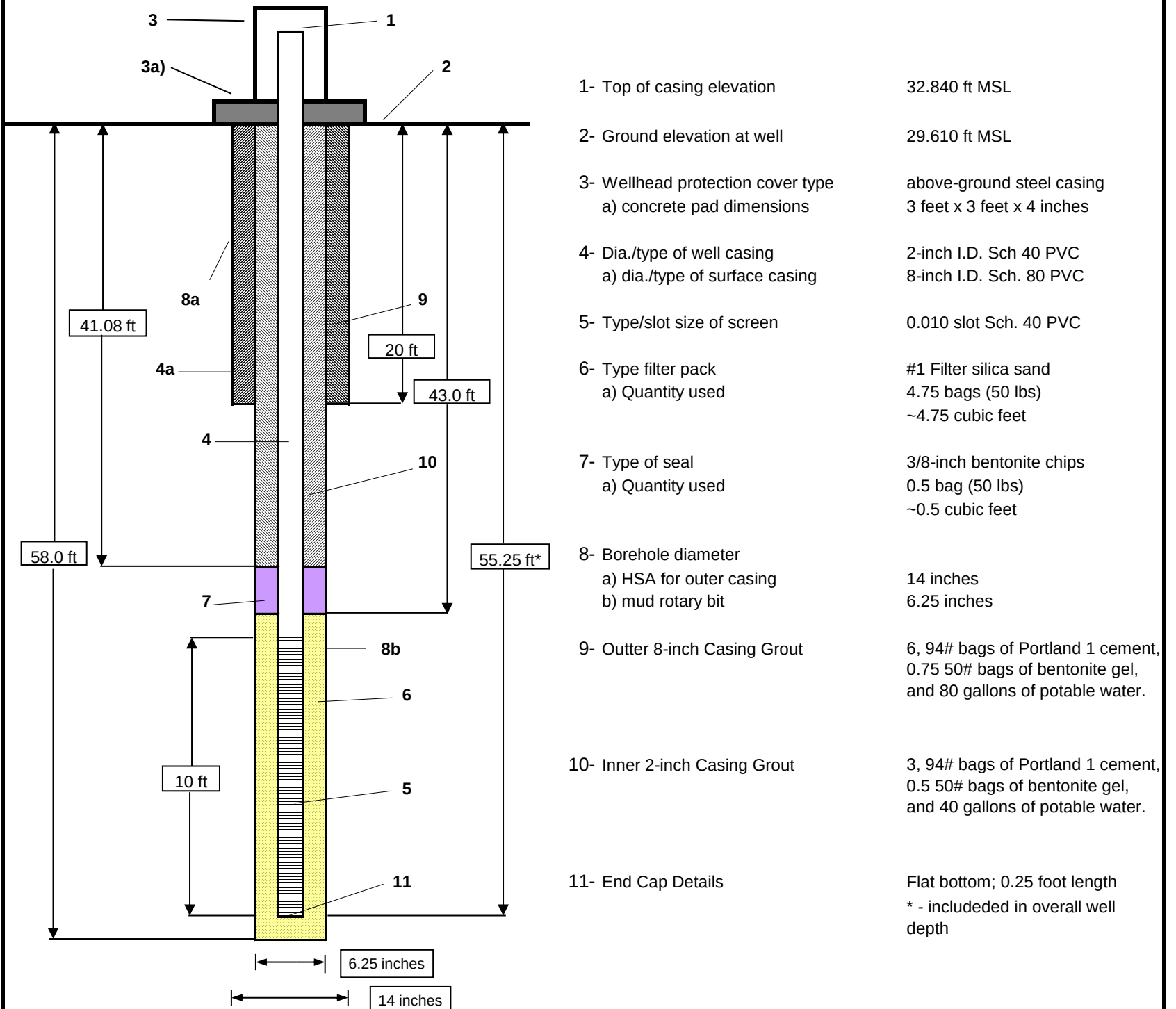
EASTING: 697243.118

WATER LEVELS : Not collected at time of install

START: 5/24/06

END : 5/24/06

LOGGER : J. Grimes/ATL



					PROJECT NUMBER 337526.01.04		BORING NUMBER MW-48 (deep)					SHEET 1 of 1	
					BORING LOG								
PROJECT : Refine Conceptual Site Model - Union Carbide Corporation Landfill							LOCATION : Woodbine, GA						
ELEVATION : Not recorded							DRILLING CONTRACTOR : A E Drilling, LLC (Greenville, SC)						
DRILLING METHOD AND EQUIPMENT USED : HSA/Mud Rotary, CME-750 ATV							DRILLER: Nate McAllister		HELPERS: Marty King & Carlos Swain				
WATER LEVELS : Not recorded					START : 05/16/06		END: 05/24/06						
DEPTH BELOW GROUND SURFACE (feet)	INTERVAL (ft bgs)	RECOVERY (%)	USCS CLASSIFICATION	GRAPHIC DESCRIPTION	SOIL DESCRIPTION	Date	Time	AIR MONITORING					
					SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, CONSISTENCY, SOIL STRUCTURE, MINERALOGY, ETC.			Micro FID		Combustible Gas Indicator			
								(VOCs ppm)		CO ppm / H2S ppm / LEL% / O2%			
								(24 hr.)	BZ	BHA	BZ	BHA	
1	0 - 5	10.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; dry; light grey	5/16/2006	0912	0	4.4	0 / 0 / 0 / 21	-		
2													
3													
4													
5													
6	5 - 10	10.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; moist; dark brown	5/16/2006	0926	0	1.4	0 / 0 / 0 / 21	-		
7													
8													
9													
10													
11	10 - 15	10.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; moist; dark brown	5/16/2006	0944	0	1	0 / 0 / 0 / 21	-		
12													
13													
14													
15													
16	15 - 20	10.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; wet; brown	5/16/2006	0953	0	9.8	0 / 0 / 0 / 21	-		
17													
18													
19													
20													
21	20 - 23	6.25" OD Mud Rotary	-	-	-	5/24/2006	0909	-	-	-	-		
22													
23	23 - 25	7" / 24" Split Spoon	SM	SAND	grey brown; silty, fine quartz SAND; Blow count 6/7/13/14	5/24/2006	0957	0	0	0 / 0 / 0 / 21	-		
24													
25	25 - 28	6.25" OD Mud Rotary	-	-	-	5/24/2006		-	-	-	-		
26													
27	28 - 30	8" / 24" Split Spoon	SM	SAND	grey brown; silty, fine quartz SAND; Blow count 5/7/8/9	5/24/2006	1021	0	0.3	0 / 0 / 0 / 21	-		
28													
29	30 - 33	6.25" OD Mud Rotary	-	-	-	5/24/2006		-	-	-	-		
30													
31	33 - 35	5" / 24" Split Spoon	SP	SAND	grey brown; fine quartz SAND; Blow count 3/4/4/5	5/24/2006	1043	0	1.4	0 / 0 / 0 / 21	-		
32													
33	35 - 38	6.25" OD Mud Rotary	-	-	-	5/24/2006		-	-	-	-		
34													
35	38 - 40	~6" / 24" Split Spoon	SM	SAND	brown grey; silty, fine quartz SAND; Blow count 7/7/12/13	5/24/2006	1057	0	1.0	0 / 0 / 0 / 21	-		
36													
37	40 - 43	6.25" OD Mud Rotary	-	-	-	5/24/2006		-	-	-	-		
38													
39	43 - 45	13.25" / 24" Split Spoon	SC	SAND	grey, silty fine quartz SAND (13.25" - 18.50"); grey, CLAY (18.5" - 20.00"); grey; fine quartz SAND (20.00" - 23.00"); and grey CLAY (23.00" - 24.00") ; Blow count 8/10/15/14	5/24/2006	1111	0	1.1	0 / 0 / 0 / 21	-		
40													
41	45 - 48	6.25" OD Mud Rotary	-	-	-	5/24/2006		-	-	-	-		
42													
43	48 - 50	12" / 24" Split Spoon	SM	SAND	grey; silty, fine quartz SAND (upper 6") grading to fine quartz SAND (lower 6"); Blow count 18/32/31/34	5/24/2006	1129	0	4.1	0 / 0 / 0 / 21	-		
44													
45	50 - 53	6.25" OD Mud Rotary	-	-	-	5/24/2006		-	-	-	-		
46													
47	53 - 55	18" / 24" Split Spoon	SC	SAND	grey; clayey, fine quartz SAND to fine quartz sandy dark grey CLAY; Blow count 5/11/13/15	5/24/2006	1149	0	1.8	0 / 0 / 0 / 21	-		
48													
49	55 - 58	6.25" OD Mud Rotary	-	-	Total depth of boring is 58.0 feet below ground surface.	5/24/2006	1157	-	-	-	-		
50													
51													
52													
53													
54													
55													
56													
57													
58													

Note:
BZ - Breathing Zone
BHA - Borehole Annulus



CH2MHILL

PROJECT NUMBER

421480

WELL NUMBER

OD-1

SHEET 1

OF 1

WELL COMPLETION DIAGRAM

PROJECT : Dow Woodbine iSoc System

LOCATION : Woodbine, GA

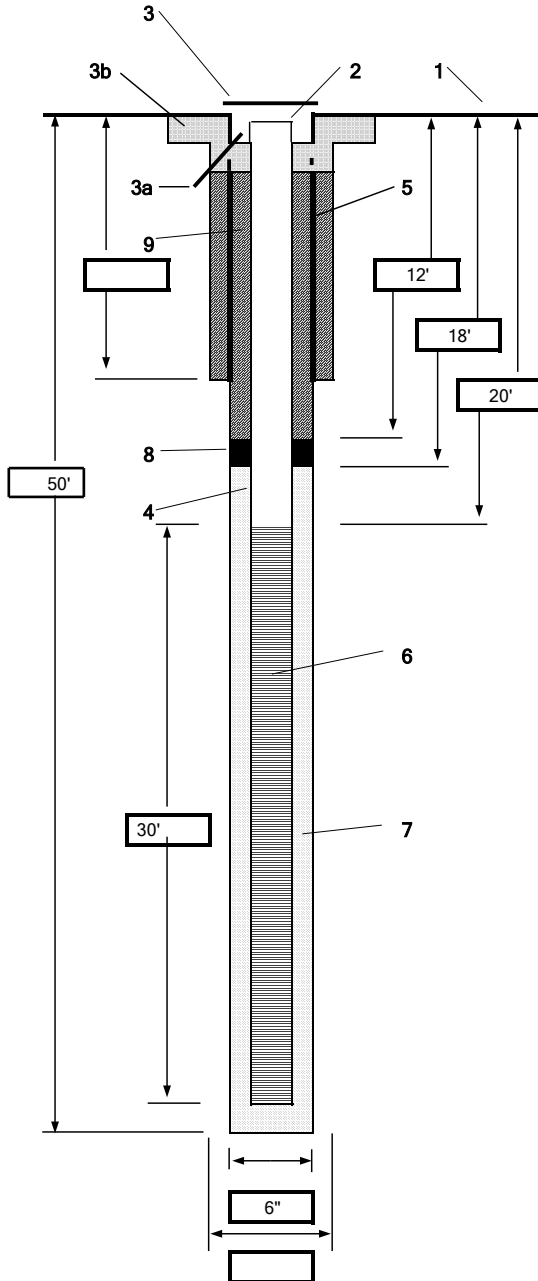
DRILLING CONTRACTOR : GWP/Drill Pro

DRILLING METHOD AND EQUIPMENT USED : Sonic SR-1 6" Casing

WATER LEVELS :

START : 10-20-11 1730

END : 10-21-11 0945 LOGGER : J Frank/RDU



1- Ground elevation at well	N/A
2- Top of casing elevation	N/A
3- Wellhead protection cover type	Flush Mount
a) drain tube?	Completed later
b) concrete pad dimensions	
4- Dia./type of well casing	2" ID SCH 40 PVC
5- Dia./type surface casing	
6- Type/slot/size of screen	2" ID SCH 40 PVC 0.020" Slot
7- Type screen filter	DSI Well Gravel pack #6/10
a) Quantity used	10 50 lb bags
8- Type of seal	3/8" Bentonite Hole Plug
a) Quantity used	1.5 50 lb bags
9- Grout	
a) Grout mix used	Portland Type I/II Holcim
b) Method of placement	Tremie
c) Vol. of surface casing grout	
d) Vol. of well casing grout	18 gallons
Development method	Overpump/surge
Development time	1 hr
Estimated purge volume	110 gallons

Comments _____



CH2MHILL

PROJECT NUMBER

421480

WELL NUMBER

OD-2

SHEET 1

OF 1

WELL COMPLETION DIAGRAM

PROJECT : Dow Woodbine iSoc System

LOCATION : Woodbine, GA

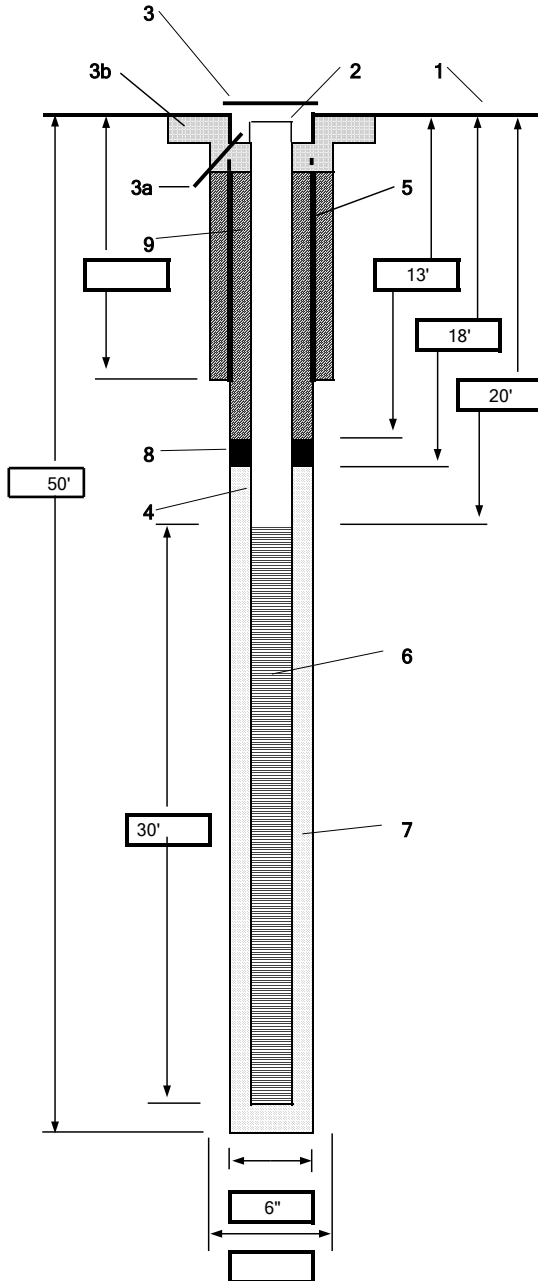
DRILLING CONTRACTOR : GWP/Drill Pro

DRILLING METHOD AND EQUIPMENT USED : Sonic SR-1 6" Casing

WATER LEVELS :

START : 10-21-11 0945

END : 10-21-11 1215 LOGGER : J Frank/RDU



1- Ground elevation at well	N/A
2- Top of casing elevation	N/A
3- Wellhead protection cover type	Flush Mount
a) drain tube?	Completed later
b) concrete pad dimensions	
4- Dia./type of well casing	2" ID SCH 40 PVC
5- Dia./type surface casing	
6- Type/slot/size of screen	2" ID SCH 40 PVC 0.020" Slot
7- Type screen filter	DSI Well Gravel pack #6/10
a) Quantity used	10 50 lb bags
8- Type of seal	3/8" Bentonite Hole Plug
a) Quantity used	1.5 50 lb bags
9- Grout	
a) Grout mix used	Portland Type I/II Holcim
b) Method of placement	Tremie
c) Vol. of surface casing grout	
d) Vol. of well casing grout	18 gallons
Development method	Overpump/surge
Development time	1 hr
Estimated purge volume	110 gallons

Comments _____



CH2MHILL

PROJECT NUMBER

421480

WELL NUMBER

OD-3

SHEET 1

OF 1

WELL COMPLETION DIAGRAM

PROJECT : Dow Woodbine iSoc System

LOCATION : Woodbine, GA

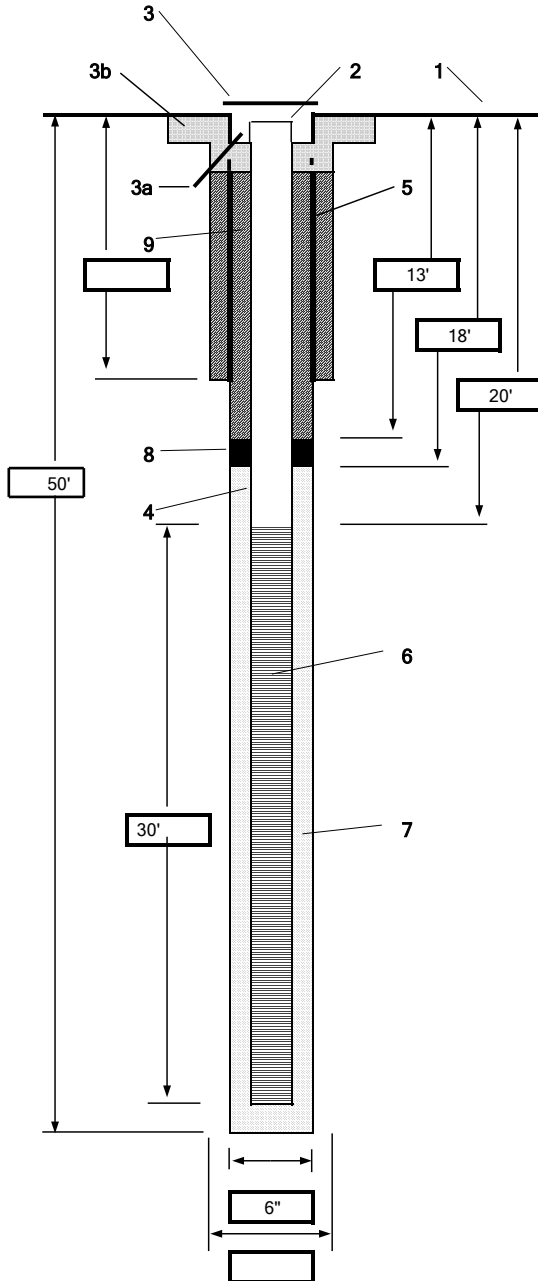
DRILLING CONTRACTOR : GWP/Drill Pro

DRILLING METHOD AND EQUIPMENT USED : Sonic SR-1 6" Casing

WATER LEVELS :

START : 10-21-11 1230

END : 10-21-11 1500 LOGGER : J Frank/RDU



1- Ground elevation at well	N/A
2- Top of casing elevation	N/A
3- Wellhead protection cover type	Flush Mount
a) drain tube?	Completed later
b) concrete pad dimensions	
4- Dia./type of well casing	2" ID SCH 40 PVC
5- Dia./type surface casing	
6- Type/slot/size of screen	2" ID SCH 40 PVC 0.020" Slot
7- Type screen filter	DSI Well Gravel pack #6/10
a) Quantity used	10 50 lb bags
8- Type of seal	3/8" Bentonite Hole Plug
a) Quantity used	1.5 50 lb bags
9- Grout	
a) Grout mix used	Portland Type I/II Holcim
b) Method of placement	Tremie
c) Vol. of surface casing grout	
d) Vol. of well casing grout	18 gallons
Development method	Overpump/surge
Development time	1 hr
Estimated purge volume	110 gallons
Comments	



CH2MHILL

PROJECT NUMBER

421480

WELL NUMBER

OD-4

SHEET 1

OF 1

WELL COMPLETION DIAGRAM

PROJECT : Dow Woodbine iSoc System

LOCATION : Woodbine, GA

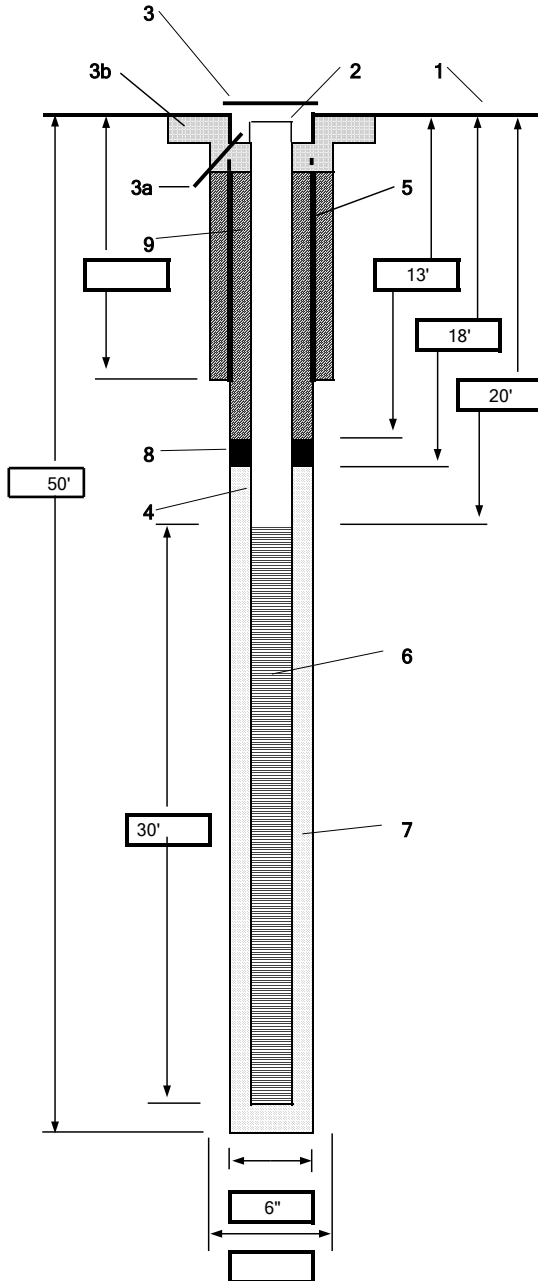
DRILLING CONTRACTOR : GWP/Drill Pro

DRILLING METHOD AND EQUIPMENT USED : Sonic SR-1 6" Casing

WATER LEVELS :

START : 10-21-11 1500

END : 10-21-11 1730 LOGGER : J Frank/RDU



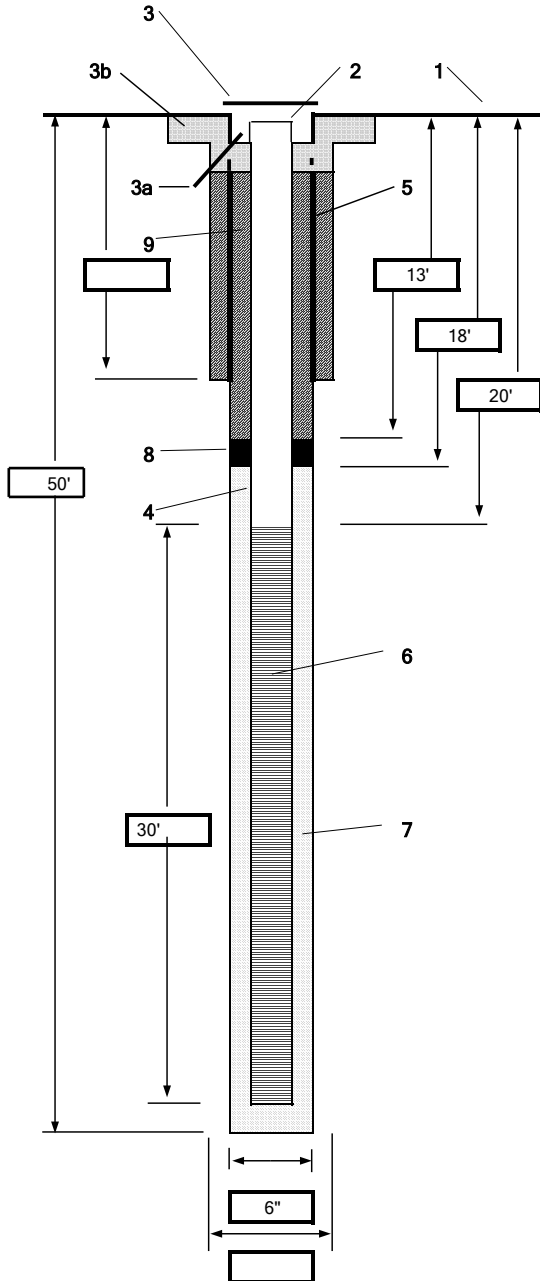
1- Ground elevation at well	N/A
2- Top of casing elevation	N/A
3- Wellhead protection cover type	Flush Mount
a) drain tube?	Completed later
b) concrete pad dimensions	
4- Dia./type of well casing	2" ID SCH 40 PVC
5- Dia./type surface casing	
6- Type/slot/size of screen	2" ID SCH 40 PVC 0.020" Slot
7- Type screen filter	DSI Well Gravel pack #6/10
a) Quantity used	10 50 lb bags
8- Type of seal	3/8" Bentonite Hole Plug
a) Quantity used	1.5 50 lb bags
9- Grout	
a) Grout mix used	Portland Type I/II Holcim
b) Method of placement	Tremie
c) Vol. of surface casing grout	
d) Vol. of well casing grout	18 gallons
Development method	Overpump/surge
Development time	1 hr
Estimated purge volume	110 gallons

Comments _____



PROJECT NUMBER 421480	WELL NUMBER OD-5	SHEET 1	OF 1
WELL COMPLETION DIAGRAM			

PROJECT : Dow Woodbine iSoc System	LOCATION : Woodbine, GA		
DRILLING CONTRACTOR : GWP/Drill Pro			
DRILLING METHOD AND EQUIPMENT USED : Sonic SR-1 6" Casing			
WATER LEVELS :	START : 10-22-11 0730	END :	LOGGER : J Frank/RDU



1- Ground elevation at well	N/A
2- Top of casing elevation	N/A
3- Wellhead protection cover type	Flush Mount
a) drain tube?	Completed later
b) concrete pad dimensions	
4- Dia./type of well casing	2" ID SCH 40 PVC
5- Dia./type surface casing	
6- Type/slot/size of screen	2" ID SCH 40 PVC 0.020" Slot
7- Type screen filter	DSI Well Gravel pack #6/10
a) Quantity used	10 50 lb bags
8- Type of seal	3/8" Bentonite Hole Plug
a) Quantity used	1.5 50 lb bags
9- Grout	
a) Grout mix used	Portland Type I/II Holcim
b) Method of placement	Tremie
c) Vol.of surface casing grout	
d) Vol. of well casing grout	18 gallons
Development method	Overpump/surge
Development time	1 hr
Estimated purge volume	110 gallons
Comments	



CH2MHILL

PROJECT NUMBER

421480

WELL NUMBER

OD-6

SHEET 1

OF 1

WELL COMPLETION DIAGRAM

PROJECT : Dow Woodbine iSoc System

LOCATION : Woodbine, GA

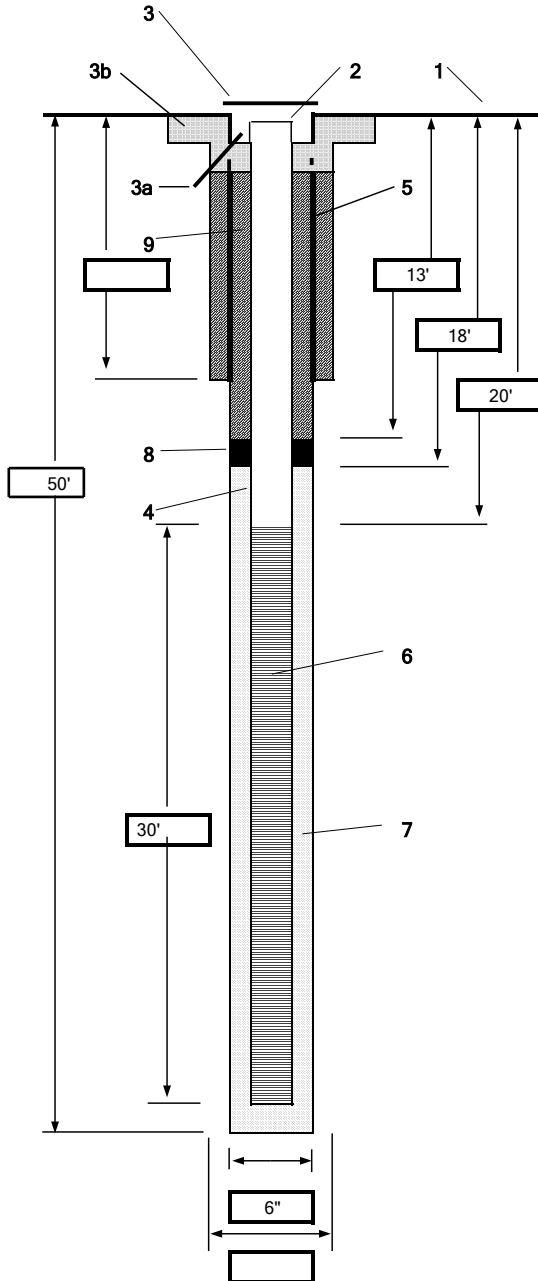
DRILLING CONTRACTOR : GWP/Drill Pro

DRILLING METHOD AND EQUIPMENT USED : Sonic SR-1 6" Casing

WATER LEVELS :

START : 10-22-11 1020

END : 10-22-11 1230 LOGGER : J Frank/RDU

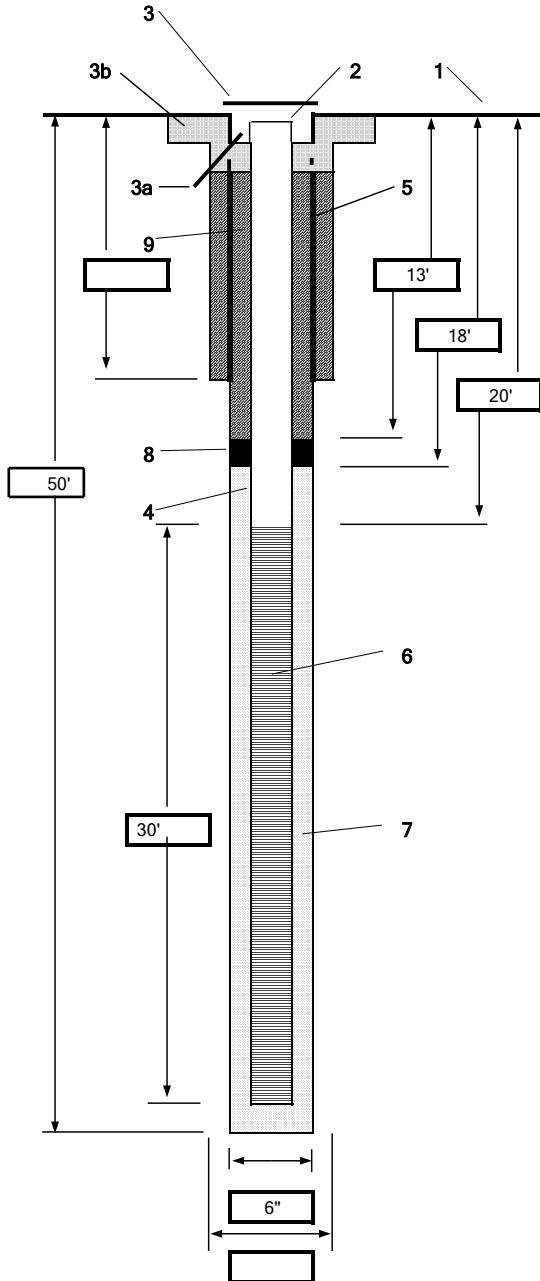


1- Ground elevation at well	N/A
2- Top of casing elevation	N/A
3- Wellhead protection cover type	Flush Mount
a) drain tube?	Completed later
b) concrete pad dimensions	
4- Dia./type of well casing	2" ID SCH 40 PVC
5- Dia./type surface casing	
6- Type/slot/size of screen	2" ID SCH 40 PVC 0.020" Slot
7- Type screen filter	DSI Well Gravel pack #6/10
a) Quantity used	10 50 lb bags
8- Type of seal	3/8" Bentonite Hole Plug
a) Quantity used	1.5 50 lb bags
9- Grout	
a) Grout mix used	Portland Type I/II Holcim
b) Method of placement	Tremie
c) Vol. of surface casing grout	
d) Vol. of well casing grout	20 gallons
Development method	Overpump/surge
Development time	1 hr
Estimated purge volume	110 gallons
Comments	



PROJECT NUMBER 421480	WELL NUMBER OD-7	SHEET 1	OF 1
WELL COMPLETION DIAGRAM			

PROJECT : Dow Woodbine iSoc System	LOCATION : Woodbine, GA
DRILLING CONTRACTOR : GWP/Drill Pro	
DRILLING METHOD AND EQUIPMENT USED : Sonic SR-1 6" Casing	
WATER LEVELS :	START : 10-22-11 1205 END : 10-22-11 1435 LOGGER : J Frank/RDU



1- Ground elevation at well	N/A
2- Top of casing elevation	N/A
3- Wellhead protection cover type	Flush Mount
a) drain tube?	Completed later
b) concrete pad dimensions	
4- Dia./type of well casing	2" ID SCH 40 PVC
5- Dia./type surface casing	
6- Type/slot/size of screen	2" ID SCH 40 PVC 0.020" Slot
7- Type screen filter	DSI Well Gravel pack #6/10
a) Quantity used	10 50 lb bags
8- Type of seal	3/8" Bentonite Hole Plug
a) Quantity used	1.5 50 lb bags
9- Grout	
a) Grout mix used	Portland Type I/II Holcim
b) Method of placement	Tremie
c) Vol.of surface casing grout	
d) Vol. of well casing grout	20 gallons
Development method	Overpump/surge
Development time	1 hr
Estimated purge volume	110 gallons
Comments	



CH2MHILL

PROJECT NUMBER

421480

WELL NUMBER

OD-8

SHEET 1

OF 1

WELL COMPLETION DIAGRAM

PROJECT : Dow Woodbine iSoc System

LOCATION : Woodbine, GA

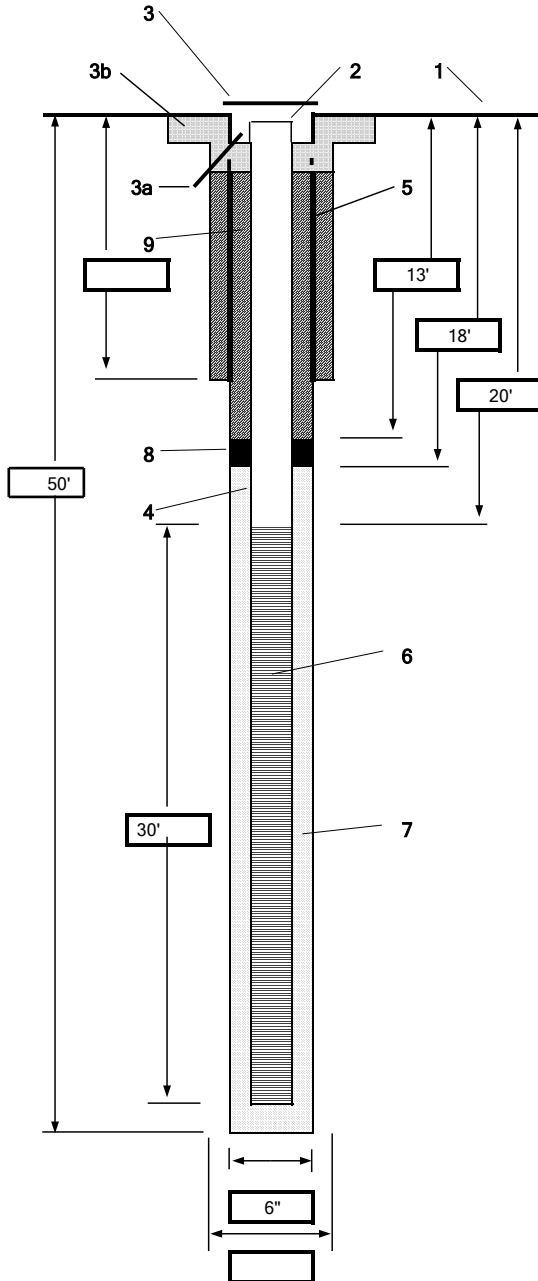
DRILLING CONTRACTOR : GWP/Drill Pro

DRILLING METHOD AND EQUIPMENT USED : Sonic SR-1 6" Casing

WATER LEVELS :

START : 10-22-11 1445

END : 10-22-11 1635 LOGGER : J Frank/RDU

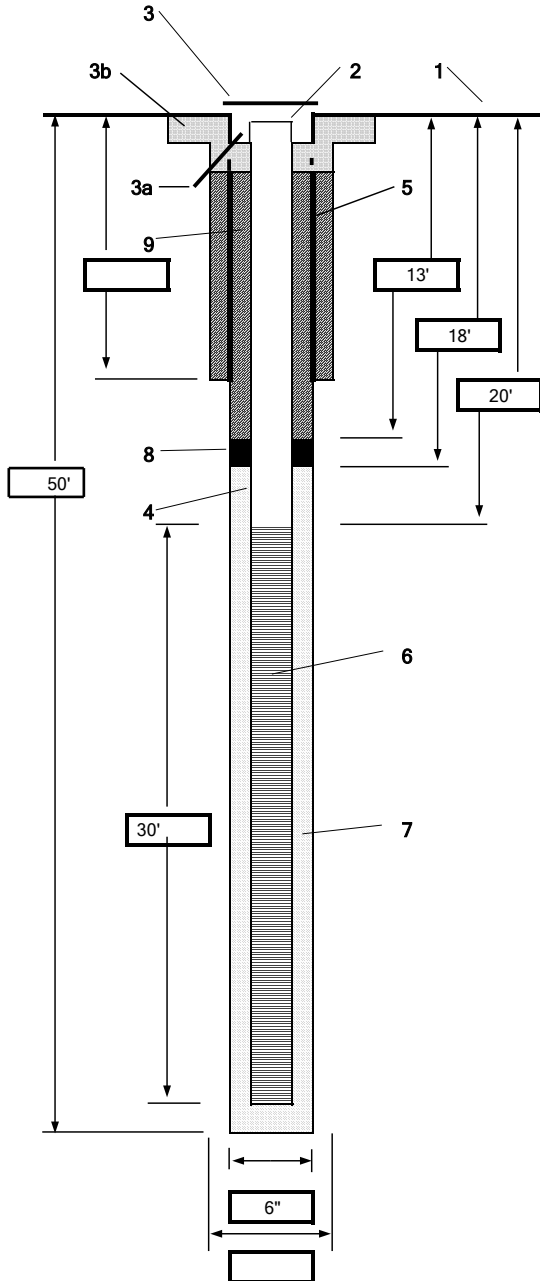


1- Ground elevation at well	N/A
2- Top of casing elevation	N/A
3- Wellhead protection cover type	Flush Mount
a) drain tube?	Completed later
b) concrete pad dimensions	
4- Dia./type of well casing	2" ID SCH 40 PVC
5- Dia./type surface casing	
6- Type/slot/size of screen	2" ID SCH 40 PVC 0.020" Slot
7- Type screen filter	DSI Well Gravel pack #6/10
a) Quantity used	10.5 50 lb bags
8- Type of seal	3/8" Bentonite Hole Plug
a) Quantity used	1.5 50 lb bags
9- Grout	
a) Grout mix used	Portland Type I/II Holcim
b) Method of placement	Tremie
c) Vol. of surface casing grout	
d) Vol. of well casing grout	18 gallons
Development method	Overpump/surge
Development time	1 hr
Estimated purge volume	60 gallons
Comments	



PROJECT NUMBER 421480	WELL NUMBER OD-9	SHEET 1 OF 1
WELL COMPLETION DIAGRAM		

PROJECT : Dow Woodbine iSoc System	LOCATION : Woodbine, GA
DRILLING CONTRACTOR : GWP/Drill Pro	
DRILLING METHOD AND EQUIPMENT USED : Sonic SR-1 6" Casing	
WATER LEVELS :	START : 10-22-11 1650 END : 10-23-11 0745 LOGGER : J Frank/RDU

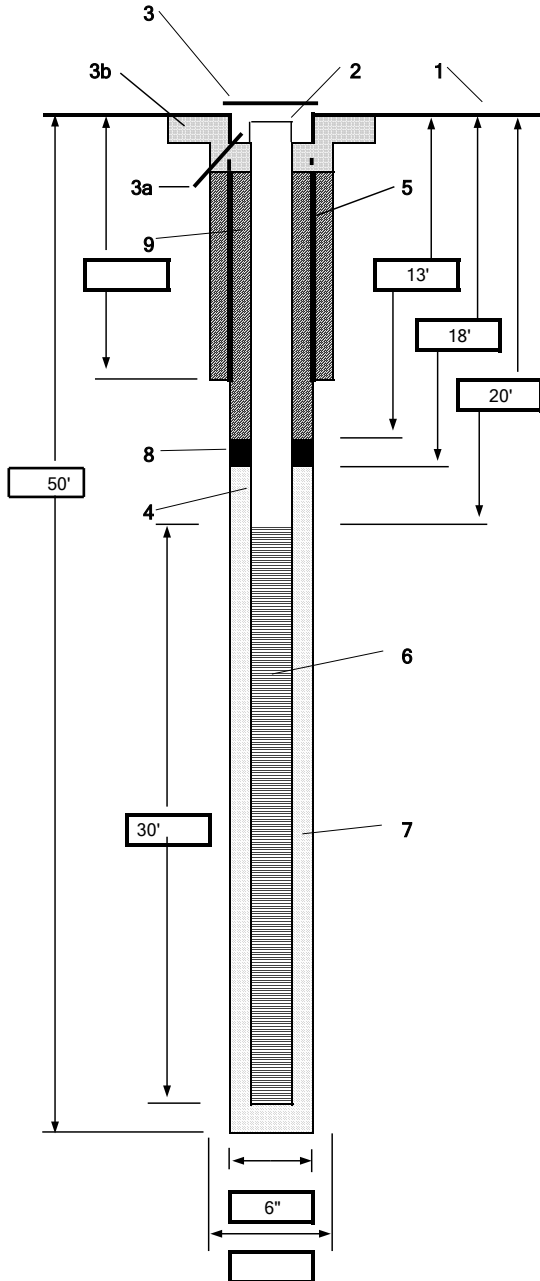


1- Ground elevation at well	N/A
2- Top of casing elevation	N/A
3- Wellhead protection cover type	Flush Mount
a) drain tube?	Completed later
b) concrete pad dimensions	
4- Dia./type of well casing	2" ID SCH 40 PVC
5- Dia./type surface casing	
6- Type/slot/size of screen	2" ID SCH 40 PVC 0.020" Slot
7- Type screen filter	DSI Well Gravel pack #6/10
a) Quantity used	10 50 lb bags
8- Type of seal	3/8" Bentonite Hole Plug
a) Quantity used	1.5 50 lb bags
9- Grout	
a) Grout mix used	Portland Type I/II Holcim
b) Method of placement	Tremie
c) Vol. of surface casing grout	
d) Vol. of well casing grout	18 gallons
Development method	Overpump/surge
Development time	1 hr
Estimated purge volume	55 gallons
Comments	



PROJECT NUMBER 421480	WELL NUMBER OD-10	SHEET 1 OF 1
WELL COMPLETION DIAGRAM		

PROJECT : Dow Woodbine iSoc System	LOCATION : Woodbine, GA
DRILLING CONTRACTOR : GWP/Drill Pro	
DRILLING METHOD AND EQUIPMENT USED : Sonic SR-1 6" Casing	
WATER LEVELS :	START : 10-23-11 0840 END : 10-23-11 1045 LOGGER : J Frank/RDU



1- Ground elevation at well	N/A
2- Top of casing elevation	N/A
3- Wellhead protection cover type	Flush Mount
a) drain tube?	Completed later
b) concrete pad dimensions	
4- Dia./type of well casing	2" ID SCH 40 PVC
5- Dia./type surface casing	
6- Type/slot/size of screen	2" ID SCH 40 PVC 0.020" Slot
7- Type screen filter	DSI Well Gravel pack #6/10
a) Quantity used	10.5 50 lb bags
8- Type of seal	3/8" Bentonite Hole Plug
a) Quantity used	1.5 50 lb bags
9- Grout	
a) Grout mix used	Portland Type I/II Holcim
b) Method of placement	Tremie
c) Vol. of surface casing grout	
d) Vol. of well casing grout	18 gallons
Development method	Overpump/surge
Development time	1 hr
Estimated purge volume	60 gallons
Comments	



CH2MHILL

PROJECT NUMBER

421480

WELL NUMBER

OD-11

SHEET 1

OF 1

WELL COMPLETION DIAGRAM

PROJECT : Dow Woodbine iSoc System

LOCATION : Woodbine, GA

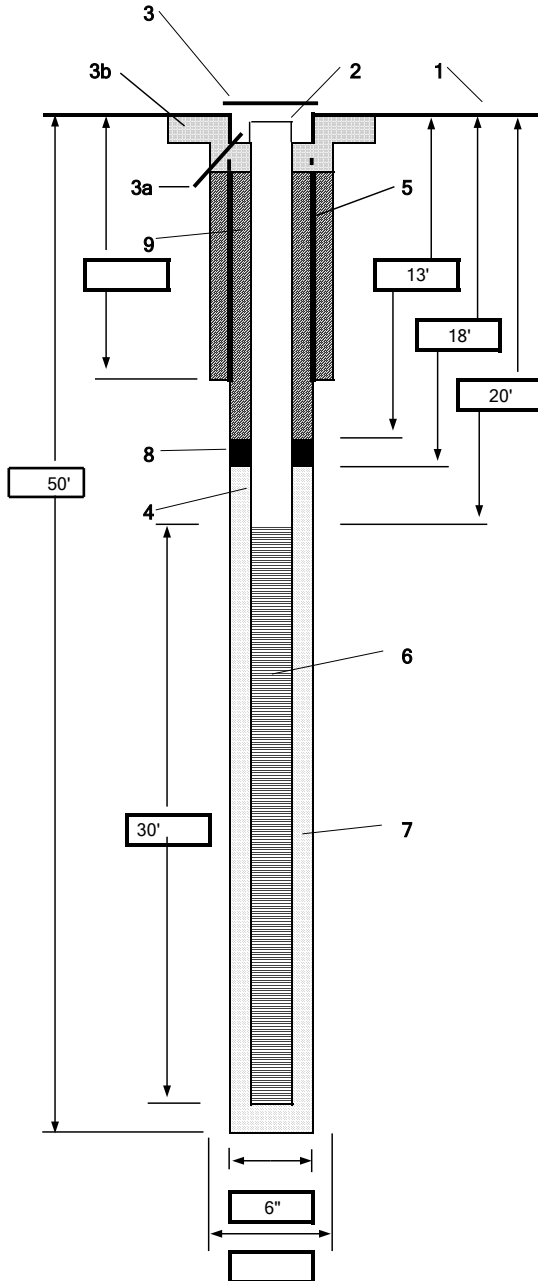
DRILLING CONTRACTOR : GWP/Drill Pro

DRILLING METHOD AND EQUIPMENT USED : Sonic SR-1 6" Casing

WATER LEVELS :

START : 10-23-11 1050

END : 10-23-11 1225 LOGGER : J Frank/RDU

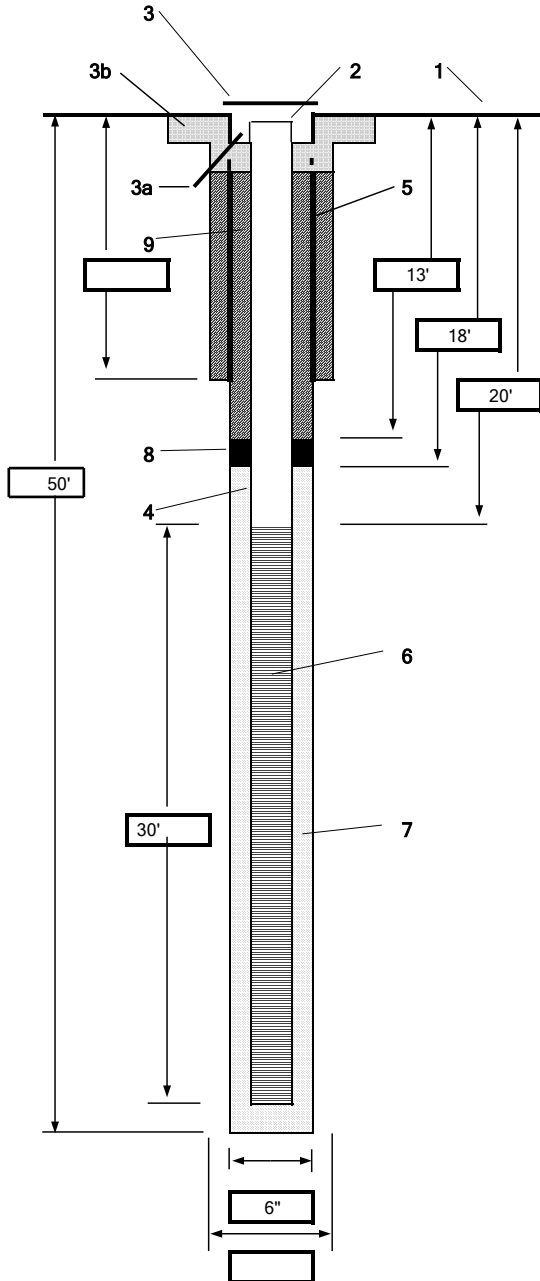


1- Ground elevation at well	N/A
2- Top of casing elevation	N/A
3- Wellhead protection cover type	Flush Mount
a) drain tube?	Completed later
b) concrete pad dimensions	
4- Dia./type of well casing	2" ID SCH 40 PVC
5- Dia./type surface casing	
6- Type/slot/size of screen	2" ID SCH 40 PVC 0.020" Slot
7- Type screen filter	DSI Well Gravel pack #6/10
a) Quantity used	10.5 50 lb bags
8- Type of seal	3/8" Bentonite Hole Plug
a) Quantity used	1.5 50 lb bags
9- Grout	
a) Grout mix used	Portland Type I/II Holcim
b) Method of placement	Tremie
c) Vol. of surface casing grout	
d) Vol. of well casing grout	20 gallons
Development method	Overpump/surge
Development time	1 hr
Estimated purge volume	60 gallons
Comments	



PROJECT NUMBER 421480	WELL NUMBER OD-12	SHEET 1 OF 1
WELL COMPLETION DIAGRAM		

PROJECT : Dow Woodbine iSoc System	LOCATION : Woodbine, GA
DRILLING CONTRACTOR : GWP/Drill Pro	
DRILLING METHOD AND EQUIPMENT USED : Sonic SR-1 6" Casing	
WATER LEVELS :	START : 10-23-11 1250 END : 10-23-11 1430 LOGGER : J Frank/RDU

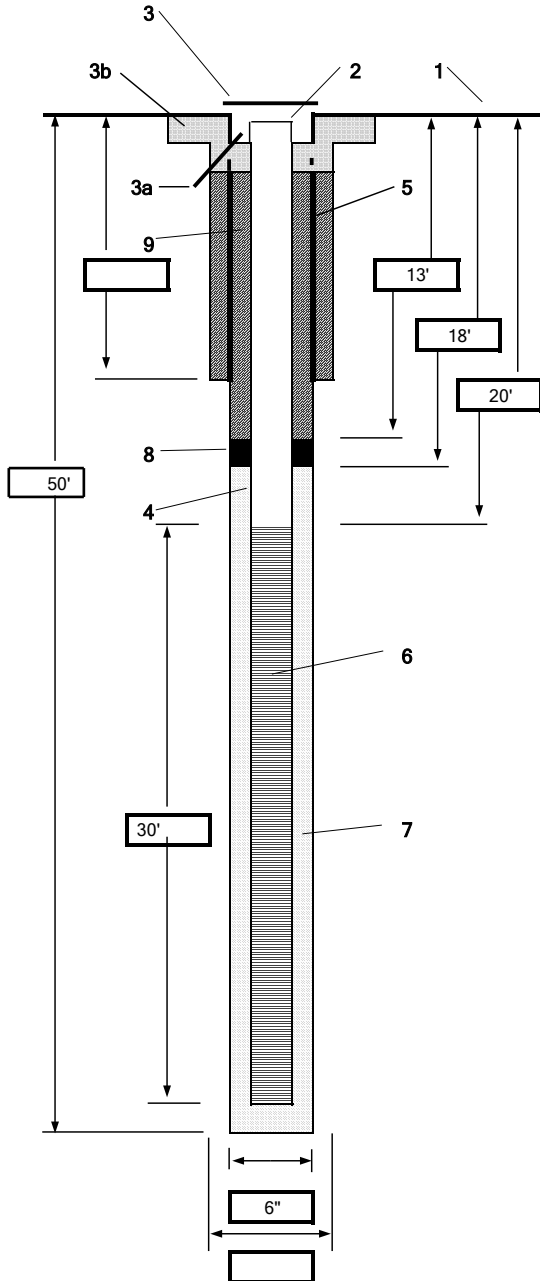


1- Ground elevation at well	N/A
2- Top of casing elevation	N/A
3- Wellhead protection cover type	Flush Mount
a) drain tube?	Completed later
b) concrete pad dimensions	
4- Dia./type of well casing	2" ID SCH 40 PVC
5- Dia./type surface casing	
6- Type/slot/size of screen	2" ID SCH 40 PVC 0.020" Slot
7- Type screen filter	DSI Well Gravel pack #6/10
a) Quantity used	10.5 50 lb bags
8- Type of seal	3/8" Bentonite Hole Plug
a) Quantity used	1.5 50 lb bags
9- Grout	
a) Grout mix used	Portland Type I/II Holcim
b) Method of placement	Tremie
c) Vol.of surface casing grout	
d) Vol. of well casing grout	20 gallons
Development method	Overpump/surge
Development time	1 hr
Estimated purge volume	50 gallons
Comments	



PROJECT NUMBER 421480	WELL NUMBER OD-13	SHEET 1	OF 1
WELL COMPLETION DIAGRAM			

PROJECT : Dow Woodbine iSoc System	LOCATION : Woodbine, GA		
DRILLING CONTRACTOR : GWP/Drill Pro			
DRILLING METHOD AND EQUIPMENT USED : Sonic SR-1 6" Casing			
WATER LEVELS :	START : 10-23-11 1450	END : 10-23-11	LOGGER : J Frank/RDU

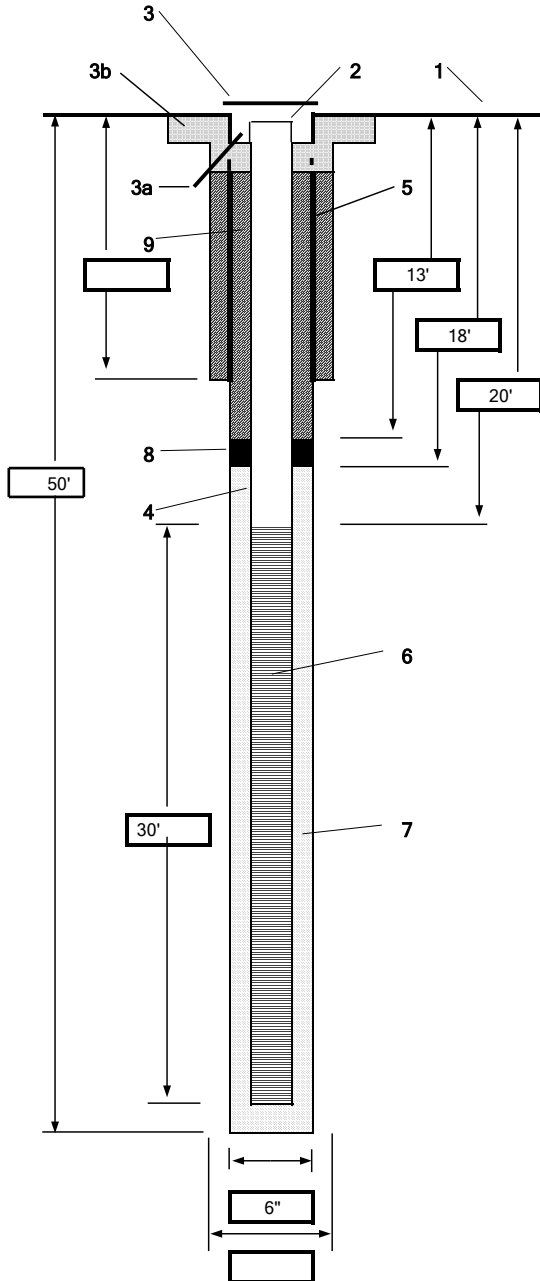


1- Ground elevation at well	N/A
2- Top of casing elevation	N/A
3- Wellhead protection cover type	Flush Mount
a) drain tube?	Completed later
b) concrete pad dimensions	
4- Dia./type of well casing	2" ID SCH 40 PVC
5- Dia./type surface casing	
6- Type/slot/size of screen	2" ID SCH 40 PVC 0.020" Slot
7- Type screen filter	DSI Well Gravel pack #6/10
a) Quantity used	10.5 50 lb bags
8- Type of seal	3/8" Bentonite Hole Plug
a) Quantity used	1.5 50 lb bags
9- Grout	
a) Grout mix used	Portland Type I/II Holcim
b) Method of placement	Tremie
c) Vol. of surface casing grout	
d) Vol. of well casing grout	20 gallons
Development method	Overpump/surge
Development time	1 hr
Estimated purge volume	50 gallons
Comments	



PROJECT NUMBER 421480	WELL NUMBER OD-14	SHEET 1	OF 1
WELL COMPLETION DIAGRAM			

PROJECT : Dow Woodbine iSoc System	LOCATION : Woodbine, GA
DRILLING CONTRACTOR : GWP/Drill Pro	
DRILLING METHOD AND EQUIPMENT USED : Sonic SR-1 6" Casing	
WATER LEVELS :	START : 10-23-11 1645 END : 10-24-11 0900 LOGGER : J Frank/RDU

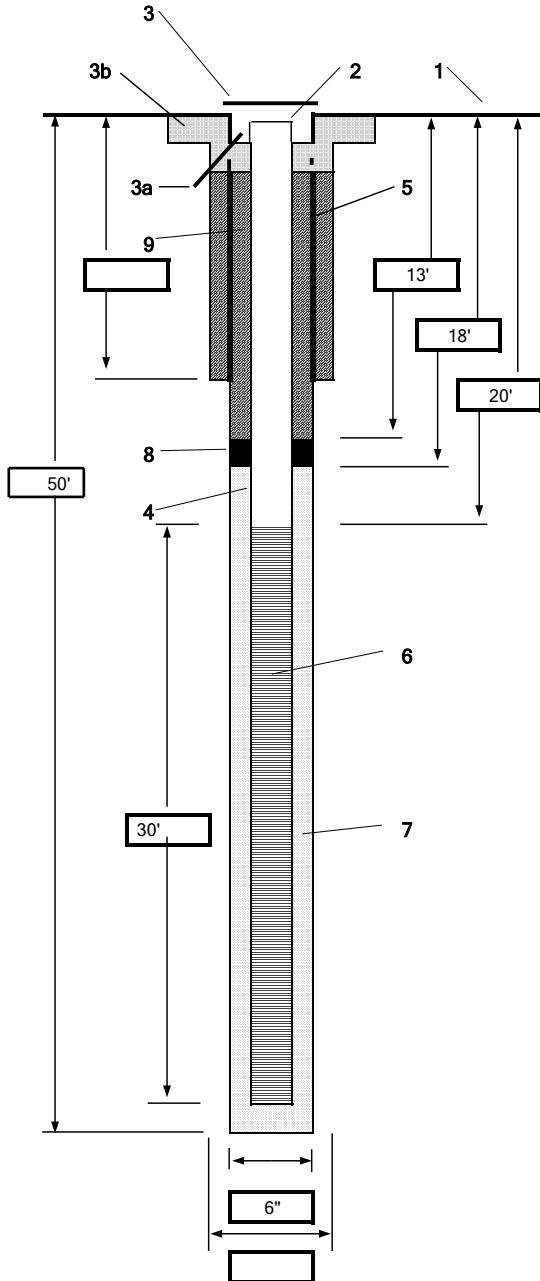


1- Ground elevation at well	N/A
2- Top of casing elevation	N/A
3- Wellhead protection cover type	Flush Mount
a) drain tube?	Completed later
b) concrete pad dimensions	
4- Dia./type of well casing	2" ID SCH 40 PVC
5- Dia./type surface casing	
6- Type/slot/size of screen	2" ID SCH 40 PVC 0.020" Slot
7- Type screen filter	DSI Well Gravel pack #6/10
a) Quantity used	10.5 50 lb bags
8- Type of seal	3/8" Bentonite Chips
a) Quantity used	1.5 50 lb bags
9- Grout	
a) Grout mix used	Portland Type I/II Holcim
b) Method of placement	Tremie
c) Vol.of surface casing grout	
d) Vol. of well casing grout	18 gallons
Development method	Overpump/surge
Development time	1 hr
Estimated purge volume	50 gallons
Comments	



PROJECT NUMBER 421480	WELL NUMBER OD-15	SHEET 1	OF 1
WELL COMPLETION DIAGRAM			

PROJECT : Dow Woodbine iSoc System	LOCATION : Woodbine, GA		
DRILLING CONTRACTOR : GWP/Drill Pro			
DRILLING METHOD AND EQUIPMENT USED : Sonic SR-1 6" Casing			
WATER LEVELS :	START : 10-24-11 0945	END : 10-24-11	LOGGER : J Frank/RDU

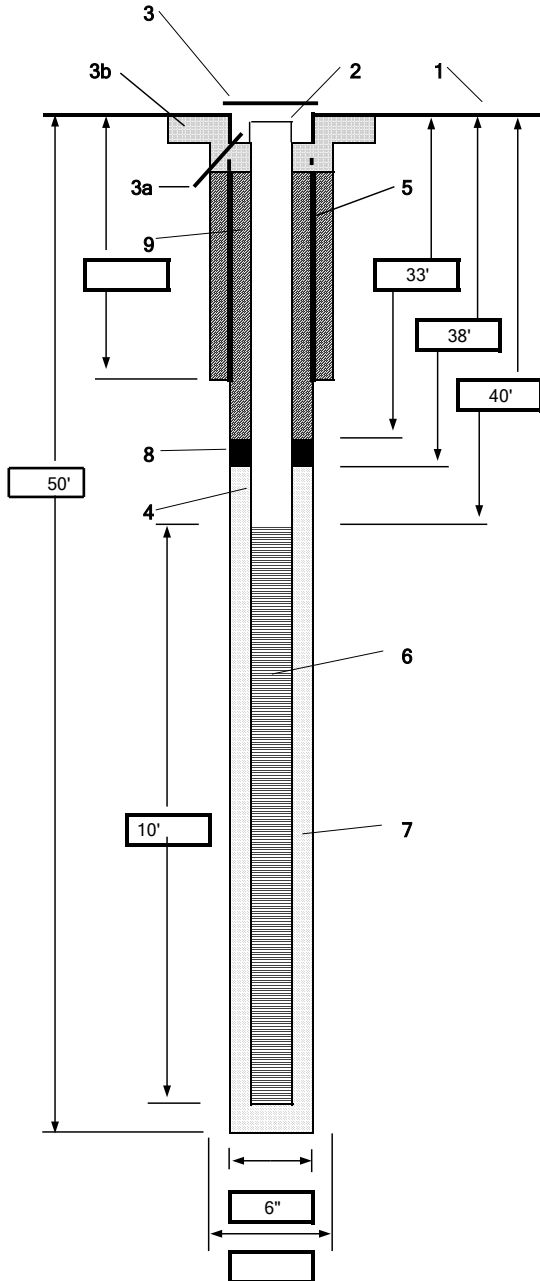


1- Ground elevation at well	N/A
2- Top of casing elevation	N/A
3- Wellhead protection cover type	Flush Mount
a) drain tube?	Completed later
b) concrete pad dimensions	
4- Dia./type of well casing	2" ID SCH 40 PVC
5- Dia./type surface casing	
6- Type/slot/size of screen	2" ID SCH 40 PVC 0.020" Slot
7- Type screen filter	DSI Well Gravel pack #6/10
a) Quantity used	10.5 50 lb bags
8- Type of seal	3/8" Bentonite Hole Plug
a) Quantity used	1.5 50 lb bags
9- Grout	
a) Grout mix used	Portland Type I/II Holcim
b) Method of placement	Tremie
c) Vol. of surface casing grout	
d) Vol. of well casing grout	20 gallons
Development method	Overpump/surge
Development time	1 hr
Estimated purge volume	60 gallons
Comments	



PROJECT NUMBER 421480	WELL NUMBER MW-49
SHEET 1 OF 1	
WELL COMPLETION DIAGRAM	

PROJECT : Dow Woodbine iSoc System	LOCATION : Woodbine, GA	
DRILLING CONTRACTOR : GWP/Drill Pro		
DRILLING METHOD AND EQUIPMENT USED : Sonic SR-1 6" Casing		
WATER LEVELS :	START : 10-24-11 1300	END : 10-24-11 1445 LOGGER : J Frank/RDU



1- Ground elevation at well	N/A
2- Top of casing elevation	N/A
3- Wellhead protection cover type	Completed late
a) drain tube?	
b) concrete pad dimensions	
4- Dia./type of well casing	2" ID SCH 40 PVC
5- Dia./type surface casing	
6- Type/slot/size of screen	2" ID SCH 40 PVC 0.010" Slot
7- Type screen filter	Standard Sand & Silica 20/30 Davenport
a) Quantity used	6 50 lb bags
8- Type of seal	3/8" Bentonite Hole Plug
a) Quantity used	1.5 50 lb bags
9- Grout	
a) Grout mix used	Portland Type I/II Holcim
b) Method of placement	Tremie
c) Vol. of surface casing grout	
d) Vol. of well casing grout	18 gallons
Development method	Overpump/surge
Development time	1 hr
Estimated purge volume	60 gallons
Comments	



CH2MHILL

PROJECT NUMBER

421480

WELL NUMBER

MW-50

SHEET 1

OF 1

WELL COMPLETION DIAGRAM

PROJECT : Dow Woodbine iSoc System

LOCATION : Woodbine, GA

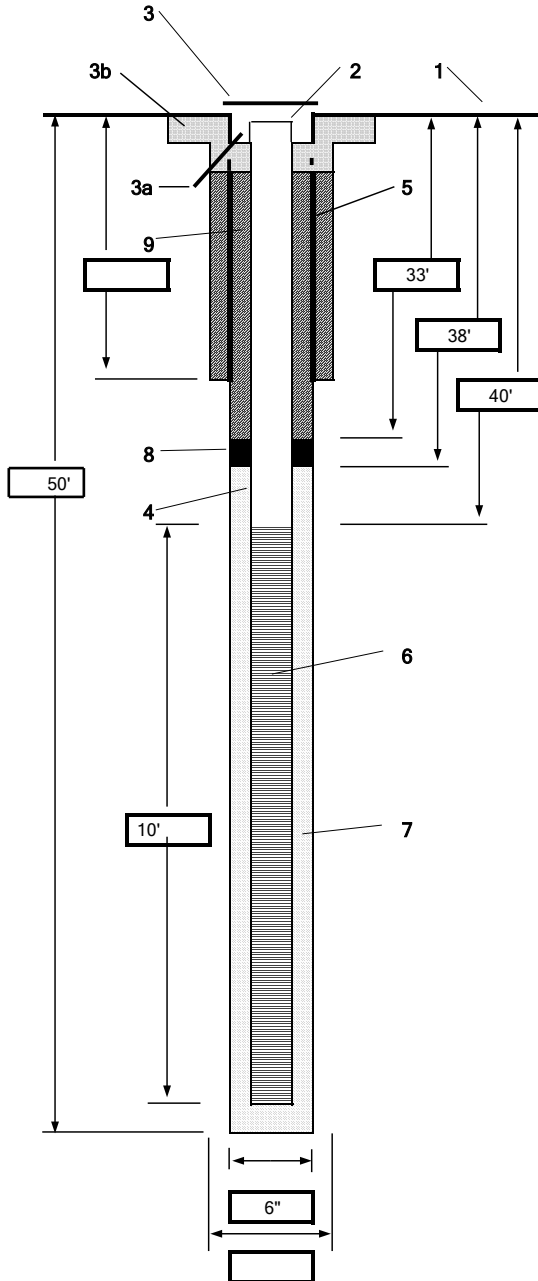
DRILLING CONTRACTOR : GWP/Drill Pro

DRILLING METHOD AND EQUIPMENT USED : Sonic SR-1 6" Casing

WATER LEVELS :

START : 10-24-11 1500

END : 10-24-11 1630 LOGGER : J Frank/RDU



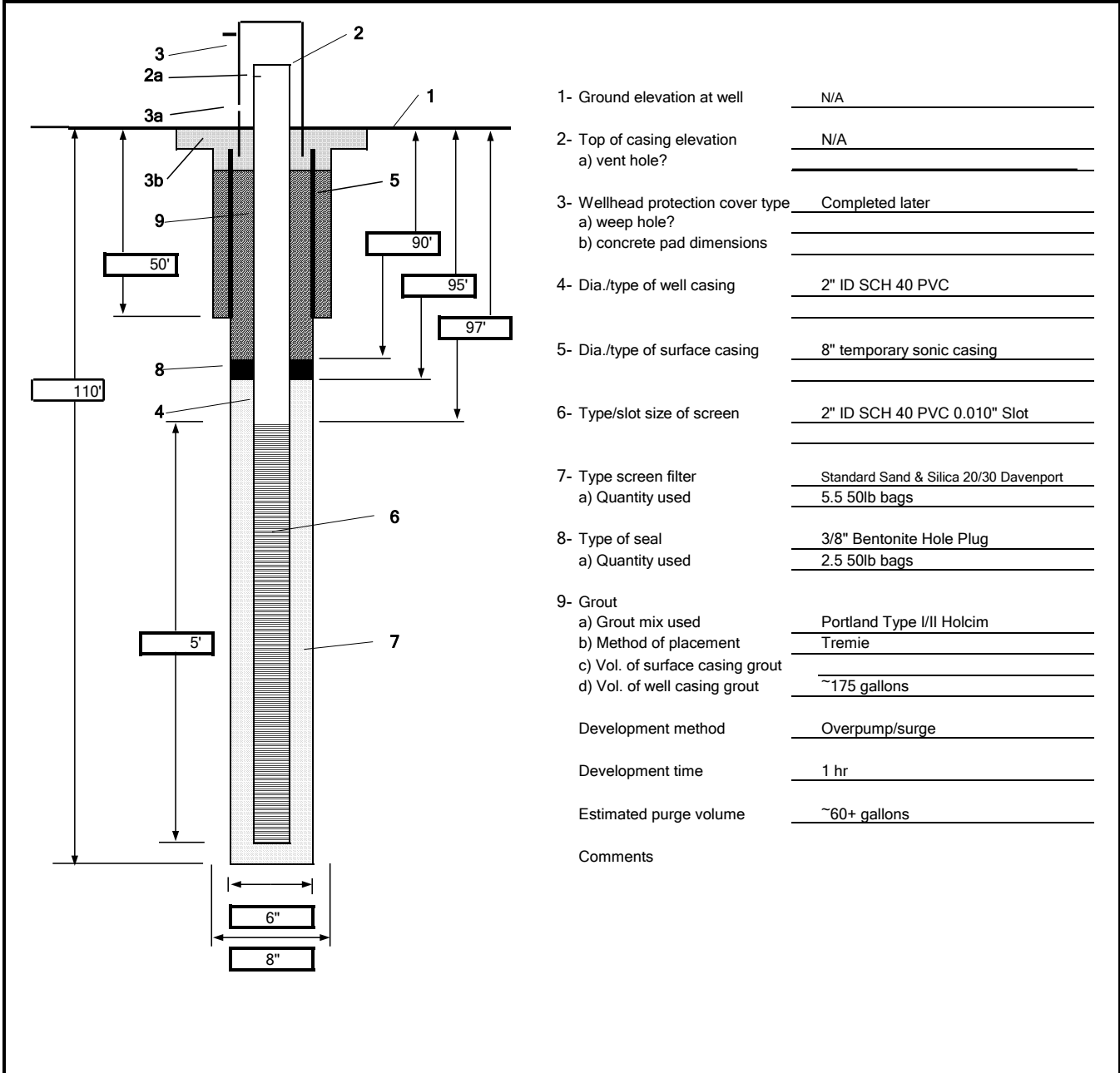
1- Ground elevation at well	N/A
2- Top of casing elevation	N/A
3- Wellhead protection cover type	Completed late
a) drain tube?	
b) concrete pad dimensions	
4- Dia./type of well casing	2" ID SCH 40 PVC
5- Dia./type surface casing	
6- Type/slot/size of screen	2" ID SCH 40 PVC 0.010" Slot
7- Type screen filter	Standard Sand & Silica 20/30 Davenport
a) Quantity used	
8- Type of seal	3/8" Bentonite Hole Plug
a) Quantity used	
9- Grout	
a) Grout mix used	Portland Type I/II Holcim
b) Method of placement	Tremie
c) Vol. of surface casing grout	
d) Vol. of well casing grout	18 gallons
Development method	Overpump/surge
Development time	1 hr
Estimated purge volume	50 gallons

Comments _____



PROJECT NUMBER 421480	WELL NUMBER MW-51
SHEET 1 OF 1	
WELL COMPLETION DIAGRAM	

PROJECT : Dow Woodbine Vertical Delineation	LOCATION : Woodbine, GA	
DRILLING CONTRACTOR : GWP/Drill Pro		
DRILLING METHOD AND EQUIPMENT USED : Sonic SR-1 6" and 8" casing		
WATER LEVELS : START : 10-25-11 0825 END : 10/25/11 1830 LOGGER : J Frank/RDU		





Sheet: 1 of 2

Start/Finish Date: 10-25-11 0930 / 10-25-11 1830

Depth (ft)	Sample Information				Soil Log	Soil Description	Depth / Elev (ft)	Comments
	Sample #	Sample Type	Recovery (%)	SPT (6"-6'-6")				
50	1	Sonic	85	NA		Sandy Chaulk Sandy Chaulk, white-tan, dry, medium dense, discontinuous	-51 51	0-20' 8" casing - very slow drilling 20-40' 8" casing - normal speed
						Sand (SP) Tan-light gray, VF-F sand, wet loose	-54 54	Set 8" temp casing at 40 ft bgs with bentonite seal 6" casing "blow-in" to 50"
55						Silty Sand (SM) Tan, moist, loose-slightly dense, ~25% shell fragments		
						Sand (SP) Tan, coarse sand, with little fines, damp, loose	-59 59	
						Silty Sand (SM) Tan, moist, loose-slightly dense, ~25% shell fragments	-62 62	
65						Clay (CL) Green-gray, high plasticity, moist, soft		
						Sand (SP) Tan, coarse sand, with little fines, damp, loose		
						Silty Sand (SM) Gray, moist, loose-slightly dense	-70 70	
70						Silty Sand (SM) Tan, moist, loose-slightly dense, ~25% shell fragments	-72 72	
						Silty Sand (SM) Gray, moist, loose-slightly dense	-74 74	
75		Silty Sand (SM) Tan, moist, loose-slightly dense, ~25% shell fragments	-77 77					
	2	Sonic	85	NA		Silty Sand (SM) Tan, moist, loose-slightly dense		4x6" core to ~90-100'
80						Silty Sand (SM) Tan, moist, loose with some cementation, ~25% shell fragments, trace clay	-83 83	
85						Sand (SP) VF, light tan-light gray sand, medium dense, dry-damp	-87 87	
90							-90 90	

**CH2MHILL****Boring Number: MW-51****Sheet: 2 of 2****Client:** Dow**Project:** Dow iSoc System and Montinoring Wells**Location:** Dow Woodbine GA**Project Number:** 421480**Driller:** Drill Pro**Drilling Method:** Sonic SR-1 6" Casings**Sampling Method:****Logged by:** J Frank/RDU**Start/Finish Date:** 10-25-11 0930 / 10-25-11 1830

Depth (ft)	Sample Information				Soil Log	Soil Description	Depth / Elev (ft)	Comments
	Sample #	Sample Type	Recovery (%)	SPT (6"-6"-6")				
95	3	Sonic	47	NA		Silty Sand (SM) Green-gray, damp, dense, little cementation	-92	Silty sand stretches length-wise during extrusion Will drill to 110'
						Sand (SP) Light tan-light gray, VF sand, some clay and cementation, moist, loose, soft	92	
						Silty Sand (SM) Green-gray, damp, dense, 5% quartz pebbles with rounded glauconite	-95	
						Sand (SW) VF sand, trace cementation, damp, loose	95	
100	4	Sonic		NA			-98	
							98	
						Silty Sand (SM) Green-gray, damp, dense, little cementation	-103	
						Silty Sand (SM) Green-gray, damp, dense, 5% quartz pebbles with rounded glauconite	103	
105							-106	
							106	
110						End of Log	-110	
							110	
115								
120								
125								
130								



PROJECT NUMBER
421480

WELL NUMBER
MW-52

SHEET 1 OF 1

WELL COMPLETION DIAGRAM

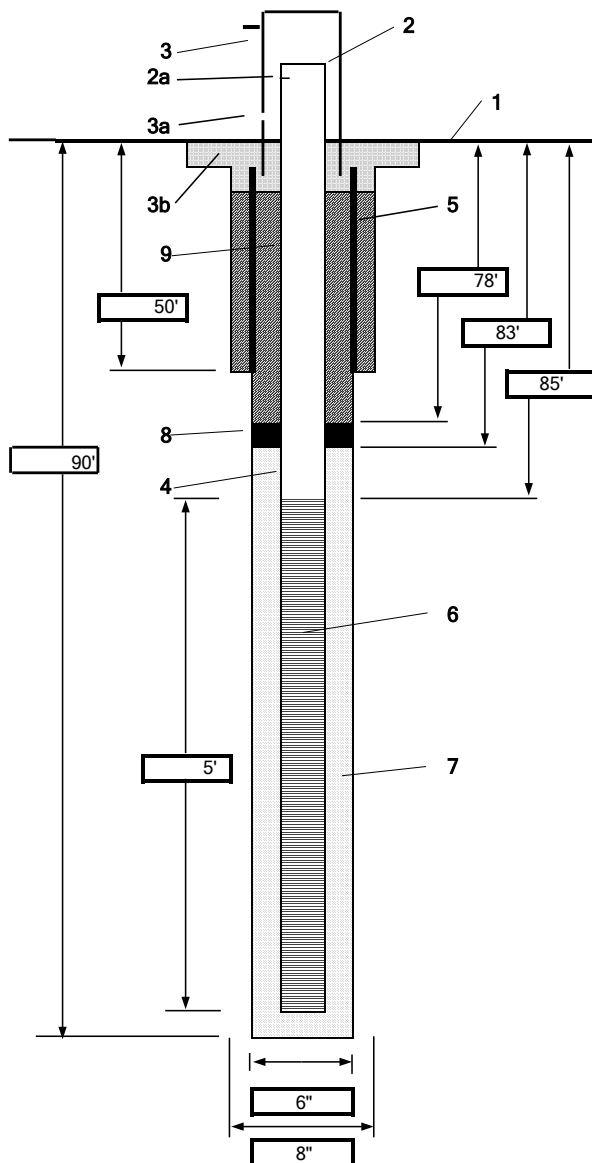
PROJECT : Dow Woodbine Vertical Delineation

LOCATION : Woodbine, GA

DRILLING CONTRACTOR : GWP/Drill Pro

DRILLING METHOD AND EQUIPMENT USED : Sonic SR-1 6" and 8" casing

WATER LEVELS : START : 10-26-11 0930 END : 10/26/11 1930 LOGGER : J Frank/RDU



1- Ground elevation at well	N/A
2- Top of casing elevation	N/A
a) vent hole?	
3- Wellhead protection cover type	Completed later
a) weep hole?	
b) concrete pad dimensions	
4- Dia./type of well casing	2" ID SCH 40 PVC
5- Dia./type of surface casing	8" temporary sonic casing
6- Type/slot size of screen	2" ID SCH 40 PVC 0.010" Slot
7- Type screen filter	Standard Sand & Silica 20/30 Davenport
a) Quantity used	3 50lb bags
8- Type of seal	3/8" Bentonite Hole Plug
a) Quantity used	2 50lb bags
9- Grout	
a) Grout mix used	Portland Type I/II Holcim
b) Method of placement	Tremie
c) Vol. of surface casing grout	
d) Vol. of well casing grout	~150 gallons
Development method	Overpump/surge
Development time	1 hr
Estimated purge volume	~60+ gallons
Comments	



Sheet: 1 of 1

Start/Finish Date: 10-26-11 0930 / 10-26-11 1910

[illegible]

COMPLETION REPORT OF WELL No. MW-306

Sheet 1 of 1

PROJECT: **Dow Deliniation Investigation**

PROJECT LOCATION: **UCC Woodbine**

DRILLING CONTRACTOR: **Cascade Drilling**

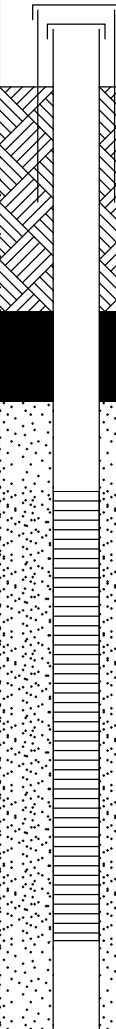
DRILLING METHOD: **Sonic**

DATE COMPLETED: **October 27, 2022**

GROUND SURFACE ELEVATION:

DATUM: **NVGD**

LOGGED BY: **B. Thomas**

STRATA			WELL DETAILS	DEPTH (ft.)		ELEVATION (ft.)	WELL CONSTRUCTION DETAILS																																
DESCRIPTION	DEPTH (ft.)	SYMBOL																																					
					TPC TRC		PROTECTIVE CASING Diameter: Type: Concrete Pad Interval: 0.0 - 4.0"																																
0.0 - 1.0 - SILTY SAND (SM) - (2.5Y 7/2)	0			0.0	GS																																		
1.0 - 3.9 - FINE SAND (SP) - (2.5Y 5/3)							RISER CASING Diameter: Type: Stick Up Interval:																																
3.9 - 5.8 - FINE SAND (SP) - (2.5Y 7/6)	5			5.0			GROUT Type: Portland Cement + Quick Gel Interval: 0.0 - 5.0'																																
5.8 - 7.5 - FINE SAND (SP) - (7.5YR 4/4)				7.0			SEAL Type: Bentonite (Time Release Pellets) Interval: 5.0 - 7.0'																																
7.9 - 9.0 - FINE SAND (SP) - (7.5YR 3/3)							SANDPACK Type: Sand (20/30) Interval: 7.0 - 21.0'																																
9.0 - 11.0 - FINE SAND (SP) - (10YR 4/6)	10						SCREEN Diameter: 2.0" Type: Sch. 40 PVC, 0.010" Interval: 9.0 - 19.0'																																
11.0 - 16.0 - FINE SAND (SP) - (2.5Y 4/6)							WELL DEVELOPMENT DATA DATE: 10/27/2022 METHOD: Hurricane Pump (Surge/Purge) DURATION: 1 hr RATE: 110 gallons/hr FINAL MEASUREMENTS: <table><tr><th>pH</th><th>Temperature (° C)</th><th>Conductivity (mmhos/cm)</th><th>Turbidity (NTU)</th></tr><tr><td>6.28</td><td>23.06</td><td>0.173</td><td>9.7</td></tr></table>	pH	Temperature (° C)	Conductivity (mmhos/cm)	Turbidity (NTU)	6.28	23.06	0.173	9.7																								
pH	Temperature (° C)	Conductivity (mmhos/cm)	Turbidity (NTU)																																				
6.28	23.06	0.173	9.7																																				
16.0 - 21.0 - FINE SAND (SP) - (2.5Y 4/6)	15			19.0																																			
	20			21.0																																			
							LEGEND <table><tr><td></td><td>FILTER PACK</td><td>TPC</td><td>TOP OF PROTECTIVE CASING</td></tr><tr><td></td><td>BENTONITE</td><td>TRC</td><td>TOP OF RISER CASING</td></tr><tr><td></td><td>CEMENT GROUT</td><td>GS</td><td>GROUND SURFACE</td></tr><tr><td></td><td>CUTTINGS / BACKFILL</td><td>BS</td><td>BENTONITE SEAL</td></tr><tr><td></td><td></td><td>FP</td><td>FILTER PACK</td></tr><tr><td></td><td></td><td>TSC</td><td>TOP OF SCREEN</td></tr><tr><td></td><td></td><td>BSC</td><td>BOTTOM OF SCREEN</td></tr><tr><td></td><td></td><td>TD</td><td>TOTAL DEPTH</td></tr></table>		FILTER PACK	TPC	TOP OF PROTECTIVE CASING		BENTONITE	TRC	TOP OF RISER CASING		CEMENT GROUT	GS	GROUND SURFACE		CUTTINGS / BACKFILL	BS	BENTONITE SEAL			FP	FILTER PACK			TSC	TOP OF SCREEN			BSC	BOTTOM OF SCREEN			TD	TOTAL DEPTH
	FILTER PACK	TPC	TOP OF PROTECTIVE CASING																																				
	BENTONITE	TRC	TOP OF RISER CASING																																				
	CEMENT GROUT	GS	GROUND SURFACE																																				
	CUTTINGS / BACKFILL	BS	BENTONITE SEAL																																				
		FP	FILTER PACK																																				
		TSC	TOP OF SCREEN																																				
		BSC	BOTTOM OF SCREEN																																				
		TD	TOTAL DEPTH																																				

**COMPLETION REPORT OF
WELL No. MW-306**

Sheet 1 of 1

LOG A EWN102 WELL REPORT LOG A EWN102.GPJ LOG A EWN102.GDT 1/17/23



PROJECT NUMBER:
WOO028DW

CORE NUMBER:
MW-306

SHEET 1 OF 1

SEDIMENT CORE LOG

PROJECT : Drum Removal Soil Sampling

LOCATION : Woodbine, GA

DRILLING EQUIPMENT AND METHOD : Rotonic Drill Rig, DPT

DRILLING CONTRACTOR : Cascade Drilling

ELEVATION :

WATER LEVELS : 11.0 ft

START : 10/25/22 15:20

END : 10/25/22 16:00

LOGGER : B. Thomas

DEPTH BELOW TOP OF SEDIMENT (ft)				SYMBOLIC LOG	SOIL DESCRIPTION	COMMENTS
0	PENETRATION (ft)				SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & SOIL STRUCTURE	SAMPLE ID
	RECOVERY (ft)	CORE TYPE				
5	0.0	5.0	SS-1	  	0.0 - 1.0 - SILTY SAND (SM) - (2.5Y 7/2), dry, very loose, non-plastic, non-cohesive, massive 1.0 - 3.9 - FINE SAND (SP) - (2.5Y 5/3), some silt, dry, very loose, non-plastic, non-cohesive, massive 3.9 - 5.8 - FINE SAND (SP) - (2.5Y 7/6), some silt but less than above, dry, very loose, non-plastic, non-cohesive, massive	PID 0.0 ppm throughout entire boring 100% recovery but due to size of core bag and loose nature of soil, recovered 6' of soil in 3' bag. Every 6" is actually 1' MW-306_20221025_0-2_ft_N_SO MW-306_20221025_0-2_ft_FD_SO MW-306_20221025_2-4_ft_N_SO MW-306_20221025_4-6_ft_N_SO
10	5.0	5.0	SS-2	    	5.8 - 7.5 - FINE SAND (SP) - (7.5YR 4/4), dry, very loose, non-plastic, non cohesive, massive 7.9 - 9.0 - FINE SAND (SP) - (7.5YR 3/3), dry, poorly sorted, very loose, non-plastic, non-cohesive, massive 9.0 - 11.0 - FINE SAND (SP) - (10YR 4/6), dry, poorly sorted, very loose, non-plastic, non,cohesive, massive 11.0 - 16.0 - FINE SAND (SP) - (2.5Y 4/6), moist, poorly sorted, very loose, non-plastic, non,cohesive, massive 16.0 - 21.0 - FINE SAND (SP) - (2.5Y 4/6), moist, poorly sorted, very loose, non-plastic, non,cohesive, massive	MW-306_20221025_6-8_ft_N_SO 6 - 11' - Only recovered 3' of core due to settling of sand 100% recovery but loose sand collapsed into core bag. MW-306_20221025_8-10_ft_N_SO MW-306_20221025_10-12_ft_N_SO Water table at 11.0' bgs
15	10.0	5.0	SS-3			
20	15.0	5.0	SS-4			
25	20.0	1.0	SS-5			
	21.0				EOB at 21' bgs	

WELL COMPLETION DIAGRAM

PROJECT : UCC Woodbine RTP MW Install

LOCATION : Woodbine, GA

Area: Former RTP

DRILLING CONTRACTOR : Cascade

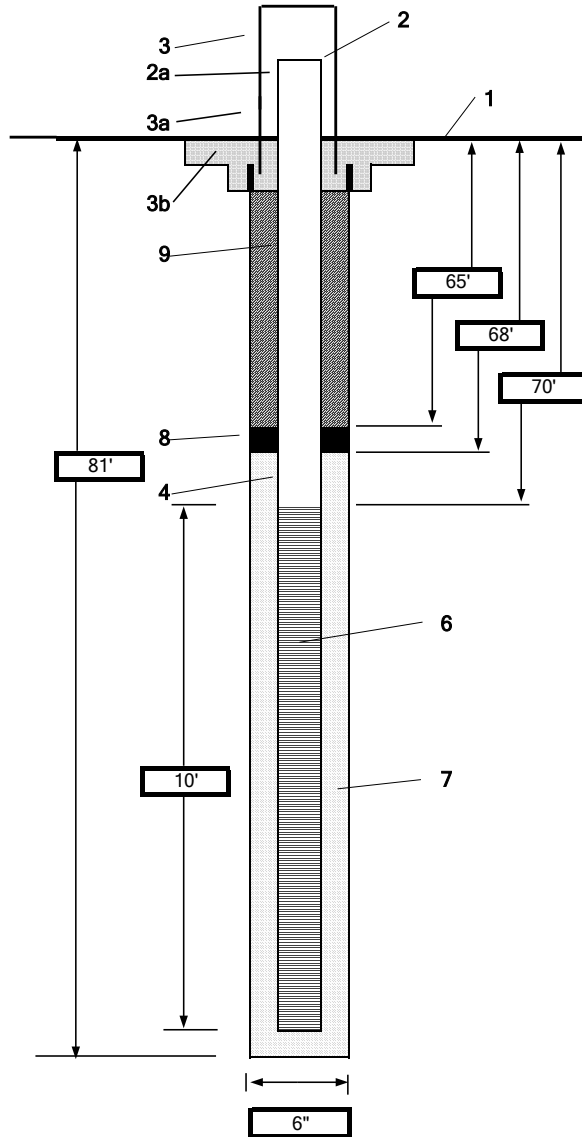
DRILLING METHOD AND EQUIPMENT USED : Rotasonic, Prosonic Crawler

WATER LEVELS : ~21 feet bgs

START: 10/4/2023

END: 10/6/2023

LOGGER: W. Dunn



1- Ground elevation at well	19.6 ft amsl
2- Top of casing elevation	22.97 ft amsl
a) vent hole?	No
3- Wellhead protection cover type	Steel Stickup Monument
a) weep hole?	No
b) concrete pad dimensions	3'x3'x6"
4- Dia./type of well casing	2" diameter Sch40 PVC
6- Type/slot size of screen	0.010" machine slot 2" diameter Sch40 PVC
7- Type screen filter	Standard Sand #20-30
a) Quantity used	5x 50lb bags
8- Type of seal	Haliburton 3/8" non-coated PelPlug chips
a) Quantity used	1x 50 lb bag
9- Grout	
a) Grout mix used	Type I/II Portland with gel
b) Method of placement	Tremie
c) Vol. of well casing grout	~100 gallons
Development method	Sure and purge
Development time	80min

Comments _____

WELL COMPLETION DIAGRAM

PROJECT : UCC Woodbine RTP MW Install

LOCATION : Woodbine, GA

Area: Former RTP

DRILLING CONTRACTOR : Cascade

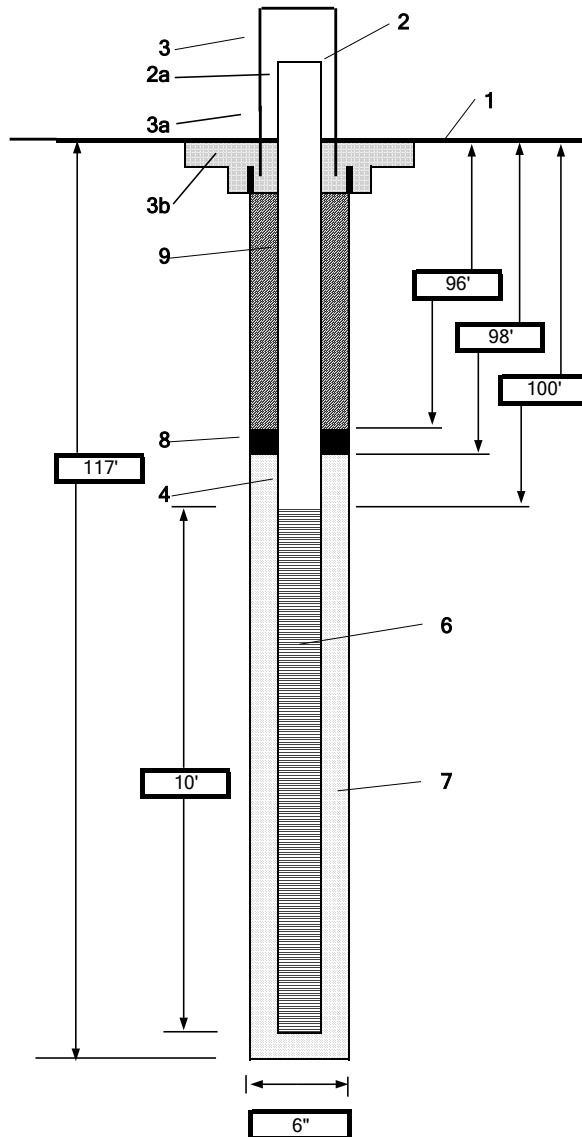
DRILLING METHOD AND EQUIPMENT USED : Rotasonic, Prosonic Crawler

WATER LEVELS : ~21 feet bgs

START: 10/3/2023

END: 10/6/2023

LOGGER: W. Dunn



1- Ground elevation at well	19.5 ft amsl
2- Top of casing elevation	22.92 ft amsl
a) vent hole?	No
3- Wellhead protection cover type	Steel Stickup Monument
a) weep hole?	No
b) concrete pad dimensions	3'x3'x6"
4- Dia./type of well casing	2" diameter Sch40 PVC
6- Type/slot size of screen	0.010" machine slot 2" diameter Sch40 PVC
7- Type screen filter	Standard Sand #20-30
a) Quantity used	5 3/4x 50lb bags
8- Type of seal	Haliburton 3/8" non-coated PelPlug chips
a) Quantity used	1x 50 lb bag
9- Grout	
a) Grout mix used	Type I/II Portland with gel
b) Method of placement	Tremie
c) Vol. of well casing grout	~150 gallons
Development method	Sure and purge
Development time	240min

Comments 111-117 feet bgs backfilled with 2x 50lb bags bentonite chips
110-111 feet bgs backfilled with sand



PROJECT NUMBER:
WOO021DW

Date: 12/15/2021
Well Number: MW23A

SHEET 1 of 1

WELL COMPLETION DIAGRAM

PROJECT : Woodbine Monitoring Well Replacement Todd Creek

LOCATION : Woodbine, Georgia

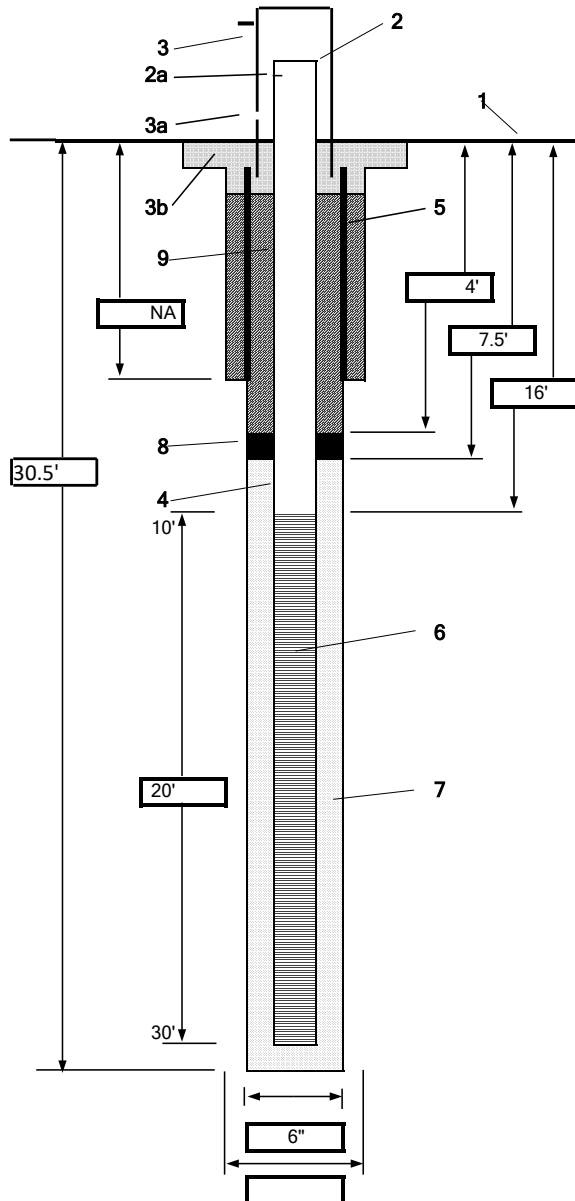
DRILLING CONTRACTOR : Cascade Drilling

DRILLING METHOD AND EQUIPMENT USED : Geoprobe 8140 LC

WATER LEVELS : START : 1440

END : 1700

LOGGER : D.Roberts



1- Ground elevation at well	22.5 FT NAVD88
2- Top of casing elevation	25.16 FT NAVD88
a) vent hole?	
3- Wellhead protection cover type	T-PLUG
a) weep hole?	YES
b) concrete pad dimensions	3'X3'X4"
4- Dia./type of well casing	2' SCH. 40 PVC
5- Dia./type of surface casing	2" SCH 40 PVC
6- Type/slot size of screen	2' SCH 40 PVC 0.010 SLOT
7- Type screen filter	FILTERSIL 50LB BAGS
a) Quantity used	6 BAGS
8- Type of seal	PEL PLUG NON-COATED 3/8'
a) Quantity used	1 50LB BUCKET
9- Grout	
a) Grout mix used	QUICKRETE 90LB BAG /50 GALS WATER
b) Method of placement	PUMPED
c) Vol. of surface casing grout	
d) Vol. of well casing grout	3 GALS
Development method	SURGE AND PUMP
Development time	
Estimated purge volume	
Comments	HYDRATE BENTONITE FOR 1 HOUR (1505-1625)

				PROJECT NUMBER		Date: 12/15/2021	
				WOO022DW		BORING NUMBER: MW23A SHEET 1 OF 1	
SOIL BORING LOG							
PROJECT : Todd Creek Well Replacement				LOCATION: Woodbine, GA			
ELEVATION : 22.5 ft NAVD88				DRILLING CONTRACTOR : Cascade Drilling			
DRILLING METHOD AND EQUIPMENT USED : 8140 LC Sonic Drill Rig 4" core barrel and 6' casing							
WATER LEVELS : 20 ft bgs		START : 1355		END : 1440		LOGGER : D.Roberts	
DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	PID (ppm)	COMMENTS Breathing Zone Logger/Driller (VOCs and LEL) and Notes	
	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)				
5	0-5	D-1	3.5	0.0-0.5 ft: SAND (SP), very dark gray (10YR 3/1), very fine grained, organics, very loose	0.2		
				0.5-15.0 ft: SAND (SP), light yellowish brown (2.5YR 6/4), dark yellowish brown (10YR 6/6), dark brown (7.5YR 3/3), very fine grained, poorly graded, very loose, moist	0.2		
					0.0		
					0.0		
10	5-10	D-2	5.0		0.0		
					0.0		
					0.0		
					0.0		
15	10-15	D-3	5.0		0.0		
					0.0		
					0.0		
					0.0		
20	15-20	D-4	5.0	15.0-17.5 ft: SAND (SP), dark brown (7.5YR 3/3), grayish brown (10YR 5/2), very fine grained, poorly graded, very loose, moist to wet	0	BZ=0.0 LEL=0%	
				17.5-30.0 ft: SAND (SP), yellowish brown (10YR 5/6), dark brown (10YR 3/3), olive brown (2.5YR 5/6), dark grayish brown (2.5YR 4/2), very fine grained, poorly graded, very loose, wet	0		
					0		
					0		
25	20-25	D-5	4.0		0		
					1.2		
					2.1		
					0.8		
30	25-30	D-6	5.0		0.3		
					3.8		
					30.9		
					20.7		
				Boring Terminated at 30 ft bgs	2.2		



PROJECT NUMBER:
WOO021DW

Date: 12/15/2021
Well Number: MW24A

SHEET 1 of 1

WELL COMPLETION DIAGRAM

PROJECT : Woodbine Monitoring Well Replacement Todd Creek

LOCATION : Woodbine, Georgia

DRILLING CONTRACTOR : Cascade Drilling

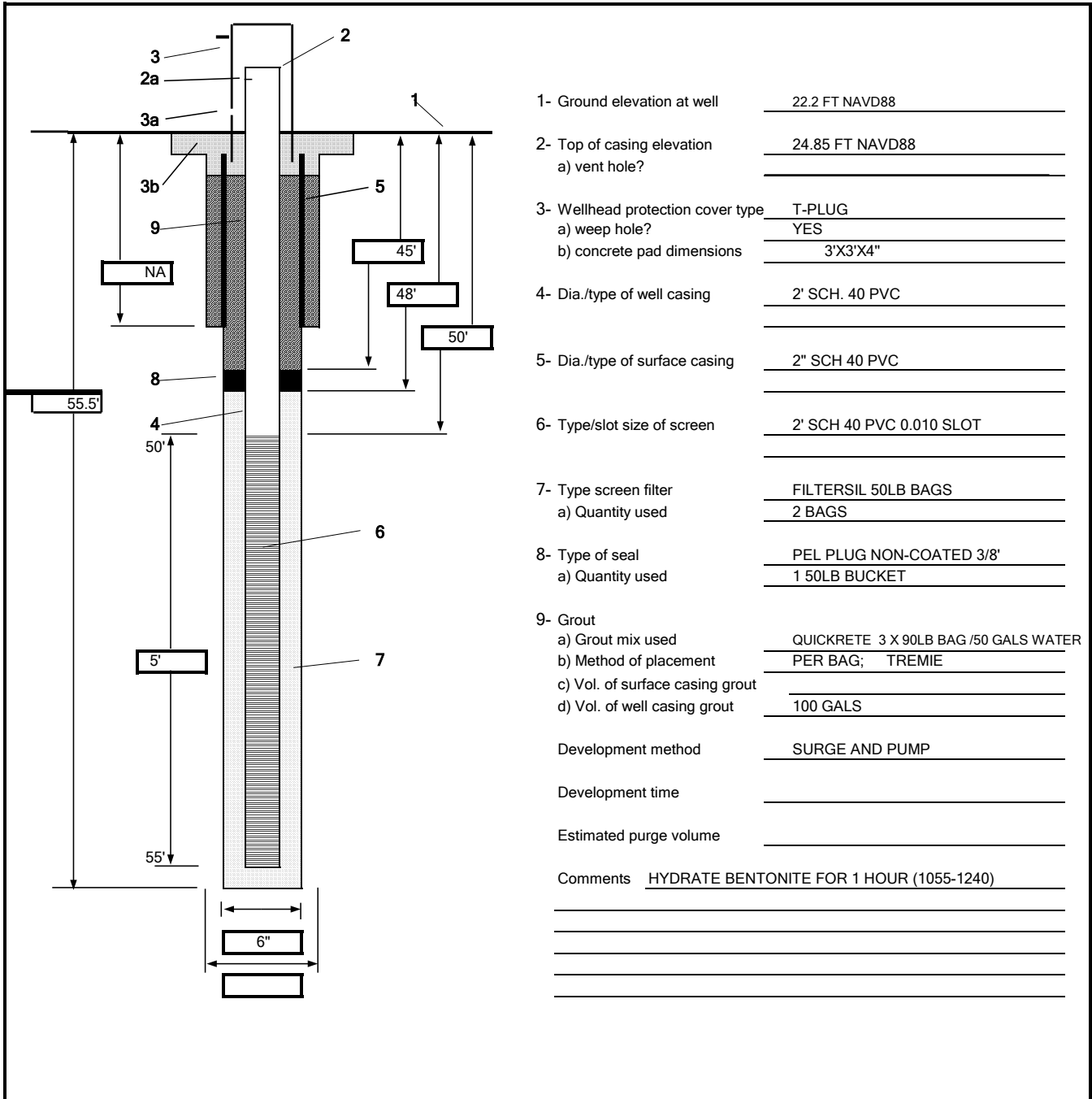
DRILLING METHOD AND EQUIPMENT USED : Geoprobe 8140 LC

WATER LEVELS : 19.95 BTOC

START : 1040

END : 1320

LOGGER : D.Roberts



				PROJECT NUMBER		Date: 12/15/2021	
				WOO022DW		BORING NUMBER: MW24A SHEET 1 OF 2	
SOIL BORING LOG							
PROJECT : Todd Creek Well Replacement				LOCATION: Woodbine, GA			
ELEVATION : 22.2 ft NAVD88				DRILLING CONTRACTOR : Cascade Drilling			
DRILLING METHOD AND EQUIPMENT USED : 8140 LC Sonic Drill Rig 4" core barrel and 6' casing							
WATER LEVELS : 20 ft bgs		START : 0843		END : 1028		LOGGER : D.Roberts	
DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	PID (ppm)	COMMENTS Breathing Zone Logger/Driller (VOCs and LEL) and Notes	
	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)				
5	0-5	D-1	2.0	0.0-2.0 ft: SAND (SP), dark yellowish brown (10YR 4/6), very fine grained, poorly graded, organics, very loose, moist, trace silt	0.0		
				2.0-5.0 ft: NO RECOVERY	0.0		
10	5-10	D-2	1.0	5.0-6.0 ft: SAND (SP), white (10YR 8/1), very fine grained, poorly graded, very loose, moist	0.0	BZ=0.0 LEL=0%	
				6.0-10.0 ft: NO RECOVERY			
15	10-15	D-3	5.0	10.0-15.0 ft: SAND (SP), very dark brown (10YR 2/2), yellowish brown (10YR 2/2), very fine grained, poorly graded, very loose to loose, moist	0.0		
					0.0		
20	15-20	D-4	0.0	15.0-20.0 ft: NO RECOVERY		BZ=0.0 LEL=0%	
25	20-25	D-5	5.0	20.0-25.0 ft: SAND (SP), brownish yellow (10YR 6/6), very fine grained, poorly graded, very loose, moist	8.3		
					3.6		
30	25-30	D-6	5.0	25.0-30.0 ft: SAND (SP), olive gray (5YR 4/2), very fine grained, poorly graded, loose to medium dense, wet	1.1	strong sulfur odor	
					0.5		
					2.2		
					1.5		
					4.3		
					0.7		
					0.5		
					0.4		

				PROJECT NUMBER		Date: 12/15/2021	
				WOO022DW		BORING NUMBER: MW24A SHEET 2 OF 2	
SOIL BORING LOG							
PROJECT : Todd Creek Well Replacement				LOCATION: Woodbine, GA			
ELEVATION : 22.2 ft NAVD88				DRILLING CONTRACTOR : Cascade Drilling			
DRILLING METHOD AND EQUIPMENT USED : 8140 LC Sonic Drill Rig 4" core barrel and 6' casing							
WATER LEVELS : 20 ft bgs		START : 0843		END : 1028		LOGGER : D.Roberts	
DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	PID (ppm)	COMMENTS Breathing Zone Logger/Driller (VOCs and LEL) and Notes	
	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)				
35	30-35	D-7	5.0	30.0-32.5 ft: SAND (SP), gray (5Y 5/1), very fine to fine grained, poorly graded, loose, wet	0.1		
					1.1		
					12.0		
					10.3		
					20.5		
40	35-40	D-8	5.0		0.0	BZ=0.0 LEL=0%	
					0.0		
					0.0		
					0.0		
					0.0		
45	40-45	D-9	5.0	40.0-42.5 ft: SAND (SC), dark gray (5Y 4/1), very fine grained sand with small clay lense, medium dense to loose, wet	0.0	BZ=0.0 LEL=0%	
					0.0		
					0.0		
					0.0		
					0.0		
50	45-50	D-10	3.0		0.0	BZ=0.0 LEL=0%	
					0.0		
					0.0		
					0.0		
					0.0		
55	50-55	D-11	5.0	48.0-52.5 ft: SAND (SC), dark gray (5Y 4/1), very fine to fine grained sand with small clay lense and shell fragments, loose, wet			
				BORING TERMINATED AT 55 FT BGS			



15850 CRABBS BRANCH WAY
SUITE 300
ROCKVILLE, MARYLAND 20855
TELEPHONE: (301) 417-0200

environmental, inc.

Project: Thiokol - Woodbine facility

Job No.: 097.001

Location: SWMU 2 BACKGROUND

Date: 5/2/96

SWMU: 2

Boring ID:

BKG2-1

DEPTH (ft.)	SAMPLE INTERVAL	SAMPLE ID	PROBE ADVANCE	SAMPLE REC, (in.)	HEADSPACE (ppm)	WATER TABLE	LITHOLOGY	SAMPLE DESCRIPTION	REMARKS
1		S1	easy	24/24	59.8			Dark brown fine SAND, organic A horizon, slightly moist	
2								Brown fine SAND, slightly moist	
3		S2	easy	24/24	33.0			Brown to light brown fine SAND, slightly moist	
4								End of boring at 4 feet BGS.	
5									

COMMENTS: Soil samples collected with 24" Geoprobe sampler. Headspace analysis collected with MSA Photon with 10.6 eV bulb.

Start Date: 11/10/95

Complete Date: 11/10/95

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Geologist: M Landsman



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Project: Thiokol - Woodbine facility

Job No.: 097.001

Location: SWMU 2 BACKGROUND

Date: 5/2/96

SWMU: 2

Boring ID:

BKG2-2

DEPTH (ft.)	SAMPLE INTERVAL	SAMPLE ID	PROBE ADVANCE	SAMPLE REC. (in.)	HEADSPACE (ppm)	WATER TABLE	LITHOLOGY	SAMPLE DESCRIPTION	REMARKS
1		S1	easy	24/24	4.6			Dark brown fine SAND, slightly moist	
2									
3		S2	easy	24/24	5.4			6" dark brown fine SAND grades to light brown fine SAND at 4 feet, slightly moist	
4								End of boring at 4 feet BGS.	
5									

COMMENTS: Soil samples collected with 24" Geoprobe sampler. Headspace analysis collected with MSA Photon with 10.6 eV bulb.

Start Date: 11/10/95

Complete Date: 11/10/95

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Geologist: M Landsman



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Project: Thiokol - Woodbine facility

Job No.: 097.001

Location: SWMU 2 BACKGROUND

Date: 5/2/96

SWMU: 2

Boring ID:

BKG2-3

DEPTH (ft.)	SAMPLE INTERVAL	SAMPLE ID	PROBE ADVANCE	SAMPLE REC. (in.)	HEADSPACE (ppm)	WATER TABLE	LITHOLOGY	SAMPLE DESCRIPTION	REMARKS
1		S1	easy	24/24	12.8			Dark brown fine SAND, organic-rich, slightly moist	
2								Dark brown fine SAND, slightly moist	
3		S2	easy	24/24	25.0			Brown fine SAND, slightly moist	
4								Light brown fine SAND, slightly moist	
5								End of boring at 4 feet BGS.	

COMMENTS: Soil samples collected with 24" Geoprobe sampler. Headspace analysis collected with MSA Photon with 10.6 eV bulb.

Start Date: 11/10/95

Complete Date: 11/10/95

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Geologist: M Landsman



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environmental, inc.

Project: Thiokol - Woodbine facility

Job No.: 097.001

Location: SWMU 3 BACKGROUND

Date: 4/29/96

SWMU: 3

Boring ID:

BKG3-1

DEPTH (ft.)	SAMPLE INTERVAL	SAMPLE ID	PROBE ADVANCE	SAMPLE REC. (in.)	HEADSPACE (ppm)	WATER TABLE	LITHOLOGY	SAMPLE DESCRIPTION	REMARKS
1		S1	easy	24/24	660			Dark brown fine SAND, slightly moist, natural organic odor	
2									
3		S2	easy	24/24	230			Light brown fine SAND, dry, natural organic odor	
4								End of boring at 4 feet BGS.	
5									

COMMENTS: Soil samples collected with 24" Geoprobe sampler. Headspace analysis collected with MSA Photon with 10.6 eV bulb.

Start Date: 11/10/95

Complete Date: 11/10/95

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Geologist: M Landsman



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Project: Thiokol - Woodbine facility

Job No.: 097.001

Location: SWMU 3 BACKGROUND

Date: 4/29/96

SWMU: 3

Boring ID:

BKG3-2

DEPTH (ft.)	SAMPLE INTERVAL	SAMPLE ID	PROBE ADVANCE	SAMPLE REC. (in.)	HEADSPACE (ppm)	WATER TABLE	LITHOLOGY	SAMPLE DESCRIPTION	REMARKS
1		S1	easy	24/24	44.3			Dark brown fine SAND, slightly moist	
2								Brown fine SAND, slightly moist	
3		S2	easy	24/24	19.0			Yellow brown fine SAND, slightly moist	
4								End of boring at 4 feet BGS.	
5									

COMMENTS: Soil samples collected with 24" Geoprobe sampler. Headspace analysis collected with MSA Photon with 10.6 eV bulb.

Start Date: 11/10/95

Complete Date: 11/10/95

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Geologist: M Landsman



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Project: Thiokol - Woodbine facility

Job No.: 097.001

Location: SWMU 3 BACKGROUND

Date: 4/29/96

SWMU: 3

Boring ID:

BKG3-3

DEPTH (ft.)	SAMPLE INTERVAL	SAMPLE ID	PROBE ADVANCE	SAMPLE REC. (in.)	HEADSPACE (ppm)	WATER TABLE	LITHOLOGY	SAMPLE DESCRIPTION	REMARKS
1		S1	easy	24/24	38.9			Dark brown fine SAND, slightly moist	
2								Brown fine SAND, slightly moist	
3		S2	easy	24/24	126			Yellow brown to brown fine SAND, slightly moist	
4								End of boring at 4 feet BGS.	
5									

COMMENTS: Soil samples collected with 24" Geoprobe sampler. Headspace analysis collected with MSA Photon with 10.6 eV bulb.

Start Date: 11/10/95

Complete Date: 11/10/95

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Geologist: M Landsman



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Project: Thiokol - Woodbine facility

Job No.: 097.001

Location: SWMU 4 BACKGROUND

Date: 5/2/96

SWMU: 4

Boring ID:

BKG4-1

DEPTH (ft.)	SAMPLE INTERVAL	SAMPLE ID	PROBE ADVANCE	SAMPLE REC. (in.)	HEADSPACE (ppm)	WATER TABLE	LITHOLOGY	SAMPLE DESCRIPTION	REMARKS
1		S1	easy	24/24	141			Very dark gray fine SAND, organic-rich, very moist to wet	
2									
3		S2	easy	24/24	134			Alternating layers of dark yellowish brown and very dark gray fine SAND, very moist	
4								End of boring at 4 feet BGS.	
5									

COMMENTS: Soil samples collected with 24" Geoprobe sampler. Headspace analysis collected with MSA Photon with 10.6 eV bulb.

Start Date: 11/13/95

Complete Date: 11/13/95

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Geologist: M Landsman



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Project: Thiokol - Woodbine facility

Job No.: 097.001

Location: SWMU 4 BACKGROUND

Date: 5/7/98

SWMU: 4

Boring ID:

BKG4-2

DEPTH (ft.)	SAMPLE INTERVAL	SAMPLE ID	PROBE ADVANCE	SAMPLE REC. (in.)	HEADSPACE (ppm)	WATER TABLE	LITHOLOGY	SAMPLE DESCRIPTION	REMARKS
1		S1	easy	24/24	202				
2								Very dark gray fine SAND, organic-rich, moist	
3		S2	easy	24/24	49.6				
4								Thin alternating layers of dark yellowish brown and very dark gray fine SAND, wet	
								End of boring at 4 feet BGS.	
5									

COMMENTS: Soil samples collected with 24" Geoprobe sampler. Headspace analysis collected with MSA Photon with 10.6 eV bulb.

Start Date: 11/13/95

Complete Date: 11/13/95

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Geologist: M Landsman



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environmental, inc.

Project: Thiokol - Woodbine facility

Job No.: 097.001

Location: SWMU 4 BACKGROUND

Date: 5/7/96

SWMU: 4

Boring ID:

BKG4-3

DEPTH (ft.)	SAMPLE INTERVAL	SAMPLE ID	PROBE ADVANCE	SAMPLE REC, (in.)	HEADSPACE (ppm)	WATER TABLE	LITHOLOGY	SAMPLE DESCRIPTION	REMARKS
1		S1	easy	24/24	6.2			Dark gray fine SAND, organic-rich, moist	
2									
3		S2	easy	24/24	7.2			Alternating layers of dark yellowish brown and very dark gray fine SAND, wet	
4								End of boring at 4 feet BGS.	
5									

COMMENTS: Soil samples collected with 24" Geoprobe sampler. Headspace analysis collected with MSA Photon with 10.6 eV bulb.

Start Date: 11/13/95

Complete Date: 11/13/95

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Geologist: M Landsman



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TELEPHONE: (301) 417-0200

Project: Thiokol - Woodbine facility

Job No.: 097.001

Location: SWMU 5 BACKGROUND

Date: 5/7/96

SWMU: 5

Boring ID:

BKG5-1

DEPTH (ft.)	SAMPLE INTERVAL	SAMPLE ID	PROBE ADVANCE	SAMPLE REC. (in.)	HEADSPACE (ppm)	WATER TABLE	LITHOLOGY	SAMPLE DESCRIPTION	REMARKS
1		S1	easy	24/24	8.9			Gray fine SAND, moist	
								Black fine SAND, moist	
2								Dark yellowish brown fine SAND, moist	
3		S2	easy-mod	24/24	8.1			Dark grayish brown fine SAND, very moist over grayish brown fine SAND, wet	
4								End of boring at 4 feet BGS.	
5									

COMMENTS: Soil samples collected with 24" Geoprobe sampler. Headspace analysis collected with MSA Photon with 10.6 eV bulb.

Start Date: 11/13/95

Complete Date: 11/13/95

Geologist: M Landsman

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SUITE 300
ROCKVILLE, MARYLAND 20855
TELEPHONE: (301) 417-0200

Project: Thiokol - Woodbine facility

Job No.: 097.001

Location: SWMU 5 BACKGROUND

Date: 5/7/96

SWMU: 5

Boring ID:

BKG5-2

DEPTH (ft.)	SAMPLE INTERVAL	SAMPLE ID	PROBE ADVANCE	SAMPLE REC, (in.)	HEADSPACE (ppm)	WATER TABLE	LITHOLOGY	SAMPLE DESCRIPTION	REMARKS
1		S1	easy	24/24	5.8			Black fine SAND, slightly moist	
								Very dark grayish brown fine SAND	
								Black fine SAND	
2								Gray fine SAND	
								Black fine SAND, organic-rich	
3		S2	easy	24/24	7.5			Black grading to brown fine SAND, very moist with black layer at 3.7-3.9 feet	
4								End of boring at 4 feet BGS.	
5									

COMMENTS: Soil samples collected with 24" Geoprobe sampler. Headspace analysis collected with MSA Photon with 10.6 eV bulb.

Start Date: 11/13/95

Complete Date: 11/13/95

Geologist: M Landsman

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15850 CRABBS BRANCH WAY
SUITE 300
ROCKVILLE, MARYLAND 20855
TELEPHONE: (301) 417-0200

Project: Thiokol - Woodbine facility

Job No.: 097.001

Location: SWMU 5 BACKGROUND

Date: 5/7/96

SWMU: 5

Boring ID:

BKG5-3

DEPTH (ft.)	SAMPLE INTERVAL	SAMPLE ID	PROBE ADVANCE	SAMPLE REC, (in.)	HEADSPACE (ppm)	WATER TABLE	LITHOLOGY	SAMPLE DESCRIPTION	REMARKS
1		S1	easy	24/24	4.3				
2								Very dark gray fine SAND	
3		S2	easy	24/24	6.2				
4								End of boring at 4 feet BGS.	
5									

COMMENTS: Soil samples collected with 24" Geoprobe sampler. Headspace analysis collected with MSA Photon with 10.6 eV bulb.

Start Date: 11/17/95

Complete Date: 11/17/95

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Geologist: M Landsman

 15850 CRABBS BRANCH WAY SUITE 300 ROCKVILLE, MARYLAND 20855 TELEPHONE: (301) 417-0200	Project: Thiokol - Woodbine facility		Boring ID: BKG6-1
	Job No.: 097.001		
	Location: SWMU 6 BACKGROUND		
	Date: 5/7/96		
	SWMU: 6		

DEPTH (ft.)	SAMPLE INTERVAL	SAMPLE ID	PROBE ADVANCE	SAMPLE REC, (in.)	HEADSPACE (ppm)	WATER TABLE	LITHOLOGY	SAMPLE DESCRIPTION	REMARKS
1		S1	easy	24/24	3.1			Dark to light gray fine SAND, slightly moist	
								Black fine SAND, slightly moist	
								Dark brown fine SAND, slightly moist	
2								Very dark brown fine SAND, organic cementation	
3		S2	moderate	24/24	9.5			Dark brown fine SAND, very moist	
4								End of boring at 4 feet BGS.	
5									

COMMENTS: Soil samples collected with 24" Geoprobe sampler. Headspace analysis collected with MSA Photon with 10.6 eV bulb. Geologist: <u>M Landsman</u>	Start Date: 11/13/95
	Complete Date: 11/13/95
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15850 CRABBS BRANCH WAY
SUITE 300
ROCKVILLE, MARYLAND 20855
TELEPHONE: (301) 417-0200

Project: Thiokol - Woodbine facility

Job No.: 097.001

Location: SWMU 6 BACKGROUND

Date: 5/7/96

SWMU: 6

Boring ID:

BKG6-2

DEPTH (ft.)	SAMPLE INTERVAL	SAMPLE ID	PROBE ADVANCE	SAMPLE REC. (in.)	HEADSPACE (ppm)	WATER TABLE	LITHOLOGY	SAMPLE DESCRIPTION	REMARKS
1		S1	easy	24/24	2.7			Light gray fine SAND	
2								Very dark brown fine SAND, organic cementation	
3		S2	mod-hard	24/24	10.6			Brown fine SAND, very moist	
4								Very dark brown fine SAND, very moist	
5								End of boring at 4 feet BGS.	

COMMENTS: Soil samples collected with 24" Geoprobe sampler. Headspace analysis collected with MSA Photon with 10.6 eV bulb.

Start Date: 11/13/95

Complete Date: 11/13/95

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Geologist: M Landsman



15850 CRABBS BRANCH WAY
SUITE 300
ROCKVILLE, MARYLAND 20855
TELEPHONE: (301) 417-0200

Project: Thiokol - Woodbine facility

Job No.: 097.001

Location: SWMU 6 BACKGROUND

Date: 5/7/96

SWMU: 6

Boring ID:

BKG6-3

DEPTH (ft.)	SAMPLE INTERVAL	SAMPLE ID	PROBE ADVANCE	SAMPLE REC. (in.)	HEADSPACE (ppm)	WATER TABLE	LITHOLOGY	SAMPLE DESCRIPTION	REMARKS
1		S1	moderate	24/24	10.3			Gray fine SAND, slightly moist	
2								Very dark brown fine SAND, slightly moist	
3		S2	moderate	24/24	14.5			Brown graded to pale brown fine SAND, moist	
4								End of boring at 4 feet BGS.	
5									

COMMENTS: Soil samples collected with 24" Geoprobe sampler. Headspace analysis collected with MSA Photon with 10.6 eV bulb.

Start Date: 11/13/95

Complete Date: 11/13/95

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Geologist: M Landsman



15850 CRABBS BRANCH WAY
SUITE 300
ROCKVILLE, MARYLAND 20855
TELEPHONE: (301) 417-0200

Project: Thiokol - Woodbine facility

Job No.: 097.001

Location: SWMU 7 BACKGROUND

Date: 5/7/98

SWMU: 7

Boring ID:

BKG7-1

DEPTH (ft.)	SAMPLE INTERVAL	SAMPLE ID	PROBE ADVANCE	SAMPLE REC. (in.)	HEADSPACE (ppm)	WATER TABLE	LITHOLOGY	SAMPLE DESCRIPTION	REMARKS
1		S1	moderate	24/24	7.1			Organic "O" horizon	
								Very dark gray fine SAND, moist	
								Gray fine SAND, moist	
2								Black fine SAND, moist	
3		S2	moderate	24/24	8.1			Brown to pale brown fine SAND, moist	
4								End of boring at 4 feet BGS.	
5									

COMMENTS: Soil samples collected with 24" Geoprobe sampler. Headspace analysis collected with MSA Photon with 10.6 eV bulb.

Start Date: 11/13/95

Complete Date: 11/13/95

page 1 of 1

Geologist: M Landsman



15850 CRABBS BRANCH WAY
SUITE 300
ROCKVILLE, MARYLAND 20855
TELEPHONE: (301) 417-0200

Project: Thiokol - Woodbine facility

Job No.: 097.001

Location: SWMU 7 BACKGROUND

Date: 5/7/96

SWMU: 7

Boring ID:

BKG7-2

DEPTH (ft.)	SAMPLE INTERVAL	SAMPLE ID	PROBE ADVANCE	SAMPLE REC. (in.)	HEADSPACE (ppm)	WATER TABLE	LITHOLOGY	SAMPLE DESCRIPTION	REMARKS
1		S1	moderate	24/12	6.0			Very dark gray fine SAND, very wet	
2									
3		S2	mod-hard	24/24	4.8			Black fine SAND, wet	
								Dark yellowish brown fine SAND, wet	
4								End of boring at 4 feet BGS.	
5									

COMMENTS: Soil samples collected with 24" Geoprobe sampler. Headspace analysis collected with MSA Photon with 10.6 eV bulb.

Start Date: 11/13/95

Complete Date: 11/13/95

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Geologist: M Landsman



15850 CRABBS BRANCH WAY
SUITE 300
ROCKVILLE, MARYLAND 20855
TELEPHONE: (301) 417-0200

environmental, inc.

Project: Thiokol - Woodbine facility

Job No.: 097.001

Location: SWMU 7 BACKGROUND

Date: 5/7/96

SWMU: 7

Boring ID:

BKG7-3

DEPTH (ft.)	SAMPLE INTERVAL	SAMPLE ID	PROBE ADVANCE	SAMPLE REC. (in.)	HEADSPACE (ppm)	WATER TABLE	LITHOLOGY	SAMPLE DESCRIPTION	REMARKS
1		S1	easy	24/24	8.4			Organic "O" horizon	
2								Light gray fine SAND, moist	
3		S2	moderate	24/24	9.6			Black to very dark gray fine SAND, moist	
4								Light gray fine SAND with black organic layer	
5								End of boring at 4 feet BGS.	

COMMENTS: Soil samples collected with 24" Geoprobe sampler. Headspace analysis collected with MSA Photon with 10.6 eV bulb.

Start Date: 11/13/95

Complete Date: 11/13/95

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Geologist: M Landsman

 Apex environmental, inc.	15850 CRABBS BRANCH WAY SUITE 300 ROCKVILLE, MARYLAND 20855 TELEPHONE: (301) 417-0200	Project: Thiokol - Woodbine facility Job No.: 097.001 Location: 974 N / 240 E Date: 5/7/96 SWMU: 3 - Burn Area	Boring ID: 3-004
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DEPTH (ft.)	SAMPLE INTERVAL	SAMPLE ID	PROBE ADVANCE	SAMPLE REC, (in.)	HEADSPACE (ppm)	WATER TABLE	LITHOLOGY	SAMPLE DESCRIPTION	REMARKS
1					47.4			Brown medium SAND, dry	Samples 9099 and 9103 collected for laboratory analyses
2		S1	easy	48/48	12.4				
3					14.3				
4					1.0			Light brown medium SAND, dry	
5					24.3				
6		S2	easy	36/36	1.0			Moist at approx. 6 feet	
7					0.7				
8					16.7			Brown medium SAND, moist	
9		S3	easy	36/36	1.4			Wet at approx. 9 feet	
10					0.7				
11								End of boring at 10 feet BGS	

COMMENTS: Soil samples collected with Geoprobe 48" stainless steel sampler. Headspace analysis collected with MSA Photon with 10.6 eV bulb.	Start Date: 2/27/96 Complete Date: 2/27/96
Geologist: T Adesida	page 1 of 1



15850 CRABBS BRANCH WAY
SUITE 300
ROCKVILLE, MARYLAND 20855
TELEPHONE: (301) 417-0200

Project: Thiokol - Woodbine facility

Job No.: 097.001

Location: 1012 N / 283 E

Date: 5/7/96

SWMU: 3 - Burn Area

Boring ID:

3-005

DEPTH (ft.)	SAMPLE INTERVAL	SAMPLE ID	PROBE ADVANCE	SAMPLE REC, (in.)	HEADSPACE (ppm)	WATER TABLE	LITHOLOGY	SAMPLE DESCRIPTION	REMARKS
1					3.2				
2		S1	easy	48/48	1.6			Very dark gray and light brown SAND, some organic matter, dry	
3					1.7				
4					1.0			Light yellowish brown medium SAND, dry	
5					0.0				
6		S2	easy	36/36	1.0			Pale brown medium SAND, dry	
7					0.2				
8					2.2			Very pale brown medium SAND, moist	
9		S3	easy	36/36	0.7			Wet at approx. 9 feet.	
10					0.3				
11								End of boring at 10 feet BGS	

COMMENTS: Soil samples collected with Geoprobe 48" stainless steel sampler.
Headspace analysis collected with MSA Photon with 10.6 eV bulb.

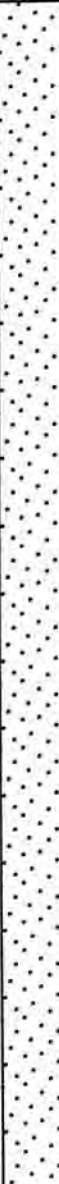
Start Date: 2/27/96

Complete Date: 2/27/96

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Geologist: T Adesida

 15850 CRABBS BRANCH WAY SUITE 300 ROCKVILLE, MARYLAND 20855 TELEPHONE: (301) 417-0200		Project: Thiokol - Woodbine facility			Boring ID: 3-006
		Job No.: 097.001			
		Location: 1009 N / 361 E			
		Date: 5/7/96			
SWMU: 3 - Burn Area					

DEPTH (ft.)	SAMPLE INTERVAL	SAMPLE ID	PROBE ADVANCE	SAMPLE REC. (in.)	HEADSPACE (ppm)	WATER TABLE	LITHOLOGY	SAMPLE DESCRIPTION	REMARKS
1		S1	easy	48/48	2.7			Dark gray and brown medium SAND, dry	
2					5.4				
3					0.7				
4		S2	easy	36/36	2.9		Dark gray medium SAND, dry		
5					0.8				
6					1.0		Light brownish gray medium SAND, dry		
7		S3	easy	36/36	2.6				
8					5.2		Light gray medium SAND, moist		
9					7.3		Wet at approx. 9 feet		
10					2.0			End of boring at 10 feet BGS	
11									

COMMENTS: Soil samples collected with Geoprobe 48" stainless steel sampler. Headspace analysis collected with MSA Photon with 10.6 eV bulb. Geologist: <u>T Adesida</u>	Start Date: 2/27/96
	Complete Date: 2/27/96
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15850 CRABBS BRANCH WAY
SUITE 300
ROCKVILLE, MARYLAND 20855
TELEPHONE: (301) 417-0200

Project: Thiokol - Woodbine facility

Job No.: 097.001

Location: 1032 N / 415 E

Date: 5/7/96

SWMU: 3 - Burn Area

Boring ID:

3-007

DEPTH (ft.)	SAMPLE INTERVAL	SAMPLE ID	PROBE ADVANCE	SAMPLE REC. (in.)	HEADSPACE (ppm)	WATER TABLE	LITHOLOGY	SAMPLE DESCRIPTION	REMARKS
1					0.0				
2		S1	easy	48/48	0.0			Brown medium SAND, dry, plant roots	
3					0.0				
4					0.3			Very dark brown medium SAND, dry	
5					0.3				
6		S2	easy	36/36	0.0			Dark brown medium SAND, dry	
7					0.0				
8					0.0				
9		S3	easy	36/36	0.0			Pale brown medium SAND, moist Wet at approx. 9 feet	
10					0.0				
11								End of boring at 10 feet BGS	

COMMENTS: Soil samples collected with Geoprobe 48" stainless steel sampler.
Headspace analysis collected with MSA Photon with 10.6 eV bulb.

Start Date: 2/27/96

Complete Date: 2/27/96

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Geologist: T Adesida

		15850 CRABBS BRANCH WAY SUITE 300 ROCKVILLE, MARYLAND 20855 TELEPHONE: (301) 417-0200					Project: Thiokol - Woodbine facility		Boring ID: 3-008
							Job No.: 097.001		
							Location: 1029 N / 463 E		
							Date: 5/7/96		
					SWMU: 3 - Burn Area				
DEPTH (ft.)	SAMPLE INTERVAL	SAMPLE ID	PROBE ADVANCE	SAMPLE REC. (in.)	HEADSPACE (ppm)	WATER TABLE	LITHOLOGY	SAMPLE DESCRIPTION	REMARKS
1		S1	easy	48/48	0.0			Brown medium SAND, dry	
2					0.0				
3					0.0				
4		S2	easy	36/36	0.0			Dark brown medium SAND, dry	
5					0.0				
6					0.0				
7		S3	easy	36/36	0.0			Very dark brown medium SAND, dry	
8					0.0				
9					0.0				
10					0.0			Very dark brown medium SAND, moist Wet at approx. 9 feet	
11								End of boring at 10 feet BGS	
COMMENTS: Soil samples collected with Geoprobe 48" stainless steel sampler. Headspace analysis collected with MSA Photon with 10.6 eV bulb.								Start Date: 2/27/96	
								Complete Date: 2/27/96	
								page 1 of 1	
Geologist: T Adesida									



TM

15850 CRABBS BRANCH WAY
SUITE 300
ROCKVILLE, MARYLAND 20855
TELEPHONE: (301) 417-0200

Project: Thiokol - Woodbine facility

Job No.: 097.001

Location: 351.5 N / 140 E

Date: 5/7/96

SWMU: 3 - Aldicarb Disposal Area

Boring ID:

3-001

DEPTH (ft.)	SAMPLE INTERVAL	SAMPLE ID	PROBE ADVANCE	SAMPLE REC. (in.)	HEADSPACE (ppm)	WATER TABLE	LITHOLOGY	SAMPLE DESCRIPTION	REMARKS
1					0.0				
2		S1	easy	48/48	0.0			Light brown medium SAND, dry	
3					0.0				
4					0.0				
5		S2	easy	36/36	0.0			Light brown medium SAND, dry	
6					0.0				
7					0.0				
8		S3	easy	36/36	0.0			Dark brown medium SAND, wet	
9					0.0				
10					0.0			End of boring at 10 feet BGS.	
11									

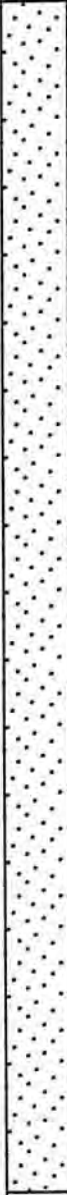
COMMENTS: Soil samples collected with Geoprobe 48" stainless steel sampler.
Headspace analysis collected with MSA Photon with 10.6 eV bulb.

Start Date: 2/26/96

Complete Date: 2/26/96

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Geologist: T Adesida

		15850 CRABBS BRANCH WAY SUITE 300 ROCKVILLE, MARYLAND 20855 TELEPHONE: (301) 417-0200					Project: Thiokol - Woodbine facility		Boring ID: 3-002
							Job No.: 097.001		
							Location: 332 N / 64 E		
							Date: 5/7/96		
							SWMU: 3 - Aldicarb Disposal Area		
DEPTH (ft.)	SAMPLE INTERVAL	SAMPLE ID	PROBE ADVANCE	SAMPLE REC. (in.)	HEADSPACE (ppm)	WATER TABLE	LITHOLOGY	SAMPLE DESCRIPTION	REMARKS
1		S1	easy	48/48	0.0			Dark brown medium SAND, dry	
2					0.0			Brown medium SAND, dry	
3					0.0			Very dark brown medium SAND, dry	
4		0.0		Brown medium SAND, dry					
5		0.0							
6		0.0							
7		S2	easy	36/36	0.0				
8					0.0				
9		S3	easy	36/36	0.0			Wet at approx. 8 feet.	
10					0.0			End of boring at 10 feet BGS.	
11					0.0				
COMMENTS: Soil samples collected with Geoprobe 48" stainless steel sampler. Headspace analysis collected with MSA Photon with 10.6 eV bulb.									Start Date: 2/26/96 Complete Date: 2/26/96 page 1 of 1
Geologist: T Adesida									



15850 CRABBS BRANCH WAY
SUITE 300
ROCKVILLE, MARYLAND 20855
TELEPHONE: (301) 417-0200

Project: Thiokol - Woodbine facility

Job No.: 097.001

Location: 252 N / 64 E

Date: 5/7/96

SWMU: 3 - Aldicarb Disposal Area

Boring ID:

3-003

DEPTH (ft.)	SAMPLE INTERVAL	SAMPLE ID	PROBE ADVANCE	SAMPLE REC. (in.)	HEADSPACE (ppm)	WATER TABLE	LITHOLOGY	SAMPLE DESCRIPTION	REMARKS
1					0.0				
2		S1	easy	48/48	0.0			Dark brown medium SAND, dry	
3					0.0				
4					0.0				
5		S2	easy	36/36	0.0			Moist at approx. 6 feet.	
6					0.0				
7					0.0				
8		S3	easy	36/36	0.0			Wet at approx. 9 feet.	
9					0.0				
10					0.0			End of boring at 10 feet BGS	
11									

COMMENTS: Soil samples collected with Geoprobe 48" stainless steel sampler.
Headspace analysis collected with MSA Photon with 10.6 eV bulb.

Start Date: 2/26/96

Complete Date: 2/26/96

Geologist: T Adesida

page 1 of 1



15850 CRABBS BRANCH WAY
SUITE 300
ROCKVILLE, MARYLAND 20855
TELEPHONE: (301) 417-0200

Project: Thiokol - Woodbine facility
Job No.: 097.001
Location: NE Corner - Evaporation Pond
Date: 5/7/96
SWMU: 4

Boring ID:
4-001

DEPTH (ft.)	SAMPLE INTERVAL	SAMPLE ID	PROBE ADVANCE	SAMPLE REC, (in.)	HEADSPACE (ppm)	WATER TABLE	LITHOLOGY	SAMPLE DESCRIPTION	REMARKS
1		S1	moderate	24/24	138 145			Black fine SAND, organic-rich Wet at approx. 1.5 feet	Sample 9036 collected from 1.5-2.5 feet
2					30.2				
3		S2	moderate	24/24	18.5			Black to dark brown fine SAND	
4								Black fine SAND	Sample 9037 collected from 4.5 to 5.5 feet
5		S3	moderate	12/12	5.1				
6								End of boring at 5.5 feet BGS.	

COMMENTS: Soil samples collected with 24" Geoprobe sampler. Headspace analysis collected with MSA Photon with 10.6 eV bulb.

Start Date: 11/14/95

Complete Date: 11/14/95

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Geologist: M Landsman



15850 CRABBS BRANCH WAY
SUITE 300
ROCKVILLE, MARYLAND 20855
TELEPHONE: (301) 417-0200

Project: Thiokol - Woodbine facility
Job No.: 097.001
Location: East Side Center - Evaporation Pond
Date: 5/7/96
SWMU: 4

Boring ID:
4-002

DEPTH (ft.)	SAMPLE INTERVAL	SAMPLE ID	PROBE ADVANCE	SAMPLE REC. (in.)	HEADSPACE (ppm)	WATER TABLE	LITHOLOGY	SAMPLE DESCRIPTION	REMARKS
1		S1	moderate	24/24	96.6			Black fine SAND	
2					4.8			Wet at approx. 2 feet	
3		S2	moderate	24/24	5.6			Black to dark brown fine SAND	Sample 9038 collected from 3-4 feet
4					22.2			Black fine SAND	
5		S3	moderate	12/12	7.6				Sample 9039 collected at 5 feet
6								End of boring at 5.5 feet BGS.	

COMMENTS: Soil samples collected with 24" Geoprobe sampler. Headspace analysis collected with MSA Photon with 10.6 eV bulb.

Start Date: 11/14/95

Complete Date: 11/14/95

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Geologist: M Landsman



15850 CRABBS BRANCH WAY
SUITE 300
ROCKVILLE, MARYLAND 20855
TELEPHONE: (301) 417-0200

Project: Thiokol - Woodbine facility

Job No.: 097.001

Location: SE Corner East Side - Evaporation Pond

Date: 5/7/96

SWMU: 4

Boring ID:

4-003

DEPTH (ft.)	SAMPLE INTERVAL	SAMPLE ID	PROBE ADVANCE	SAMPLE REC. (in.)	HEADSPACE (ppm)	WATER TABLE	LITHOLOGY	SAMPLE DESCRIPTION	REMARKS
1		S1	moderate	24/24	12.0 19.4			Dark gray fine SAND Black fine SAND	Sample 9040 collected from 1.5-2.5 feet
2					20.8			Black to dark gray fine SAND	
3		S2	moderate	24/24	14.8			Dark brown fine SAND	
4								Dark brown fine SAND, very moist	
5		S3	moderate	12/12	24.2				Sample 9041 collected at 5 feet
6								End of boring at 5.5 feet BGS.	

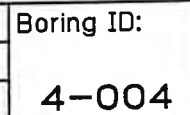
COMMENTS: Soil samples collected with 24" Geoprobe sampler. Headspace analysis collected with MSA Photon with 10.6 eV bulb.

Start Date: 11/14/95

Complete Date: 11/14/95

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Geologist: M Landsman





15850 CRABBS BRANCH WAY
SUITE 300
ROCKVILLE, MARYLAND 20855
TELEPHONE: (301) 417-0200

Project: Thiokol - Woodbine facility

Job No.: 097.001

Location: Center South Side Evaporation Pond

Date: 5/7/96

SWMU: 4

Boring ID:

4-005

DEPTH (ft.)	SAMPLE INTERVAL	SAMPLE ID	PROBE ADVANCE	SAMPLE REC. (in.)	HEADSPACE (ppm)	WATER TABLE	LITHOLOGY	SAMPLE DESCRIPTION	REMARKS
1		S1	moderate	24/24	0.0			Black organic fine SAND	
2					0.0			Black fine SAND	
3		S2	moderate	24/24	6.8			Wet at approx. 2 feet	
4								Very dark brown fine SAND	Sample 9044 collected from 2.5-3.5 feet
5		S3	moderate	12/12	0.0				Sample 9045 collected at 5 feet
6								End of boring at 5.5 feet BGS.	

COMMENTS: Soil samples collected with 24" Geoprobe sampler. Headspace analysis collected with MSA Photon with 10.6 eV bulb.

Start Date: 11/15/95

Complete Date: 11/15/95

Geologist: M Landsman

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15850 CRABBS BRANCH WAY
SUITE 300
ROCKVILLE, MARYLAND 20855
TELEPHONE: (301) 417-0200

Project: Thiokol - Woodbine facility

Job No.: 097.001

Location: SW Corner - Evaporation Pond

Date: 5/7/96

SWMU: 4

Boring ID:

4-006

DEPTH (ft.)	SAMPLE INTERVAL	SAMPLE ID	PROBE ADVANCE	SAMPLE REC. (in.)	HEADSPACE (ppm)	WATER TABLE	LITHOLOGY	SAMPLE DESCRIPTION	REMARKS
1		S1	moderate	24/24	0.4			Organic O Horizon	Sample 9046 collected at 1 foot
2					0.0			Very dark brown to dark gray fine SAND	
3		S2	moderate	24/24	0.0			Brown fine SAND	
4								Black fine SAND	Sample 9047 collected at 5 feet
5		S3	moderate	12/12	0.0				
6								End of boring at 5.5 feet BGS.	

COMMENTS: Soil samples collected with 24" Geoprobe sampler. Headspace analysis collected with MSA Photon with 10.6 eV bulb.

Start Date: 11/15/95

Complete Date: 11/15/95

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Geologist: M Landsman



15850 CRABBS BRANCH WAY
SUITE 300
ROCKVILLE, MARYLAND 20855
TELEPHONE: (301) 417-0200

environmental, inc.

Project: Thiokol - Woodbine facility

Job No.: 097.001

Location: Trench I - North

Date: 5/7/96

SWMU: 6

Boring ID:

6-001

DEPTH (ft.)	SAMPLE INTERVAL	SAMPLE ID	PROBE ADVANCE	SAMPLE REC. (in.)	HEADSPACE (ppm)	WATER TABLE	LITHOLOGY	SAMPLE DESCRIPTION	REMARKS
1		S1	moderate	24/24				Brown SAND	Hand probe and auger to 7 feet (11/15/95). Geoprobe discreet sampler 6-8 feet (2/28/96).
2		S2	moderate	24/24	22.3			Brown SAND and brown Nuchar	Samples 9048 and 9054 collected from 3 feet.
3									All soils observed to be moist to wet.
4		S3						Dark brown very fine SAND, very wet	
5									
6		S4	moderate	24/24	4.3			Reddish brown to brown SAND, organic cemented	Samples 9100 and 9106 collected from 6-8 feet.
7									
8								End of boring at 8 feet BGS.	
9									

COMMENTS: Soil samples collected with 12" stainless steel auger sampler and 48" Geoprobe discreet sampler (6-8"). Headspace analysis collected with MSA Photon with 10.6 eV bulb.

Start Date: 11/15/95

Complete Date: 2/28/96

page 1 of 1

Geologist: M Landsman



15850 CRABBS BRANCH WAY
SUITE 300
ROCKVILLE, MARYLAND 20855
TELEPHONE: (301) 417-0200

Project: Thiokol - Woodbine facility

Job No.: 097.001

Location: Trench I - Center

Date: 5/7/96

SWMU: 6

Boring ID:

6-002

DEPTH (ft.)	SAMPLE INTERVAL	SAMPLE ID	PROBE ADVANCE	SAMPLE REC. (in.)	HEADSPACE (ppm)	WATER TABLE	LITHOLOGY	SAMPLE DESCRIPTION	REMARKS
1		S1	moderate	24/24				Brown SAND	Hand probe and auger to 5 feet (11/15/95). Geoprobe discreet sampler 6-8 feet (2/28/96).
2		S2	moderate	24/24	11.5			Brown Nuchar	Samples 9050 and 9056 collected from 2 feet
3									All soils observed to be moist to wet
4		S3						Brown SAND, very wet	
5									Unable to recover samples below 5 feet with auger
6									
7		S4	moderate	24/24	3.8			Reddish brown SAND, organic cemented	Samples 9101 and 9105 collected from 6-8 feet
8								End of boring at 8 feet BGS.	
9									

COMMENTS: Soil samples collected with 12" stainless steel auger sampler and 48" Geoprobe discreet sampler (6-8'). Headspace analysis collected with MSA Photon with 10.6 eV bulb.

Geologist: M Landsman

Start Date: 11/15/95

Complete Date: 2/28/96

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TM

15850 CRABBS BRANCH WAY
SUITE 300
ROCKVILLE, MARYLAND 20855
TELEPHONE: (301) 417-0200

Project: Thiokol - Woodbine facility

Job No.: 097.001

Location: Trench I - South

Date: 5/7/96

SWMU: 6

Boring ID:

6-003

DEPTH (ft.)	SAMPLE INTERVAL	SAMPLE ID	PROBE ADVANCE	SAMPLE REC. (in.)	HEADSPACE (ppm)	WATER TABLE	LITHOLOGY	SAMPLE DESCRIPTION	REMARKS
1									
2		S1			28.6			Nuchar and white clayey material in layers.	Hand auger to 2 feet (11/16/95). Geoprobe discreet sampler 6-8 feet (2/28/96).
3								No recovery from 2 to 6 feet using Geoprobe discreet sampler.	Samples 9052 and 9058 collected from waste material.
4									
5									
6		S2	moderate	24/24	45.2			Reddish brown SAND, organic cemented, moist to wet	Samples 9102 and 9106 collected from 6-8 feet.
7									
8								End of boring at 8 feet BGS.	
9									

COMMENTS: Soil sample collected with 48" Geoprobe discreet sampler. Headspace analysis collected with MSA Photon with 10.6 eV bulb.

Start Date: 11/16/96

Complete Date: 2/28/96

page 1 of 1

Geologist: M Landsman

FIELD GEOLOGIC LOG

PROJECT <i>Landfill Bypassing System @ Union Carbide Co.</i> <i>Woodbine Landfill</i>		DATE <i>25 Oct 92</i>	SHEET <i>1 of 1</i>
WELL NO. <i>IW-01</i>		REFERENCE DATUM	DRILLING CONTRACTOR <i>Kirtledge</i>
LOGGED BY <i>Brian Butler</i>		COORDINATES	DRILLER <i>Allen Kelly</i>
COMPANY <i>S.A.F.C.</i>		DRILLING METHOD <i>H.S.A.</i>	

RUN NUMBER	DEPTH, FEET	LITHOLOGY	PERCENT RECOVERY	SAMPLE DESCRIPTION	DRILLING COMMENTS
	0			<i>Gray Black - Organic rich top soil</i>	
	1			<i>SAND; sand: med-coarse ~ 90% silt ~ 10%; tan; subrounded; med sorted; moist</i>	<i>No detections on P.D. or LEL throughout drilling</i>
	2				
	3				
	4				
	5				
	6				
	7				
	8				
	9				
	10				
	11				
	12				
	13				
	14				
	15				
	16				
	17				
	18				
	19				
	20				
	21			<i>SAND; sand: v. fine - med grained sand ~ 90% silt ~ 10% - Lt yellowish green; med sorted; subrounded; v. moist - wet.</i>	<i>No tagg @ 16 ft H. k/s open beneath completion</i>
	22				
	23				
	24				
	25				
	26				
	27				
	28				
	29				
	29.5				
	30				

Soil Casing Description

TD=29.5 ft

FIELD GEOLOGIC LOG

PROJECT <i>Landfill Biotransforming System at Union Carbide Co.</i>		DATE <i>29 Oct 97</i>	SHEET <i>1 of 1</i>
WELL NO. <i>IW-02</i>		REFERENCE DATUM	DILLING CONTRACTOR <i>Parti-Lite</i>
LOGGED BY <i>Brad Baker</i>		COMPANY <i>SAIL</i>	DILLING METHOD <i>2 1/4" ID HSA / 4 1/4" ID HSA</i>

RUN NUMBER	DEPTH, FEET	LITHOLOGY	PERCENT RECOVERY	SAMPLE DESCRIPTION	DILLING COMMENTS
	0			(0-10.4) Organic Top Soil - Black	LEL and PED
	1			(1-4.0 FT) SAND; sand: fine - 85% g/H - 15%; Brownish Black; subangular; med sorted; moist	No detectable metals otherwise noted
	2			(4.0-16.0 FT) SAND; sand: fine - 85% g/H - 15%; Tan; subangular; med sorted; moist	
	3				
	4			(16.0-25.0 FT) SAND; sand: fine - 85% g/H - 15%; Lt brownish yellow; med sorted; subangular; moist	Wet cuttings present during drilling @ 19.4 ft b/s
	5				
	6			(25.0-29.0 FT) SAND; fine - 85% g/H - 15%; Yellowish Green; med sorted; subangular; v. moist - wet	Tagged 14.0 @ 17' Find by 0.16
	7				
	8			TD = 29.0 ft b/s	
	9				
	0				Reamed hole w/ 4 1/4" ID HSA; for well installation TD = 29.0 ft b/s
	1				
	2				
	3				
	4				
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	6				
	7				
	8				
	9				
	0				

Soil Cuttings

FIELD GEOLOGIC LOG

PROJECT <i>Landfill Bypassing System @ Union Carbide Co.</i>		DATE <i>30 Oct 97</i>	SHEET <i>1</i> of <i>1</i>
WELL NO. <i>IW-03</i>		REFERENCE DATUM	DILLING CONTRACTOR <i>Portridge</i>
LOGGED BY <i>Brad Barber</i>		COORDINATES	DILLER <i>Allen Kelly</i>
		COMPANY <i>SATC</i>	DILLING METHOD <i>4 1/2" ID HSA</i>

RUN NUMBER	DEPTH, FEET	LITHOLOGY	PERCENT RECOVERY	SAMPLE DESCRIPTION	DILLING COMMENTS
	0			<i>SEE IW-02 Soil Descriptions</i>	<i>LEL and PID:</i>
	1			<i>IW-03: SAME</i>	<i>no detection unless otherwise noted</i>
	2				<i>BZ - Boulding Zone</i>
	3				<i>PID: BZ: 0.0 ppm</i>
	4				<i>5.4 @ 10 ft;</i>
	5				<i>2.5 ppm</i>
	6				<i>Target H.O. level</i>
	7				<i>112 17.5 ft bls</i>
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FIELD GEOLOGIC LOG

PROJECT <i>Landfill Dispersing System @ Union Carbide Co</i>				DATE <i>30 Oct 97</i>	SHEET <i>1</i> OF <i>1</i>
WELL NO. <i>IW-04</i>				REFERENCE DATUM	DRILLING CONTRACTOR <i>Partidge</i>
LOGGED BY <i>B. B. B.</i>				COORDINATES	DRILLER <i>Alan Kelly</i>
COMPANY <i>SAIC</i>				DRILLING METHOD <i>4 1/2" ID HSA</i>	

RUN NUMBER	DEPTH, FEET	LITHOLOGY	PERCENT RECOVERY	SAMPLE DESCRIPTION	DRILLING COMMENTS
	0			<i>See IW-07 log</i>	<i>CEL and PFD</i>
	1			<i>SAME Lithology</i>	<i>No observations</i>
	2				<i>unless otherwise note</i>
	3				
	4				<i>H.C. had first</i>
	5				<i>sample @ 17.4 ft</i>
	6				<i>bls</i>
	7				
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	1				
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	3				
	4				
	25				
	6				
	7				
	8				
	29			<i>TD = 29.0 ft bls</i>	
	0				

FIELD GEOLOGIC LOG

PROJECT <i>Landfill Biotransforming System @ Union Carbide Co.</i>		DATE <i>30 Oct 97</i>	SHEET <i>1 of 1</i>
WELL NO. <i>IW-05</i>		REFERENCE DATUM	DRILLING CONTRACTOR <i>Karlidge</i>
LOGGED BY <i>Brian Baker</i>		COORDINATES	DRILLER <i>Allen Kelly</i>
		COMPANY <i>SAIC</i>	DRILLING METHOD <i>4 1/2 ID HSA</i>

RUN NUMBER	DEPTH, FEET	LITHOLOGY	PERCENT# RECOVERY	SAMPLE DESCRIPTION	DRILLING COMMENTS
	0			<i>SEE IW-02 log</i>	<i>LEL and PID:</i>
	1			<i>SAME Lithology</i>	<i>no detections</i>
	2				<i>unless otherwise noted</i>
	3				
	4				
	5				
	6				<i>First turned</i>
	7				<i>to 17.7 ft bbl</i>
	8				
	9				
	20				
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	4				
	25				
	6				
	7				
	8				
	29			<i>TD: 29.0 ft</i>	
	0				

FIELD GEOLOGIC LOG

PROJECT		Landfill Bioremediation System @ Union Carbide Co.		DATE	31 Oct 97	SHEET	1 of 1
WELL NO.		IW-06		REFERENCE DATUM	DRILLING CONTRACTOR		
LOGGED BY		Paul B. Lee		COORDINATES	DRILLER		
COMPANY		SAIC		DRILLING METHOD		4 1/2" ID H.S.A.	

RUN NUMBER	DEPTH, FEET	LITHOLOGY	PERCENT RECOVERY	SAMPLE DESCRIPTION	DRILLING COMMENTS
	0			SEE IW-02 Log	LEL + PED :
	1			SAME LITHOLOGY	No detection
	2				no loss of pressure
	3				noted
	4				
	5				
	6				
	7				H ₂ O level found
	8				@ 17.5 ft b/s
	9				
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FIELD GEOLOGIC LOG

PROJECT <i>Landfill Biorpaving System @ Hunter-Lord & Co.</i>		DATE <i>31 Oct 97</i>	SHEET <i>1</i> of <i>1</i>
WELL NO. <i>IV-07</i>		REFERENCE DATUM	DRILLING CONTRACTOR <i>Pattidge</i>
LOGGED BY <i>Bar Bar</i>		COORDINATES	DRILLER <i>Allan Kelly</i>
COMPANY <i>SATC</i>		DRILLING METHOD <i>4 1/4" ID HSA</i>	

RUN NUMBER	DEPTH, FEET	LITHOLOGY	PERCENT RECOVERY	SAMPLE DESCRIPTION	DRILLING COMMENTS
	0			<i>see IV-02 log</i>	<i>LEL & PID:</i>
	1			<i>SAME LITHOLOGY</i>	<i>No detections</i>
	2				<i>unless otherwise noted</i>
	3				
	4				
	5				
	6				<i>1st level tested @ 18.1 ft b/s</i>
	7				
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FIELD GEOLOGIC LOG

PROJECT <i>Landfill Biotesting System @ Union Carbide Co.</i>		DATE <i>3.16.97</i>	SHEET <i>1</i> OF <i>1</i>
WELL NO. <i>JW-08</i>		REFERENCE DATUM	DRILLING CONTRACTOR <i>Portridge</i>
LOGGED BY <i>Brian B. B.</i>		COORDINATES	DRILLER <i>Allen Kelly</i>
COMPANY <i>SATC</i>		DRILLING METHOD <i>4 1/2 ID HSA's</i>	

RUN NUMBER	DEPTH, FEET	LITHOLOGY	PERCENT RECOVERY	SAMPLE DESCRIPTION	DRILLING COMMENTS
	0			<i>see JW-02 log</i>	<i>LEL & PID</i>
	1			<i>SAME LITHOLOGY</i>	<i>no fluctuations</i>
	2				<i>unless otherwise noted</i>
	3				
	4				
	5				
	6				<i>Had first surge @ 15.1 ft/b</i>
	7				
	8				
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FIELD GEOLOGIC LOG

PROJECT <i>Landfill Bypassing System @ Union Carbide Co.</i>				DATE <i>3 Nov 97</i>	SHEET <i>1 of 1</i>
WELL NO. <i>IW-09</i>				REFERENCE DATUM	DRILLING CONTRACTOR <i>Portridge</i>
LOGGED BY <i>Frank Baker</i>				COORDINATES	DRILLER <i>Allen Kelly</i>
COMPANY <i>SATC</i>				DRILLING METHOD <i>4 1/4" ID H/A's</i>	

RUN NUMBER	DEPTH, FEET	LITHOLOGY	PERCENT RECOVERY	SAMPLE DESCRIPTION	DRILLING COMMENTS
	0			<i>See IW-02 log</i>	<i>LEL and PED</i>
	1			<i>SAME LITHOLOGY</i>	<i>no descriptions</i>
	2				<i>unless otherwise noted</i>
	3				
	4				
	5				
	6				
	7				<i>First H₂O layer @ 18.4 H/A's</i>
	8				
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	8				
	29			<i>TD = 29.5 H/A's</i>	
	0				

FIELD GEOLOGIC LOG

PROJECT <i>Landfill Bypassing System @ Union Carbide Co.</i>		DATE <i>3 Nov 97</i>		SHEET <i>1</i> OF <i>1</i>	
WELL NO. <i>IW-10</i>		REFERENCE DATUM		DRILLING CONTRACTOR <i>Pastor Lye</i>	
LOGGED BY <i>Paul Bahr</i>		COORDINATES		DRILLER <i>Allen Kelly</i>	
		COMPANY <i>SAIC</i>		DRILLING METHOD <i>4 1/2" ID HSA's</i>	

RUN NUMBER	DEPTH, FEET	LITHOLOGY	PERCENT RECOVERY	SAMPLE DESCRIPTION	DRILLING COMMENTS
	0				<i>LEL and PID:</i>
	1			<i>See IW-02 log</i>	<i>no detections noted</i>
	2			<i>SAME LITHOLOGY</i>	<i>otherwise noted</i>
	3				
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	8				<i>Initial H₂O tested</i>
	9				<i>@ 15.5 ft</i>
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	<i>29.5</i>			<i>TD = 29.5 ft</i>	
	30				

FIELD GEOLOGIC LOG

PROJECT <i>Landfill Bypassing System @ Union Carbide Co.</i>		DATE <i>3 Nov 97</i>	SHEET <i>1 a</i>
WELL NO. <i>IW-11</i>		REFERENCE DATUM	DRILLING CONTRACTOR <i>Portridge</i>
LOGGED BY <i>B. and B. Baker</i>		COORDINATES	DRILLER <i>Allen Kelley</i>
		COMPANY <i>SATC</i>	DRILLING METHOD <i>4 1/2" ID HSA₃</i>

RUN NUMBER	DEPTH, FEET	LITHOLOGY	PERCENT RECOVERY	SAMPLE DESCRIPTION	DRILLING COMMENTS
	0				LEL and PDI:
	1			<i>See IW-02 log</i>	<i>no detection of hydrocarbons</i>
	2			<i>SAME LITHOLOGY</i>	<i>otherwise noted</i>
	3				
	4				
	5				
	6				<i>H₂O based in situ</i>
	7				<i>log at 18.2A-1h</i>
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	29.5			<i>TD - 29.5' HSA₃</i>	
	0				

FIELD GEOLOGIC LOG

PROJECT <i>Landfill Biotransforming Systems @ Union Co. W. Va.</i>		DATE <i>4 Nov 97</i>	SHEET <i>1 c 5</i>
WELL NO. <i>IW-12</i>		REFERENCE DATUM	DRILLING CONTRACTOR <i>Leitch</i>
LOGGED BY <i>Paul Baker</i>		COORDINATES	DRILLER <i>Allen Kelly</i>
COMPANY <i>SASL</i>		DRILLING METHOD <i>4 1/2" ID HSA</i>	

RUN NUMBER	DEPTH, FEET	LITHOLOGY	PERCENT RECOVERY	SAMPLE DESCRIPTION	DRILLING COMMENTS
	0				<i>LEL & PED!</i>
	1			<i>See IW-02 log</i>	<i>No detections under</i>
	2			<i>SAME LITHOLOGY</i>	<i>otherwise noted</i>
	3				
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	6				<i>H2O first traced @ 16.2 ft</i>
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	0			<i>TD = 29.5 ft</i>	

FIELD GEOLOGIC LOG

PROJECT <i>Landfill Biotransforming System at Union Carbide Co.</i>		DATE <i>4/16/97</i>	SHEET <i>1 of 1</i>
WELL NO. <i>IW-13</i>		REFERENCE DATUM	DRILLING CONTRACTOR <i>Partidge</i>
LOGGED BY <i>Paul Baker</i>		COORDINATES	DRILLER <i>Alvin Kelly</i>
COMPANY <i>SAIC</i>		DRILLING METHOD <i>4 1/2" ID HSA's</i>	

RUN NUMBER	DEPTH, FEET	LITHOLOGY	PERCENT RECOVERY	SAMPLE DESCRIPTION	DRILLING COMMENTS
	0				<i>LEL and PID:</i>
	1			<i>See IW-02 log</i>	<i>no detections</i>
	2			<i>See Lithology</i>	<i>unless otherwise noted</i>
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FIELD GEOLOGIC LOG

PROJECT <i>Landfill Bypassing System @ Union Carbide Co.</i>				DATE <i>4/16/97</i>	SHEET <i>1</i> OF <i>1</i>
WELL NO. <i>IW-14</i>				REFERENCE DATUM	DRILLING CONTRACTOR <i>Leitch</i>
LOGGED BY <i>Paul Baker</i>				COORDINATES	DRIILLER <i>Alan Kelly</i>
COMPANY <i>SATC</i>				DRILLING METHOD <i>4 1/2" DD 112 A's</i>	

RUN NUMBER	DEPTH, FEET	LITHOLOGY	PERCENT RECOVERY	SAMPLE DESCRIPTION	DRILLING COMMENTS
	0				
	1			<i>See IW-02 log</i>	<i>TD and LEL:</i>
	2			<i>Same lithology</i>	<i>No detection</i>
	3				<i>unless otherwise noted.</i>
	4				
	5				
	6				<i>160 feet target</i>
	7				<i>@ 18.9 ft 61s</i>
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FIELD GEOLOGIC LOG

PROJECT <i>Landfill Bypassing System & Union Carbide Co.</i>		DATE <i>5 Nov 92</i>	SHEET <i>1 of 1</i>
WELL NO. <i>IW-15</i>		REFERENCE DATUM	DRILLING CONTRACTOR <i>K. L. Lyle</i>
LOGGED BY <i>Brian Baker</i>		COORDINATES	DRILLER <i>Allen Kelley</i>
COMPANY <i>SATC</i>		DRILLING METHOD <i>4 1/2" ID HSA</i>	

RUN NUMBER	DEPTH, FEET	LITHOLOGY	PERCENT RECOVERY	SAMPLE DESCRIPTION	DRILLING COMMENTS
	0				<i>LOG - 15'</i>
	1			<i>SEE IW-02 log</i>	<i>11' defecting</i>
	2			<i>SAME LITHOLOGY</i>	<i>no other wise noted</i>
	3				
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	6				
	7				<i>the first tested</i>
	8				<i>@ 19.1 ft</i>
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FIELD GEOLOGIC LOG

PROJECT		Landfill Bypassing System @ Union Carbide Co.		DATE	6.16.97	SHEET	1 of 1
WELL NO.		ORP-01		REFERENCE DATUM	DRILLING CONTRACTOR		
LOGGED BY		B. J. Baker		COORDINATES	DRILLER		
				COMPANY	SAIC		
					DRILLING METHOD		
					4 1/2" ID HSA		

RUN NUMBER	DEPTH, FEET	LITHOLOGY	PERCENT RECOVERY	SAMPLE DESCRIPTION	DRILLING COMMENTS
	0				PSD and CEL:
	1			See IW-02 log	to determine
	2			same lithology	unless otherwise
	3				noted
	4				
	5				
	6				
	7				H ₂ O first seen
	8				@ 16.1 ft bbl
	9				
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	6				
	7				
	28				
	9				
	0				

TD = 28.0 ft bbl

FIELD GEOLOGIC LOG

PROJECT		Landfill Binspurging System @ Union Carbide Co.		DATE	5 Nov 92	SHEET	1 of 1
WELL NO.		ORP-02		REFERENCE DATUM	DRILLING CONTRACTOR		
LOGGED BY		B. B. B.		COORDINATES	DRILLER		
COMPANY		SATIC		DRILLING METHOD		4 1/2" ID HSA	

RUN NUMBER	DEPTH, FEET	LITHOLOGY	PERCENT RECOVERY	SAMPLE DESCRIPTION	DRILLING COMMENTS
	0			See DW-02 log	LEL and PED!
	1			SAME LITHOLOGY	As detected in unders
	2				otherwise noted
	3				
	4				
	5				
	6				H ₂ O level first log
	7				@ 12.6 ft hls
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FIELD GEOLOGIC LOG

PROJECT <i>Hardwell Drilling System @ Union Carbide Co.</i>		DATE <i>5 Nov 97</i>	SHEET <i>1</i> of <i>1</i>
WELL NO. <i>ORP-03</i>		REFERENCE DATUM	DRILLING CONTRACTOR <i>Leetridge</i>
LOGGED BY <i>Bruce Bell</i>		COORDINATES	DRILLER <i>Allen Kelly</i>
COMPANY <i>SAFL</i>		DRILLING METHOD <i>4 1/2" ID HSA's</i>	

RUN NUMBER	DEPTH, FEET	LITHOLOGY	PERCENT RECOVERY	SAMPLE DESCRIPTION	DRILLING COMMENTS
	0			<i>See IW-07 log</i>	<i>LEL and T.D.:</i>
	1			<i>See lithology</i>	<i>no alteration</i>
	2				<i>values otherwise</i>
	3				<i>noted</i>
	4				
	5				
	6				
	7				<i>H.P. first trace</i>
	8				<i>@ 18.3 ft 14</i>
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FIELD GEOLOGIC LOG

PROJECT <i>Landfill Bypassing System @ Union Carbide Co</i>		DATE <i>6 Nov 97</i>	SHEET <i>1</i> OF <i>1</i>
REFERENCE DATUM		DRILLING CONTRACTOR <i>La. Tech</i>	
WELL NO. <i>4466197</i> <i>AW-23 TE-43</i>	COORDINATES	DRILLER <i>Allen Kelly</i>	
LOGGED BY <i>David Baker</i>	COMPANY <i>SATC</i>	DRILLING METHOD <i>4 1/2" ID 145 ft</i>	

RUN NUMBER	DEPTH, FEET	LITHOLOGY	PERCENT RECOVERY	SAMPLE DESCRIPTION	DRILLING COMMENTS
	0				<i>TEL and PLD:</i>
	1			<i>0 - 6.0 ft. Sand, sand: fine grained ~ 85% silt ~ 15%; ft Yellowish Tan; med sorted; sub rounded; moist</i>	<i>16 detection cables other wise noted</i>
	2				
	3			<i>6.0 - 11.0 ft: SAND; fine grained ~ 85% silt ~ 15%; Tan; med sorted; sub rounded; moist</i>	
	4				
	5				
	6			<i>11.0 - 16.0 ft DK reddish brown SAND; sand: fine med - 80% silt ~ 20%; appears organic rich; DK reddish Brown poorly sorted; sub rounded; moist</i>	
	7				
	8				
	9			<i>16.0 - 23.0 ft SAND: sand: fine ~ 85% silt ~ 15%, DK Yellowish Brown; med sorted; sub rounded; moist</i>	
	10				
	11			<i>23.0 - 29.0 ft SAME AS ABOVE w/ note - change to med. TAN; wet</i>	<i>23.4 ft first encountered wet cuttings</i>
	12				
	13			<i>29.0 - 32.5 ft SAME AS ABOVE color change to DK Yellowish Green saturation</i>	<i>Saturated cuttings @ 29.0 ft b/s</i>
	14				
	15				<i>H₂O trapped @ 17.0 ft b/s</i>
	16				
	17				
	18				
	19				
	20			<i>4466197 TD = 29.0 - 32.5 ft b/s</i>	
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FIELD GEOLOGIC LOG

PROJECT <i>Lambert Dispensing System @ Union Carbide Co.</i>		DATE <i>6 Nov 97</i>	SHEET <i>1</i> OF <i>1</i>
WELL NO. <i>TE-02</i>		REFERENCE DATUM	DILLING CONTRACTOR <i>Partidge</i>
LOGGED BY <i>Brad Baker</i>		COORDINATES	DRILLER <i>Allan Kelly</i>
COMPANY <i>SAIC</i>		DILLING METHOD <i>4 1/2" ID HSA's</i>	

RUN NUMBER	DEPTH, FEET	LITHOLOGY	PERCENT RECOVERY	SAMPLE DESCRIPTION	DRILLING COMMENTS
	0			<i>(0 - 5.0 ft) SAND; med. fine 85%;</i>	<i>UEL and PID:</i>
	1			<i>silt ~20%; V. DK brown; organic silt;</i>	<i>No detections</i>
	2			<i>poorly sorted; subrounded; moist</i>	<i>under otherwise</i>
	3			<i>(5.0 - 9.0 ft) SAND; fine ~85%; silt ~15%;</i>	<i>noted.</i>
	4			<i>Tan; med sorted; subrounded; moist</i>	
	5			<i>(9.0 - 16.0 ft) SAND; med. fine ~85%; silt ~20%;</i>	
	6			<i>DK reddish brown; med. poorly sorted;</i>	
	7			<i>subrounded; moist</i>	
	8			<i>(16.0 - 26.0 ft) SAND; med. fine ~85%; silt ~15%;</i>	
	9			<i>yellowish brown; med sorted; sub-</i>	
	0			<i>rounded; moist</i>	
	1			<i>(26.0 - 29.5 ft) SAND; med. fine ~85%;</i>	<i>Wet settings present</i>
	2			<i>silt ~15%; med sorted; subrounded;</i>	<i>@ ~70 ft b/s</i>
	3			<i>subrounded; yellowish green to dk green;</i>	
	4				
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	0				
	1				
	2				<i>Water level log</i>
	3				<i>@ 17.4 ft b/s</i>
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FIELD GEOLOGIC LOG

PROJECT		Landfill Bypassing System @ Blair in Carbonate Co		DATE	6 Nov 97	SHEET	1 of 1
WELL NO.		TE-03		REFERENCE DATUM	DRILLING CONTRACTOR		
LOGGED BY		R. Brown		COORDINATES	DRILLER		
COMPANY		STATE		DRILLING METHOD		4 1/2" ID HSA's	

RUN NUMBER	DEPTH, FEET	LITHOLOGY	PERCENT RECOVERY	SAMPLE DESCRIPTION	DRILLING COMMENTS
	0			SEE TE-02 log	TD & LEL:
	1			SAME LITHOLOGY	16 detections
	2				under otherwise noted
	3				
	4				
	5				
	6				Wet drilling record
	7				at 20.3 ft
	8				
	9				6th Nov 97
	0				16 detections
	1				at 20.3 ft
	2				Water first tap
	3				@ 20.3 ft
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	0				
	29.5			TD: 29.5 ft	

					PROJECT NUMBER		BORING NUMBER		SHEET 1 of 1			
					337526.01.01		DPT-01					
					DPT BORING LOG							
PROJECT : Refine Conceptual Site Model - Union Carbide Corporation Landfill												
ELEVATION : Not recorded					LOCATION : Woodbine, GA							
DRILLING METHOD AND EQUIPMENT USED : Direct Push, Geoprobe 6610DT					DRILLING CONTRACTOR : A E Drilling, LLC (Greenville, SC)							
WATER LEVELS : Not recorded					START : 03/07/06		END: 03/09/06		DRILLER: Clete Sanders HELPER: Gary Winbourne			
DEPTH BELOW GROUND SURFACE (feet)	INTERVAL (ft bgs)	RECOVERY (%)	USCS CLASSIFICATION	GRAPHIC DESCRIPTION	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, CONSISTENCY, SOIL STRUCTURE, MINERALOGY, ETC.	Date	Time	AIR MONITORING				
								Micro FID (VOCs ppm)		Combustible Gas Indicator		
								BZ	BHA	BZ	BHA	
1	0 - 5	100	SW	SAND	White, medium- qtz SAND with minor organic content (<10%), very moist	3/7/2006	1044	-	-	0 / 0 / 0 / 21	-	
2												
3												
4												
5	5 - 10	100	SW	SAND	Brown to dark brown (fine organics), medium quartz SAND, saturated	3/7/2006	1055	-	-	0 / 0 / 0 / 21	-	
6												
7												
8												
9	10 - 15	100	SW	SAND	Brown to dark brown (fine organics), medium quartz SAND, saturated. 10'-12' bgs observed bedding/layers	3/7/2006	1102	-	-	0 / 0 / 0 / 21	-	
10												
11												
12												
13	15 - 20	100	SW	SAND	Brown to red brown (fine organics), medium quartz SAND, saturated, not cemented	3/7/2006	1110	-	-	0 / 0 / 0 / 21	-	
14												
15												
16												
17	20 - 25	100	SW	SAND	Brown to red brown (fine organics), medium quartz SAND, saturated, 24'-25' minor bedding (color & grain size)	3/7/2006	1115	-	-	0 / 0 / 0 / 21	-	
18												
19												
20												
21	25 - 30	100	SM	SAND	Grey, fine silty, quartz SAND, saturated	3/7/2006	1610	-	-	0 / 0 / 0 / 21	-	
22												
23												
24												
25	30 - 35	100	SM	SAND	Grey, fine silty, quartz SAND, saturated	3/7/2006	1642	-	-	0 / 0 / 0 / 21	-	
26												
27												
28												
29	35 - 40	100	SM	SAND	Light grey, fine silty, quartz SAND, saturated	3/7/2006	1708	-	-	0 / 0 / 0 / 21	-	
30												
31												
32												
33	40 - 45	100	SM	SAND	Light grey, fine silty, quartz SAND, saturated	3/7/2006	1742	-	-	0 / 0 / 0 / 21	-	
34												
35												
36												
37	45 - 50	100	CL	CLAY	45.0-45.5 - Grey, CLAY, saturated; 45.5-46.3 - grey, coarse, qtz. SAND, saturated; 46.3-47.0 - grey, CLAY, saturated; 47.0-48.1 - grey, medium, qtz. SAND, saturated; 48.1-48.2 - grey, CLAY, saturated; 48.2-48.5 - grey, medium qtz. SAND, saturated; 48.5-48.8 - grey, CLAY, saturated; 48.8-49.0 - Grey, qtz. SAND, saturated; 49.0-49.1 - grey, CLAY, saturated; 49.1-49.6 - grey, medium, qtz. SAND, saturated; 49.6-49.8 - grey, CLAY, saturated; 49.8-50.0 - Grey, fine to mediu, qtz. SAND, saturated	3/8/2006	1717	-	-	0 / 0 / 0 / 21	-	
38			SW	SAND								
39			CL	CLAY								
40			SW	SAND								
41			CL	CLAY								
42			SW	SAND								
43			CL	CLAY								
44			SW	SAND								
45	50 - 55	100	CL	CLAY	50.0-51.0 - Grey, CLAY with very coarse shells, saturated	3/9/2006	0902	-	-	0 / 0 / 0 / 21	-	
46			CL	CLAY	51.0-52.5 - Grey, CLAY							
47			SW	SAND	52.5-53.9 - Grey, medium quartz SAND w/ coarse to very coarse shells & shell fragments							
48			CL	CLAY	53.9-54.2 - Grey, CLAY w/ grey, crs- qtz. SAND lense at 54.2-54.3							
49			SW	SAND	54.3-55.0 - Grey, fine quartz sandy CLAY							
50			CL	CLAY								

Note:
 BZ - Breathing Zone
 BHA - Borehole Annulus
 qtz. - quartz
 med. - medium

 CH2MHILL			PROJECT NUMBER			BORING NUMBER			SHEET 1 of 1		
			337526.01.01			DPT-02					
			DPT BORING LOG								
PROJECT : Refine Conceptual Site Model - Union Carbide Corporation Landfill						LOCATION : Woodbine, GA					
ELEVATION : Not recorded						DRILLING CONTRACTOR : A E Drilling, LLC (Greenville, SC)					
DRILLING METHOD AND EQUIPMENT USED : Direct Push, Geoprobe 6610DT						DRILLER: Clete Sanders			HELPER: Gary Winbourne		
WATER LEVELS : Not recorded						START : 03/10/06			END: 03/10/06		
DEPTH BELOW GROUND SURFACE (feet)	INTERVAL (ft bgs)	RECOVERY (%)	USCS CLASSIFICATION	GRAPHIC DESCRIPTION	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, CONSISTENCY, SOIL STRUCTURE, MINERALOGY, ETC.	Date	Time	AIR MONITORING			
								Micro FID (VOCs ppm)		Combustible Gas Indicator	
								(24 hr.)	BZ	BHA	CO ppm / H2S ppm / LEL% / O2%
1	0 - 5	60	SW	SAND	White, light brown, to brown, fine quartz SAND, moist	3/10/2006	0917	-	-	0 / 0 / 0 / 21	-
2											
3											
4											
5											
6	5 - 10	100	SW	SAND	Fine quartz SAND, saturated; 5.0-7.0 white, 7.0-8.0 light brown, 8.0-10.0 dark brown	3/10/2006	0941	0	-	0 / 0 / 0 / 21	-
7											
8											
9											
10											
11	10 - 15	100	SW	SAND	Fine quartz SAND, saturated; 10.0-13.0 dark to light brown, 13.0-15.0 light rusty brown	3/10/2006	0943	0	-	0 / 0 / 0 / 21	-
12											
13											
14											
15											
16	15 - 20	100	SW	SAND	Fine quartz SAND, reddish tan, saturated	3/10/2006	0946	-	-	0 / 0 / 0 / 21	-
17											
18											
19											
20											
21	20 - 25	100	SW	SAND	Fine quartz SAND, saturated; 20.0-23.0 reddish tan, 23.0-25.0 grey saturated	3/10/2006	1257	0	-	0 / 0 / 0 / 21	-
22											
23											
24											
25											
26	25 - 30	100	SW	SAND	Grey, fine, quartz SAND, saturated	3/10/2006	-1302	-	-	-	-
27											
28											
29											
30											
31	30 - 35	100	SW	SAND	Grey, fine, quartz SAND, saturated	3/10/2006	-1307	0	-	0 / 0 / 0 / 21	-
32											
33											
34											
35											
36	35 - 40	100	SW	SAND	Grey, fine, quartz SAND, saturated	3/10/2006	-1312	-	-	-	-
37											
38											
39											
40											
41	40 - 45	100	SW	SAND	40.0-45.0 - Grey, fine, quartz SAND, saturated	3/10/2006	-1317	0	-	0 / 0 / 0 / 21	-
42											
43											
44											
45											
46	45 - 50	100	SW	SAND	45.0-49.5 - Grey, fine, quartz SAND, saturated	3/10/2006	-1322	3.0-3.3	-	0 / 0 / 0 / 21	-
47											
48											
49											
50											
51	50 - 55	100	SC	SAND	49.5-50.0 - Grey, clayey fine, quartz SAND	3/10/2006	-1327	-	-	-	-
52					50.0-53.5 - Grey interbedded fine quartz sandy CLAY and clayey SAND						
53											
54											
55											
			GC	GRAVEL	53.5-54.75 - Grey, clayey, COQUINA; shell fragments are very coarse						
			SC	SAND	54.75-55.0 - Grey, fine quartz SAND						

Note:

BZ - Breathing Zone
BHA - Borehole Annulus
qtz. - quartz
med. - medium

		PROJECT NUMBER		BORING NUMBER		SHEET 1 of 1					
		337526.01.01		DPT-03							
		DPT BORING LOG									
PROJECT : Refine Conceptual Site Model - Union Carbide Corporation Landfill											
ELEVATION : Not recorded											
DRILLING METHOD AND EQUIPMENT USED : Direct Push, Geoprobe 6610DT											
DRILLER: Clete Sanders											
HELPER: Gary Winbourne											
WATER LEVELS : Not recorded											
START : 03/22/06											
END: 03/22/06											
DEPTH BELOW GROUND SURFACE (feet)	INTERVAL (ft bgs)	RECOVERY (%)	USCS	GRAPHIC DESCRIPTION	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, CONSISTENCY, SOIL STRUCTURE, MINERALOGY, ETC.	Date	Time (24 hr.)	AIR MONITORING			
								Micro FID (VOCs ppm)		Combustible Gas Indicator	
								BZ	BHA	BZ	BHA
1	0 - 5										
2											
3											
4											
5											
6	5 - 10										
7											
8											
9											
10											
11	10 - 15										
12											
13											
14											
15											
16	15 - 20										
17											
18											
19											
20											
21	20 - 25	100	SP	SAND	Dark grey fine quartz SAND with trace of clay; strong sulfide odor	3/22/2006	1405	-	-	-	-
22											
23											
24											
25											
26	25 - 30										
27											
28											
29											
30											
31	30 - 35										
32											
33											
34											
35											
36	35 - 40										
37											
38											
39											
40											
41	40 - 45										
42											
43											
44											
45											
46	45 - 50										
47											
48											
49											
50											
51	50 - 55										
52											
53											
54											
55											

Note:
 BZ - Breathing Zone
 BHA - Borehole Annulus
 qtz. - quartz
 med. - medium

		PROJECT NUMBER		BORING NUMBER		SHEET 1 of 1					
		337526.01.01		DPT-04							
DPT BORING LOG											
PROJECT : Refine Conceptual Site Model - Union Carbide Corporation Landfill				LOCATION : Woodbine, GA							
ELEVATION : Not recorded				DRILLING CONTRACTOR : A E Drilling, LLC (Greenville, SC)							
DRILLING METHOD AND EQUIPMENT USED : Direct Push, Geoprobe 6610DT				DRILLER: Clete Sanders		HELPER: Gary Winbourne					
WATER LEVELS : Not recorded				START : 03/22/06		END: 03/22/06					
DEPTH BELOW GROUND SURFACE (feet)	INTERVAL (ft bgs)	RECOVERY (%)	USCS	GRAPHIC DESCRIPTION	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, CONSISTENCY, SOIL STRUCTURE, MINERALOGY, ETC.	Date	Time (24 hr.)	AIR MONITORING			
								Micro FID (VOCs ppm)		Combustible Gas Indicator CO ppm / H2S ppm / LEL% / O2%	
								BZ	BHA	BZ	BHA
1	0 - 5										
2											
3											
4											
5	5 - 10										
6											
7											
8											
9	10 - 15										
10											
11											
12											
13	15 - 20										
14											
15											
16											
17	20 - 25										
18											
19											
20											
21	25 - 30										
22											
23											
24											
25	30 - 35										
26											
27											
28											
29	35 - 40										
30											
31											
32											
33	40 - 45										
34											
35											
36											
37	45 - 50										
38											
39											
40											
41	50 - 55										
42											
43											
44											
45											
46											
47											
48											
49											
50											
51											
52											
53											
54											
55											

Note:
 BZ - Breathing Zone
 BHA - Borehole Annulus
 qtz. - quartz
 med. - medium

		PROJECT NUMBER		BORING NUMBER		SHEET 1 of 1					
		337526.01.01		DPT-05							
DPT BORING LOG											
PROJECT : Refine Conceptual Site Model - Union Carbide Corporation Landfill				LOCATION : Woodbine, GA							
ELEVATION : Not recorded				DRILLING CONTRACTOR : A E Drilling, LLC (Greenville, SC)							
DRILLING METHOD AND EQUIPMENT USED : Direct Push, Geoprobe 6610DT				DRILLER: Clete Sanders		HELPER: Gary Winbourne					
WATER LEVELS : Not recorded				START : 03/22/06		END: 03/22/06					
DEPTH BELOW GROUND SURFACE (feet)	INTERVAL (ft bgs)	RECOVERY (%)	USCS	GRAPHIC DESCRIPTION	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, CONSISTENCY, SOIL STRUCTURE, MINERALOGY, ETC.	Date	Time (24 hr.)	AIR MONITORING			
								Micro FID (VOCs ppm)		Combustible Gas Indicator	
								BZ	BHA	BZ	BHA
1	0 - 5										
2											
3											
4											
5											
6	5 - 10										
7											
8											
9											
10											
11	10 - 15										
12											
13											
14											
15											
16	15 - 20										
17											
18											
19											
20											
21	20 - 25										
22											
23											
24											
25											
26	25 - 30										
27											
28											
29											
30											
31	30 - 35										
32											
33											
34											
35											
36	35 - 40										
37											
38											
39											
40											
41	40 - 45	100	SP	SAND	Dark grey dense, fine to medium quartz SAND with trace of clay, moist	3/22/2006	1550	-	-	-	-
42											
43											
44											
45											
46	45 - 50										
47											
48											
49											
50											
51	50 - 55										
52											
53											
54											
55											

Note:
 BZ - Breathing Zone
 BHA - Borehole Annulus
 qtz. - quartz
 med. - medium

		PROJECT NUMBER		BORING NUMBER		SHEET 1 of 1					
		337526.01.01		DPT-06							
DPT BORING LOG											
PROJECT : Refine Conceptual Site Model - Union Carbide Corporation Landfill				LOCATION : Woodbine, GA							
ELEVATION : Not recorded				DRILLING CONTRACTOR : A E Drilling, LLC (Greenville, SC)							
DRILLING METHOD AND EQUIPMENT USED : Direct Push, Geoprobe 6610DT				DRILLER: Clete Sanders		HELPER: Gary Winbourne					
WATER LEVELS : Not recorded				START : 03/26/06		END: 03/26/06					
DEPTH BELOW GROUND SURFACE (feet)	INTERVAL (ft bgs)	RECOVERY (%)	USCS	GRAPHIC DESCRIPTION	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, CONSISTENCY, SOIL STRUCTURE, MINERALOGY, ETC.	Date	Time (24 hr.)	AIR MONITORING			
								Micro FID (VOCs ppm)		Combustible Gas Indicator CO ppm / H2S ppm / LEL% / O2%	
								BZ	BHA	BZ	BHA
1	0 - 5										
2											
3											
4											
5	5 - 10										
6											
7											
8											
9	10 - 15										
10											
11											
12											
13	15 - 20										
14											
15											
16											
17	20 - 25										
18											
19											
20											
21	25 - 30										
22											
23											
24											
25	30 - 35										
26											
27											
28											
29	35 - 40										
30											
31											
32											
33	40 - 45										
34											
35											
36											
37	45 - 50										
38											
39											
40											
41	50 - 55										
42											
43											
44											
45											
46											
47											
48											
49											
50											
51											
52											
53											
54											
55											

Note:
 BZ - Breathing Zone
 BHA - Borehole Annulus
 qtz. - quartz
 med. - medium

		PROJECT NUMBER		BORING NUMBER		SHEET 1 of 1					
		337526.01.01		DPT-07							
DPT BORING LOG											
PROJECT : Refine Conceptual Site Model - Union Carbide Corporation Landfill				LOCATION : Woodbine, GA							
ELEVATION : Not recorded				DRILLING CONTRACTOR : A E Drilling, LLC (Greenville, SC)							
DRILLING METHOD AND EQUIPMENT USED : Direct Push, Geoprobe 6610DT				DRILLER: Clete Sanders		HELPER: Gary Winbourne					
WATER LEVELS : Not recorded				START : 03/23/06		END: 03/23/06					
DEPTH BELOW GROUND SURFACE (feet)	INTERVAL (ft bgs)	RECOVERY (%)	USCS	GRAPHIC DESCRIPTION	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, CONSISTENCY, SOIL STRUCTURE, MINERALOGY, ETC.	Date	Time (24 hr.)	AIR MONITORING			
								Micro FID (VOCs ppm)		Combustible Gas Indicator CO ppm / H2S ppm / LEL% / O2%	
								BZ	BHA	BZ	BHA
1	0 - 5										
2											
3											
4											
5	5 - 10										
6											
7											
8											
9	10 - 15										
10											
11											
12											
13	15 - 20										
14											
15											
16											
17	20 - 25										
18											
19											
20											
21	25 - 30										
22											
23											
24											
25	30 - 35										
26											
27											
28											
29	35 - 40	100	SW	SAND	Grey fine quartz SAND, saturated	3/23/2006	1025	0	402	0 / 0 / 0 / 21	0 / 0 / 0 / 21
30											
31											
32											
33	40 - 45										
34											
35											
36											
37	45 - 50										
38											
39											
40											
41	50 - 55										
42											
43											
44											
45											
46											
47											
48											
49											
50											
51											
52											
53											
54											
55											

Note:
 BZ - Breathing Zone
 BHA - Borehole Annulus
 qtz. - quartz
 med. - medium

		PROJECT NUMBER		BORING NUMBER		SHEET 1 of 1					
		337526.01.01		DPT-08							
		DPT BORING LOG									
PROJECT : Refine Conceptual Site Model - Union Carbide Corporation Landfill											
LOCATION : Woodbine, GA											
ELEVATION : Not recorded											
DRILLING CONTRACTOR : A E Drilling, LLC (Greenville, SC)											
DRILLING METHOD AND EQUIPMENT USED : Direct Push, Geoprobe 6610DT											
DRILLER: Clete Sanders											
HELPER: Gary Winbourne											
WATER LEVELS : Not recorded											
START : 03/27/06											
END: 03/27/06											
DEPTH BELOW GROUND SURFACE (feet)	INTERVAL (ft bgs)	RECOVERY (%)	USCS	GRAPHIC DESCRIPTION	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, CONSISTENCY, SOIL STRUCTURE, MINERALOGY, ETC.	Date	Time (24 hr.)	AIR MONITORING			
								Micro FID (VOCs ppm)		Combustible Gas Indicator	
								CO ppm / H2S ppm / LEL% / O2%			
								BZ	BHA	BZ	BHA
1	0 - 5										
2											
3											
4											
5											
6	5 - 10										
7											
8											
9											
10											
11	10 - 15										
12											
13											
14											
15											
16	15 - 20										
17											
18											
19											
20											
21	20 - 25										
22											
23											
24											
25											
26	25 - 30										
27											
28											
29											
30											
31	30 - 35	100	SW	SAND	Grey fine to medium quartz SAND, saturated	3/27/2006	1249	0	104	0 / 0 / 0 / 21	0 / 0 / 0 / 21
32											
33											
34											
35											
36	35 - 40										
37											
38											
39											
40											
41	40 - 45										
42											
43											
44											
45											
46	45 - 50										
47											
48											
49											
50											
51	50 - 55										
52											
53											
54											
55											

Note:
 BZ - Breathing Zone
 BHA - Borehole Annulus
 qtz. - quartz
 med. - medium

		PROJECT NUMBER		BORING NUMBER		SHEET 1 of 1					
		337526.01.01		DPT-09							
DPT BORING LOG											
PROJECT : Refine Conceptual Site Model - Union Carbide Corporation Landfill				LOCATION : Woodbine, GA							
ELEVATION : Not recorded				DRILLING CONTRACTOR : A E Drilling, LLC (Greenville, SC)							
DRILLING METHOD AND EQUIPMENT USED : Direct Push, Geoprobe 6610DT				DRILLER: Clete Sanders		HELPER: Gary Winbourne					
WATER LEVELS : Not recorded				START : 03/27/06		END: 03/27/06					
DEPTH BELOW GROUND SURFACE (feet)	INTERVAL (ft bgs)	RECOVERY (%)	USCS	GRAPHIC DESCRIPTION	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, CONSISTENCY, SOIL STRUCTURE, MINERALOGY, ETC.	Date	Time (24 hr.)	AIR MONITORING			
								Micro FID (VOCs ppm)		Combustible Gas Indicator	
								BZ	BHA	BZ	BHA
1	0 - 5										
2											
3											
4											
5	5 - 10										
6											
7											
8											
9	10 - 15										
10											
11											
12											
13	15 - 20										
14											
15											
16											
17	20 - 25	100	SW	SAND	Grey fine quartz SAND, saturated	3/27/2006	0954	0	104	0 / 0 / 0 / 21	0 / 0 / 0 / 21
18											
19											
20											
21	25 - 30										
22											
23											
24											
25	30 - 35										
26											
27											
28											
29	35 - 40										
30											
31											
32											
33	40 - 45										
34											
35											
36											
37	45 - 50										
38											
39											
40											
41	50 - 55										
42											
43											
44											
45											
46											
47											
48											
49											
50											
51											
52											
53											
54											
55											

Note:
 BZ - Breathing Zone
 BHA - Borehole Annulus
 qtz. - quartz
 med. - medium

		PROJECT NUMBER 337526.01.01		BORING NUMBER DPT-10		SHEET 1 of 1					
		DPT BORING LOG									
PROJECT : Refine Conceptual Site Model - Union Carbide Corporation Landfill											
LOCATION : Woodbine, GA											
ELEVATION : Not recorded											
DRILLING CONTRACTOR : A E Drilling, LLC (Greenville, SC)											
DRILLING METHOD AND EQUIPMENT USED : Direct Push, Geoprobe 6610DT											
DRILLER: Clete Sanders											
HELPER: Gary Winbourne											
WATER LEVELS : Not recorded											
START : 03/23/06											
END: 03/23/06											
DEPTH BELOW GROUND SURFACE (feet)	INTERVAL (ft bgs)	RECOVERY (%)	USCS	GRAPHIC DESCRIPTION	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, CONSISTENCY, SOIL STRUCTURE, MINERALOGY, ETC.	Date	Time (24 hr.)	AIR MONITORING			
								Micro FID (VOCs ppm)		Combustible Gas Indicator	
								BZ	BHA	BZ	BHA
1	0 - 5										
2											
3											
4											
5	5 - 10										
6											
7											
8											
9	10 - 15										
10											
11											
12											
13	15 - 20	100	SW	SAND	Brown fine quartz SAND, saturated	3/23/2006	1112	-	-	-	-
14											
15											
16											
17	20 - 25										
18											
19											
20											
21	25 - 30										
22											
23											
24											
25	30 - 35										
26											
27											
28											
29	35 - 40										
30											
31											
32											
33	40 - 45										
34											
35											
36											
37	45 - 50										
38											
39											
40											
41	50 - 55										
42											
43											
44											
45											
46											
47											
48											
49											
50											
51											
52											
53											
54											
55											
56											

Note:
 BZ - Breathing Zone
 BHA - Borehole Annulus
 qtz. - quartz
 med. - medium

				PROJECT NUMBER 337526.01.01		BORING NUMBER DPT-11		SHEET 1 of 1			
DPT BORING LOG											
PROJECT : Refine Conceptual Site Model - Union Carbide Corporation Landfill					LOCATION : Woodbine, GA						
ELEVATION : Not recorded					DRILLING CONTRACTOR : A E Drilling, LLC (Greenville, SC)						
DRILLING METHOD AND EQUIPMENT USED : Direct Push, Geoprobe 6610DT					DRILLER: Clete Sanders		HELPER: Gary Winbourne				
WATER LEVELS : Not recorded					START : 03/11/06		END: 03/11/06				
DEPTH BELOW GROUND SURFACE (feet)	INTERVAL (ft bgs)	RECOVERY (%)	USCS CLASSIFICATION	GRAPHIC DESCRIPTION	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, CONSISTENCY, SOIL STRUCTURE, MINERALOGY, ETC.	Date	Time (24 hr.)	AIR MONITORING			
								Micro FID (VOCs ppm)		Combustible Gas Indicator	
								BZ	BHA	BZ	BHA
1	0 - 5	100	SW	SAND	Fine quartz SAND, moist; very dark brown to black color	3/11/2006	0931	-	-	0 / 0 / 0 / 21	-
2											
3											
4											
5											
6	5 - 10	100	SW	SAND	Black, fine quartz SAND, very moist with wood fragments (pine trees not lumber, bark observed)	3/11/2006	0938	-	-	0 / 0 / 0 / 21	-
7											
8											
9											
10											
11	10 - 15	100	SW	SAND	Fine quartz SAND, wet; 10.0-12.0 black, 12.0-15.0 orange tan	3/11/2006	0952	-	-	0 / 0 / 0 / 21	-
12											
13											
14											
15											
16	15 - 20	100	SW	SAND	Fine quartz SAND, wet; dark orange tan	3/11/2006	1015	-	-	0 / 0 / 0 / 21	-
17											
18											
19											
20											
21	20 - 25	100	SW	SAND	Light olive grey fine quartz SAND, saturated	3/11/2006	1038	-	-	0 / 0 / 0 / 21	-
22											
23											
24											
25											
26	25 - 30	100	SW	SAND	Light olive grey fine quartz SAND, saturated	3/11/2006	1137	-	-	0 / 0 / 0 / 21	-
27											
28											
29											
30											
31	30 - 35	~3 (logged from cutting shoe)	SW	SAND	Light grey fine quartz SAND, saturated	3/11/2006	1206	-	-	0 / 0 / 0 / 21	-
32											
33											
34											
35											
36	35 - 40	100	SW	SAND	Grey medium quartz SAND, saturated, noticeable odor but source unclear	3/11/2006	1254	-	-	0 / 0 / 0 / 21	-
37											
38											
39											
40											
41	40 - 45	100	SW	SAND	Light grey fine quartz SAND, saturated	3/11/2006	~1326	0	-	0 / 0 / 0 / 21	-
42											
43											
44											
45											
46	45 - 50	100	SW	SAND	45.0-47.5 - grey, fine to medium, quartz SAND	3/11/2006	1421	3.0-3.3	-	0 / 0 / 0 / 21	-
47											
48					47.5-50.0 - Grey, medium, quartz SAND, saturated	1451		0 / 0 / 0 / 21			
49											
50											
51	50 - 55	100	SC	SAND	50.0-52.5 - Dark grey clayey medium, quartz SAND, saturated	3/11/2006	1509	-	-	0 / 0 / 0 / 21	-
52											
53					52.5-55.0 - Dark grey clayey med. quartz SAND, saturated	1533		0 / 0 / 0 / 21			
54											
55											

Note:

BZ - Breathing Zone
BHA - Borehole Annulus
qtz. - quartz
med. - medium

		PROJECT NUMBER		BORING NUMBER		SHEET 1 of 1					
		337526.01.01		DPT-12							
		DPT BORING LOG									
PROJECT : Refine Conceptual Site Model - Union Carbide Corporation Landfill											
ELEVATION : Not recorded											
DRILLING METHOD AND EQUIPMENT USED : Direct Push, Geoprobe 6610DT											
DRILLER: Clete Sanders											
HELPER: Gary Winbourne											
WATER LEVELS : Not recorded											
START : 03/27/06											
END: 03/27/06											
DEPTH BELOW GROUND SURFACE (feet)	INTERVAL (ft bgs)	RECOVERY (%)	USCS	GRAPHIC DESCRIPTION	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, CONSISTENCY, SOIL STRUCTURE, MINERALOGY, ETC.	Date	Time (24 hr.)	AIR MONITORING			
								Micro FID (VOCs ppm)		Combustible Gas Indicator	
								BZ	BHA	BZ	BHA
1	0 - 5										
2											
3											
4											
5											
6	5 - 10										
7											
8											
9											
10											
11	10 - 15										
12											
13											
14											
15											
16	15 - 20										
17											
18											
19											
20											
21	20 - 25										
22											
23											
24											
25											
26	25 - 30										
27											
28											
29											
30											
31	30 - 35	100	SW	SAND	Grey fine to medium quartz SAND, saturated	3/27/2006	1048	0	104	0 / 0 / 0 / 21	0 / 0 / 0 / 21
32											
33											
34											
35											
36	35 - 40										
37											
38											
39											
40											
41	40 - 45										
42											
43											
44											
45											
46	45 - 50										
47											
48											
49											
50											
51	50 - 55										
52											
53											
54											
55											

Note:
 BZ - Breathing Zone
 BHA - Borehole Annulus
 qtz. - quartz
 med. - medium

		PROJECT NUMBER		BORING NUMBER		SHEET 1 of 1					
		337526.01.01		DPT-13							
DPT BORING LOG											
PROJECT : Refine Conceptual Site Model - Union Carbide Corporation Landfill				LOCATION : Woodbine, GA							
ELEVATION : Not recorded				DRILLING CONTRACTOR : A E Drilling, LLC (Greenville, SC)							
DRILLING METHOD AND EQUIPMENT USED : Direct Push, Geoprobe 6610DT				DRILLER: Clete Sanders		HELPER: Gary Winbourne					
WATER LEVELS : Not recorded				START : 03/24/06		END: 03/24/06					
DEPTH BELOW GROUND SURFACE (feet)	INTERVAL (ft bgs)	RECOVERY (%)	USCS	GRAPHIC DESCRIPTION	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, CONSISTENCY, SOIL STRUCTURE, MINERALOGY, ETC.	Date	Time (24 hr.)	AIR MONITORING			
								Micro FID (VOCs ppm)		Combustible Gas Indicator	
								BZ	BHA	BZ	BHA
1	0 - 5										
2											
3											
4											
5											
6	5 - 10										
7											
8											
9											
10											
11	10 - 15										
12											
13											
14											
15											
16	15 - 20										
17											
18											
19											
20											
21	20 - 25										
22											
23											
24											
25											
26	25 - 30										
27											
28											
29											
30											
31	30 - 35										
32											
33											
34											
35											
36	35 - 40										
37											
38											
39											
40											
41	40 - 45	100	SW	SAND	40.0-44.0 - grey fine quartz SAND, saturated	3/24/2006	1105	0	14	0 / 0 / 0 / 21	0 / 0 / 0 / 21
42											
43											
44			SP		44.0-45.0 - grey medium quartz SAND with interbedded grey clay lenses (1"-3" thick), saturated						
45	45 - 50										
46											
47											
48											
49											
50	50 - 55										
51											
52											
53											
54											
55											

Note:
 BZ - Breathing Zone
 BHA - Borehole Annulus
 qtz. - quartz
 med. - medium

					PROJECT NUMBER		BORING NUMBER		SHEET 1 of 1				
					337526.01.01		DPT-14						
					DPT BORING LOG								
PROJECT : Refine Conceptual Site Model - Union Carbide Corporation Landfill										LOCATION : Woodbine, GA			
ELEVATION : Not recorded										DRILLING CONTRACTOR : A E Drilling, LLC (Greenville, SC)			
DRILLING METHOD AND EQUIPMENT USED : Direct Push, Geoprobe 6610DT										DRILLER: Clete Sanders		HELPER: Gary Winbourne	
WATER LEVELS : Not recorded					START : 03/09/06			END: 03/09/06					
DEPTH BELOW GROUND SURFACE (feet)	INTERVAL (ft bgs)	RECOVERY (%)	USCS CLASSIFICATION	GRAPHIC DESCRIPTION	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, CONSISTENCY, SOIL STRUCTURE, MINERALOGY, ETC.	Date	Time (24 hr.)	AIR MONITORING					
								Micro FID (VOCs ppm)		Combustible Gas Indicator			
								BZ	BHA	BZ	BHA		
1	0 - 5	60	SW	SAND	White, fine quartz SAND; 0.0-2.5 black color, 2.5-5.0 white color, dry	3/9/2006	1016	-	-	0 / 0 / 0 / 21	-		
2													
3													
4													
5													
6	5 - 10	100	SW	SAND	Light to dark mottled tan, fine quartz SAND, moist	3/9/2006	1025	0	-	0 / 0 / 0 / 21	-		
7													
8													
9													
10													
11	10 - 15	100	SW	SAND	Light tan to tan, fine quartz SAND, very moist to wet	3/9/2006	1032	0	-	0 / 0 / 0 / 21	-		
12													
13													
14													
15													
16	15 - 20	100	SW	SAND	Tan to red tan, fine quartz SAND, saturated	3/9/2006	1037	-	-	0 / 0 / 0 / 21	-		
17													
18													
19													
20													
21	20 - 25	100	SW	SAND	Grey, fine, quartz SAND, saturated	3/9/2006	1058	0	-	0 / 0 / 0 / 21	-		
22													
23													
24													
25													
26	25 - 30	100	SW	SAND	Grey, fine, quartz SAND, saturated	3/9/2006	1109	-	-	-	-		
27													
28													
29													
30													
31	30 - 35	100	SW	SAND	Grey, fine, quartz SAND, saturated	3/9/2006	1113	0	-	0 / 0 / 0 / 21	-		
32													
33													
34													
35													
36	35 - 40	100	SW	SAND	Grey, fine, quartz SAND, wet	3/9/2006	1234	-	-	-	-		
37													
38													
39													
40													
41	40 - 45	100	SW	SAND	40.0-43.5 - Grey, fine, quartz, SAND, saturated	3/9/2006	~1244	0	-	0 / 0 / 0 / 21	-		
42													
43													
44			SP	SAND	43.5-44.7 - Grey, medium SAND with coarse shell fragments, saturated	3/9/2006	1257	3.0-3.3	-	0 / 0 / 0 / 21	-		
45					44.7-45.0 - Grey clay with minor coarse shell fragments								
46	45 - 50	100	CL	CLAY	45.0-48.0 - Dark grey, CLAY with very fine (-1-3 mm) interbedded fine sands	3/9/2006	1328	-	-	-	-		
47													
48													
49			SC	SAND	48.0-50.0 - Grey clayey, fine- SAND with minor coarse- shell fragments, saturated								
50													
51	50 - 55	100	SC	SAND	50.0-54.0 - Grey clayey, coarse- SAND (sand comprized of angular qtz. and shell fragments)	3/9/2006	1328	-	-	-	-		
52													
53													
54			GC	GRAVEL	53.9-54.2 - Grey, CLAY w/ grey, crs- qtz. sand lense at 54.2-54.3								
55													

Note:

BZ - Breathing Zone
 BHA - Borehole Annulus
 qtz. - quartz
 med. - medium

		PROJECT NUMBER		BORING NUMBER		SHEET 1 of 1					
		337526.01.01		DPT-15							
		DPT BORING LOG									
PROJECT : Refine Conceptual Site Model - Union Carbide Corporation Landfill											
ELEVATION : Not recorded											
DRILLING METHOD AND EQUIPMENT USED : Direct Push, Geoprobe 6610DT											
DRILLER: Clete Sanders											
HELPER: Gary Winbourne											
WATER LEVELS : Not recorded											
START : 03/20/06											
END: 03/20/06											
DEPTH BELOW GROUND SURFACE (feet)	INTERVAL (ft bgs)	RECOVERY (%)	USCS	GRAPHIC DESCRIPTION	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, CONSISTENCY, SOIL STRUCTURE, MINERALOGY, ETC.	Date	Time (24 hr.)	AIR MONITORING			
								Micro FID (VOCs ppm)		Combustible Gas Indicator	
								CO ppm / H2S ppm / LEL% / O2%			
								BZ	BHA	BZ	BHA
1	0 - 5										
2											
3											
4											
5											
6	5 - 10										
7											
8											
9											
10											
11	10 - 15										
12											
13											
14											
15											
16	15 - 20										
17											
18											
19											
20											
21	20 - 25										
22											
23											
24											
25											
26	25 - 30										
27											
28											
29											
30											
31	30 - 35										
32											
33											
34											
35											
36	35 - 40	100	SW	SAND	Grey fine quartz SAND, saturated	3/20/2006	1807	-	-	0 / 0 / 21	-
37											
38											
39											
40											
41	40 - 45										
42											
43											
44											
45											
46	45 - 50										
47											
48											
49											
50											
51	50 - 55										
52											
53											
54											
55											

Note:
 BZ - Breathing Zone
 BHA - Borehole Annulus
 qtz. - quartz
 med. - medium

		PROJECT NUMBER		BORING NUMBER		SHEET 1 of 1					
		337526.01.01		DPT-16							
		DPT BORING LOG									
PROJECT : Refine Conceptual Site Model - Union Carbide Corporation Landfill											
LOCATION : Woodbine, GA											
ELEVATION : Not recorded											
DRILLING CONTRACTOR : A E Drilling, LLC (Greenville, SC)											
DRILLING METHOD AND EQUIPMENT USED : Direct Push, Geoprobe 6610DT											
DRILLER: Clete Sanders											
HELPER: Gary Winbourne											
WATER LEVELS : Not recorded											
START : 03/20/06											
END: 03/20/06											
DEPTH BELOW GROUND SURFACE (feet)	INTERVAL (ft bgs)	RECOVERY (%)	USCS	GRAPHIC DESCRIPTION	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, CONSISTENCY, SOIL STRUCTURE, MINERALOGY, ETC.	Date	Time (24 hr.)	AIR MONITORING			
								Micro FID (VOCs ppm)		Combustible Gas Indicator	
								CO ppm / H2S ppm / LEL% / O2%			
								BZ	BHA	BZ	BHA
1	0 - 5										
2											
3											
4											
5											
6	5 - 10										
7											
8											
9											
10											
11	10 - 15										
12											
13											
14											
15											
16	15 - 20										
17											
18											
19											
20											
21	20 - 25										
22											
23											
24											
25											
26	25 - 30										
27											
28											
29											
30											
31	30 - 35	100	SW	SAND	Grey fine quartz SAND, saturated; strong odor (unclear if from sulfur)	3/20/2006	1404	0	15.2	0 / 0 / 0 / 21	0 / 0 / 0 / 21
32											
33											
34											
35											
36	35 - 40										
37											
38											
39											
40											
41	40 - 45										
42											
43											
44											
45											
46	45 - 50										
47											
48											
49											
50											
51	50 - 55										
52											
53											
54											
55											

Note:
 BZ - Breathing Zone
 BHA - Borehole Annulus
 qtz. - quartz
 med. - medium

				PROJECT NUMBER		BORING NUMBER		SHEET 1 of 1			
				337526.01.01		DPT-17					
				DPT BORING LOG							
PROJECT : Refine Conceptual Site Model - Union Carbide Corporation Landfill						LOCATION : Woodbine, GA					
ELEVATION : Not recorded						DRILLING CONTRACTOR : A E Drilling, LLC (Greenville, SC)					
DRILLING METHOD AND EQUIPMENT USED : Direct Push, Geoprobe 6610DT						DRILLER: Clete Sanders		HELPER: Gary Winbourne			
WATER LEVELS : Not recorded				START : 03/12/06		END: 03/13/06					
DEPTH BELOW GROUND SURFACE (feet)	INTERVAL (ft bgs)	RECOVERY (%)	USCS	GRAPHIC DESCRIPTION	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, CONSISTENCY, SOIL STRUCTURE, MINERALOGY, ETC.	Date	Time (24 hr.)	AIR MONITORING			
								Micro FID (VOCs ppm)		Combustible Gas Indicator	
								CO ppm / H2S ppm / LEL% / O2%	BZ	BHA	BHA
1	0 - 5	100	SW		Fine quartz SAND, moist; 0.0-2.75 brown to black, 2.75 - 5.0 white	3/12/2006	0927	-	-	0 / 0 / 0 / 21	-
2											
3											
4											
5											
6	5 - 10	100	SW		White to tan, fine quartz SAND, moist	3/12/2006	0931	-	-	0 / 0 / 0 / 21	-
7											
8											
9											
10											
11	10 - 15	100	SW		Dark tan, fine quartz SAND, wet	3/12/2006	0937	-	-	0 / 0 / 0 / 21	-
12											
13											
14											
15											
16	15 - 20	100	SW		Fine quartz SAND, wet; dark tan	3/12/2006	0944	-	-	0 / 0 / 0 / 21	-
17											
18											
19											
20											
21	20 - 25	100	SW		Fine quartz SAND, saturated; 20.0-22.5 tan 22.5-25.0 light grey	3/12/2006	0951	-	-	0 / 0 / 0 / 21	-
22											
23											
24											
25											
26	25 - 30	~3 (logged from cutting shoe)	SW		Fine quartz SAND, saturated; light grey	3/12/2006	1007	-	-	0 / 0 / 0 / 21	-
27											
28											
29											
30											
31	30 - 35	100	SW		Grey fine quartz SAND, saturated; strong odor (unsure if sulfur is cause)	3/12/2006	1012	-	-	0 / 0 / 0 / 21	-
32											
33											
34											
35											
36	35 - 40	100	SW		Grey fine quartz SAND, saturated; strong odor (unsure if sulfur is cause)	3/12/2006	1037	-	-	0 / 0 / 0 / 21	-
37											
38											
39											
40											
41	40 - 45	100	SW		40.0-41.2 - grey medium quartz SAND	3/12/2006	1108	0	-	0 / 0 / 0 / 21	-
42			CL		41.2-42.0 - grey, CLAY with fine sandy clay lenses (gradational contacts)						
43			SW		42.0-42.25 - coarse angular, quartz SAND						
44			CL		42.25-42.35 - grey, CLAY						
45			SW		42.35-45.0 - grey, medium to fine, quartz SAND fining grain size to base						
46	45 - 50	100	CL		45.0-47.1 - grey, CLAY and fine quartz sandy CLAY	3/12/2006	1127	-	-	0 / 0 / 0 / 21	-
47			SP		45.7-47.1 - med. to sub- to angular, coarse (~1-4mm; 10%) quartz SAND	3/13/2006	1536	0	-	0 / 0 / 0 / 21	-
48			SC		47.1-47.5 - grey, fine, qtz clayey SAND to sandy CLAY, saturated						
49			SW		47.5-48.5 - grey, fine, qtz clayey SAND to sandy CLAY, saturated						
50			SW		48.5-50.0 - Grey, fine to med., quartz SAND, saturated						
51	50 - 55	100	SP		Grey medium quartz SAND, saturated	3/13/2006	1545	0	>3.147	0 / 0 / 0 / 21	-
52											
53											
54											
55											

Note:

BZ - Breathing Zone
BHA - Borehole Annulus
qtz. - quartz
med. - medium

		PROJECT NUMBER		BORING NUMBER		SHEET 1 of 1					
		337526.01.01		DPT-18							
		DPT BORING LOG									
PROJECT : Refine Conceptual Site Model - Union Carbide Corporation Landfill											
ELEVATION : Not recorded											
DRILLING METHOD AND EQUIPMENT USED : Direct Push, Geoprobe 6610DT											
DRILLER: Clete Sanders											
HELPER: Gary Winbourne											
WATER LEVELS : Not recorded											
START : 03/20/06											
END: 03/20/06											
DEPTH BELOW GROUND SURFACE (feet)	INTERVAL (ft bgs)	RECOVERY (%)	USCS	GRAPHIC DESCRIPTION	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, CONSISTENCY, SOIL STRUCTURE, MINERALOGY, ETC.	Date	Time (24 hr.)	AIR MONITORING			
								Micro FID (VOCs ppm)		Combustible Gas Indicator	
								BZ	BHA	BZ	BHA
1	0 - 5										
2											
3											
4											
5											
6	5 - 10										
7											
8											
9											
10											
11	10 - 15										
12											
13											
14											
15											
16	15 - 20										
17											
18											
19											
20											
21	20 - 25	100	SW	SAND	Brown fine quartz SAND, saturated; strong odor (unclear if from sulfur)	3/20/2006	1258	0	0	0 / 0 / 0 / 21	0 / 0 / 0 / 21
22											
23											
24											
25											
26	25 - 30										
27											
28											
29											
30											
31	30 - 35										
32											
33											
34											
35											
36	35 - 40										
37											
38											
39											
40											
41	40 - 45										
42											
43											
44											
45											
46	45 - 50										
47											
48											
49											
50											
51	50 - 55										
52											
53											
54											
55											

Note:
 BZ - Breathing Zone
 BHA - Borehole Annulus
 qtz. - quartz
 med. - medium

CH2MHILL					PROJECT NUMBER 337526.01.04		BORING NUMBER MW-40 (deep)		SHEET 1 of 1		
					BORING LOG						
PROJECT : Refine Conceptual Site Model - Union Carbide Corporation Landfill					LOCATION : Woodbine, GA						
ELEVATION : Not recorded					DRILLING CONTRACTOR : A E Drilling, LLC (Greenville, SC)						
DRILLING METHOD AND EQUIPMENT USED : HSA/Mud Rotary, CME-750 ATV					DRILLER: Nate McAllister		HELPERS: Marty King & Carlos Swain				
WATER LEVELS : Not recorded					START : 05/15/06		END: 05/23/06				
DEPTH BELOW GROUND SURFACE (feet)	INTERVAL (ft bgs)	RECOVERY (%)	USCS CLASSIFICATION	GRAPHIC DESCRIPTION	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, CONSISTENCY, SOIL STRUCTURE, MINERALOGY, ETC.	Date	Time (24 hr.)	AIR MONITORING			
								Micro FID (VOCs ppm)		Combustible Gas Indicator	
								BZ	BHA	BZ	BHA
1	0 - 5	10.25" ID HSA Cuttings	SM		silty fine quartz SAND; dry; light brown	5/15/2006	1225	0	0.5	0 / 0 / 0 / 21	-
2											
3											
4											
5	5 - 10	10.25" ID HSA Cuttings	SM		silty fine quartz SAND; slightly moist; very light brown	5/15/2006	1235	0	1.8	0 / 0 / 0 / 21	-
6											
7											
8											
9	10 - 15	10.25" ID HSA Cuttings	SM		silty fine quartz SAND; slightly moist; very light brown	5/15/2006	1242	0	1.4	0 / 0 / 0 / 21	-
10											
11											
12											
13	15 - 20	10.25" ID HSA Cuttings	SM		silty fine quartz SAND; wet; light grey	5/15/2006	1250	0	1.4	0 / 0 / 0 / 21	-
14											
15											
16											
17	20 - 24	6.25" OD Mud Rotary	-	-	No split spoon samples collected. Reference DPT-16 and-17 for the site.	5/23/2006	1541				
18						-	-	-	-		
19											
20											
21	24 - 29	6.25" OD Mud Rotary	-	-	No split spoon samples collected. Reference DPT-16 and-17 for the site.	-	-	-	-	-	-
22											
23											
24											
25	29 - 34	6.25" OD Mud Rotary	-	-	No split spoon samples collected. Reference DPT-16 and-17 for the site.	5/23/2006	1610	0	1.8	0 / 0 / 0 / 21	-
26											
27											
28											
29	34 - 39	6.25" OD Mud Rotary	-	-	No split spoon samples collected. Reference DPT-16 and-17 for the site.	5/23/2006	1617	0	0.2	0 / 0 / 0 / 21	-
30											
31											
32											
33	39 - 44	6.25" OD Mud Rotary	-	-	No split spoon samples collected. Reference DPT-16 and-17 for the site.	5/23/2006	1643	0	0	0 / 0 / 0 / 21	-
34											
35											
36											
37	44 - 49	6.25" OD Mud Rotary	-	-	No split spoon samples collected. Reference DPT-16 and-17 for the site.	-	-	-	-	-	-
38											
39											
40											
41	49 - 54	6.25" OD Mud Rotary	-	-	No split spoon samples collected. Reference DPT-16 and-17 for the site.	-	-	-	-	-	-
42											
43											
44											
45	54 - 58	6.25" OD Mud Rotary	-	-	No split spoon samples collected. Reference DPT-16 and-17 for the site.	5/23/2006	1649	0	13.7	0 / 0 / 0 / 21	-
46											
47											
48											
49	58		-	-	No split spoon samples collected. Reference DPT-16 and-17 for the site.	5/23/2006	1654	0	3.8	0 / 0 / 0 / 21	-
50											
51											
52											
53			-	-	No split spoon samples collected. Reference DPT-16 and-17 for the site.	5/23/2006	1658	0	4.3	0 / 0 / 0 / 21	-
54											
55											
56											
57			-	-	No split spoon samples collected. Reference DPT-16 and-17 for the site.	-	-	-	-	-	-
58											
59											
60											
58	58		-	-	Total depth of boring is 58.0 feet below ground surface.	5/23/2006	1705	0	93.2	0 / 0 / 0 / 21	-

Note:

BZ - Breathing Zone

BHA - Borehole Annulus

		PROJECT NUMBER		BORING NUMBER		SHEET 1 of 1					
		337526.01.04		MW-41 (deep)							
		BORING LOG									
PROJECT : Refine Conceptual Site Model - Union Carbide Corporation Landfill						LOCATION : Woodbine, GA					
ELEVATION : Not recorded						DRILLING CONTRACTOR : A E Drilling, LLC (Greenville, SC)					
DRILLING METHOD AND EQUIPMENT USED : HSA/Mud Rotary, CME-750 ATV						DRILLER: Nate McAllister			HELPERS: Marty King & Carlos Swain		
WATER LEVELS : Not recorded						START : 05/14/06			END: 05/22/06		
DEPTH BELOW GROUND SURFACE (feet)	INTERVAL (ft bgs)	RECOVERY (%)	USCS CLASSIFICATION	GRAPHIC DESCRIPTION	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, CONSISTENCY, SOIL STRUCTURE, MINERALOGY, ETC.	Date	Time (24 hr.)	AIR MONITORING			
								Micro FID (VOCs ppm)		Combustible Gas Indicator	
								BZ	BHA	CO ppm / H2S ppm / LEL% / O2%	BZ
1	0 - 5	10.25" ID HSA Cuttings	SM	SAND	Silty fine quartz SAND; dry; light brown	5/14/2006	1519	-	0	0 / 0 / 0 / 21	-
2											
3											
4											
5	5 - 10	10.25" ID HSA Cuttings	SC	SAND	Clayey fine quartz SAND; dry; dark brown	5/14/2006	1529	-	0	0 / 0 / 0 / 21	-
6											
7											
8											
9	10 - 15	10.25" ID HSA Cuttings	ML	SILT	Clayey quartz SILT; dry; light tan	5/14/2006	1539	-	0	0 / 0 / 0 / 21	-
10											
11											
12											
13	15 - 20	10.25" ID HSA Cuttings	ML	SILT	Clayey quartz SILT; moist; light tan	5/14/2006	1548	-	0	0 / 0 / 0 / 21	-
14											
15											
16											
17	20 - 24	6.25" OD Mud Rotary	-	-	-	5/22/2006	1012	-	-	-	-
18											
19											
20											
21	24 - 26	11" / 24" Split Spoon	SM	SAND	grey; silty, fine quartz SAND; Blow count 5/7/10/12	5/22/2006	1050	0	1.6	0 / 0 / 0 / 21	-
22											
23											
24											
25	26 - 29	6.25" OD Mud Rotary	-	-	-	-	-	-	-	-	-
26											
27											
28											
29	29 - 31	13" / 24" Split Spoon	SM	SAND	grey; silty, fine quartz SAND; Blow count 3/3/5/8	5/22/2006	1107	0	0.7	0 / 0 / 0 / 21	-
30											
31											
32											
33	31 - 34	6.25" OD Mud Rotary	-	-	-	-	-	-	-	-	-
34											
35											
36											
37	34 - 36	3" / 24" Split Spoon	SM	SAND	grey; silty, fine quartz SAND; Blow count 17/13/15/20	5/22/2006	1126	-	-	0 / 0 / 0 / 21	-
38											
39											
40											
41	36 - 39	6.25" OD Mud Rotary	-	-	-	-	-	-	-	-	-
42											
43											
44											
45	39 - 41	7" / 24" Split Spoon	SM	SAND	grey; silty, fine quartz SAND; Blow count 5/10/13/12	5/22/2006	1305	0	0	0 / 0 / 0 / 21	-
46											
47											
48											
49	41 - 44	6.25" OD Mud Rotary	-	-	-	-	-	-	-	-	-
50											
51											
52											
53	44 - 46	6.25" / 24" Split Spoon	SM	SAND	grey; silty, fine quartz SAND; Blow count 8/18/21/22	5/22/2006	1316	0	0	0 / 0 / 0 / 21	-
54											
55											
56											
57	46 - 49	6.25" OD Mud Rotary	-	-	-	-	-	-	-	-	-
58											
59											
60											
61	49 - 51	6.5" / 24" Split Spoon	SC	SAND	dark grey; clayey, fine quartz SAND to sandy CLAY; Blow count 10/11/13/14	5/22/2006	1344	0	0	0 / 0 / 0 / 21	-
62											
63											
64											
65	51 - 54	6.25" OD Mud Rotary	-	-	-	-	-	-	-	-	-
66											
67											
68											
69	54 - 56	8" / 24" Split Spoon	SC	SAND	dark grey; medium quartz SAND with fine to coarse rounded quartz gravel and minor clay and light grey to taupe colored shell fragments (1-10mm in size); Blow count 2/4/10/14. Total depth of boring is 56.0 ft bgs.	5/22/2006	1405	0	0	0 / 0 / 0 / 21	-
70											
71											
72											

Note:

BZ - Breathing Zone
BHA - Borehole Annulus



PROJECT NUMBER

337526.01.04

BORING NUMBER

MW-42 (shallow)

SHEET 1 of 1

BORING LOG

PROJECT : Refine Conceptual Site Model - Union Carbide Corporation Landfill

LOCATION : Woodbine, GA

ELEVATION : Not recorded

DRILLING CONTRACTOR : A E Drilling, LLC (Greenville, SC)

DRILLING METHOD AND EQUIPMENT USED : HSA/Mud Rotary, CME-750 ATV

DRILLER: Nate McAllister

HELPERS: Marty King & Carlos Swain

WATER LEVELS : Not recorded

START : 05/17/06

END: 05/17/06

DEPTH BELOW GROUND SURFACE (feet)	INTERVAL (ft bgs)	RECOVERY (%)	USCS CLASSIFICATION	GRAPHIC DESCRIPTION	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, CONSISTENCY, SOIL STRUCTURE, MINERALOGY, ETC.	Date	Time (24 hr.)	AIR MONITORING			
								Micro FID (VOCs ppm)		Combustible Gas Indicator	
								BZ	BHA	CO ppm / H2S ppm / LEL% / O2%	BZ
1	0 - 5	4.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; dry; brown	5/17/2006	1534	0	1.1 (0.7 ppm inside of HSAs)	0 / 0 / 0 / 21	-
2											
3											
4											
5											
6	5 - 10	4.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; moist; brown	5/17/2006	1539	0	0.0 (0.0 ppm inside of HSAs)	0 / 0 / 0 / 21	-
7											
8											
9											
10											
11	10 - 15	4.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; moist; orange brown	5/17/2006	1546	0	0.0 (0.0 ppm inside of HSAs)	0 / 0 / 0 / 21	-
12											
13											
14											
15											
16	15 - 20	4.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; wet; light tan	5/17/2006	1551	0	0. (0.1 ppm inside of HSAs)	0 / 0 / 0 / 21	-
17											
18											
19											
20											
21	20 - 25	4.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; wet; light tan	5/17/2006	1557	0	0.0 (0.0 ppm inside of HSAs)	0 / 0 / 0 / 21	-
22											
23											
24											
25											
26	25 - 30	4.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; wet; brown	5/17/2006	1603	0	0.0 (0.0 ppm inside of HSAs)	0 / 0 / 0 / 21	-
27											
28											
29											
30											
31	30 - 33	4.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; wet; brown; Total depth of boring is 33.0 feet below ground surface.	5/17/2005	1026	0	0.0 (0.0 ppm inside of HSAs)	0 / 0 / 0 / 21	-
32											
33											

Note:

BZ - Breathing Zone

BHA - Borehole Annulus

					PROJECT NUMBER 337526.01.04		BORING NUMBER MW-43 (deep)				SHEET 1 of 1	
BORING LOG												
PROJECT : Refine Conceptual Site Model - Union Carbide Corporation Landfill						LOCATION : Woodbine, GA						
ELEVATION : Not recorded						DRILLING CONTRACTOR : A E Drilling, LLC (Greenville, SC)						
DRILLING METHOD AND EQUIPMENT USED : HSA/Mud Rotary, CME-750 ATV						DRILLER: Nate McAllister		HELPERS: Marty King & Carlos Swain				
WATER LEVELS : Not recorded						START : 05/16/06		END: 05/24/06				
DEPTH BELOW GROUND SURFACE (feet)	INTERVAL (ft bgs)	RECOVERY (%)	USCS CLASSIFICATION	GRAPHIC DESCRIPTION	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, CONSISTENCY, SOIL STRUCTURE, MINERALOGY, ETC.	Date	Time (24 hr.)	AIR MONITORING				
								Micro FID (VOCs ppm)		Combustible Gas Indicator CO ppm / H2S ppm / LEL% / O2%		
								BZ	BHA	BZ	BHA	
1	0 - 5	10.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; dry to slightly moist; light brown	5/16/2006	1237	0	4.1	0 / 0 / 0 / 21	-	
2												
3												
4												
5	5 - 10	10.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; wet; dark brown	5/16/2006	1247	0	47 (471 ppm inside of HSAs)	0 / 0 / 0 / 21	-	
6												
7												
8												
9	10 - 15	10.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; wet to saturated; dark brown	5/16/2006	1259	0	101 (184 ppm inside of HSAs)	0 / 0 / 0 / 21	-	
10												
11												
12												
13	15 - 20	10.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; wet to saturated; dark brown	5/16/2006	1317	0	4.1 (394 ppm inside of HSAs)	0 / 0 / 0 / 21	-	
14												
15												
16												
17	20 - 24	6.25" OD Mud Rotary	-	-	-	5/24/2006	0850	-	-	-	-	
18												
19												
20												
21	24 - 26	5" / 24" Split Spoon	SM	SAND	light brown; silty fine quartz SAND; Blow count 4/6/7/8	5/24/2006	1511	0	2	0 / 0 / 0 / 21	-	
22												
23												
24												
25	26 - 29	6.25" OD Mud Rotary	-	-	-	-	-	-	-	-	-	
26												
27												
28												
29	29 - 31	11" / 24" Split Spoon	ML	SILT	grey; quartz SILT; Blow count 3/4/5/6	5/24/2006	1535	0	7	0 / 0 / 0 / 21	-	
30												
31												
32												
33	31 - 34	6.25" OD Mud Rotary	-	-	-	-	-	-	-	-	-	
34												
35												
36												
37	34 - 36	~8" / 24" Split Spoon	SM	SAND	light brown; silty fine quartz SAND; Blow count 6/9/10/11	5/24/2006	1547	0	0	0 / 0 / 0 / 21	-	
38												
39												
40												
41	36 - 39	6.25" OD Mud Rotary	-	-	-	-	-	-	-	-	-	
42												
43												
44												
45	39 - 41	12.5" / 24" Split Spoon	SM	SAND	grey; silty, fine quartz SAND; Blow count 12/13/17/23	5/24/2006	1606	0	4.1	0 / 0 / 0 / 21	-	
46												
47												
48												
49	41 - 44	6.25" OD Mud Rotary	-	-	-	-	-	-	-	-	-	
50												
51												
52												
53	44 - 46	13" / 24" Split Spoon	SC / SM	SAND	grey; clayey, fine to medium quartz SAND (13" - 21") and grey silty fine quartz SAND (21" - 24") ; Blow count 8/10/11/8	5/24/2006	1622	0	2	0 / 0 / 0 / 21	-	
54												
55												
56												
57	46 - 49	6.25" OD Mud Rotary	-	-	-	-	-	-	-	-	-	
58												
59												
60												
61	49 - 51	11" / 24" Split Spoon	SC / SM	SAND	grey; clayey, fine to medium quartz SAND (11" - 21") ; and grey silty fine quartz SAND (21" - 24") ; Blow count 0/0/7/14	5/24/2006	1637	0	0	0 / 0 / 0 / 21	-	
62												
63												
64												
65	51 - 54	6.25" OD Mud Rotary	-	-	-	-	-	-	-	-	-	
66												
67												
68												
69	54 - 56	~8" / 24" Split Spoon	ML	SILT	grey; quartz SILT; Blow count 7/14/15/17	5/24/2006	1655	0	2	0 / 0 / 0 / 21	-	
70												
71												
72												
73	56 - 58	6.25" OD Mud Rotary	-	-	Total depth of boring is 58.0 feet below ground surface.	5/24/2006	1700	-	-	-	-	
74												
75												
76												

Note:

BZ - Breathing Zone

BHA - Borehole Annulus



PROJECT NUMBER

337526.01.04

BORING NUMBER

MW-44 (shallow)

SHEET 1 of 1

BORING LOG

PROJECT : Refine Conceptual Site Model - Union Carbide Corporation Landfill

LOCATION : Woodbine, GA

ELEVATION : Not recorded

DRILLING CONTRACTOR : A E Drilling, LLC (Greenville, SC)

DRILLING METHOD AND EQUIPMENT USED : HSA/Mud Rotary, CME-750 ATV

DRILLER: Nate McAllister

HELPERS: Marty King & Carlos Swain

WATER LEVELS : Not recorded

START : 05/16/06

END: 05/16/06

DEPTH BELOW GROUND SURFACE (feet)	INTERVAL (ft bgs)	RECOVERY (%)	USCS CLASSIFICATION	GRAPHIC DESCRIPTION	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, CONSISTENCY, SOIL STRUCTURE, MINERALOGY, ETC.	Date	Time (24 hr.)	AIR MONITORING			
								Micro FID (VOCs ppm)		Combustible Gas Indicator CO ppm / H2S ppm / LEL% / O2%	
								BZ	BHA	BZ	BHA
1	0 - 5	4.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; moist; dark brown to black	5/16/2006	1554	0	9.4	0 / 0 / 0 / 21	-
2											
3											
4											
5											
6	5 - 10	4.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; moist; dark brown to black	5/16/2006	1559	0	5.9	0 / 0 / 0 / 21	-
7											
8											
9											
10											
11	10 - 15	4.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; saturated; brown	5/16/2006	1605	0	33	0 / 0 / 0 / 21	-
12											
13											
14											
15											
16	15 - 20	4.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; saturated; brown	5/16/2006	-	-	-	0 / 0 / 0 / 21	-
17											
18											
19											
20											
21	20 - 25	4.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; saturated; brown	5/16/2006	1610	0	44.3	0 / 0 / 0 / 21	-
22											
23											
24											
25											
26	25 - 30	4.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; saturated; brown	5/16/2006	1317	0	25.1	0 / 0 / 0 / 21	-
27											
28											
29											
30											
31	30 - 32	4.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; saturated; brown; Total depth of boring is 32.0 feet below ground surface.	5/16/2005	~1617	-	-	-	-
32											

Note:

BZ - Breathing Zone

BHA - Borehole Annulus



PROJECT NUMBER

337526.01.04

BORING NUMBER

MW-45 (shallow)

SHEET 1 of 1

BORING LOG

PROJECT : Refine Conceptual Site Model - Union Carbide Corporation Landfill

LOCATION : Woodbine, GA

ELEVATION : Not recorded

DRILLING CONTRACTOR : A E Drilling, LLC (Greenville, SC)

DRILLING METHOD AND EQUIPMENT USED : HSA/Mud Rotary, CME-750 ATV

DRILLER: Nate McAllister

HELPERS: Marty King & Carlos Swain

WATER LEVELS : Not recorded

START : 05/17/06

END: 05/17/06

DEPTH BELOW GROUND SURFACE (feet)	INTERVAL (ft bgs)	RECOVERY (%)	USCS CLASSIFICATION	GRAPHIC DESCRIPTION	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, CONSISTENCY, SOIL STRUCTURE, MINERALOGY, ETC.	Date	Time (24 hr.)	AIR MONITORING			
								Micro FID (VOCs ppm)		Combustible Gas Indicator CO ppm / H2S ppm / LEL% / O2%	
								BZ	BHA	BZ	BHA
1	0 - 5	4.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; dry to slightly moist; light brown	5/17/2006	1302	0	1.1 (1.8 ppm inside of HSAs)	0 / 0 / 0 / 21	-
2											
3											
4											
5											
6	5 - 10	4.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; moist; light tan	5/17/2006	1315	0	0.0 (0.0 ppm inside of HSAs)	0 / 0 / 0 / 21	-
7											
8											
9											
10											
11	10 - 15	4.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; moist; light tan	5/17/2006	1321	0	0.3 (0.9 ppm inside of HSAs)	0 / 0 / 0 / 21	-
12											
13											
14											
15											
16	15 - 20	4.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; wet; creamy tan/white	5/17/2006	1327	0	0.8 (0.0 ppm inside of HSAs)	0 / 0 / 0 / 21	-
17											
18											
19											
20											
21	20 - 25	4.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; wet; creamy tan/white	5/17/2006	-	-	-	0 / 0 / 0 / 21	-
22											
23											
24											
25											
26	25 - 30	4.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; wet; creamy tan/white	5/17/2006	-	-	-	0 / 0 / 0 / 21	-
27											
28											
29											
30											
31	30 - 33	4.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; saturated; creamy tan/white; Total depth of boring is 33.0 feet below ground surface.	5/17/2005	1026	1406	-	0 / 0 / 0 / 21	-
32											
33											

Note:

BZ - Breathing Zone

BHA - Borehole Annulus

			PROJECT NUMBER		BORING NUMBER		SHEET 1 of 1			
			337526.01.04		MW-46 (deep)					
			BORING LOG							

PROJECT : Refine Conceptual Site Model - Union Carbide Corporation Landfill					LOCATION : Woodbine, GA				
ELEVATION : Not recorded					DRILLING CONTRACTOR : A E Drilling, LLC (Greenville, SC)				
DRILLING METHOD AND EQUIPMENT USED : HSA/Mud Rotary, CME-750 ATV					DRILLER: Nate McAllister		HELPERS: Marty King & Carlos Swain		
WATER LEVELS : Not recorded					START : 05/15/06		END: 05/23/06		

DEPTH BELOW GROUND SURFACE (feet)	INTERVAL (ft bgs)	RECOVERY (%)	USCS CLASSIFICATION	GRAPHIC DESCRIPTION	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, CONSISTENCY, SOIL STRUCTURE, MINERALOGY, ETC.	Date	Time (24 hr.)	AIR MONITORING			
								Micro FID (VOCs ppm)		Combustible Gas Indicator CO ppm / H2S ppm / LEL% / O2%	
								BZ	BHA	BZ	BHA
1	0 - 5	10.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; dry; brown	5/15/2006	0924	0	4.4	0 / 0 / 0 / 21	-
2											
3											
4											
5											
6	5 - 10	10.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; dry; brown	5/15/2006	0938	0	1.4	0 / 0 / 0 / 21	-
7											
8											
9											
10											
11	10 - 15	10.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; moist; brown	5/15/2006	0952	0	1	0 / 0 / 0 / 21	-
12											
13											
14											
15											
16	15 - 20	10.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; moist; brown	5/15/2006	1002	0	9.8	0 / 0 / 0 / 21	-
17											
18											
19											
20											
21	20 - 24	6.25" OD Mud Rotary	-	-	-	5/23/2006	0850	-	-	-	-
22											
23											
24											
25											
26	24 - 26	4" / 24" Split Spoon	SM	SAND	grey; silty, fine quartz SAND; Blow count 2/3/4/5	5/23/2006	0928	0	1.8	0 / 0 / 0 / 21	-
27											
28											
29											
30											
31	29 - 31	5" / 24" Split Spoon	SM	SAND	grey; silty, fine quartz SAND; Blow count 1/1/2/5	5/23/2006	1109	0	0.5	0 / 0 / 0 / 21	-
32											
33											
34											
35											
36	34 - 36	4.75" / 24" Split Spoon	SM	SAND	grey; silty, fine quartz SAND; Blow count 5/7/10/11	5/23/2006	1124	0	1.9	0 / 0 / 0 / 21	-
37											
38											
39											
40											
41	39 - 41	4.5" / 24" Split Spoon	SM	SAND	grey; silty, fine quartz SAND; Blow count 12/13/17/23	5/23/2006	1141	0	0	0 / 0 / 0 / 21	-
42											
43											
44											
45											
46	44 - 46	13.5" / 24" Split Spoon	SM	SAND	grey; silty, fine quartz SAND (10.5" - 23.0") with grey clay lense at base (23.0" - 24.0") ; Blow count 8/18/21/22	5/23/2006	1204	0	0	0 / 0 / 0 / 21	-
47											
48											
49											
50											
51	49 - 51	18" / 24" Split Spoon	SC	SAND	grey, fine quartz sandy CLAY (6.0" - 10.5"); grey, clayey, fine quartz SAND (10.5" - 16.0"); grey; silty, fine quartz SAND (16.0" - 21.0") with grey clay lense at base (21.0" - 24.0") ; Blow count 5/7/5/7	5/23/2006	1216	0	0	0 / 0 / 0 / 21	-
52											
53											
54											
55											
56	54 - 56	16" / 24" Split Spoon	SC	SAND	grey; fine to medium quartz SAND with interbedded (0.5 - 1.0 cm scale bedding) fine to coarse taupe-colored shell angular fragments (1-8mm in size); Blow count 10/15/21/32. Total depth of boring is 56.0 ft bgs.	5/23/2006	1242	0	0	0 / 0 / 0 / 21	-

Note:

BZ - Breathing Zone
BHA - Borehole Annulus



PROJECT NUMBER

337526.01.04

BORING NUMBER

MW-47 (shallow)

SHEET 1 of 1

BORING LOG

PROJECT : Refine Conceptual Site Model - Union Carbide Corporation Landfill

LOCATION : Woodbine, GA

ELEVATION : Not recorded

DRILLING CONTRACTOR : A E Drilling, LLC (Greenville, SC)

DRILLING METHOD AND EQUIPMENT USED : HSA/Mud Rotary, CME-750 ATV

DRILLER: Nate McAllister

HELPERS: Marty King & Carlos Swain

WATER LEVELS : Not recorded

START : 05/17/06

END: 05/17/06

DEPTH BELOW GROUND SURFACE (feet)	INTERVAL (ft bgs)	RECOVERY (%)	USCS CLASSIFICATION	GRAPHIC DESCRIPTION	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, CONSISTENCY, SOIL STRUCTURE, MINERALOGY, ETC.	Date	Time (24 hr.)	AIR MONITORING			
								Micro FID (VOCs ppm)		Combustible Gas Indicator CO ppm / H2S ppm / LEL% / O2%	
								BZ	BHA	BZ	BHA
1	0 - 5	4.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; dry; dark brown	5/17/2006	0938	0	0.5 (0.7 ppm inside of HSAs)	0 / 0 / 0 / 21	-
2											
3											
4											
5											
6	5 - 10	4.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; moist; dark brown	5/17/2006	0943	0	0.9 (0.9 ppm inside of HSAs)	0 / 0 / 0 / 21	-
7											
8											
9											
10											
11	10 - 15	4.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; very moist; dark brown	5/17/2006	0949	0	0.7 (0.4 ppm inside of HSAs)	0 / 0 / 0 / 21	-
12											
13											
14											
15											
16	15 - 20	4.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; wet; brown	5/17/2006	0955	0	0.4 (0.0 ppm inside of HSAs)	0 / 0 / 0 / 21	-
17											
18											
19											
20											
21	20 - 25	4.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; wet; brown	5/17/2006	1001	0	1.1 (0.5 ppm inside of HSAs)	0 / 0 / 0 / 21	-
22											
23											
24											
25											
26	25 - 30	4.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; wet; brown	5/17/2006	1006	0	1.1 (0.5 ppm inside of HSAs)	0 / 0 / 0 / 21	-
27											
28											
29											
30											
31	30 - 33	4.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; saturated; brown; Total depth of boring is 33.0 feet below ground surface.	5/17/2005	1026	-	-	-	-
32											
33											

Note:

BZ - Breathing Zone

BHA - Borehole Annulus

CH2MHILL					PROJECT NUMBER 337526.01.04		BORING NUMBER MW-48 (deep)					SHEET 1 of 1	
BORING LOG													
PROJECT : Refine Conceptual Site Model - Union Carbide Corporation Landfill							LOCATION : Woodbine, GA						
ELEVATION : Not recorded							DRILLING CONTRACTOR : A E Drilling, LLC (Greenville, SC)						
DRILLING METHOD AND EQUIPMENT USED : HSA/Mud Rotary, CME-750 ATV							DRILLER: Nate McAllister		HELPERS: Marty King & Carlos Swain				
WATER LEVELS : Not recorded							START : 05/16/06		END: 05/24/06				
DEPTH BELOW GROUND SURFACE (feet)	INTERVAL (ft bgs)	RECOVERY (%)	USCS CLASSIFICATION	GRAPHIC DESCRIPTION	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, CONSISTENCY, SOIL STRUCTURE, MINERALOGY, ETC.	Date	Time (24 hr.)	AIR MONITORING					
								Micro FID (VOCs ppm)		Combustible Gas Indicator CO ppm / H2S ppm / LEL% / O2%			
								BZ	BHA	BZ	BHA		
1	0 - 5	10.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; dry; light grey	5/16/2006	0912	0	4.4	0 / 0 / 0 / 21	-		
2													
3													
4													
5	5 - 10	10.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; moist; dark brown	5/16/2006	0926	0	1.4	0 / 0 / 0 / 21	-		
6													
7													
8													
9	10 - 15	10.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; moist; dark brown	5/16/2006	0944	0	1	0 / 0 / 0 / 21	-		
10													
11													
12													
13	15 - 20	10.25" ID HSA Cuttings	SM	SAND	silty fine quartz SAND; wet; brown	5/16/2006	0953	0	9.8	0 / 0 / 0 / 21	-		
14													
15													
16													
17	20 - 23	6.25" OD Mud Rotary	-	-	-	5/24/2006	0909	-	-	-	-		
18													
19													
20													
21	23 - 25	7" / 24" Split Spoon	SM	SAND	grey brown; silty, fine quartz SAND; Blow count 6/7/13/14	5/24/2006	0957	0	0	0 / 0 / 0 / 21	-		
22													
23													
24													
25	25 - 28	6.25" OD Mud Rotary	-	-	-	5/24/2006		-	-	-	-		
26													
27													
28													
29	28 - 30	8" / 24" Split Spoon	SM	SAND	grey brown; silty, fine quartz SAND; Blow count 5/7/8/9	5/24/2006	1021	0	0.3	0 / 0 / 0 / 21	-		
30													
31													
32													
33	30 - 33	6.25" OD Mud Rotary	-	-	-	5/24/2006		-	-	-	-		
34													
35													
36													
37	33 - 35	5" / 24" Split Spoon	SP	SAND	grey brown; fine quartz SAND; Blow count 3/4/4/5	5/24/2006	1043	0	1.4	0 / 0 / 0 / 21	-		
38													
39													
40													
41	35 - 38	6.25" OD Mud Rotary	-	-	-	5/24/2006		-	-	-	-		
42													
43													
44													
45	43 - 45	13.25" / 24" Split Spoon	SC	SAND	grey, silty fine quartz SAND (13.25" - 18.50"); grey, CLAY (18.5" - 20.00"); grey, fine quartz SAND (20.00" - 23.00"); and grey CLAY (23.00" - 24.00") ; Blow count 8/10/15/14	5/24/2006	1111	0	1.1	0 / 0 / 0 / 21	-		
46													
47													
48													
49	45 - 48	6.25" OD Mud Rotary	-	-	-	5/24/2006		-	-	-	-		
50													
51													
52													
53	48 - 50	12" / 24" Split Spoon	SM	SAND	grey; silty, fine quartz SAND (upper 6") grading to fine quartz SAND (lower 6"); Blow count 18/32/31/34	5/24/2006	1129	0	4.1	0 / 0 / 0 / 21	-		
54													
55													
56													
57	50 - 53	6.25" OD Mud Rotary	-	-	-	5/24/2006		-	-	-	-		
58													
59													
60													
61	53 - 55	18" / 24" Split Spoon	SC	SAND	grey; clayey, fine quartz SAND to fine quartz sandy dark grey CLAY; Blow count 5/11/13/15	5/24/2006	1149	0	1.8	0 / 0 / 0 / 21	-		
62													
63													
64													
65	55 - 58	6.25" OD Mud Rotary	-	-	Total depth of boring is 58.0 feet below ground surface.	5/24/2006	1157	-	-	-	-		
66													
67													
68													

Note:

BZ - Breathing Zone

BHA - Borehole Annulus



Boring Number: MW-51

Sheet: 1 of 2

Client: Dow

Project: Dow iSoc System and Monitoring Wells

Location: Dow Woodbine GA

Project Number: 421480

Driller: Drill Pro

Drilling Method: Sonic SR-1 6" Casings

Sampling Method:

Logged by: J Frank/RDU

Start/Finish Date: 10-25-11 0930 / 10-25-11 1830

Depth (ft)	Sample Information				Soil Log	Soil Description	Depth / Elev (ft)	Comments
	Sample #	Sample Type	Recovery (%)	SPT (6"-6"-6")				
50	1	Sonic	85	NA		Sandy Chaulk Sandy Chaulk, white-tan, dry, medium dense, discontinuous	-51 51	0-20' 8" casing - very slow drilling 20-40' 8" casing - normal speed Set 8" temp casing at 40 ft bgs with bentonite seal 6" casing "blow-in" to 50"
						Sand (SP) Tan-light gray, VF-F sand, wet loose	-54 54	
55						Silty Sand (SM) Tan, moist, loose-slightly dense, ~25% shell fragments	-59 59	
						Sand (SP) Tan, coarse sand, with little fines, damp, loose	-62 62	
						Silty Sand (SM) Tan, moist, loose-slightly dense, ~25% shell fragments	-70 70	
65						Clay (CL) Green-gray, high plasticity, moist, soft	-72 72	
						Sand (SP) Tan, coarse sand, with little fines, damp, loose	-74 74	
						Silty Sand (SM) Gray, moist, loose-slightly dense	-77 77	
70						Silty Sand (SM) Tan, moist, loose-slightly dense, ~25% shell fragments	-83 83	
						Silty Sand (SM) Gray, moist, loose-slightly dense	-87 87	
75	2	Sonic	85	NA		Silty Sand (SM) Tan, moist, loose-slightly dense, ~25% shell fragments	-90 90	4x6" core to ~90-100'
						Silty Sand (SM) Tan, moist, loose-slightly dense		
						Silty Sand (SM) Tan, moist, loose-slightly dense, ~25% shell fragments		
						Silty Sand (SM) Gray, moist, loose-slightly dense		
						Silty Sand (SM) Tan, moist, loose-slightly dense, ~25% shell fragments		
80						Silty Sand (SM) Tan, moist, loose-slightly dense, ~25% shell fragments, trace clay		
						Sand (SP) VF, light tan-light gray sand, medium dense, dry-damp		
85								
90								

**CH2MHILL****Boring Number: MW-51****Sheet: 2 of 2****Client:** Dow**Project:** Dow iSoc System and Montinoring Wells**Location:** Dow Woodbine GA**Project Number:** 421480**Driller:** Drill Pro**Drilling Method:** Sonic SR-1 6" Casings**Sampling Method:****Logged by:** J Frank/RDU**Start/Finish Date:** 10-25-11 0930 / 10-25-11 1830

Depth (ft)	Sample Information				Soil Log	Soil Description	Depth / Elev (ft)	Comments
	Sample #	Sample Type	Recovery (%)	SPT (6"-6"-6")				
95	3	Sonic	47	NA		Silty Sand (SM) Green-gray, damp, dense, little cementation	-92	Silty sand stretches length-wise during extrusion Will drill to 110'
						Sand (SP) Light tan-light gray, VF sand, some clay and cementation, moist, loose, soft	92	
						Silty Sand (SM) Green-gray, damp, dense, 5% quartz pebbles with rounded glauconite	-95	
						Sand (SW) VF sand, trace cementation, damp, loose	95	
100	4	Sonic		NA			-98	
							98	
						Silty Sand (SM) Green-gray, damp, dense, little cementation	-103	
						Silty Sand (SM) Green-gray, damp, dense, 5% quartz pebbles with rounded glauconite	103	
105							-106	
							106	
110						End of Log	-110	
							110	
115								
120								
125								
130								



Sheet: 1 of 1

Start/Finish Date: 10-26-11 0930 / 10-26-11 1910

[illegible]



PROJECT NUMBER:
WOO023DW

BORING NUMBER:
FL-3

SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Drum Removal Soil Sampling

PROJECT LOCATION: Woodbine, GA

ELEVATION :

DRILLING CONTRACTOR : Cascade Drilling

DRILLING EQUIPMENT AND METHOD : Geoprobe 6620DT, DPT

LOGGER : B. Thomas

WATER LEVELS : 10

START : 5/11/22 13:20

END : 5/11/22 13:40

EDITOR : J. Graham

DEPTH BELOW EXISTING GRADE (ft)				SYMBOLIC LOG	SOIL DESCRIPTION	COMMENTS
INTERVAL (ft)	RECOVERY (ft)	#TYPE			SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
5	0.0	3.8	MC - 1		0.0 - 1.2 - NO RECOVERY	FL3-1-0002-20220511-N-SO (0.0-2.0')
					1.2 - 1.5 - SILTY SAND (SM) - Light brownish tan, dry, very loose, noncohesive, nonplastic, massive	
					1.5 - 2.15 - SILTY SAND (SM) - Light grayish tan, dry, loose, noncohesive, nonplastic, massive, 1/4"-1/2" fragment of product at 1.95' bgs, large chunk of pine bark at 2.0' bgs	FL3-1-0204-20220511-N-SO (2.0-4.0')
					2.15 - 2.7 - SILTY SAND (SM) - Very light tan, dry, loose, noncohesive, nonplastic, massive	
					2.7 - 5.0 - SILTY SAND (SM) - Tannish brown to brownish tan, dispersed coloring (not mottling but spotty, diffuse changes in color from light to dark), dry, loose, noncohesive, nonplastic, massive	
						FL3-1-0406-20220511-N-SO (4.0-6.0')
	10	5.0	4.1	MC - 2		5.0 - 5.9 - NO RECOVERY
					5.9 - 6.0 - SILTY SAND (SM) - Tannish brown to brownish tan, dispersed coloring (not mottling but spotty, diffuse changes in color from light to dark), dry, loose, noncohesive, nonplastic, massive	FL3-1-0608-20220511-N-SO (6.0-8.0') FL3-1-0608-20220511-FD-SO (6.0-8.0')
					6.0 - 7.0 - SILTY SAND (SM) - Brown with dark brown mottling (possibly organics), dry, loose, noncohesive, nonplastic, massive	
					7.0 - 10.0 - SILTY SAND (SM) - Brown, dry, loose, noncohesive, nonplastic, massive, damp/moist at 9' bgs	
						FL3-1-0810-20220511-N-SO (8.0-10.0')
15		10.0	2.0	MC - 3		10.0 - 12.0 - SILTY SAND (SM) - Brown, wet, loose, noncohesive, nonplastic, massive, very wet at 12' bgs
	12.0				EOB at 12.0' bgs	

				PROJECT NUMBER		Date: 12/15/2021	
				WOO022DW		BORING NUMBER: MW23A SHEET 1 OF 1	
SOIL BORING LOG							
PROJECT : Todd Creek Well Replacement				LOCATION: Woodbine, GA			
ELEVATION : 22.5 ft NAVD88				DRILLING CONTRACTOR : Cascade Drilling			
DRILLING METHOD AND EQUIPMENT USED : 8140 LC Sonic Drill Rig 4" core barrel and 6' casing							
WATER LEVELS : 20 ft bgs		START : 1355		END : 1440		LOGGER : D.Roberts	
DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	PID (ppm)	COMMENTS Breathing Zone Logger/Driller (VOCs and LEL) and Notes	
	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)				
5	0-5	D-1	3.5	0.0-0.5 ft: SAND (SP), very dark gray (10YR 3/1), very fine grained, organics, very loose	0.2		
				0.5-15.0 ft: SAND (SP), light yellowish brown (2.5YR 6/4), dark yellowish brown (10YR 6/6), dark brown (7.5YR 3/3), very fine grained, poorly graded, very loose, moist	0.2		
					0.0		
					0.0		
10	5-10	D-2	5.0		0.0		
					0.0		
					0.0		
					0.0		
15	10-15	D-3	5.0		0.0		
					0.0		
					0.0		
					0.0		
20	15-20	D-4	5.0	15.0-17.5 ft: SAND (SP), dark brown (7.5YR 3/3), grayish brown (10YR 5/2), very fine grained, poorly graded, very loose, moist to wet	0	BZ=0.0 LEL=0%	
				17.5-30.0 ft: SAND (SP), yellowish brown (10YR 5/6), dark brown (10YR 3/3), olive brown (2.5YR 5/6), dark grayish brown (2.5YR 4/2), very fine grained, poorly graded, very loose, wet	0		
					0		
					0		
25	20-25	D-5	4.0		0		
					1.2		
					2.1		
					0.8		
30	25-30	D-6	5.0		0.3		
					3.8		
					30.9		
					20.7		
				Boring Terminated at 30 ft bgs	2.2		

				PROJECT NUMBER		Date: 12/15/2021	
				WOO022DW		BORING NUMBER: MW24A SHEET 1 OF 2	
SOIL BORING LOG							
PROJECT : Todd Creek Well Replacement				LOCATION: Woodbine, GA			
ELEVATION : 22.2 ft NAVD88				DRILLING CONTRACTOR : Cascade Drilling			
DRILLING METHOD AND EQUIPMENT USED : 8140 LC Sonic Drill Rig 4" core barrel and 6' casing							
WATER LEVELS : 20 ft bgs		START : 0843		END : 1028		LOGGER : D.Roberts	
DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	PID (ppm)	COMMENTS Breathing Zone Logger/Driller (VOCs and LEL) and Notes	
	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)				
5	0-5	D-1	2.0	0.0-2.0 ft: SAND (SP), dark yellowish brown (10YR 4/6), very fine grained, poorly graded, organics, very loose, moist, trace silt	0.0		
				2.0-5.0 ft: NO RECOVERY	0.0		
10	5-10	D-2	1.0	5.0-6.0 ft: SAND (SP), white (10YR 8/1), very fine grained, poorly graded, very loose, moist	0.0	BZ=0.0 LEL=0%	
				6.0-10.0 ft: NO RECOVERY			
15	10-15	D-3	5.0	10.0-15.0 ft: SAND (SP), very dark brown (10YR 2/2), yellowish brown (10YR 2/2), very fine grained, poorly graded, very loose to loose, moist	0.0		
					0.0		
20	15-20	D-4	0.0	15.0-20.0 ft: NO RECOVERY		BZ=0.0 LEL=0%	
25	20-25	D-5	5.0	20.0-25.0 ft: SAND (SP), brownish yellow (10YR 6/6), very fine grained, poorly graded, very loose, moist	8.3		
					3.6		
30	25-30	D-6	5.0	25.0-30.0 ft: SAND (SP), olive gray (5YR 4/2), very fine grained, poorly graded, loose to medium dense, wet	1.1	strong sulfur odor	
					0.5		
					2.2		
					1.5		
					4.3		
					0.7		
					0.5		
					0.4		

				PROJECT NUMBER		Date: 12/15/2021	
				W00022DW		BORING NUMBER: MW24A SHEET 2 OF 2	
SOIL BORING LOG							
PROJECT : Todd Creek Well Replacement				LOCATION: Woodbine, GA			
ELEVATION : 22.2 ft NAVD88				DRILLING CONTRACTOR : Cascade Drilling			
DRILLING METHOD AND EQUIPMENT USED : 8140 LC Sonic Drill Rig 4" core barrel and 6' casing							
WATER LEVELS : 20 ft bgs		START : 0843		END : 1028		LOGGER : D.Roberts	
DEPTH BELOW SURFACE (FT)	SAMPLE			SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	PID (ppm)	COMMENTS Breathing Zone Logger/Driller (VOCs and LEL) and Notes	
	INTERVAL	NUMBER AND TYPE	RECOVERY (FT)				
35	30-35	D-7	5.0	30.0-32.5 ft: SAND (SP), gray (5Y 5/1), very fine to fine grained, poorly graded, loose, wet	0.1		
					1.1		
					12.0		
					10.3		
				32.5-32.7 ft: GRAVELLY SAND (GW), gray (5Y 5/1), very fine to fine grained sand with little gravel, loose, wet			
				32.7-40.0 ft: SAND (SP), gray (5Y 5/1), very fine to fine grained, poorly graded, loose, wet	20.5		
40	35-40	D-8	5.0		0.0	BZ=0.0 LEL=0%	
					0.0		
					0.0		
					0.0		
					0.0		
45	40-45	D-9	5.0	40.0-42.5 ft: SAND (SC), dark gray (5Y 4/1), very fine grained sand with small clay lense, medium dense to loose, wet	0.0	BZ=0.0 LEL=0%	
					0.0		
					0.0		
					0.0		
				42.5-43.0 ft: CLAY (CL), dark gray (5Y 4/1), stiff, wet			
				43.0-44.0 ft: SAND (SP), gray (5Y 6/1), very fine grained, poorly graded, loose, wet	0.0		
				44.0-48.0 ft: SAND (SC), dark gray (5Y 4/1), very fine to fine grained sand with small clay lense and shell fragments, loose, wet	0.0		
50	45-50	D-10	3.0		0.0	BZ=0.0 LEL=0%	
					0.0		
					0.0		
					0.0		
				48.0-50.0 ft: NO RECOVERY			
					0.0		
55	50-55	D-11	5.0	48.0-52.5 ft: SAND (SC), dark gray (5Y 4/1), very fine to fine grained sand with small clay lense and shell fragments, loose, wet			
				52.5-55.0 ft: SAND (SW)/shell fragments, dark gray (5Y 4/1), fine grained sand with trace clay, medium dense, wet			
				BORING TERMINATED AT 55 FT BGS			



PROJECT NUMBER:
WOO023DW

BORING NUMBER:
FL-5

SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Drum Removal Soil Sampling

PROJECT LOCATION: Woodbine, GA

ELEVATION :

DRILLING CONTRACTOR : Cascade Drilling

DRILLING EQUIPMENT AND METHOD : Geoprobe 6620DT, DPT

LOGGER : B. Thomas

WATER LEVELS : 9.8

START : 5/11/22 12:35

END : 5/11/22 13:05

EDITOR : J. Graham

DEPTH BELOW EXISTING GRADE (ft)				SYMBOLIC LOG	SOIL DESCRIPTION	COMMENTS	
INTERVAL (ft)					SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION	
RECOVERY (ft)							
#TYPE							
5	0.0	2.5	MC - 1		0.0 - 2.5 - NO RECOVERY	FL5-1-0002-20220511-N-SO (0.0-2.0')	
							FL5-1-0204-20220511-N-SO (2.0-4.0')
					2.5 - 3.0 - SILTY SAND (SM) - Light tan, dry, very loose, noncohesive, nonplastic, massive		
					3.0 - 3.4 - SILTY SAND (SM) - Light brown, dry, loose, noncohesive, nonplastic, massive		
					3.4 - 5.0 - SILTY SANDY (SM) - Orangish tan from 3.4'-3.6' becoming tan from 3.6'-3.8' to light grayish/cream tan from 3.8'-4.3' to light grayish brown from 4.3'-5.0', dry, loose, noncohesive, nonplastic, massive	FL5-1-0406-20220511-N-SO (4.0-6.0')	
	5.0	4.4	MC - 2		5.0 - 5.6 - NO RECOVERY		
							5.6 - 7.5 - SILTY SAND (SM) - Dark brown, dry, noncohesive, nonplastic, massive
						7.5 - 10.0 - SILTY SAND (SM) - Brownish tan, dry to damp at 9.8' bgs, soft, noncohesive, nonplastic, massive	FL5-1-0810-20220511-N-SO (8.0-10.0')
10	10.0	2.0	MC - 3		10.0 - 12.0 - SILTY SAND (SM) - Brownish tan, damp to wet, soft, noncohesive, nonplastic, massive	Water at 9.8' bgs FL5-1-1012-20220511-N-SO (10.0-12.0')	
	12.0						
						EOB at 12.0' bgs	
15							



PROJECT NUMBER:
WOO023DW

BORING NUMBER:
WA48-1

SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Drum Removal Soil Sampling

PROJECT LOCATION: Woodbine, GA

ELEVATION :

DRILLING CONTRACTOR : Cascade Drilling

DRILLING EQUIPMENT AND METHOD : Geoprobe 6620DT, DPT

LOGGER : B. Thomas

WATER LEVELS : 10

START : 5/11/22 10:45

END : 5/11/22 11:00

EDITOR : J. Graham

DEPTH BELOW EXISTING GRADE (ft)				SYMBOLIC LOG	SOIL DESCRIPTION	COMMENTS
INTERVAL (ft)					SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
RECOVERY (ft)						
#TYPE						
0.0	3.2	MC - 1		0.0 - 1.8 - NO RECOVERY	WA48-1-0002-20220511-N-SO (0.0-2.0') PID = 0.0 ppm throughout boring	
				1.8 - 2.9 - SILTY SAND (SM) - Brown, dry, very loose, noncohesive, nonplastic, massive	WA48-1-0204-20220511-N-SO (2.0-4.0') WA48-1-0204-20220511-MS-SO (2.0-4.0') WA48-1-0204-20220511-MSD-SO (2.0-4.0')	
				2.9 - 3.4 - SILTY SAND (SM) - Dark brown, dry, very loose, noncohesive, nonplastic, massive		
				3.4 - 5.0 - SILTY SAND (SM) - Brown, dry, very loose, noncohesive, nonplastic, massive, becoming lighter in color, turning to tan at 3.6'-3.8'	WA48-1-0406-20220511-N-SO (4.0-6.0')	
5.0	5.0			5.0 - 5.7 - NO RECOVERY		
	4.3	MC - 2		5.7 - 6.0 - SILTY SAND (SM) - Tan, dry, very loose, noncohesive, nonplastic, massive	WA48-1-0608-20220511-N-SO (6.0-8.0')	
				6.0 - 6.3 - SILTY SAND (SM) - Dark grayish-brown, sharp transition/contact		
				6.3 - 10.0 - SILTY SAND (SM) - Dark brown, some areas slightly lighter brown than others, some black (possibly organic) mottling between 8'-10', dry, loose, noncohesive, nonplastic, massive		
						WA48-1-0810-20220511-N-SO (8.0-10.0')
10.0	10.0			10.0 - 12.0 - SILTY SAND (SM) - Dark brown, some areas slightly lighter brown than others, some black (possibly organic) mottling, wet, loose, noncohesive, nonplastic, massive	Water table 10' bgs WA48-1-1012-20220511-N-SO (10.0-12.0')	
	2.0	MC - 3				
	12.0			EOB at 12.0' bgs		
15						



PROJECT NUMBER:
WOO028DW

CORE NUMBER:
C4

SHEET 1 OF 1

SEDIMENT CORE LOG

PROJECT : Drum Removal Soil Sampling

LOCATION : Woodbine, GA

DRILLING EQUIPMENT AND METHOD : Rotonic Drill Rig, DPT

DRILLING CONTRACTOR : Cascade Drilling

ELEVATION :

WATER LEVELS : 9.0 ft

START : 10/27/22 14:40

END : 10/27/2022

LOGGER : B. Thomas

DEPTH BELOW TOP OF SEDIMENT (ft)				SYMBOLIC LOG	SOIL DESCRIPTION	COMMENTS
PENETRATION (ft)					SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & SOIL STRUCTURE	SAMPLE ID
RECOVERY (ft)						
CORE TYPE						
0	0.0				0.0 - 1.2 - SILTY SAND (SM) - (2.5Y 3/3), dry, very loose, non-plastic, non-cohesive, massive, fine sand and silt, some woody debris(limbs)	PID 0.0 ppm throughout boring
					1.2 - 3.0 - SAND (SP) - (2.5Y 5/6), dry, very loose, non-plastic, non-cohesive, massive, fine sand, poorly sorted	
	3.0		SS-1		3.0 - 4.7 - NO RECOVERY	Piece of metal mesh at 2.5' bgs
5	5.0				4.7 - 6.9 - SAND (SP) - Interbedded layered bands of different colored sand, dark tan and brownish gray (2.5Y 6/6 - 2.5Y 4/2), moist, loose, non-plastic, non-cohesive, massive, fine sand, poorly sorted	
					6.9 - 8.0 - SAND (SP) - (10YR 5/6), dry, very loose, non-plastic, non-cohesive, massive, fine sand, poorly sorted	
	2.0		SS-2		8.0 - 9.6 - NO RECOVERY	Water table 9.0' bgs
10	10.0				9.6 - 12.0 - SAND (SP) - Very dark brown (5YR 2.5/1), moist, loose, non-plastic, non-cohesive, massive, fine sand, poorly sorted	
					12.0 - 13.0 - SAND (SP) - (10YR 5/6), moist, loose, non-plastic, non-cohesive, massive, fine sand, poorly sorted	
	3.0		SS-3			
	13.0				EOB at 13' bgs	
15						



PROJECT NUMBER:
WOO028DW

CORE NUMBER:
E7

SHEET 1 OF 1

SEDIMENT CORE LOG

PROJECT : Drum Removal Soil Sampling

LOCATION : Woodbine, GA

DRILLING EQUIPMENT AND METHOD : Rotonc Drill Rig, DPT

DRILLING CONTRACTOR : Cascade Drilling

ELEVATION :

WATER LEVELS : 8-9

START : 10/26/22 13:00

END : 10/26/22 13:30

LOGGER : B. Thomas

DEPTH BELOW TOP OF SEDIMENT (ft)				SYMBOLIC LOG	SOIL DESCRIPTION	COMMENTS
0	PENETRATION (ft)		CORE TYPE		SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & SOIL STRUCTURE	SAMPLE ID
	RECOVERY (ft)					
5	0.0				0.0 - 2.0 - SAND (SP) - Tan (2.5Y 6/4), dry, very loose, non-plastic, non-cohesive, massive, fine sand, possible some silt, wood fragments at 1.3 - 1.4' bgs, roots at surface but no real organic layer	PID 0.0 ppm throughout boring Possibly 1.5' fill over original native surface which is the wood in sample/interval E7_20221026_0-2_ft_N_SO
		2.0	SS-1		2.0 - 5.0 - NO RECOVERY	 E7_20221026_4-6_ft_N_SO
	5.0				5.0 - 8.0 - SAND (SP) - Several color changes (See below), dry, very loose, non-plastic, non-cohesive, massive, fine sand, poorly sorted 5.0 - 5.5 - (2.5Y 3/3) 5.5 - 6.4 - (2.5Y 4/3) 6.4 - 7.3 - (2.5Y 8/2) 7.3 - 8.0 - (10YR 6/6)	 E7_20221026_6-8_ft_N_SO
			5.0	SS-2		8.0 - 13.0 - SAND (SP) - Several color changes (See below), moist, very loose, non-plastic, non-cohesive, massive, fine sand, poorly sorted 8.0 - 10.1 - (7.5YR 5/4) 10.1 - 11.0 - (7.5YR 3/3) 11.0 - 13.0 - (10YR 4/6)
10	10.0					
		3.0	SS-3			
	13.0				EOB at 13' bgs	
15						



PROJECT NUMBER:
WOO028DW

CORE NUMBER:
FL-3

SHEET 1 OF 1

SEDIMENT CORE LOG

PROJECT : Drum Removal Soil Sampling

LOCATION : Woodbine, GA

DRILLING EQUIPMENT AND METHOD : Rotonic Drill Rig, DPT

DRILLING CONTRACTOR : Cascade Drilling

ELEVATION :

WATER LEVELS : 10.0 ft

START : 5/11/22 13:20

END : 5/11/22 13:40

LOGGER : B. Thomas

DEPTH BELOW TOP OF SEDIMENT (ft)				SYMBOLIC LOG	SOIL DESCRIPTION	COMMENTS
PENETRATION (ft)					SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & SOIL STRUCTURE	SAMPLE ID
RECOVERY (ft)						
CORE TYPE						
0	0.0				0.0 - 1.2 - NO RECOVERY	FL3-1-0002-20220511-N-SO (0.0-2.0')
		3.8	MC-1		1.2 - 1.5 - SILTY SAND (SM) - Light brownish tan, dry, very loose, noncohesive, nonplastic, massive	FL3-1-0204-20220511-N-SO (2.0-4.0')
					1.5 - 2.15 - SILTY SAND (SM) - Light grayish tan, dry, loose, noncohesive, nonplastic, massive, 1/4"-1/2" fragment of product at 1.95' bgs, large chunk of pine bark at 2.0' bgs	
					2.15 - 2.7 - SILTY SAND (SM) - Very light tan, dry, loose, nonohesive, nonplastic, massive	
					2.7 - 5.0 - SILTY SAND (SM) - Tannish brown to brownish tan, dispersed coloring (not mottling but spotty, diffuse changes in color from light to dark), dry, loose, noncohesive, nonplastic, massive	
						FL3-1-0406-20220511-N-SO (4.0-6.0')
5	5.0				5.0 - 5.9 - NO RECOVERY	
		4.1	MC-2		5.9 - 6.0 - SILTY SAND (SM) - Tannish brown to brownish tan, dispersed coloring (not mottling but spotty, diffuse changes in color from light to dark), dry, loose, noncohesive, nonplastic, massive	FL3-1-0608-20220511-N-SO
					6.0 - 7.0 - SILTY SAND (SM) - Brown with dark brown mottling (possibly organics), dry, loose, noncohesive, nonplastic, massive	FL3-1-0608-20220511-FD-SO (6.0-8.0')
					7.0 - 10.0 - SILTY SAND (SM) - Brown, dry, loose, noncohesive, nonplastic, massive, damp/moist at 9' bgs	
						FL3-1-0810-20220511-N-SO (8.0-10.0')
10	10.0				10.0 - 12.0 - SILTY SAND (SM) - Brown, wet, loose, noncohesive, nonplastic, massive, very wet at 12' bgs	FL3-1-1012-20220511-N-SO (10.0-12.0')
	12.0	2.0	MC-3			
					EOB at 12' bgs	
15						

PROJECT NUMBER: WOO028DW	CORE NUMBER: FL-5
SHEET 1 OF 1	
SEDIMENT CORE LOG	

PROJECT : Drum Removal Soil Sampling	LOCATION : Woodbine, GA
DRILLING EQUIPMENT AND METHOD : Rotonic Drill Rig, DPT	DRILLING CONTRACTOR : Cascade Drilling
ELEVATION :	

WATER LEVELS : 9.8 ft				START : 5/11/22 12:35	END : 5/11/22 13:05	LOGGER : B. Thomas
DEPTH BELOW TOP OF SEDIMENT (ft)		SYMBOLIC LOG	SOIL DESCRIPTION		COMMENTS	
0	PENETRATION (ft)		SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & SOIL STRUCTURE		SAMPLE ID	
	RECOVERY (ft)					
	CORE TYPE					
	0.0			0.0 - 2.5 - NO RECOVERY	FL5-1-0002-20220511-N-SO (0.0-2.0')	
		2.5	MC-1		FL5-1-0204-20220511-N-SO (2.0-4.0')	
				2.5 - 3.0 - SILTY SAND (SM) - Light tan, dry, very loose, noncohesive, nonplastic, massive		
				3.0 - 3.4 - SILTY SAND (SM) - Light brown, dry, loose, noncohesive, nonplastic, massive		
				3.4 - 5.0 - SILTY SANDY (SM) - Orangish tan from 3.4'-3.6' becoming tan from 3.6'-3.8' to light grayish/cream tan from 3.8'-4.3' to light grayish brown from 4.3'-5.0', dry, loose, noncohesive, nonplastic, massive	FL5-1-0406-20220511-N-SO (4.0-6.0')	
5	5.0			5.0 - 5.6 - NO RECOVERY		
				5.6 - 7.5 - SILTY SAND (SM) - Dark brown, dry, noncohesive, nonplastic, massive	FL5-1-0608-20220511-N-SO FL5-1-0608-20220511-FD-SO (6.0-8.0')	
		4.4	MC-2	7.5 - 10.0 - SILTY SAND (SM) - Brownish tan, dry to damp at 9.8' bgs, soft, noncohesive, nonplastic, massive	FL5-1-0810-20220511-N-SO (8.0-10.0')	
10	10.0			10.0 - 12.0 - SILTY SAND (SM) - Brownish tan, damp to wet, soft, noncohesive, nonplastic, massive	Water at 9.8' bgs FL5-1-1012-20220511-N-SO (10.0-12.0')	
		2.0	MC-3			
	12.0			EOB at 12' bgs		
15						



PROJECT NUMBER:
WOO028DW

CORE NUMBER:
I5

SHEET 1 OF 1

SEDIMENT CORE LOG

PROJECT : Drum Removal Soil Sampling

LOCATION : Woodbine, GA

DRILLING EQUIPMENT AND METHOD : Rotonic Drill Rig, DPT

DRILLING CONTRACTOR : Cascade Drilling

ELEVATION :

WATER LEVELS : 8-9

START : 10/27/22 09:50

END : 10/27/22 10:30

LOGGER : B. Thomas

DEPTH BELOW TOP OF SEDIMENT (ft)				SYMBOLIC LOG	SOIL DESCRIPTION	COMMENTS
PENETRATION (ft)					SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & SOIL STRUCTURE	SAMPLE ID
RECOVERY (ft)						
0			CORE TYPE			
5	0.0	5.0	SS-1		0.0 - 3.0 - ORGANIC SOIL (OL) - Brownish gray (10YR 6/1), dry, very loose (matted roots not sand is loose), non-plastic, non-cohesive, massive, peaty roots, some silty sand, leaves	PID 0.0 ppm throughout boring
				0.3 - 0.8 - SILTY SAND (SM) - Grayish brown (2.5YR 5/2), dry, very loose, non-plastic, non-cohesive, massive, very fine sand	I5-0005_20220512_N_SO I5_20221026_0-2_ft_N_SO	
				0.8 - 2.0 - SAND (SP) - Tan (10YR 5/2), dry, very loose, non-plastic, non-cohesive, massive, poorly sorted		
				2.0 - 3.8 - SAND (SP) - Tannish brown (2.5YR 4/4), dry, very loose, non-plastic, non-cohesive, massive, poorly sorted	I5_20221026_2-4_ft_N_SO	
				3.8 - 4.2 - SAND (SP) - Brownish gray (2.5YR 5/2), dry, very loose, non-plastic, non-cohesive, massive, poorly sorted	I5_20221026_4-6_ft_N_SO	
		5.0	SS-2		4.2 - 6.5 - SAND (SP) - Tan (2.5YR 7/4), dry, very loose, non-plastic, non-cohesive, massive, poorly sorted, fine sand	
						I5_20221026_6-8_ft_N_SO
					6.5 - 8.0 - SAND (SP) - Reddish brown (7.5YR 3/4), dry, very loose, non-plastic, non-cohesive, massive, poorly sorted, fine sand	
					8.0 - 13.0 - SAND (SP) - Reddish brown (7.5YR 3/4), dry, very loose, non-plastic, non-cohesive, massive, poorly sorted, fine sand	I5_20221026_8-10_ft_N_SO Water table 8.0 - 9.0' bgs
10	10.0	3.0	SS-3		3.5 bags hole plug to fill hole to surface	
	13.0					
					EOB at 13' bgs	Total depth 13.0' bgs
15						



PROJECT NUMBER:
WOO028DW

CORE NUMBER:
MW-306

SHEET 1 OF 1

SEDIMENT CORE LOG

PROJECT : Drum Removal Soil Sampling

LOCATION : Woodbine, GA

DRILLING EQUIPMENT AND METHOD : Rotonic Drill Rig, DPT

DRILLING CONTRACTOR : Cascade Drilling

ELEVATION :

WATER LEVELS : 11.0 ft

START : 10/25/22 15:20

END : 10/25/22 16:00

LOGGER : B. Thomas

DEPTH BELOW TOP OF SEDIMENT (ft)				SYMBOLIC LOG	SOIL DESCRIPTION	COMMENTS
PENETRATION (ft)					SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & SOIL STRUCTURE	SAMPLE ID
RECOVERY (ft)						
CORE TYPE						
0						
5	0.0	5.0	SS-1		0.0 - 1.0 - SILTY SAND (SM) - (2.5Y 7/2), dry, very loose, non-plastic, non-cohesive, massive	PID 0.0 ppm throughout entire boring 100% recovery but due to size of core bag and loose nature of soil, recovered 6' of soil in 3' bag. Every 6" is actually 1' MW-306_20221025_0-2_ft_N_SO MW-306_20221025_0-2_ft_FD_SO MW-306_20221025_2-4_ft_N_SO
					1.0 - 3.9 - FINE SAND (SP) - (2.5Y 5/3), some silt, dry, very loose, non-plastic, non-cohesive, massive	
					3.9 - 5.8 - FINE SAND (SP) - (2.5Y 7/6), some silt but less than above, dry, very loose, non-plastic, non-cohesive, massive	
	5.0					MW-306_20221025_4-6_ft_N_SO
		5.0	SS-2			5.8 - 7.5 - FINE SAND (SP) - (7.5YR 4/4), dry, very loose, non-plastic, non cohesive, massive
					7.9 - 9.0 - FINE SAND (SP) - (7.5YR 3/3), dry, poorly sorted, very loose, non-plastic, non-cohesive, massive	6 - 11' - Only recovered 3' of core due to settling of sand 100% recovery but loose sand collapsed into core bag. MW-306_20221025_8-10_ft_N_SO
					9.0 - 11.0 - FINE SAND (SP) - (10YR 4/6), dry, poorly sorted, very loose, non-plastic, non,cohesive, massive	
10	10.0					MW-306_20221025_10-12_ft_N_SO
15		5.0	SS-3		11.0 - 16.0 - FINE SAND (SP) - (2.5Y 4/6), moist, poorly sorted, very loose, non-plastic, non,cohesive, massive	Water table at 11.0' bgs
	15.0					
20		5.0	SS-4		16.0 - 21.0 - FINE SAND (SP) - (2.5Y 4/6), moist, poorly sorted, very loose, non-plastic, non,cohesive, massive	
	20.0					
25	21.0	1.0	SS-5			
					EOB at 21' bgs	



PROJECT NUMBER:

WOO035DW

BORING NUMBER:

MW-54

SHEET 1 OF 4

Soil Boring Log

PROJECT : UCC Woodbine RTP MW Install

LOCATION : Woodbine, GA

GROUND ELEVATION : 22.92 ft above sea level

DRILLING CONTRACTOR : Cascade

EAST, NORTH : 855268.2, 347506.1

DRILLING METHOD AND EQUIPMENT : Rotasonic, Prosonic Crawler

WATER LEVEL: ~21 feet bgs

START: 10/2/2023

END: 10/3/2023

LOGGER : W. Dunn

DEPTH BELOW GROUND SURFACE (feet)	SAMPLE TYPE	INTERVAL (feet)	RECOVERY (feet)	PID SCREENING (11.7 Lamp) (ppm)	GRAPHIC LOG	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION
5	1	0.0 6.0	6	0		-poorly graded sand (sp). 7.5yr 3/4 dark brown. moist. loose. massive/homogeneous. fine angular quartz sands (100%).	
10	1	6.0 17.0	9	0		-poorly graded sand (sp). 7.5yr 5/2 brown. moist. loose. homogeneous. fine, angular quartz sands.	
15				0		-poorly graded sand (sp). 7.5yr 8/1 white. loose. homogeneous. fine, angular quartz sands.	
				0		-poorly graded sand (sp). 7.5yr 2.5/1 black. moist. loose. massive/homogeneous. fine subangular quartz sands (100%).	
20		17.0 20.0		0		-poorly graded sand (sp). 7.5yr 5/6 strong brown. moist. loose. oxidized. fine, subangular quartz sands (100%).	
25				0		-poorly graded sand (sp). 10yr 4/1 dark gray. moist. loose. homogeneous. fine, subangular quartz sands (100%).	
30	2		20			-poorly graded sand (sp). 10yr 4/1 dark gray. moist. loose. homogeneous. fine, subangular quartz sands (100%).	



PROJECT NUMBER:

WOO035DW

BORING NUMBER:

MW-54

SHEET 2 OF 4

Soil Boring Log

PROJECT : UCC Woodbine RTP MW Install

LOCATION : Woodbine, GA

GROUND ELEVATION : 22.92 ft above sea level

DRILLING CONTRACTOR : Cascade

EAST, NORTH : 855268.2, 347506.1

DRILLING METHOD AND EQUIPMENT : Rotasonic, Prosonic Crawler

WATER LEVEL: ~21 feet bgs

START: 10/2/2023

END: 10/3/2023

LOGGER : W. Dunn

DEPTH BELOW GROUND SURFACE (feet)	SAMPLE TYPE	INTERVAL (feet)	RECOVERY (feet)	PID SCREENING (11.7 Lamp) (ppm)	GRAPHIC LOG	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION
35		37.0 37.0		0		-poorly graded sand (sp). 7.5yr 3/4 dark brown. moist. loose. massive/homogeneous. fine angular quartz sands (100%).	
40				0			
45				0			
50	3		20	0			
55		57.0 57.0		0		-poorly graded sand (sp). 10yr5/1 gray. moist. loose. homogeneous. fine subangular quartz sands (100%).	
60						-poorly graded sand (sp). 10yr 4/1 dark gray. moist. medium dense. homogeneous. fine to medium subangular quartz sands (75%) with shell hash (25%).	



PROJECT NUMBER: WOO035DW	BORING NUMBER: MW-54	SHEET 3 OF 4
Soil Boring Log		

PROJECT : UCC Woodbine RTP MW Install	LOCATION : Woodbine, GA
GROUND ELEVATION : 22.92 ft above sea level	DRILLING CONTRACTOR : Cascade
EAST, NORTH : 855268.2, 347506.1	DRILLING METHOD AND EQUIPMENT : Rotasonic, Prosonic Crawler
WATER LEVEL: ~21 feet bgs	START: 10/2/2023 END: 10/3/2023 LOGGER : W. Dunn

DEPTH BELOW GROUND SURFACE (feet)	SAMPLE TYPE	INTERVAL (feet)	RECOVERY (feet)	PID SCREENING (11.7 Lamp) (ppm)	GRAPHIC LOG	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION
65	4		20	0		-fat clay with sand (ch). 10yr/4/1 dark gray, moist. stiff. homogeneous. high plasticity fines (75%) with fine quartz sands (25%).	
				0		-poorly graded sand (sp). 10yr 4/1 dark gray, wet. medium dense. homogeneous. fine to medium subangular quartz sands (75%) with shell hash (25%).	
70				0		-sandy fat clay (ch). 10yr 5/1 gray. wet. very stiff. homogeneous. high plasticity fines (75%) with fine, subangular quartz sands (30%).	
75	5	77.0 77.0	20	0		-cemented shells/coquina. 10yr 7/1 light gray. wet.	
80				0		-sandy fat clay (ch). 10yr 5/1 gray. wet. very stiff. homogeneous. high plasticity fines (70%) with fine, subangular quartz sands (30%).	
85				0			
90							



PROJECT NUMBER: WOO035DW	BORING NUMBER: MW-54	SHEET 4 OF 4
Soil Boring Log		

PROJECT : UCC Woodbine RTP MW Install	LOCATION : Woodbine, GA		
GROUND ELEVATION : 22.92 ft above sea level	DRILLING CONTRACTOR : Cascade		
EAST, NORTH : 855268.2, 347506.1	DRILLING METHOD AND EQUIPMENT : Rotasonic, Prosonic Crawler		
WATER LEVEL: ~21 feet bgs	START: 10/2/2023	END: 10/3/2023	LOGGER : W. Dunn

DEPTH BELOW GROUND SURFACE (feet)	SAMPLE TYPE	INTERVAL (feet)	RECOVERY (feet)	PID SCREENING (11.7 Lamp) (ppm)	GRAPHIC LOG	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION
95				0		-sandy fat clay (ch). 10yr 5/1 gray. wet. very stiff. homogeneous. high plasticity fines (70%) with fine, subangular quartz sands (30%).	
		97.0 97.0		0			
100	6		10	0			
105		107.0 107.0		0			
110	7		4	0		-fat clay (ch). 10yr 4/1 dark gray. wet. stiff. homogeneous. high plasticity fines (100%).	
		111.0 111.0		0		-fat clay (ch). 10yr 4/1 dark gray. wet. very stiff. homogeneous. high plasticity fines (100%).	
115	8		6	0			
		117.0				End of Boring Log at 117' bgs	
120							

DATE: 03/06/96

DEPTH IN FEET	SAMPLE NUMBER	WATER TABLE	PID (ppm)
5	9113 9125		1.6
			1.5
10	9114 9126		1.3

DEPTH IN FEET

SAMPLES

SYMBOLS

DESCRIPTION

	SP	VERY DARK GRAYISH BROWN SAND (SP) poorly graded, fine grains, dry, little silt.
		BROWNISH YELLOW SAND (SP) poorly graded, fine to very fine grains, moist, little silt.
		DARK BROWN SAND (SP) poorly graded, fine to very fine grains, moist, little silt.
		VERY PALE BROWN SAND (SP) poorly graded, very fine grains, moist.
	SM	DARK REDDISH BROWN SILTY SAND (SM) poorly graded, fine to very fine grains, moist, organically cemented.

*Test pit terminated at 6 feet BGS.
Water not encountered.*

DATE: 03/06/96

DEPTH IN FEET	SAMPLE NUMBER	WATER TABLE	PID (ppm)
5	9115 9127		0.4
			1.7
10	9118 9127		0.7

DEPTH IN FEET

SAMPLES

SYMBOLS

DESCRIPTION

X		SP	DARK GRAYISH BROWN SAND (SP) poorly graded, fine grains, dry, little silt. DARK BROWN SAND (SP) poorly graded, fine to very fine grains, moist, little silt.
			VERY PALE BROWN SAND (SP) poorly graded, very fine grains, moist.
		SM	DARK REDDISH BROWN SILTY SAND (SM) poorly graded, fine to very fine grains, moist, organically cemented.

*Test pit terminated at 6 feet BGS.
Water not encountered.
Concrete slab found at 1 to 3 feet.*



15850 CRABBS BRANCH WAY
SUITE 300
ROCKVILLE, MARYLAND 20855
TELEPHONE: (301) 417-0200

SWMU: 3 Burn Area

Project: Thiokol – Woodbine Facility

Job No.: 097.001

Geologist: Mike Landsman

TEST PIT REPORT
01-3B
02-3B

DATE: 03/06/96

DEPTH IN FEET	SAMPLE NUMBER	WATER TABLE	PID (ppm)
			1.2
			1.1
5			
10			

SAMPLES

SYMBOLS

DESCRIPTION

SP	DARK GRAYISH BROWN SAND (SP) poorly graded, fine grains, dry, little silt.
	BROWNISH YELLOW AND DARK BROWN SAND (SP) poorly graded, fine to very fine grains, moist, little silt, mottled.

Test pit terminated at 3 feet BGS.

Water not encountered.

Metal pipe found at 1 foot BGS.

DATE: 03/06/96

DEPTH IN FEET	SAMPLE NUMBER	WATER TABLE	PID (ppm)
5	9117 9129		1.2
	9118 9130		1.3
10			

SAMPLES

SYMBOLS

DESCRIPTION

SP	DARK GRAYISH BROWN SAND (SP) poorly graded, fine grains, dry, little silt.
	DARK BROWN SAND (SP) poorly graded, fine to very fine grains, moist, little silt. <i>Charcoal layer at 2 feet BGS.</i>
	LIGHT BROWNISH YELLOW TO VERY PALE BROWN SAND (SP) poorly graded, very fine grains, moist, gradational contact from light brownish yellow to very pale brown sand.

Test pit terminated at 6 feet BGS.

Water not encountered.

Concrete slab found at surface on west side of test pit.

DATE: 03/05/96

DEPTH IN FEET

SAMPLE NUMBER	WATER TABLE	PID (ppm)
		1.7

SAMPLES

SYMBOLS

DESCRIPTION

SP	VERY DARK GRAYISH BROWN SAND (SP) poorly graded, fine to very fine grains, dry, little silt.
	VERY PALE BROWN SAND (SP) poorly graded, very fine grains, moist.

**Test pit terminated at 4 feet BGS.
Water not encountered.
Small pieces of scrap metal at surface.**

DATE: 03/05/96

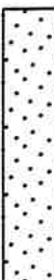
DEPTH IN FEET

SAMPLE NUMBER	WATER TABLE	PID (ppm)
		1.4

SAMPLES

SYMBOLS

DESCRIPTION

	SP	VERY DARK GRAYISH BROWN SAND (SP) poorly graded, fine to very fine grains, dry, little silt.
		VERY PALE BROWN SAND (SP) poorly graded, very fine grains, moist.

Test pit terminated at 5 feet BGS.
Water not encountered.
Small pieces of scrap metal at surface.



15850 CRABBS BRANCH WAY
SUITE 300
ROCKVILLE, MARYLAND 20855
TELEPHONE: (301) 417-0200

Geologist: Mike Landsman

TEST PIT REPORT
01-3A
02-3A

TEST PIT 03-3A

DATE: 03/05/96

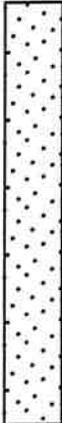
DEPTH IN FEET

SAMPLE NUMBER	WATER TABLE	PID (ppm)
9107 9119		1.0
		1.4
9108 9120		1.5

SAMPLES

SYMBOLS

DESCRIPTION

☒		SP	VERY DARK GRAYISH BROWN SAND (SP) poorly graded, fine to very fine grains, dry, little silt.
			YELLOWISH BROWN SAND (SP) poorly graded, fine to very fine grains, moist, little silt.
			VERY PALE BROWN TO YELLOWISH BROWN SAND (SP) poorly graded, fine to very fine grains, moist.
☒		SM	DARK YELLOWISH BROWN SILTY FINE SAND (SM) poorly graded, fine grains, organically cemented, moist.
Test pit terminated at 9 feet BGS. Water not encountered.			

TEST PIT 04-3A

DATE: 03/05/96

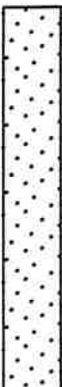
DEPTH IN FEET

SAMPLE NUMBER	WATER TABLE	PID (ppm)
9109 9121		4.8
		2.5
9110 9122		2.5

SAMPLES

SYMBOLS

DESCRIPTION

☒		SP	BROWN AND DARK BROWN SAND (SP) poorly graded, fine to very fine grains, dry, little silt.
			VERY PALE BROWN SAND (SP) poorly graded, very fine grains, moist.
☒		SM	VERY DARK GRAYISH BROWN SILTY FINE SAND (SM) poorly graded, fine grains, organically cemented, moist.
Test pit terminated at 8 feet BGS. Water not encountered.			

TEST PIT 05-3A

DATE: 03/05/96

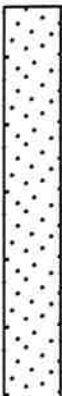
DEPTH IN FEET

SAMPLE NUMBER	WATER TABLE	PID (ppm)
9111 9123		1.6
9112 9124		2.3
		2.3

SAMPLES

SYMBOLS

DESCRIPTION

	SP	BROWN AND LIGHT YELLOWISH BROWN SAND (SP) poorly graded, fine to very fine grains, dry, little silt.
		VERY PALE BROWN SAND (SP) poorly graded, very fine grains, moist.
	SM	DARK YELLOWISH BROWN SILTY FINE SAND (SM) poorly graded, fine grains, organically cemented, moist.

*Test pit terminated at 8 feet BGS.**Water not encountered.**Charcoal scattered in soil @ 2.5 feet BGS.*

DATE: 03/11/96

DEPTH IN FEET

SAMPLE NUMBER	WATER TABLE	PID (ppm)
9131 9139		0.0
	↓	

SYMBOLS

DESCRIPTION[illegible]

FILL MATERIAL

light yellowish brown and yellowish brown, silty fine SAND, moist. Construction debris (bricks, scrap metal, and plastic liners.

LIGHT YELLOWISH BROWN SILTY FINE SAND (SM)
poorly graded, fine to very fine grains, moist.

BLACK SILTY SAND (SM)
clumpy, very silty, very moist, poorly organic
cemented.

Test pit terminated at 6 feet BGS.

Water encountered at 5.5 feet BGS.

Sample collected of white powder in plastic liner.

DATE: 03/11/96

DEPTH IN FEET

SAMPLE NUMBER	WATER TABLE	PID (ppm)
9132- 9140 9133- 9141 9134- 9142		0.0
	▼	

SAMPLES

SYMBOLS

DESCRIPTION

*	*	*	*	*	SM

FILL MATERIAL

light yellowish brown and yellowish brown, silty fine SAND, moist. Construction debris (bricks, scrap metal, and plastic liners).

BLACK SILTY SAND (SM)

clumpy, very silty, very moist, poorly organic cemented.

Test pit terminated at 6 feet BGS.

Water encountered at 5.5 feet BGS.

Sample 9132-9140 yellow granular material

Sample 9133-9141 white solid crystalline material

Sample 9134-9142 green solid material.



15850 CRABBS BRANCH WAY
SUITE 300
ROCKVILLE, MARYLAND 20855
TELEPHONE: (301) 417-0200

SWMU: 6 - Borrow Pit

Project: Thiokol - Woodbine Facility

Job No.: 097.001

Geologist: Mike Landsman

TEST PIT REPORT

TP -01

TP-02

DATE: 03/11/96

DEPTH IN FEET

SAMPLE NUMBER	WATER TABLE	PID (ppm)
9135 9143		24.8 722

SAMPLES

SYMBOLS

DESCRIPTION

		FILL MATERIAL gray and black SAND, with plastic and metal pipe.
*	*	SM PALE BROWN AND BROWN SILTY FINE SAND (SM) poorly graded, fine to very fine grained, moist, perhaps stained.
*	*	BLACK SILTY FINE SAND (SM) poorly graded, fine to very fine grained, moist, hard, organic cemented.

**Test pit terminated at 4.5 feet BGS.
Water not encountered.**

DATE: 03/11/96

DEPTH IN FEET

SAMPLE NUMBER	WATER TABLE	PID (ppm)
		0.0
5		
10		

SAMPLES

SYMBOLS

DESCRIPTION

				FILL MATERIAL gray and black SAND, with plastic and metal pipe.
+	+	+	SM	PALE BROWN SILTY FINE SAND (SM) poorly graded, fine to very fine grained, moist.
+	+	+		
+	+	+		

**Test pit terminated at 3.5 feet BGS.
Water not encountered.**



15850 CRABBS BRANCH WAY
SUITE 300
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SWMU: 6 - Borrow Pit

Project: Thiokol – Woodbine Facility

Job No.: 097.001

Geologist: Mike Landsman

TEST PIT REPORT
TP-03
TP-04

DATE: 03/11/96

DEPTH IN FEET

SAMPLE NUMBER	WATER TABLE	PID (ppm)
		0.0
5		
10		

SAMPLES

SYMBOLS

DESCRIPTION

	SP	GRAY TO DARK GRAY SILTY FINE SAND (SP) poorly graded, fine to very fine grains, little silt, dry.
--	----	--

Test pit terminated at 2 feet BGS.

Water not encountered.

Barbed wire found near surface.

DATE: 03/11/96

DEPTH IN FEET

SAMPLE NUMBER	WATER TABLE	PID (ppm)
9137 9145		0.0 102

SAMPLES

SYMBOLS

DESCRIPTION

		FILL MATERIAL Brown Nuchar changes to yellow at 1.5 feet BGS. Fermenting wood odor.
--	--	---

Test pit terminated at 8 feet BGS on south side.

Water encountered at 6 BGS.



15850 CRABBS BRANCH WAY
SUITE 300
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SWMU: 6 - Trench II

Project: Thiokol – Woodbine Facility

Job No.: 097.001

Geologist: Mike Landsman

TEST PIT REPORT
TP-05
TP-07

TEST PIT TP-06a

DATE: 03/11/96

DEPTH IN FEET	SAMPLE NUMBER	WATER TABLE	PID (ppm)
5			0.0
10		↓	

SAMPLES

SYMBOLS

DESCRIPTION[illegible]

BROWN TO YELLOWISH BROWN SILTY FINE SAND (SM)
poorly graded, fine to very fine grains, moist.
Mound on south side of trench.

GRAY SILTY FINE SAND (SM)
poorly graded, fine to very fine grains, moist.
Extends across test pit.

VERY DARK BROWN SILTY FINE SAND (SM)
thin layer
YELLOWISH BROWN SILTY FINE SAND (SM)
poorly graded, fine to very fine grains, moist.

DARK BROWN SILTY FINE SAND (SM)
poorly graded, fine to very fine grains, wet.

Test pit terminated at 7.5 feet BGS on south side.
Water encountered at 7.5 BGS.
Nuchar found on north side of test pit (TP-08b).

TEST PIT TP-06b

DATE: 03/11/96

DEPTH IN FEET	SAMPLE NUMBER	WATER TABLE	PID (ppm)
	9136 9144	↓	0.0
5			
10			

SAMPLES

SYMBOLS

DESCRIPTION

--	--

FILL MATERIAL
Brown Nuchar - thin soil cover.

Test pit terminated at 4 feet BGS on north side.
Water encountered at 4 BGS (approx. same elev as TP-06a
due to mounded soil).



15850 CRABBS BRANCH WAY
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SWMU: 6 - Trench II

Project: Thiokol - Woodbine Facility

Job No.: 097.001

Geologist: Mike Landsman

TEST PIT REPORT
TP-06a
TP-06b

DATE: 03/11/96

DEPTH IN FEET

SAMPLE NUMBER	WATER TABLE	PID (ppm)
9137		0.0
9145		102

SAMPLES

SYMBOLS

DESCRIPTION

		FILL MATERIAL Brown Nuchar changes to yellow at 1.5 feet BGS. Fermenting wood odor.
--	--	---

*Test pit terminated at 6 feet BGS on south side.
Water encountered at 6 BGS.*

DATE: 03/11/96

DEPTH IN FEET

SAMPLE NUMBER	WATER TABLE	PID (ppm)
		0.0
5		
10		

SAMPLES

SYMBOLS

DESCRIPTION

+	+	+	SM	GRAY TO DARK GRAY SILTY FINE SAND (SP)
+	+	+		poorly graded, fine to very fine grains, little silt, dry.
+	+	+		

Test pit terminated at 2 feet BGS.
Water not encountered.
Metal plate found near surface.



15850 CRABBS BRANCH WAY
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SWMU: 6 - Trench II

Project: Thiokol - Woodbine Facility

Job No.: 097.001

Geologist: Mike Landsman

TEST PIT REPORT
TP-07
TP-08

DATE: 03/11/96

DEPTH IN FEET	SAMPLE NUMBER	WATER TABLE	PID (ppm)
			0.0
5		↓	
10			

SAMPLES

SYMBOLS

DESCRIPTION

		SM	YELLOWISH BROWN SILTY FINE SAND (SM) poorly graded, fine to very fine grains, little silt, dry.
		SP	Tapers to 0 feet on south side of test pit (edge of mound).
			GRAY SAND (SP)
		SM	poorly graded, fine grains, moist.
			BROWN TO YELLOWISH BROWN SILTY FINE SAND (SM) poorly graded, silty, fine to very fine grains, moist.
			organic cemented at 5 feet.

Test pit terminated at 5 feet BGS. Water encountered at 5 feet BGS. Small pieces of scrap metal found.

DATE: 03/11/96

DEPTH IN FEET	SAMPLE NUMBER	WATER TABLE	PID (ppm)
5	9138 9146	↓	0.0
10			

SAMPLES

SYMBOLS

DESCRIPTION

	*	*	*	SM	BROWN SILTY FINE SAND (SM) (Fill Material) poorly graded, fine to very fine grains, moist.
	*	*	*		FILL MATERIAL alternating layers of white clayey material and Nuchar. Large concrete conduit section on west side of test pit.

**Test pit terminated at 7 feet BGS on south side.
Water encountered at 7 BGS.
Large concrete conduit on west side of test pit.
Approx. 5 foot diameter.**



15850 CRABBS BRANCH WAY
SUITE 300
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TELEPHONE: (301) 417-0200

SWMU: 6 - Trench II

Project: Thiokol - Woodbine Facility

Job No.: 097.001

Geologist: Mike Landsman

TEST PIT REPORT
TP-09
TP-10

TEST PIT 7-13-01

DATE: 12/7/95

DEPTH IN FEET

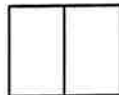
5

SAMPLE NUMBER	WATER TABLE	PID (ppm)
		1.7

SAMPLES

SYMBOLS

DESCRIPTION



Fill Material
brown and gray SANDS, poorly graded, fine to
very fine grains, dry.

Test pit terminated at 1 feet BGS.

Water not encountered.

Drums w/ concrete caps - tightly packed.

TEST PIT 7-13-02

DATE: 12/7/95

DEPTH IN FEET

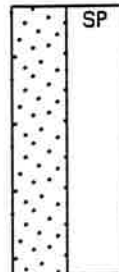
5

SAMPLE NUMBER	WATER TABLE	PID (ppm)
		2.8

SAMPLES

SYMBOLS

DESCRIPTION



Fill Material
brown and black SAND, poorly graded, fine to very fine grains, dry.

WHITE AND LIGHT GRAY SAND (SP) ill Material
poorly graded, fine to very fine grains, moist.

Test pit terminated at 3 feet BGS.

Water not encountered.

Three drums are located on the east side of the test pit.

Yellow granular material is around the drums (concrete [?]).

TEST PIT 7-13-03

DATE: 12/7/95

DEPTH IN FEET

5

SAMPLE NUMBER	WATER TABLE	PID (ppm)
	↓	2.1

SAMPLES

SYMBOLS

DESCRIPTION

			BROWN AND LIGHT BROWN SAND (SP) ill Material brown and light brown SANDs, poorly graded, fine to very fine grains, dry.
*	*	SM	DARK BROWN SILTY SAND (SM) hard, organic cemented, silty fine sand, moist.

*Test pit terminated at 3.5 feet BGS.
Water encountered @ 3.5 feet.*

*West side of test pit contained loose trip flares
to 2.5 feet BGS. (Eastern side of loose trip flare
disposal area.)*

TEST PIT 7-13-04

DATE: 12/7/95

DEPTH IN FEET

5

SAMPLE NUMBER	WATER TABLE	PID (ppm)
	↓	2.1

SAMPLES

SYMBOLS

DESCRIPTION

			BROWN AND LIGHT BROWN SAND (SP) ill Material brown and light brown SANDs, poorly graded, fine to very fine grains, dry.
*	*	SM	DARK BROWN SILTY SAND (SM) hard, organic cemented, silty fine sand, moist.

*Test pit terminated at 3.5 feet BGS.
Water encountered @ 3.5 feet.*

*East side of test pit contained loose trip flares
to 2.5 feet BGS. (Western side of loose trip flare
disposal area.)*



15850 CRABBS BRANCH WAY
SUITE 300
ROCKVILLE, MARYLAND 20855
TELEPHONE: (301) 417-0200

SWMU: 7

Project: Thiokol - Woodbine Facility

Job No.: 097.001

Geologist: Mike Landsman

TEST PIT REPORT
7-13-03
7-13-04

TEST PIT 7-13-05

DATE: 12/8/95

DEPTH IN FEET

5

SAMPLE NUMBER	WATER TABLE	PID (ppm)
		1.8

SAMPLES

SYMBOLS

DESCRIPTION



FILL MATERIAL
Crushed drum w/ reinforced ribs.

Test pit terminated at 1.5 feet BGS.
Water not encountered.

TEST PIT 7-16-06

DATE: 12/8/95

DEPTH IN FEET

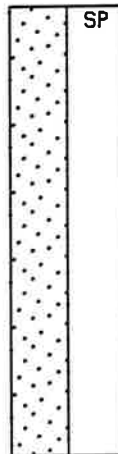
5

SAMPLE NUMBER	WATER TABLE	PID (ppm)
		2.1

SAMPLES

SYMBOLS

DESCRIPTION



SP

Fill Material
light and dark gray SANDS, poorly sorted, fine to
very fine grains, moist, in layers 3-8 inches thick.

Test pit terminated at 5 feet BGS.
Water not encountered.

**Mounded area contained badly corroded drum w/ plastic
liner.**



15850 CRABBS BRANCH WAY
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SWMU: 7

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Job No.: 097.001

Geologist: Mike Landsman

TEST PIT REPORT
7-13-05
7-16-06

TEST PIT 7-15-07

DATE: 12/8/95

DEPTH IN FEET

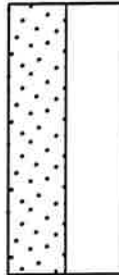
5

SAMPLE NUMBER	WATER TABLE	PID (ppm)
		2.3

SAMPLES

SYMBOLS

DESCRIPTION



FILL MATERIAL SAND (SP)
gray to brown SANDS poorly sorted, fine to
very fine grains, moist, mixed with trash.

Test pit terminated at 3 feet BGS.

Water not encountered.

*Trash included 85 gallon drum lid, rubber gloves, XM15
CS cartridge, and plastic drum liners.*

TEST PIT 7-14-08

DATE: 12/8/95

DEPTH IN FEET

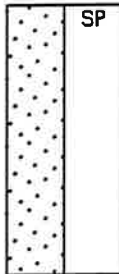
5

SAMPLE NUMBER	WATER TABLE	PID (ppm)
	↓	2.8

SAMPLES

SYMBOLS

DESCRIPTION



FILL Material
dark gray SAND, poorly graded, fine to very fine grains, moist.

Red, hard, thin crystalline layer.

VERY DARK BROWN SAND (SP) ill Material
poorly graded, fine to very fine grains, very moist.

Test pit terminated at 3 feet BGS.

Water encountered @ 2.5 feet.

*Yellow cans of diesel treatment found @ 2 feet BGS, some
contain fluid.*

TEST PIT 7-17-09

DATE: 12/8/95

DEPTH IN FEET

5

SAMPLE NUMBER	WATER TABLE	PID (ppm)
		1.4

SAMPLES

SYMBOLS

DESCRIPTION



SP

GRAY SAND (SP)
poorly graded, fine to very fine grains, dry.

Test pit terminated at 1 foot BGS.

Water not encountered.

M49 trip flares, some burned, scattered to 0.5 feet BGS.

TEST PIT 7-12-10

DATE: 12/11/95

DEPTH IN FEET

5

SAMPLE NUMBER	WATER TABLE	PID (ppm)
		1.8

SAMPLES

SYMBOLS

DESCRIPTION



FILL MATERIAL
dark gray and gray SANDS, poorly graded, fine to
very fine grains, moist.

Test pit terminated at 4 feet BGS.

Water not encountered.

Mixed with metal debris: car jack, chairs, piping, etc.

DATE: 12/11/95

DEPTH IN FEET

[illegible]

SAMPLES

SYMBOLS

DESCRIPTION

		FILL MATERIAL gray to dark gray SANDS, poorly graded, fine to very fine grains, moist.
--	--	--

Fill material includes crushed drums, white and blue granular material (burned flare material), hoses.

DATE: 12/11/95

DEPTH IN FEET

		SAMPLE NUMBER
		WATER TABLE
	1.4	PID (ppm)

SAMPLES

SYMBOLS

DESCRIPTION

		FILL MATERIAL brown, gray, and dark gray, poorly graded fine to very fine grains, moist.
--	--	--

Metal plates above and below burn layer @ 1.5 feet BGS.



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SWMU: 7

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Job No.: 097.001

Geologist: Mike Landsman

TEST PIT REPORT

7-12-11

7-12-12

TEST PIT 7-10-13

DATE: 12/11/95

DEPTH IN FEET

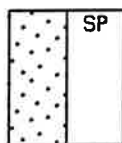
5

SAMPLE NUMBER	WATER TABLE	PID (ppm)
		0.4

SAMPLES

SYMBOLS

DESCRIPTION



SP

DARK GRAY SAND (SP)
poorly graded, fine to very fine grains, moist.GRAY SAND (SP)
poorly graded, fine to very fine grains, moist.*Test pit terminated at 1.5 feet BGS.**Water not encountered.**Metal scrap near the ground surface.*

TEST PIT 7-11-14

DATE: 12/11/95

DEPTH IN FEET

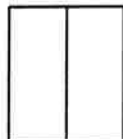
5

SAMPLE NUMBER	WATER TABLE	PID (ppm)
		0.6

SAMPLES

SYMBOLS

DESCRIPTION

FILL MATERIAL
gray to dark gray SANDS, poorly graded, fine to
very fine grains, moist.*Test pit terminated at 1.5 feet BGS.**Water not encountered.**Fill contains drum lids, plastic, wood, and metal scrap.*

TEST PIT 7-11-15

DATE: 12/11/95

DEPTH IN FEET

5

SAMPLE NUMBER	WATER TABLE	PID (ppm)
		0.4

SAMPLES

SYMBOLS

DESCRIPTION



SP

GRAY AND DARK GRAY SAND (SP)
poorly graded, fine to very fine grains, moist.

*Test pit terminated at 1 foot BGS.
Water not encountered.
Drum lids found near the surface.*

TEST PIT 7-08-16

DATE: 12/11/95

DEPTH IN FEET

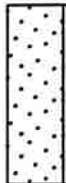
5

SAMPLE NUMBER	WATER TABLE	PID (ppm)
	↓	0.2

SAMPLES

SYMBOLS

DESCRIPTION



SP

BROWN SAND (SP)
poorly graded, fine to very fine grains, dry.

WHITE SAND (SP)
poorly graded, fine to very fine grains, moist.

*Test pit terminated at 2 feet BGS.
Water encountered @ 2 feet BGS.
Four crushed drums in east face of test pit.*

TEST PIT 7-09-17

DATE: 12/11/95

DEPTH IN FEET

5

SAMPLE NUMBER	WATER TABLE	PID (ppm)
		1.2

SAMPLES

SYMBOLS

DESCRIPTION



SP

GRAY SAND (SP)
poorly graded, fine to very fine grains, dry.

Test pit terminated at 0.5 feet BGS.

Water not encountered.

Wire tied w/ hose clamp found just below surface.

TEST PIT 7-18-18

DATE: 12/11/95

DEPTH IN FEET

5

SAMPLE NUMBER	WATER TABLE	PID (ppm)
		1.1

SAMPLES

SYMBOLS

DESCRIPTION



SP

DARK GRAY SAND (SP)
poorly graded, fine to very fine grains, dry.

Test pit terminated at 0.5 feet BGS.

Water not encountered.

Drum lid found just below surface.

TEST PIT 7-06-19

DATE: 12/11/95

DEPTH IN FEET

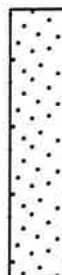
5

SAMPLE NUMBER	WATER TABLE	PID (ppm)
		1.7

SAMPLES

SYMBOLS

DESCRIPTION



SP

WHITE TO LIGHT GRAY SAND (SP)
poorly graded, fine to very fine grains, dry.

*Test pit terminated at 3 feet BGS.
Water not encountered.
One 55-gallon drum in north face of test pit.*

TEST PIT 7-06-20

DATE: 12/11/95

DEPTH IN FEET

5

SAMPLE NUMBER	WATER TABLE	PID (ppm)
		1.9

SAMPLES

SYMBOLS

DESCRIPTION



FILL MATERIAL
light gray SAND, poorly graded, fine to very fine grains, dry.

FILL MATERIAL
dark brown SAND, poorly graded, fine to very fine grains, moist.

*Test pit terminated at 2.5 feet BGS.
Water not encountered.
Five 55-gallon drum and drum pieces found in test pit.
Four drums are on their sides and one is upright.*

SWMU: 7

Project: Thiokol - Woodbine Facility

Job No.: 097.001

Geologist: Mike Landsman

TEST PIT REPORT
7-06-19
7-06-20

TEST PIT 7-02-21

DATE: 12/11/95

DEPTH IN FEET

5

SAMPLE NUMBER	WATER TABLE	PID (ppm)
		1.4

SAMPLES

SYMBOLS

DESCRIPTION

FILL MATERIAL

light gray to dark brown SAND, poorly graded, fine to very fine grains, dry.

BLACK SILTY SAND (SM)

hard, organic cemented, silty fine sand, moist.

*Test pit terminated at 3 feet BGS.**Water not encountered.**Rusted, crushed drums and drum parts found in test pit*

TEST PIT 7-12-22

DATE: 12/11/95

DEPTH IN FEET

5

SAMPLE NUMBER	WATER TABLE	PID (ppm)
		1.9

SAMPLES

SYMBOLS

DESCRIPTION

FILL MATERIAL

gray to dark gray SAND, poorly graded, fine to very fine grains, moist.

*Test pit terminated at 1 foot BGS.**Water not encountered.**Fill material includes rusted drum, plastic drum liners w/ white fine powder, large scrap metal pieces, and foam insulation.*

TEST PIT 7-12-23

DATE: 12/11/95

DEPTH IN FEET

5

SAMPLE NUMBER	WATER TABLE	PID (ppm)
		0.8

SAMPLES

SYMBOLS

DESCRIPTION

--	--

FILL MATERIAL
dark gray SAND, poorly graded, fine to very fine grains, moist.

Test pit terminated at 2 foot BGS.

Water not encountered.

Fill material contained empty plastic drum liners w/ white fine powder, building debris, and jars.

TEST PIT 7-05-24

DATE: 12/12/95

DEPTH IN FEET

5

SAMPLE NUMBER	WATER TABLE	PID (ppm)
		2.1

SAMPLES

SYMBOLS

DESCRIPTION

	SP
---	----

GRAY SAND (SP)
poorly graded, fine to very fine grains, moist.

Test pit terminated at 2 feet BGS.

Water not encountered.

Metal drum lids found at surface.

TEST PIT 7-03-25

DATE: 12/12/95

DEPTH IN FEET

5

SAMPLE NUMBER	WATER TABLE	PID (ppm)
		2.4

SAMPLES

SYMBOLS

DESCRIPTION



FILL MATERIAL
Drum with white material found at the surface.

*Test pit terminated at <1 foot BGS.
Water not encountered.*

TEST PIT 7-01-26

DATE: 12/12/95

DEPTH IN FEET

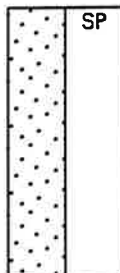
5

SAMPLE NUMBER	WATER TABLE	PID (ppm)
	▼	1.9

SAMPLES

SYMBOLS

DESCRIPTION



DARK GRAY SAND (SP)
poorly graded, fine to very fine grains, dry.
WHITE SAND (SP)
poorly graded, fine to very fine grains, moist.
VERY DARK BROWN SAND (SP)
poorly graded, fine to very fine grains, moist.

*Test pit terminated at 3 feet BGS.
Water encountered at 3 feet.
Top of 55-gallon drum exposed at bottom of test pit.
Drum contains red to yellowish brown powdery material.*

TEST PIT 7-07-27

DATE: 12/12/95

DEPTH IN FEET

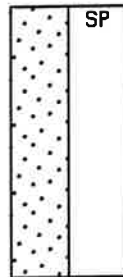
5

SAMPLE NUMBER	WATER TABLE	PID (ppm)
	↓	1.8

SAMPLES

SYMBOLS

DESCRIPTION



DARK GRAY SAND (SP)
poorly graded, fine to very fine grains, dry.

WHITE SAND (SP)
poorly graded, fine to very fine grains, moist.

VERY DARK BROWN SAND (SP)
poorly graded, fine to very fine grains, moist.

*Test pit terminated at 3 feet BGS.
Water encountered at 3 feet.
55-gallon drum exposed at North end of test pit.
Drum contains orange to yellow powdery material.*

TEST PIT 7-12-28

DATE: 12/12/95

DEPTH IN FEET

5

SAMPLE NUMBER	WATER TABLE	PID (ppm)
		1.7

SAMPLES

SYMBOLS

DESCRIPTION



FILL MATERIAL
gray SAND, poorly graded, fine to very fine grains, moist.

*Test pit terminated at 2 foot BGS.
Water not encountered.
Fill contains, empty plastic drum liners, yellow tyvek,
gas mask cartridges, lab glassware, and metal wire and
other debris*

TEST PIT 7-12-29

DATE: 12/12/95

DEPTH IN FEET

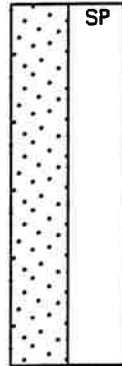
5

SAMPLE NUMBER	WATER TABLE	PID (ppm)
		2.3

SAMPLES

SYMBOLS

DESCRIPTION



DARK GRAY SAND (SP)
poorly graded, fine to very fine grains, dry.

DARK BROWN SAND (SP)
poorly graded, fine to very fine grains, moist.

BROWN SAND (SP)
poorly graded, fine to very fine grains, moist.

Test pit terminated at 4 feet BGS.

Water not encountered.

Corrugated metal siding found near surface.

TEST PIT 7-12-30

DATE: 12/12/95

DEPTH IN FEET

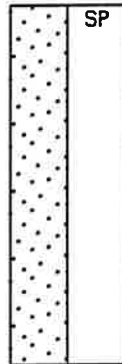
5

SAMPLE NUMBER	WATER TABLE	PID (ppm)
		2.0

SAMPLES

SYMBOLS

DESCRIPTION



DARK GRAY SAND (SP)
poorly graded, fine to very fine grains, dry.

GRAY SAND (SP)
poorly graded, fine to very fine grains, moist.

LIGHT BROWN SAND (SP)
poorly graded, fine to very fine grains, moist.

Test pit terminated at 4 feet BGS.

Water encountered at 4 feet.

Small pieces of scrap metal found near surface.

TEST PIT 7-12-31

DATE: 12/12/95

DEPTH IN FEET

5

SAMPLE NUMBER	WATER TABLE	PID (ppm)
		2.2

SAMPLES

SYMBOLS

DESCRIPTION

	SP	DARK GRAY SAND (SP) poorly graded, fine to very fine grains, dry.
		GRAY SAND (SP) poorly graded, fine to very fine grains, moist.
		LIGHT BROWN SAND (SP) poorly graded, fine to very fine grains, moist.

*Test pit terminated at 3 feet BGS.**Water not encountered.**Small pieces of scrap metal found near surface.*

SWMU: 7

Project: Thiokol - Woodbine Facility

Job No.: 097.001

Geologist: Mike Landsman

TEST PIT REPORT

7-12-31

7-12-31

TEST PIT 7-07-32

DATE: 03/20/96

DEPTH IN FEET

SAMPLE NUMBER	WATER TABLE	PID (ppm)
9159		2.0
9173		1.9
		1.9

SAMPLES

SYMBOLS

DESCRIPTION

☐	SP	DARK BROWN SAND (SP) poorly graded, fine to very fine grains, dry.
☐	SP	GRAY SAND (SP) poorly graded, fine to very fine grains, moist.
☒	SM	DARK REDDISH BROWN SILTY SAND (SM) thin layer, poorly graded, fine to very fine grains, moist, hard.
☐	SM	YELLOWISH BROWN SILTY SAND (SM) poorly graded, silty, fine to very fine grains, moist.

*Test pit terminated at 3 feet BGS.**Water not encountered.**Soil descriptions from right south side of test pit.**Drums found on north side of test pit w/ yellow powder.*

TEST PIT 7-01-33

DATE: 03/20/96

DEPTH IN FEET

SAMPLE NUMBER	WATER TABLE	PID (ppm)
9160		0.0
9174		

SAMPLES

SYMBOLS

DESCRIPTION

☐	SP	DARK BROWN SAND (SP) poorly graded, fine to very fine grains, dry.
☐	SP	GRAY SAND (SP) poorly graded, fine to very fine grains, moist.
☒	SM	DARK REDDISH BROWN SILTY SAND (SM) thin layer, poorly graded, fine to very fine grains, moist, hard.
☐	SM	YELLOWISH BROWN SILTY SAND (SM) poorly graded, silty, fine to very fine grains, moist.

*Test pit terminated at 3 feet BGS.**Water not encountered.**Soil descriptions from right south side of test pit.**Drums found on north side of test pit w/ yellow powder.*

SWMU: 7

Project: Thiokol - Woodbine Facility

Job No.: 097.001

Geologist: Mike Landsman

TEST PIT REPORT
7-07-32
7-01-33

TEST PIT 7-04-34

DATE: 03/20/96

DEPTH IN FEET

	SAMPLE NUMBER	9161 9175	
	WATER TABLE		
	PID (ppm)	0.0	

SAMPLES

SYMBOLS

DESCRIPTION

		SP	GRAY SAND (SP) poorly graded, fine to very fine grains, moist.
		SM	DARK REDDISH BROWN SILTY SAND (SM) thin layer, poorly graded, fine to very fine grains, moist, hard. YELLOWISH BROWN SILTY SAND (SM) poorly graded, silty, fine to very fine grains, moist.

Test pit terminated at 3 feet BGS.

Water not encountered.

Soil descriptions from test pit A and B.

Crushed drums found in test pit C.

TEST PIT 7-05-35

DATE: 03/20/96

DEPTH IN FEET

	SAMPLE NUMBER	9162 9176	
	WATER TABLE		
	PID (ppm)	0.0	

SAMPLES

SYMBOLS

DESCRIPTION

	SP	DARK GRAY SAND poorly graded, fine to very fine grains, dry.
		GRAY SAND (SP) poorly graded, fine to very fine grains, moist.
	SM	DARK REDDISH BROWN SILTY SAND (SM) thin layer, poorly graded, fine to very fine grains, moist, hard. YELLOWISH BROWN SILTY SAND (SM) poorly graded, silty, fine to very fine grains, moist.

Test pit terminated at 3 feet BGS.

Water not encountered.



15850 CRABBS BRANCH WAY
SUITE 300
ROCKVILLE, MARYLAND 20855
TELEPHONE: (301) 417-0200

SWMU: 7

Project: Thiokol - Woodbine Facility

Job No.: 097.001

Geologist: Mike Landsman

TEST PIT REPORT

7-04-34

7-05-35

DATE: 03/20/96

DEPTH IN FEET

	9163 9177	SAMPLE NUMBER
		WATER TABLE
	2.8	PID (ppm)

SAMPLES

SYMBOLS

DESCRIPTION

	SP
	SM

GRAY SAND (SP)
poorly graded, fine to very fine grains, moist.

BLACK SILTY SAND (SM)
thin layer, poorly graded, fine to very fine grains,
moist, hard.

DARK YELLOWISH BROWN SILTY SAND (SM)
poorly graded, silty, fine to very fine grains, moist

Test pit terminated at 2.5 feet BGS.

Water not encountered.

Brown Nuchar, tyvek and plastic liners found in test pit B from 0-2 feet (Brown silty SAND).

DATE: 03/20/96

DEPTH IN FEET

	SAMPLE NUMBER
9164 9178	
	WATER TABLE
	PID (ppm)
	0.0

SAMPLES

SYMBOLS

DESCRIPTION

SP		
SM		

GRAY SAND (SP)
poorly graded, fine to very fine grains, moist.

BLACK SILTY SAND (SM)
thin layer, poorly graded, fine to very fine grains,
moist, hard.

DARK YELLOWISH BROWN SILTY SAND (SM)
poorly graded, silty, fine to very fine grains, moist.

Test pit terminated at 2.5 feet BGS.

Water not encountered.

Three crushed drums found on south side of test pit.
Soil descriptions of natural soils adjacent to drums.



15850 CRABBS BRANCH WAY
SUITE 300
ROCKVILLE, MARYLAND 20855
TELEPHONE: (301) 417-0200

SWMU: 7

Project: Thiokol - Woodbine Facility

Job No.: 097.001

Geologist: Mike Landsman

TEST PIT REPORT

7-02-36

7-06-37

TEST PIT 7-11-38

DATE: 03/20/96

DEPTH IN FEET

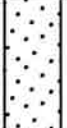
5

SAMPLE NUMBER	WATER TABLE	PID (ppm)
9165 9179	↓	0.0

SAMPLES

SYMBOLS

DESCRIPTION

☒		SP	LIGHT GRAY TO GRAY SAND (SP) poorly graded, fine to very fine grains, moist.
☒		SM	VERY DARK BROWN SILTY SAND (SM) poorly graded, fine to very fine grains, moist.

Test pit terminated at 2.5 feet BGS.
Water encountered @ 2.3 feet BGS.

TEST PIT 7-08-39

DATE: 03/20/96

DEPTH IN FEET

5

SAMPLE NUMBER	WATER TABLE	PID (ppm)
9166 9180	↓	0.0

SAMPLES

SYMBOLS

DESCRIPTION

☒			FILL MATERIAL gray and light gray SANDS, poorly graded, fine to very fine grains, moist.
☒			DARK BROWN SILTY SAND dark brown silty SAND, poorly graded, fine to very fine grains, very moist.

Test pit terminated at 3 feet BGS.
Water encountered at 2 feet BGS.
Crushed drum recovered from test pit.
Additional drums exposed in sides.

TEST PIT 7-11-40

DATE: 03/20/96

DEPTH IN FEET

5

SAMPLE NUMBER	WATER TABLE	PID (ppm)
9167 9181	↓	0.0 10.3

SAMPLES

SYMBOLS

DESCRIPTION

☒

FILL MATERIAL
gray and light gray SANDS, poorly graded, fine to
very fine grains, moist.

FILL MATERIAL
brown, dark brown, and yellowish brown silty
fine sand w/ plastic liners and Nuchar.

Test pit terminated at 3 feet BGS.
Water encountered at 3 feet BGS.

TEST PIT 7-11-41

DATE: 03/20/96

DEPTH IN FEET

5

SAMPLE NUMBER	WATER TABLE	PID (ppm)
9168 9182	↓	0.0

SAMPLES

SYMBOLS

DESCRIPTION

☒

FILL MATERIAL
gray and light gray SANDS, poorly graded, fine to
very fine grains, moist.

FILL MATERIAL
dark brown silty SAND, poorly graded, fine to
very fine grains, very moist.

DARK BROWN SILTY FINE SAND (SM)
poorly graded, fine to very fine grains, organic
cemented, very moist.

Test pit terminated at 4 feet BGS.
Water encountered at 4 feet BGS.
Crushed drum recovered from test pit.
Additional drums exposed in sides.

DATE: 03/21/96

DEPTH IN FEET

	SAMPLE NUMBER	9189 9183	
	WATER TABLE	↓	
	PID (ppm)	0.0	

SAMPLES

SYMBOLS

DESCRIPTION

		FILL MATERIAL dark brown and dark gray silty sand w/ metal scrap and construction debris, and plastic liners w/ yellow powder.
*	*	DARK BROWN SILTY SAND (SM) poorly graded silty fine sand, wet, hard.

**Test pit terminated at 4 feet BGS.
Water encountered at 4 feet BGS.**

DATE: 03/21/96

DEPTH IN FEET

SAMPLE NUMBER	WATER TABLE	PID (ppm)
9170-9184 9171-9185	↓	15.0

SAMPLES

SYMBOLS

DESCRIPTION

		FILL MATERIAL - MOUND dark gray SAND, poorly graded, moist.
		FILL MATERIAL - TRENCH Brown to dark brown silty SAND, wet.
		Buried drums stacked on sides. <i>Test pit terminated at 5 feet BGS. Water encountered at 5 feet BGS. Samples collected from two types of drum material</i>

Buried drums stacked on sides.

Test pit terminated at 5 feet BGS.

Water encountered at 5 feet BGS.

Samples collected from two types of drum material.
White material = 9170-9184; Red material = 9171-9185.



15850 CRABBS BRANCH WAY
SUITE 300
ROCKVILLE, MARYLAND 20855
TELEPHONE: (301) 417-0200

SWMU: 7

Project: Thiokol - Woodbine Facility

Job No.: 097.001

Geologist: Mike Landsman

TEST PIT REPORT

7-11-42

7-16-43

TEST PIT 7-15-44

DATE: 03/21/96

DEPTH IN FEET

SAMPLE NUMBER	WATER TABLE	PID (ppm)
9172 1986	↓	0.0

SAMPLES

SYMBOLS

DESCRIPTION

		FILL MATERIAL gray to dark brown SAND, moist.
☒	SM	DARK BROWN SILTY SAND (SM) poorly graded, fine to very fine grained, silty, moist, hard, organic cemented. <i>Test pit terminated at 6 feet BGS. Water encountered at 6 feet BGS. Metal debris and trash found from 0.5 - 5.5 feet BGS</i>

TEST PIT 7-13-45

DATE: 04/03/96

DEPTH IN FEET

SAMPLE NUMBER	WATER TABLE	PID (ppm)
9189 9194	↓	2.0

SAMPLES

SYMBOLS

DESCRIPTION

		FILL MATERIAL drums with ordnance related items.
☒	SP	PALE YELLOW MEDIUM SAND (SP) poorly graded, medium grained, moist.
	SM	VERY DARK GRAYISH BROWN SILTY FINE SAND (SM) poorly graded, fine grained, silty, very moist.
<i>Test pit terminated at 6.5 feet BGS. Water at 4.5 feet BGS w/in 2 hours of completion. Drums removed prior to test pitting.</i>		

TEST PIT 7-13-46

DATE: 04/03/96

DEPTH IN FEET

5

SAMPLE NUMBER	WATER TABLE	PID (ppm)
9190 9195	▼	2.0

SAMPLES

SYMBOLS

DESCRIPTION

		FILL MATERIAL drums with ordnance related items.
☒	SP	PALE YELLOW MEDIUM SAND (SP) poorly graded, medium grained, moist.
☒	SM	VERY DARK GRAYISH BROWN SILTY FINE SAND (SM) poorly graded, fine grained, silty, very moist.

Test pit terminated at 6.5 feet BGS.
Water at 4.5 feet BGS w/in 2 hours of completion.
Drums removed prior to test pitting.

TEST PIT 7-17-47

DATE: 04/03/96

DEPTH IN FEET

5

SAMPLE NUMBER	WATER TABLE	PID (ppm)
9191 9196	▼	1.1

SAMPLES

SYMBOLS

DESCRIPTION

☒	SP	GRAY TO DARK GRAY FINE SAND (SP) poorly graded, fine grained, slightly moist.
		BLACK AND DARK REDDISH BROWN FINE SAND (SP) poorly graded, fine grained, moist, sharp but wavy lower boundary. Appears to have been burned.
☒	SM	LIGHT YELLOWISH BROWN SILTY FINE SAND (SM) poorly graded, fine to very fine grained, silty, wet.

Test pit terminated at 3 feet BGS.
Water at 2 feet BGS after completion.
One foot wide trench bisects center of test pit.
Loose trip flares, burned and unburned, on surface.

DATE: 04/03/96

DEPTH IN FEET

	9192 9197		SAMPLE NUMBER
	▼		WATER TABLE
		1.6	P10 (ppm)

SAMPLES

SYMBOLS

DESCRIPTION

		FILL MATERIAL gray, black, and brown silty fine SAND, moist.
-	SM	PALE BROWN SILTY FINE SAND (SM) poorly graded, fine to very fine grained, silty, wet.

Fill material contains scrap metal (pipes, shelving, etc.), wood, white clayey material, and M40 trip flares.

DATE: 04/03/96

DEPTH IN FEET

9193 9198	↓	P10 (ppm)
		2.4

SAMPLES

SYMBOLS

DESCRIPTION

		FILL MATERIAL dark grayish brown silty fine SAND, w/ yellow cans of "diesel treatment" fluid.
--	--	--

Water at 3 feet BGS after completion.



15850 CRABBS BRANCH WAY
SUITE 300
ROCKVILLE, MARYLAND 20855
TELEPHONE: (301) 417-0200

SWMU: 7

Project: Thiokol - Woodbine Facility

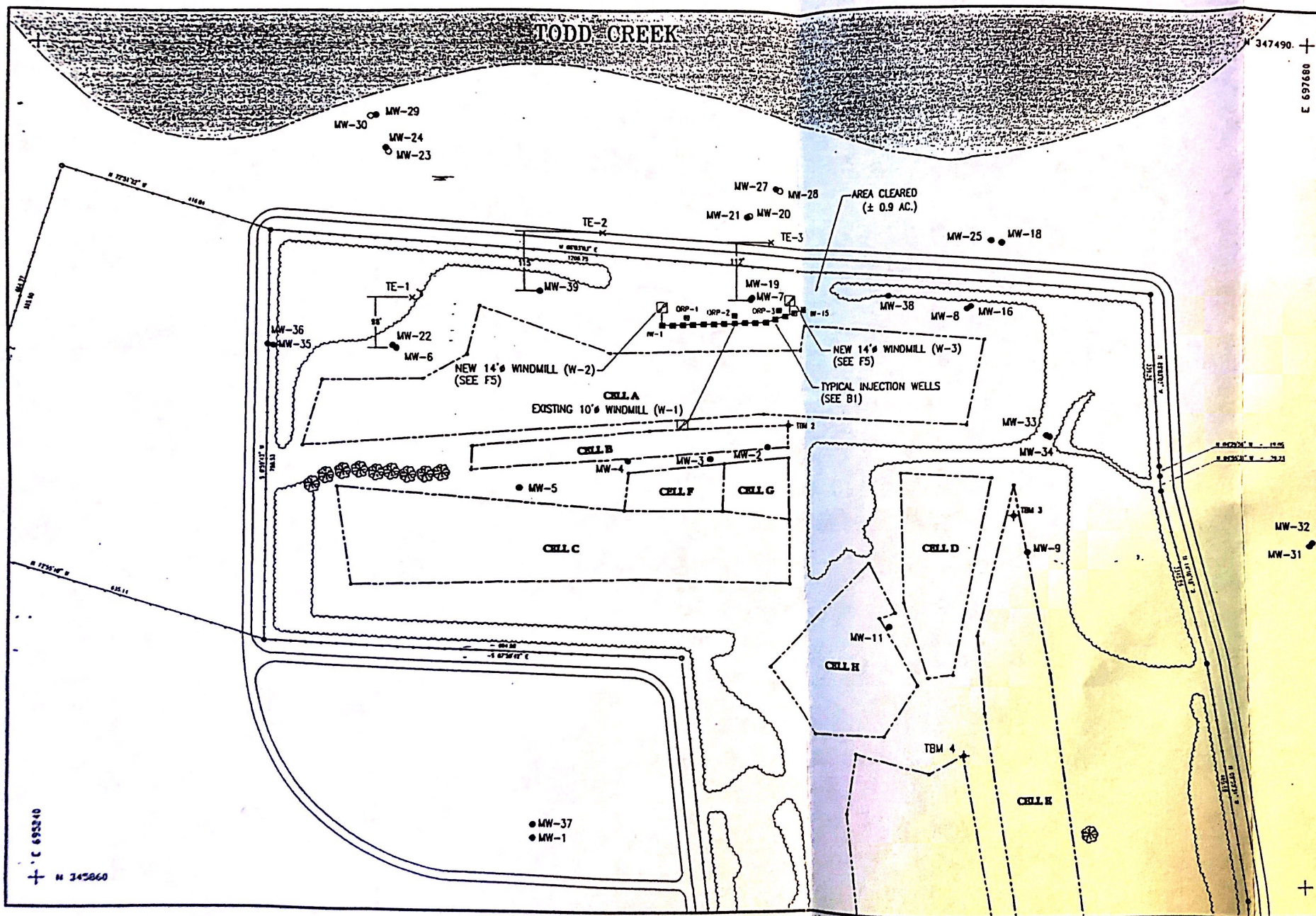
Job No.: 097.001

Geologist: Mike Landsman

TEST PIT REPORT

7-13-48

7-14-49

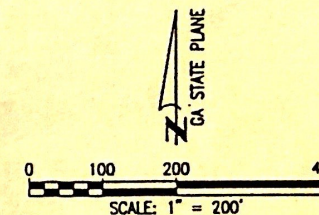


LEGEND:

- CELL BOUNDARY
- SECONDARY ROAD
- FENCE LINE
- TREE
- TREELINE
- TODD CREEK
- BACKGROUND OR POINT OF COMPLIANCE WELL
- SHALLOW WELL
- CONCRETE MONUMENT BENCH MARK
- TREATMENT EFFECTIVENESS WELL
- REDOX POTENTIAL WELL
- INJECTION WELL
- PROPOSED WINDMILL

NOTE:

REDOX POTENTIAL AND TREATMENT EFFECTIVENESS WELL LOCATIONS FROM BASCOR ENVIRONMENTAL, INC. FIGURE 68, 10-8-96.



SAIC

Science Applications
International Corporation

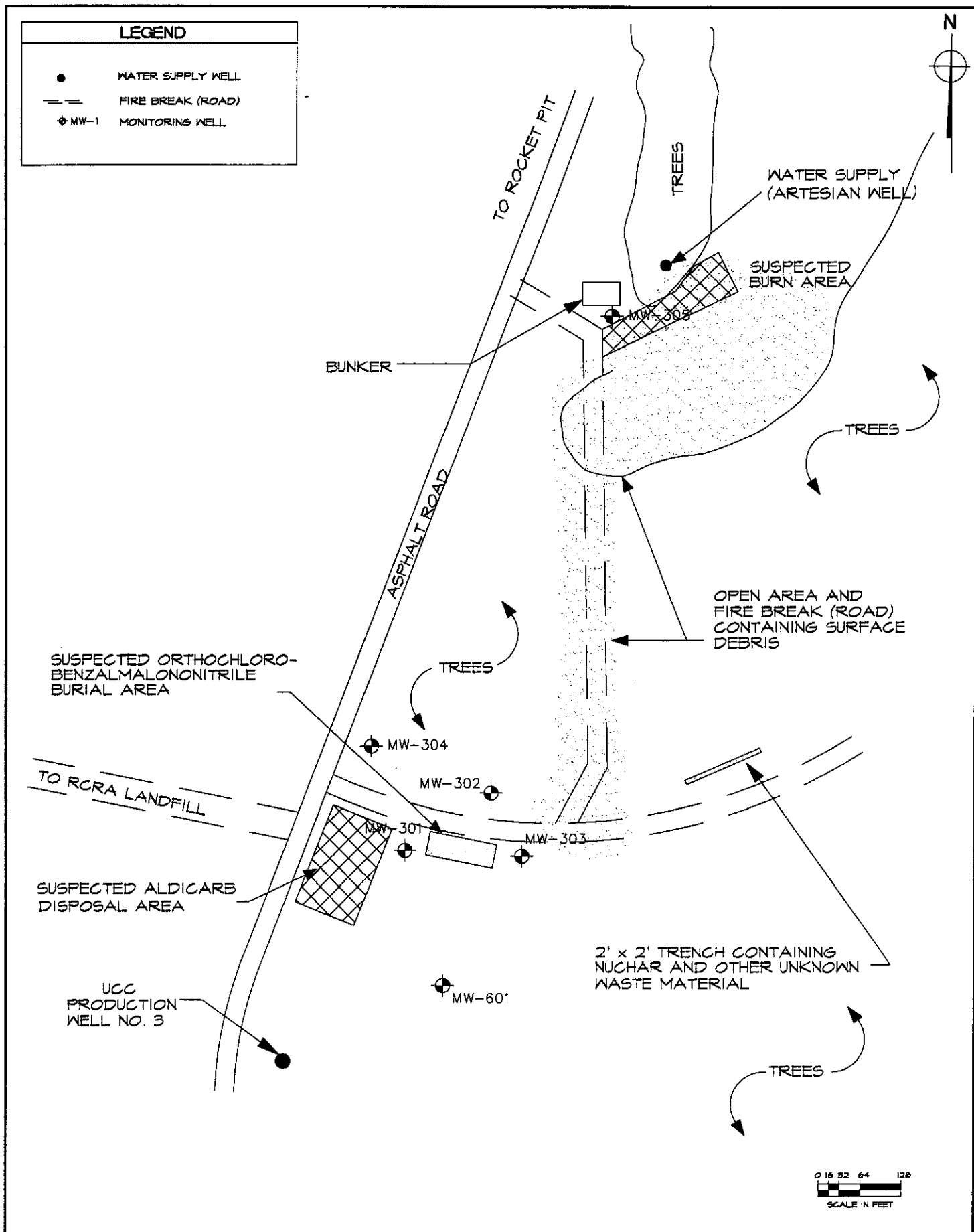
UNION CARBIDE
WOODBINE LANDFILL
WOODBINE GEORGIA

REVISION	DRAWN BY	CHECKED BY	DATE
D	S. DUNLAP	J. LOMBAKER	01-15-98
A	S. DUNLAP	J. LOMBAKER	04-03-98

REFERENCES	PLOT FILES
/7020/7021/7025	/7020/7021/7025

SHT 1 OF 1
DRAWING 1

Figure 1.2. Site Schematic



 15850 CRABBS BRANCH WAY SUITE 300 ROCKVILLE, MARYLAND 20855 TELEPHONE: (301) 417-0200	FIGURE 3 SNMU 03 SITE MAP WOODBINE, GEORGIA			PHASE II RFI THIOL CORPORATION WOODBINE, GA		
				7-18-96	CDC	097.001
				UNION-2	AS SHOWN	THIOL CORP.

AIRSTRIIP

ROCKET PIT ROAD

FIRE BREAK I

APPROXIMATE AREA
OF BORROW PIT

SWMU-04

APPROXIMATE AREA
OF ACETONE
EVAPORATION POND

MW-402
MW-401
MW-403
MW-404



LEGEND

BACKGROUND SAMPLE ⊕ BKG 2-1
PAVED ROAD ———
UNPAVED ROAD - - - - -
FIRE BREAK (ROAD) - - - - -
MONITORING WELL ⊕ MW-38
CHAIN LINK FENCE —+—+—+—
SWMU-04 ACETONE EVAPORATION POND
BORROW PIT



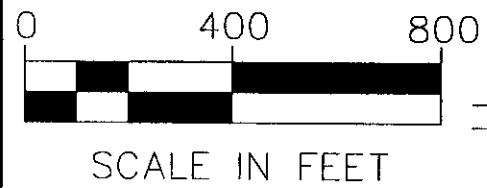
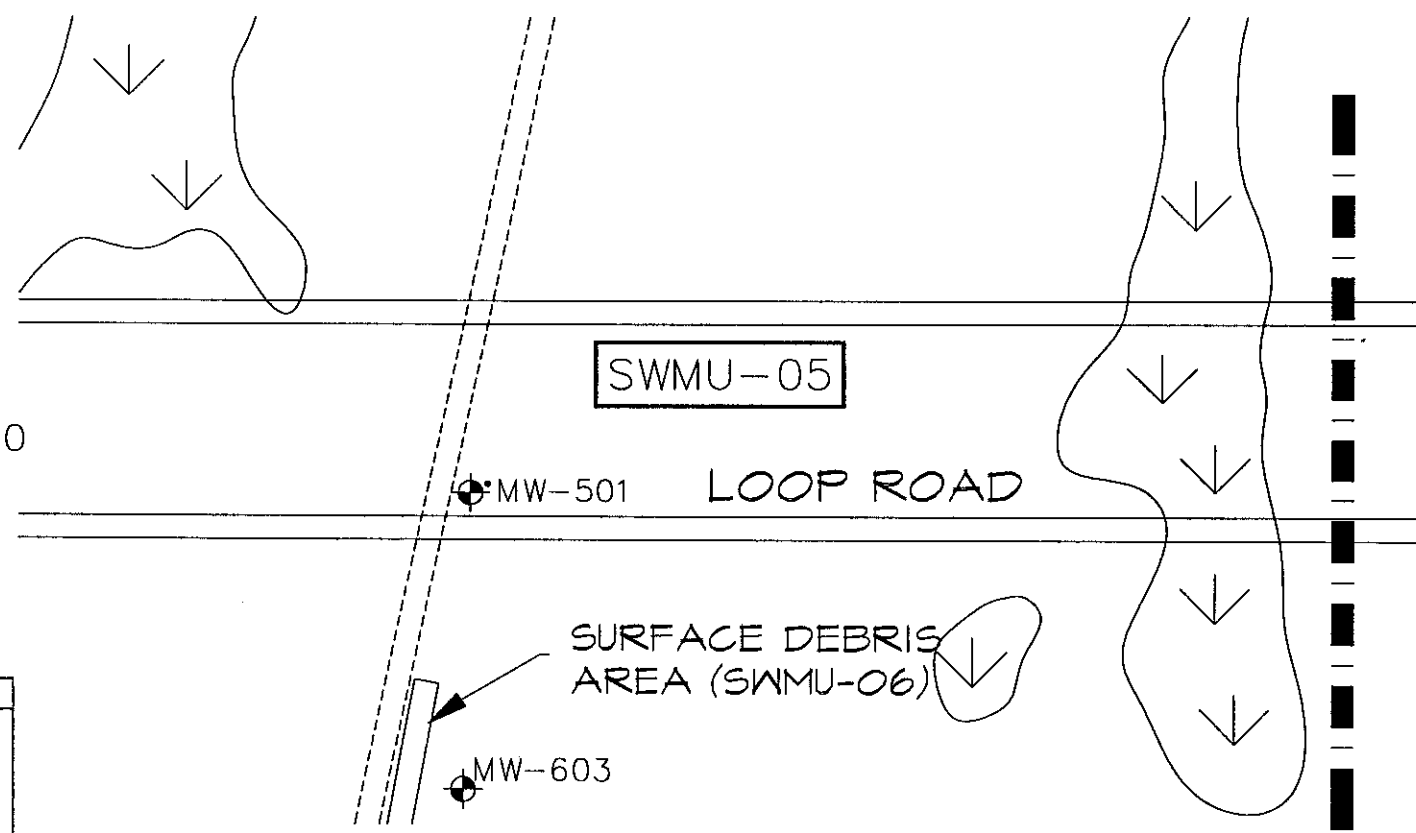
15850 CRABBS BRANCH WAY
SUITE 300
ROCKVILLE, MARYLAND 20855
TELEPHONE: (301) 417-0200
FACSIMILE: (301) 975-0169

FIGURE 4
SWMU 04
SITE MAP
WOODBINE, GEORGIA

Date:
7-11-96
Drawn By:
SJR
Project Number:
097.001

Project Title:
PHASE II RFI
THIOKOL CORPORATION
WOODBINE, GA

GAD File:
BKG4
Scale:
AS SHOWN
Client:
THIOKOL CORP



LEGEND

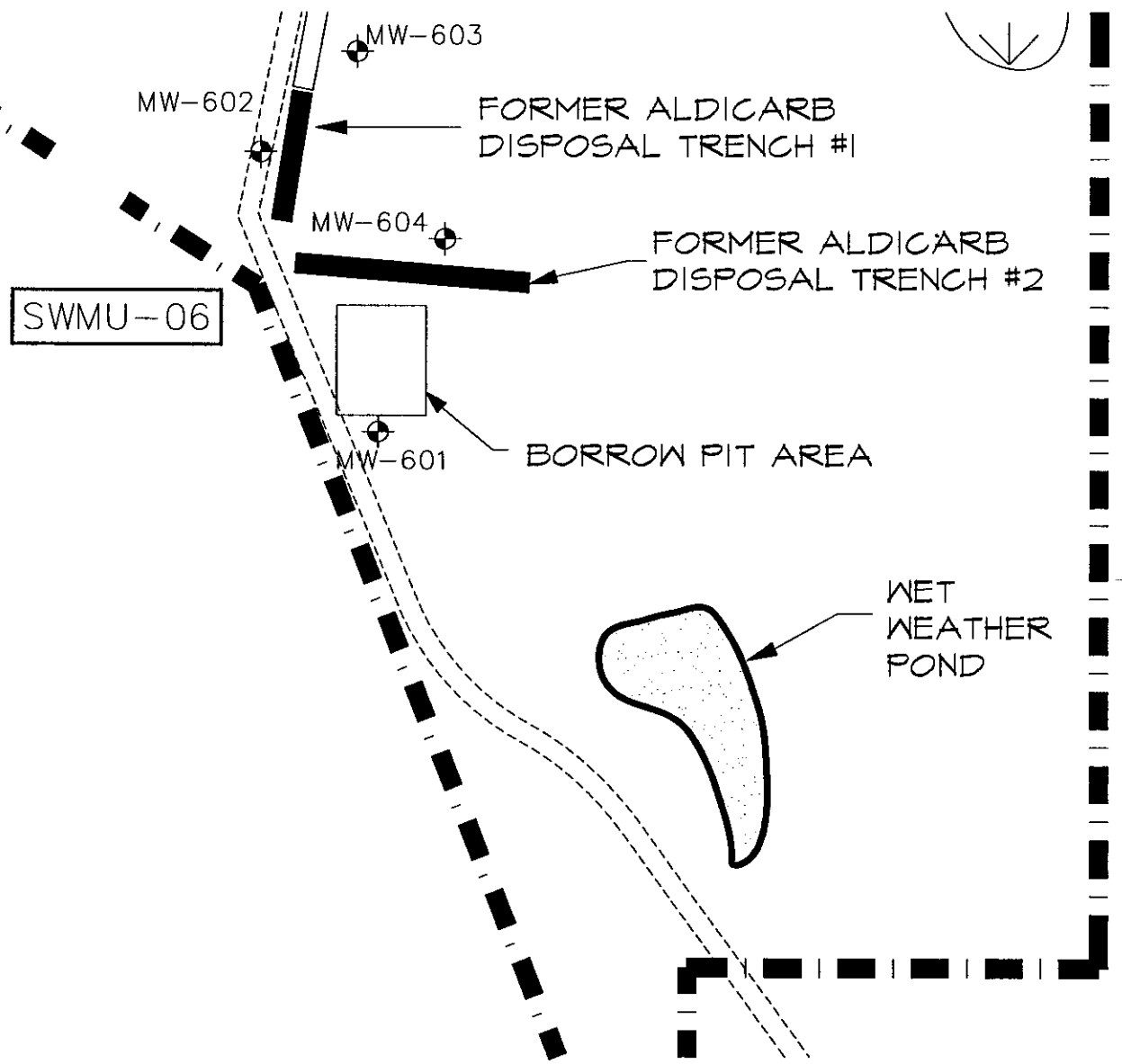
BACKGROUND SAMPLE	# BK P-1
PAVED ROAD	=====
UNPAVED ROAD	-----
FIRE BREAK (ROAD)	- - - - -
MONITORING WELL	⊕ MW-28
CHAIN LINK FENCE	—x—x—x—
SWMU-05	BURIED ALDICARB OXIME



15850 CRABBS BRANCH WAY
SUITE 300
ROCKVILLE, MARYLAND 20855
TELEPHONE: (301) 417-0200
FACSIMILE: (301) 975-0169

FIGURE 5
SWMU 05
SITE MAP
WOODBINE, GEORGIA

Date: 7-18-96	Project Title: PHASE II RFI THIOKOL CORPORATION WOODBINE, GA		
Drawn By: SJR			
Project Number: 097.001	CAD File: BK65	Scale: AS SHOWN	Client: THIOKOL CORP



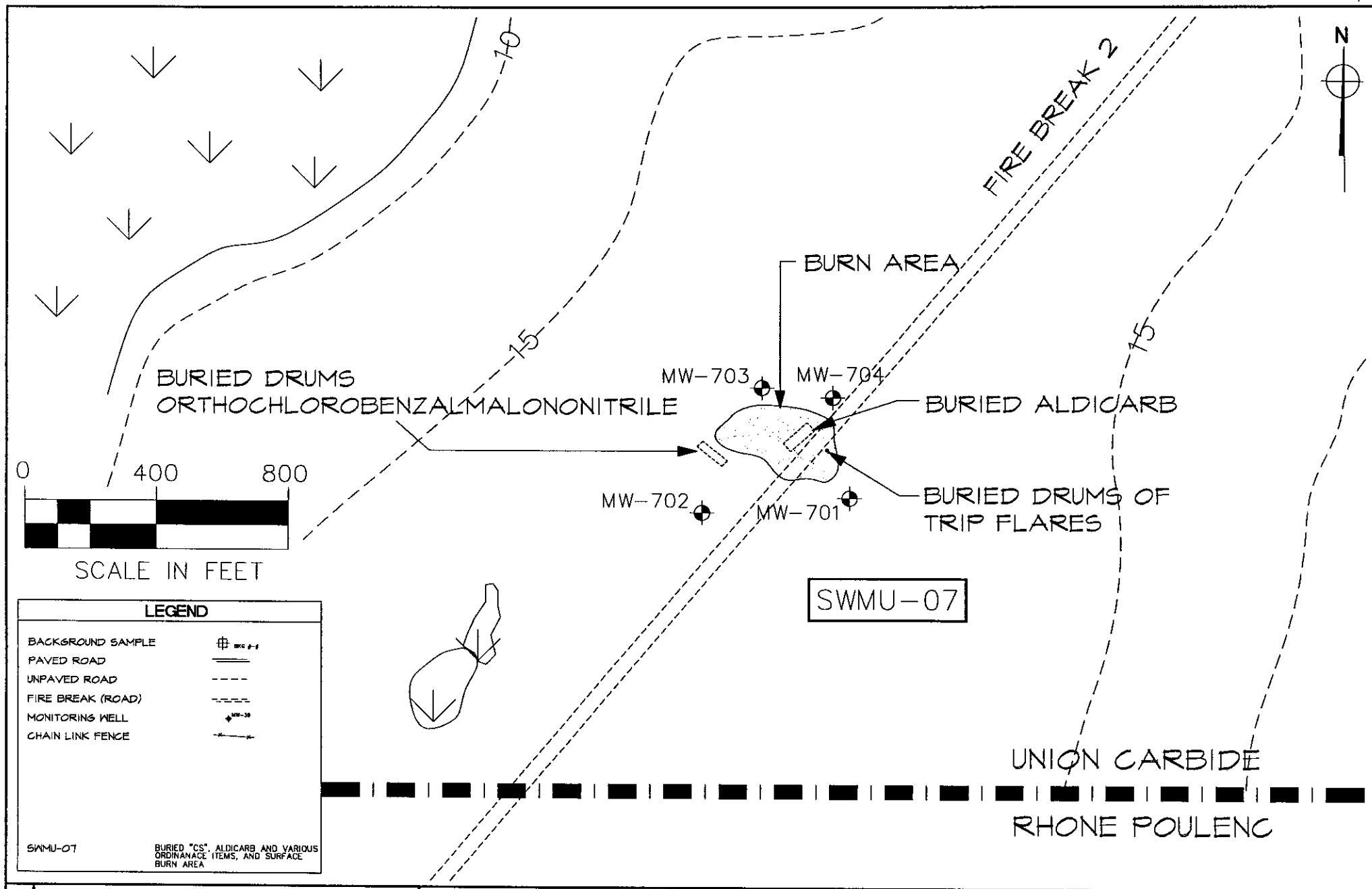
LEGEND	
BACKGROUND SAMPLE	# INC 8-1
PAVED ROAD	=====
UNPAVED ROAD	-----
FIRE BREAK (ROAD)	- - - - -
MONITORING WELL	⊙ MW-30
CHAIN LINK FENCE	—x—x—x—
SWMU-06	
BURIED "CS" AND ALDICARB SURFACE DEBRIS AND BORROW PIT	

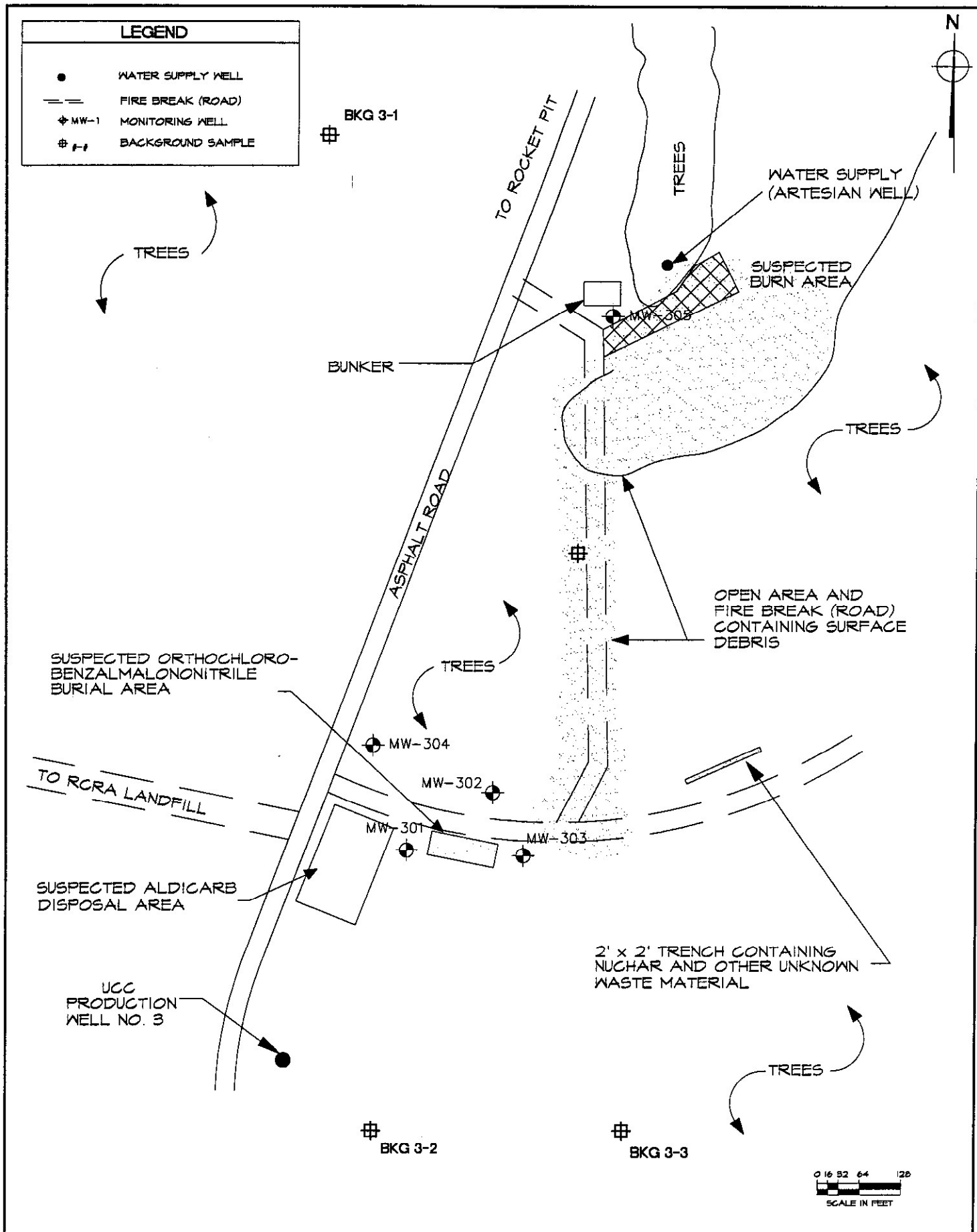


15850 CRABBS BRANCH WAY
SUITE 300
ROCKVILLE, MARYLAND 20855
TELEPHONE: (301) 417-0200
FACSIMILE: (301) 975-0169

FIGURE 6
SWMU 06
SITE MAP
WOODBINE, GEORGIA

Date: 7-15-96	Project Title: PHASE II RFI THIOL CORPORATION WOODBINE, GA		
SJR			
SJR	Project Number: 097.001	CAD File: BK66	Scale: AS SHOWN
			Client: THIOL CORP





15850 GRABBS BRANCH WAY SUITE 300 ROCKVILLE, MARYLAND 20855 TELEPHONE: (301) 417-0200	FIGURE 13 SAMU 03 BACKGROUND SAMPLE LOCATIONS WOODBINE, GEORGIA		
	PHASE II RFI THIOL CORPORATION WOODBINE, GA		
	7-18-96	CDC	097.001
	UNION-2	AS SHOWN	THIOL CORP.



-  Monitoring Well
-  Past Industrial Use Area
-  Salt Marsh and Wetlands
-  Property Boundary

NOTES:
 1. Aerial Imagery Date: 11/18/2020. Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community. Imagery

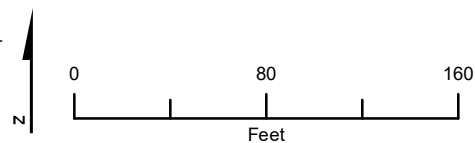


Figure 2. Monitoring Well Locations
 Former Rocket Test Pit Monitoring and Maintenance Plan
 Union Carbide Corporation
 Woodbine Facility, Camden County, Georgia