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FINAL REMEDIAL INVESTIGATION & RISK ASSESSMENT REPORT CENTRAL LANDFILL OPERABLE UNIT 2 JOHNSTON, RHODE ISLAND VOLUME II OF V

PREPARED FOR:
Rhode Island Resource Recovery Corporation
Johnston, Rhode Island

PREPARED BY:
GZA GeoEnvironmental, Inc.
Providence, Rhode Island

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TABLES

TABLE 3-1

SUMMARY OF OU2 RI STUDY TASKS

Central Landfill - Johnston, Rhode Island

TASK	TITLE	PURPOSE	DESCRIPTION
1	Multi-media Sampling and Analysis	To gain a better understanding of contaminant migration patterns, exposure point concentrations, and bioavailability of site contaminants	Sampling and analysis of soils, sediments, surface water and groundwater within suspected contaminant migration pathways
2	Ecological Characterization	To collect field data required to support the ecological risk assessment	The delineation of wetlands and the identification of wildlife species and habitats in the OU2 Study Area
3	Surface Water Hydrology	To better estimate stream base flows at several locations in the OU2 Study Area	The measurement, on a regular basis, of surface water flows at three locations over 15 consecutive months
4	Groundwater Monitoring Well Installation	To better define groundwater migration and contaminant flow paths	The installation of 15 additional monitoring wells at 8 locations
5	Residential Well Survey	To establish which (if any) residents in the OU2 Study Area may be using contaminated groundwater	A mailing of a door-to-door survey to locate residential water supply wells, and review of RIDEM's files to identify other potential sources of contamination in the vicinity of the OU2 Study Area
6	OU1-Hot Spot Pumping Test	To better define the hydraulic properties of the bedrock in the vicinity of the OU1 Hot Spot and support the design of the Hot Spot hydraulic containment system	Performance of a 3-day pump test in well MW90-ML7, located in the vicinity of the OU1 Hot Spot, and the interpretation of resulting drawdowns in this and other site wells
7	OU1-Hot Spot Test Pits	To better delineate the extent of sludges to the south and east of the OU1 Hot Spot	The excavation and logging of test pits advanced down to bedrock to the south and east of the Hot spot
8	Data Validation	To substantiate the data generated during the OU2 RI	Performance of a Tier III independent data validation of OU2 RI data
9	Data Evaluation and Technical Memoranda	To facilitate review of to the OU1 Phase I data and form the basis for evaluating risks due to environmental conditions in the OU2 Study Area	Organization of data in tables and on plots and figures, and comparison of that data to anticipated conditions, regulatory standards, and ecological benchmarks
10	Preliminary Risk Evaluation	To identify in a preliminary manner and qualify risks to human health and environmental receptors in the OU2 Study Area based on the OU2-RI Phase I data and identify the need (if any) for Phase II studies	A detailed preliminary human health and ecological risk screening based on conservative assumptions regarding potential exposures and conservative screening benchmarks

TABLE 3-2

SUMMARY OF RESIDENTIAL WELL IDENTIFICATION SURVEY FINDINGS

Central Landfill - Johnston, Rhode Island

CATEGORY	NUMBER OF PROPERTIES	PROPERTIES CURRENTLY OCCUPIED	NUMBER OF IDENTIFIED WELLS	NUMBER OF CURRENT OU2 WELLS	NUMBER OF CURRENT OU2 WELL USERS[3]	WELLS IN USE SAMPLED BY GZA
OWNED BY RIRRC:	**174**	**42**	**64**	**33**	**1[3]**	**1**
Undeveloped	78[1]	0	1[1]	0	0	0
Developed (Residential)	84	40	60	31	1	1
Developed (Industrial)	12[2]	2	3	2	0	0
PUBLICLY OWNED:	**8**	**2**	**1**	**1**	**0**	**0**
Undeveloped	6[1]	0	1[1]	1	0	0
Developed (Residential)	2	2	0	0	0	0
Developed (Industrial)	0	0	0	0	0	0
PRIVATELY OWNED:	**87**	**53**	**21**	**21**	**5[3]**	**4**
Undeveloped	25	0	0	0	0	0
Developed (Residential)	29	25	8	8	5	4
Developed (Industrial)	33[2]	28	13	13	0	0
TOTALS:	**269**	**97**	**86**	**55**	**6**	**5**
Undeveloped	109[1]	0	2[1]	1	0	0
Developed (Residential)	98	67	68	39	6	5
Developed (Industrial)	62[2]	30	16	15	0	0

Notes:

1. **Developed status based on Town of Johnston Tax Assessor's Office Records. It could be argued that the installation of a well was "development" of the property.**
2. **Eight industrially zoned properties have residential homes constructed on them.**
3. **Property is currently occupied and not connected to public water or GZA was informed by the occupant that the water supply well was currently in use.**

TABLE 3-3

AREA SITES OF POTENTIAL ENVIRONMENMTAL CONCERN

Central Landfill - Johnston, Rhode Island

	SITE NAME[1]	SITE LOCATION PLAT/LOT	REGULATORY PROGRAM	CONTAMINATED MEDIA[2]	CONTAMINANTS OF POTENTIAL CONCERN[3]	GROUNDWATER MONITORING WELLS	GROUNDWATER FLOW DIRECTION[4]
1	195 & 295 Salt Storage Area	(as shown Figure 2-1)	STATE List	SOIL/GROUNDWATER	Road Salt	No	NORTHEAST
2	A. Macera Disposal Area	31/010	CERCLIS RCRA UST	SOIL SURFACE WATER GROUNDWATER	Bis (2-ethylhexyl) phthalate Butyl benzyl phthalate Di-n-octylphthalate PCBs Metals (esp. arsenic, chromium, lead mercury) Antimony, copper, lead and Zinc Unknown	No	SOUTH/SOUTHWEST
3	Allstate Truck Center RI Red, Inc.	(as shown Figure 2-1)	RCRA RCRA	UNKNOWN	Unknown	No	EAST/NORTHEAST
4	American Disposal, Inc. (L. Vinagro Landfill)	32/014, 32/021 & 32/025	CERCLIS RCRA	SOIL SURFACE WATER/LEACHATE GROUNDWATER	PCBs, Metals, Pesticides (BHC & chlordane) PAHs, bis(2-ethylhexyl)phthalate Ethylbenzene, MEK, MIBK, PCE, TCE Toluene, vinyl acetate, xylenes 1,1-DCA, chloroethane, freon toluene,vinyl chloride 1,1-DCA, 1,1-DCE, 1,1,1-TCA, 1,2-DCA 1,2-DCE, 1,4-dichlorobenzene, benzene bromomethane, chlorobenzene, chloroethane chloromethane, ethylbenzene, PCE methylene chloride, TCE, toluene vinyl chloride, xylenes	Yes	NORTHEAST
5	American Reclamation	32/022	RCRA	UNKNOWN	Unknown	No	NORTHEAST
6	BFI Services	43/567	RCRA	UNKNOWN	Unknown	No	NORTH
7	Cece - Macera Landfill	(as shown Figure 2-1)	CERCLIS	GROUNDWATER SOIL	Metals PCBs Antimony, Chromium, Mercury	Yes	NORTH/NORTHEAST
8	Central Landfill	(as shown Figure 2-1)	UST	SOIL	BTEX	Yes	SOUTH
9	Central Landfill Barrel Area	(as shown Figure 2-1)	STATE List	SOIL	Metals, cyanide, chlorobenzene, and Bis (2-ethylhexyl) phthalate	No	NORTH
10	Coastal Materials Corp. & Eastern Investments	31/045	RCRA RCRA	UNKNOWN	Unknown	No	SOUTH
11	Ed Mezz Welding	31/052	RCRA	UNKNOWN	Unknown	No	SOUTH
12	Ed's Auto	32/029	RCRA	UNKNOWN	Ignitable Wastes	No	NORTHEAST
13	Gas Recovery Power Facility Ridgewood Providence Power WPI Packaging & Maintence Co.	(as shown Figure 2-1)	RCRA RCRA RCRA	UNKNOWN	Unknown	No	SOUTHEAST
14	Hi/Lo Cipriano Dump	(as Shown Figure 2-1)	CERCLIS	SOIL SURFACE WATER GROUNDWATER	PCBs, lower levels of VOCs/SVOCs/Metals Unknown Unknown	No	SOUTHEAST
15	Kittay & Blitz	(as shown Figure 2-1)	CERCLIS	SOIL/GROUNDWATER	Unknown	Yes	EAST

TABLE 3-3

AREA SITES OF POTENTIAL ENVIRONMENMTAL CONCERN

Central Landfill - Johnston, Rhode Island

	SITE NAME[1]	SITE LOCATION PLAT/LOT	REGULATORY PROGRAM	CONTAMINATED MEDIA[2]	CONTAMINANTS OF POTENTIAL CONCERN[3]	GROUNDWATER MONITORING WELLS	GROUNDWATER FLOW DIRECTION[4]
16	Liberty Disposal, Inc. (J. Vinagro Landfill)	32/017	CERCLIS RCRA	SOIL GROUNDWATER 	PCBs, metals, 1,3-dichlorobenzene benzene, toluene, xylenes, 1,1-DCA metals, toluene, 1,1-DCA, 1,2-DCA 1,1,1-TCA, chloroethane, ethyl benzene, methylene chloride, vinyl chloride ignitable wastes	Yes	NORTH/NORTHEAST
17	Lot 66 Disposal Area	43/066	STATE List	SOIL SURFACE WATER & GROUNDWATER	TCE, PCE, Toluene, Ethyl benzene, Xylene TCE, PCE, Trichloroflouromethane 1,2-DCE, Toluene, Xylene	Yes	NORTH/NORTHEAST
18	M&D Transportation	31/053	RCRA	UNKNOWN	Waste Oil	No	SOUTH
19	M. Earl Adams Co.	(as shown Figure 2-1)	CERCLIS/RCRA/UST	SOIL SURFACE WATER GROUNDWATER	Chlorinated solvents Metals (esp. arsenic, barium, chromium, lead) BTEX PCBs Benzene, TCE, PCE 1,2-DCE, DCA Benzene, 1,2-DCE, DCA Chloroform, Methylene chloride TCE, PCE, 1,1,1-TCA, toluene, xylenes	Yes	Radially off local topographic high
20	MacDonald & Watson Waste Oil Environmental Construction Co. Scituate Oil Company Tri State Environmental, Inc.	30/034, 30/036 & 30/115	CERCLIS RCRA UST RCRA	SOIL SURFACE WATER SOIL/GROUNDWATER	PCBs Metals Waste Oil BTEX Ignitable, Corrosive & Toxic wastes	Yes	EAST/NORTHEAST
21	Macera Brothers Dump	(as shown Figure 2-1)	STATE List	SOIL/GROUNDWATER	Unknown	No	NORTH
22	New England Truck Lift Co.	31/054	RCRA/UIC	SOIL/GROUNDWATER	Lubrication & hydraulic oil/Antifreeze	No	SOUTH
23	Ocean State Auto Body Sweet Disposal	31/057	RCRA RCRA	UNKNOWN	Unknown	No	SOUTH
24	Plainfield Gas & Diesel	(as shown Figure 2-1)	UST	UNKNOWN	BTEX	Yes	NORTHEAST
25	Qualitex, Inc.	(as shown Figure 2-1)	STATE List	SOIL	pH & TPH	No	EAST
26	R&S Environmental Construction	32/033	RCRA	UNKNOWN	Unknown	No	NORTHEAST
27	RI Solid Waste	31/043	RCRA/UST	SOIL/GROUNDWATER	TPH & BTEX	Yes	SOUTH
28	Ricci's Truck Painting	31/007	RCRA	UNKNOWN	Unknown	No	SOUTH
29	Shell Station	(as shown Figure 2-1)	UST/LUST/UIC	SOIL/SURFACE WATER GROUNDWATER	BTEX & MBTE	Yes	EAST/SOUTHEAST
30	Shun Pike Disposal Area	43/141 & 43/142	STATE List	SOIL GROUNDWATER	PCBs, Chlorinated solvents Toluene, Chlorobenzene, Ethylbenzene, Xylene, Dichlorobenzenes, PCE, TCE	Yes	NORTHEAST TO SOUTHWEST: Seasonal Groundwater Divide
31	Shun Pike Disposal Pits	43/112	CERCLIS	SOIL GROUNDWATER	PCBs, Chlorinated solvents Toluene, Chlorobenzene, Ethylbenzene, Xylene, Dichlorobenzenes, PCE, TCE	Yes	WEST/SOUTHWEST TO NORTHEAST: Seasonal Groundwater Divide

TABLE 3-3

AREA SITES OF POTENTIAL ENVIRONMENMTAL CONCERN

Central Landfill - Johnston, Rhode Island

	SITE NAME[1]	SITE LOCATION PLAT/LOT	REGULATORY PROGRAM	CONTAMINATED MEDIA[2]	CONTAMINANTS OF POTENTIAL CONCERN[3]	GROUNDWATER MONITORING WELLS	GROUNDWATER FLOW DIRECTION[4]
32	Silvestri Leasing CN Wood, Inc.	31/006	RCRA/LUST/UST RCRA	SOIL/GROUNDWATER	Gasoline/Diesel, Waste oil/degreasers	No	SOUTH
33	Stuarts Shopping Plaza	(as shown Figure 2-1)	STATE List	SOIL	Ethyl acetate, Isopropanol, Naptha, Toluene	No	WEST
34	Taraco, Inc. Atwood Auto Body	31/046	RCRA RCRA	UNKNOWN	Waste paint, Waste acid, Acetone Xylene, Toluene and Methyl ethyl ketone	No	SOUTH
35	Taraco Precision Testing	31/055	RCRA/SPILL	SOIL/GROUNDWATER	Waste oil, Lead, Lubricating & Hydraulic oil, other unknown chemicals	No	SOUTH
36	Tower Reality, Inc.	(as shown Figure 2-1)	UIC	GROUNDWATER	Waste oil	No	EAST/NORTHEAST
37	Triple R Trucking	32/027	RCRA	UNKNOWN	Ignitable waste and mineral spirits	No	NORTHEAST
38	Yankee Auto & Truck	32/028	RCRA	UNKNOWN	Ignitable waste	No	NORTHEAST

Notes:

1. When more than one company name has been identified as operating from a single property, all the regulated companies are listed under a single heading.

2. Contaminated Media refers to the "media" (soil, surface water and groundwater) from which analytical samples have been taken based on site-specific files reviewed at RIDEM. For use in GZA's comparison to the RIDOH and EPA historical groundwater sampling programs, we have included sampled media which in some cases may have subsequently been remediated. This category should not be necessarily interpreted as representative of current conditions in the listed media at the referenced properties. "Unknown" indicates files were not available to review. It should be noted that if contaminated media were present,but were not sampled, they have not been listed.

3. Contaminants of Potential Concern refers to reported analytical results presented in regulatory files review at RIDEM. This category is meant to be indication of anthropogenic sources of contamination regardless of current, or historical, concentrations, hazards or toxicities. "Unknown" indicates no sampling results were avalaible to review. It should be noted that analytical programs may not have been comprehensive, and other contaminants of potential concern may be present, but not identified.

4. Groundwater flow directions were generally inferred from regional groundwater and topographic elevation data. When monitoring wells were installed during the course of investigations presented within the regulatory files at RIDEM, GZA reviewed any reported groundwater flow directions on a site-by-site basis in conjunction with our interpretation of regional groundwater directions.

TABLE 3-4

SUMMARY OF OU2/ROUND 1A SOIL SAMPLING

Central Landfill - Johnston, Rhode Island

LOCATION ID	SAMPLE DATE	FIELD DESCRIPTION	SAMPLE DEPTH	TOTAL EXCAVATION DEPTH
SS95-01	12/06/1995	0"-2" drk.. brn.TOPSOIL abundant roots. 2"-3" drk. brn.Topsoil 2 pieces c. Gravel, few f. roots	0.5 to 3 inches	3 inches
SS95-02	12/06/1995	0"-3" gray brn. f. SAND and Silt with abundant roots	0.25 to 3 inches	9 inches
SS95-03	12/06/1995	0"-2" drk. brn. TOPSOIL abundant roots. 2"-3" brn. f.-m. SAND, some Silt	0.5 to 3 inches	3 inches
SS95-04	12/06/1995	0"-2" drk. brn. TOPSOIL abundant roots. 2"-3" blk.f.-SAND, some Silt	0.5 to 3 inches	5 inches
SS95-05	12/06/1995	0"-2" drk. brn. TOPSOIL abundant f. roots. 2"-3" brn. f.-m. SAND, some Silt	0.5 to 3 inches	5 inches
SS95-06	12/05/1995	0"-2" drk. brn. TOPSOIL abundant roots. 2"-3" orange brn. f.-c. SAND, some Silt, trace f. Gravel	0.5 to 3 inches	3 inches
SS95-07	12/05/1995	0"-1.5" drk. brn. TOPSOIL abundant roots. 1.5"-3" orange brn. f.-c. SAND, some Silt, trace f. Gravel	0 to 3 inches	3 inches
SS95-08	12/06/1995	0"-2" drk. brn. TOPSOIL abundant roots; worms. 2"-3" drk. brn. f.-c. SAND,and f. Gravel some Silt	0.5 to 3 inches	3 inches
SS95-09	12/05/1995	0"-1.5" gray Clayey SILT, trace f. Sand, 1.5"-3" drk. brn. TOPSOIL,abundant roots	0 to 3 inches	5 inches
SS95-10	12/05/1995	0"-1.5" drk. brn. TOPSOIL, abundant f. roots, 1.5"-3" orange brn. f.-m. SAND, some Silt, few roots	0.5 to 3 inches	8 inches
SS95-11	12/06/1995	0"-2" drk. brn. TOPSOIL some f. roots. 2"-3" orange brn. f.-m. SAND some Silt	0.5 to 3 inches	5 inches
SS95-12	12/06/1995	0"-1.5" drk. brn. TOPSOIL abundant roots. 1"-3" brn. f.-m. SAND some Silt	0.5 to 3 inches	5 inches
SS95-13	12/06/1995	0"-1" drk. brn. TOPSOIL, abundant roots. 1"-3" brn. f.-m. SAND some Silt, trace + f. Gravel	0.5 to 3 inches	3 inches
SS95-02	10/01/1996	0"-3" drk.brn. SILTY LOAM abundant f. roots, trace (+) Sand, several worms	0 to 3 inches	3 inches
SS95-02A	10/01/1996	0"-3" drk.brn. SILTY LOAM abundant f. roots, trace (+) Sand	0 to 3 inches	3 inches
SS95-02B	10/01/1996	0"-3" brn. SANDY LOAM, some f. roots trace c. Gravel	0 to 3 inches	3 inches
SS95-09	10/01/1996	0"-1" gray SILT and CLAY (non-organic) 1."-1.5" brn. root Mat, 1.5"-3"drk. brn. Silty Topsoil	0.5 to 3 inches	9 inches
SS95-09A	10/01/1996	0.5"-.75"ROOT FIBERS, 0.75"-3" orange brn.f.-c. Sand and f.-c. Gravel, little Silt, trace Organics	0.5 to 3 inches	3 inches
SS95-09B	10/01/1996	0"-3" tan f.-m. SAND, little Silt, trace (+) Gravel, trace roots and Organics	0.5 to 3 inches	3 inches

1. Grain sizes fine, medium, and coarse are abbreviated with the letters "f." "m." and "c.", respectively.

TABLE 3-5

SUMMARY OF OU2 SEDIMENT SAMPLING

Central Landfill - Johnston, Rhode Island

LOCATION ID	SAMPLE DATE	SAMPLE DEPTH	FIELD DESCRIPTION	SIEVE DESCRIPTION	% PASSING #270 SIEVE	PERCENT TOC
SED93-21-0	05/13/1993	18.5 to 22"	Dark brown, SILT and CLAY and fine to medium SAND, with high Organic content, including gravel sized wood pieces	Brown Organic SILT and f-m SAND, little Gravel sized Wood	50.0[3]	1.2
SED93-22-0	05/13/1993	7 to 15"	Olive to brown SILT, some Sand, high organic content	NC	NC	NC
SED93-23-0	05/13/1993	15.5 to 33"	Dark brown, fine SAND and SILT, highly organic content	NC	NC	>16
SED93-24-0	05/13/1993	6.5 to 31"	Very loose brown Organic SILT, little fine Sand, PEAT and MUCK	Brown Organic SILT, little fine Sand	73.0	>16
SED93-25-0	05/13/1993	6 to 17"	Olive, dark brown to light brown SILT, some Sand, high Organic content	NC	NC	4.1
SED93-26-0	05/12/1993	14 to 47.5"	Dark brown, Organic MUCK and PEAT, some Sand	NC	NC	>16
SED93-27-0	05/12/1993	5 to 32.5"	Dark brown, SILT, little fine Sand and MUCK and PEAT, with wood pieces	NC	NC	>16
SED93-28-0	05/12/1993	4 to 26"	Dark brown to black Organic PEAT with wood pieces	NC	NC	>16
SED93-29-0	05/12/1993	5.5 to 39.5"	Dark brown to black Organic PEAT with wood pieces	NC	NC	>16
SED93-30-0	05/12/1993	5 to 31.5"	Dark brown to black Organic SILT, some fine to medium Sand and Organic PEAT	Black Organic SILT some (+) f-m Sand	67.0	>16
SED93-31-0	05/12/1993	7.5 to 12"	Dark brown MUCK	NC	NC	7.7
SED95-01	12/05/1995	0 to 4"	Tan organic MUCK, some c. organic particles	Tan SILT, trace f. Sand.	65.0	5.9
SED95-02	12/05/1995	0 to 4"	Tan organic MUCK, some c. organic particles	Brown f.-m. SAND, and Silt.	24.4	5.5
SED95-03	12/06/1995	0 to 4"	Brown m.-c. SAND, some Gravel, little Silt, little organic.	Brown m.-c. SAND, some f.- Gravel, trace Silt.	1.2	1.9
SED95-04	12/06/1995	0 to 4"	Tan/olive organic SILT mottled with drk. gray organic Silt.	Tan SILT, trace f. Sand.	82.4	NC
SED95-05	12/06/1995	0 to 4"	Tan/olive organic SILT mottled with drk. gray organic Silt	Tan SILT, trace f. Sand.	92.2	NC
SED95-06	12/07/1995	0 to 4"	Gray organic SILT, overlain by thin layer of brown/tan organic floc.	Tan SILT, trace f. Sand.	94.2	NC
SED95-08	12/07/1995	0 to 4"	Olive/gray organic SILT with brown/drk. gray at interface.	Tan SILT.	96.7	NC
SED95-10	12/07/1995	0 to 4"	Gray/brown f. organic SILT, low solids content.	Brown SILT, some f. Sand.	53.5	7.8
SED95-11	12/07/1995	0 to 4"	Gray/brown f. organic SILT, some c. organic fragments.	Tan SILT, little f. Sand, trace f. Gravel.	60.7	14.7
SED95-12	12/07/1995	0 to 4"	Gray/brown f. organic SILT.	Brown f.- m. SAND and SILT.	48.5	10.7
SED95-13	12/07/1995	0 to 4"	Gray/brown f. organic SILT.	Brown SILT, little f. Sand.	72.4	11.6
SED95-14	12/08/1995	0 to 3"	Gray organic SILT, and little f. Sand over cobbled streambed.	Tan SILT, some f.-m. Sand.	61.6	1.5
SED95-15	12/08/1995	0 to 3"	Gray organic SILT, little f. Sand.	Brown SILT, some f.- c. Sand.	57.8	1.4
SED95-16	12/08/1995	0 to 3"	Gray/brown organic SILT, little f. Sand under 3"-4" decaying organics.	Brown SILT, some f. Sand, trace wood and fibers.	51.4	3.4
SED95-17	12/08/1995	0 to 3"	Mat of organic matter over 1"-2" gray/tan SILT over 0"-2" f.- c. Sand and Gravel.	Brown f.- c. SAND, some Silt, trace f. Gravel.	29.1	1.5
SED95-20	12/08/1995	0 to 3"	Gray/tan f. SAND, little Silt, trace Gravel, some Organics.	Brown f.- c. SAND, some Silt, trace f. Gravel.	24.2	0.6
SED95-21	12/11/1995	0 to 3"	Tan f.- c. SAND, little Silt, little - Gravel.	NC	NC	0.29
SED95-22	12/11/1995	0 to 3"	Gray f. SAND, and Silt over tan f.- c. Sand, some Silt, trace Gravel.	Tan f.- c. SAND, some + Silt.	30.1	0.13
SED95-23	12/11/1995	0 to 3"	Mat of roots over tan SILT, and f. Sand over gray Clayey Silt, and f. Sand.	Tan SILT, little f. Sand.	87.2	0.73
SED95-24	12/11/1995	0 to 4"	Gray f.- c. SAND, little Gravel, trace Silt.	Brown f.- c. SAND, some f. Gravel, trace Silt.	7.0	0.18
SED95-25	12/11/1995	0 to 4"	Thin layer of gray SILT, and f. Sand over gray/tan Clayey Silt, and f.-m. Sand, little organics.	Tan SILT, some m. Sand, trace f. Gravel.	66.7	0.87
SED95-26	12/11/1995	0 to 4"	Tan f.- m. SAND, little Silt, trace Gravel mottled with drk. gray organic Silt.	NC	NC	0.14
SED95-27	12/12/1995	0 to 3"	2"-3" Orange DETRITUS over tan f. Gravel, and c. Sand (rust colored).	Brown f.-c. SAND, little Silt, trace f. Gravel.	17.8	25.1
SED95-28	12/12/1995	0 to 3"	2"- 3" thick root mat high organic granular LOAM.	Brown f.- c. SAND, little Silt, trace f. Gravel.	13.0	25.8
SED95-29	12/12/1995	0 to 3"	Brown granular high organic LOAM underlain by f. Gravel, and c. Sand.	Brown f.- c. SAND, little Silt, trace f. Gravel.	11.8	6.8
SED95-30	12/13/1995	0 to 3"	Brown moderately decomposed PEAT, peaty muck, some Silty Clay.	Brown f.- c. SAND, and Silt.	40.9	12.8
SED95-31	12/12/1995	0 to 3"	Brown PEAT and root mat with f. roots.	Brown f.-c. SAND, and Silt.	39.7	25.6
SED95-32	12/12/1995	0 to 3"	Brown very loose PEAT/ROOTS over m.- c. SAND with decomposed organics, some Silt.	Brown f.- c. SAND, little Silt, trace f. Gravel.	16.9	9.8
SED95-34	12/13/1995	0 to 4"	Gray SILT and Clay, some Sand and f. Gravel.	Tan SILT, some f.- c. SAND, trace f. Gravel.	62.8	0.84
SED95-35	12/13/1995	0 to 4"	Top 3" gray SILT and Clay, overlaying mineral f.- m. SAND, little f. Gravel.	Tan. SILT, little f.- c. Sand.	80.1	0.72
SED95-37	12/13/1995	0 to 4"	Tan Clayey SILT overlaying light gray SILT and Clay, little f. Sand.	Tan. SILT, little f.- c. Sand.	76.1	1.7
SED95-38	12/14/1995	0 to 4"	Brown f. organic MUD, little SILT (mineral).	Gray SILT, little f. Sand.	71.9	7.3
SED95-39	12/14/1995	0 to 4"	Brown f. organic MUD, little SILT.	Tan SILT, trace f. Sand.	75.4	7.8
SED95-40	12/14/1995	0 to 4"	Brown blk. f. organic MUD, small areas of sheen.	Tan SILT, little f. Sand.	80.8	3.2
SED95-41	12/14/1995	0 to 4"	Dark olive gray f. organic MUD, trace plant matter, iron floc on surface.	Tan SILT, trace f. Sand.	87.9	3.2
SED95-42	12/15/1995	0 to 3"	1"-2" dark gray/brown. f. organic MUD (silt), m.-c. Sand, little Silt, trace Gravel.	Gray f. SAND, little Silt.	17.1	2.9
SED95-43	12/15/1995	0 to 3"	Drk. gray organic MUCK over gray Clayey SILT, over rusty m.-c. SAND, and f. Gravel, little - Silt.	Gray SILT, little f. SAND.	50.7	1.3
SED95-44	12/15/1995	0 to 3"	Brown f.- c. SAND, some f. Gravel.	Brown f.- c. SAND, trace f. Gravel.	3.2	2.7
SED95-45	12/15/1995	0 to 3"	Brown partially decomposed PEAT, root fibers and Silty Sand.	Gray f. SAND, little Silt.	4.9	6.1

TABLE 3-5

SUMMARY OF OU2 SEDIMENT SAMPLING

Central Landfill - Johnston, Rhode Island

LOCATION ID	SAMPLE DATE	SAMPLE DEPTH	FIELD DESCRIPTION	SIEVE DESCRIPTION	% PASSING #270 SIEVE	PERCENT TOC
SED96-46	10/02/1996	0 to 3"	Brown PEAT, root fibers and Silty Sand	NC	NC	12.5
SED96-48	10/03/1996	0 to 3"	Brown Organics and root materials (low solids content)	NC	NC	29.0
SED96-49	10/02/1996	0 to 3"	Dark brown organic MUCK, some roots, bottom of channel m -c Sand	NC	NC	7.2
SED98-50	05/27/1998	0 to 4"	< 1" dark gray organic Silt over red/brown partially decomposed PEAT	NC	NC	NC
SED98-51	05/27/1998	0 to 4"	Tan f to c SAND, covered by a thin layer of gray organic Silt and rust colored floc	NC	NC	NC
SED98-52	05/27/1998	0 to 4"	4" to 5" Olive/gray organic SILT with black organic Silt at interface, little dark brown Peat	NC	NC	NC
SED98-53	05/28/1998	0 to 4"	Dark brown organic MUCK	NC	NC	NC
SED98-54	05/28/1998	0 to 4"	Dark gray/black organic MUCK, some roots, bottom of channel m -c Sand	NC	NC	NC

NOTES:

1. **The 1993 sample depths of the Phase II samples represent the depths of the underlying organic sediment layer. These should now represent surficial sediments after the completed 1997 dredging program.**
2. **Granular sizes fine, medium and coarse are abbreviated with the letters "f," "m," and "c".**
3. **TOC = Total Organic Carbon.**
4. **NC = Not completed.**
5. **Percent passing #200 sieve.**

TABLE 3-6

SUMMARY OF SURFACE WATER FIELD SCREENING RESULTS

Central Landfill - Johnston, Rhode Island

STATION LOCATION	DATE SAMPLED	DEPTH OF WATER (FT.)	SAMPLED DEPTH (FT.)	TEMP °C	pH (SU)	COND. (uS/cm)	D.O. (mg/l)
SW95-01	12/05/95	1.5	0.5	5.5	5.87	570	10.6
	10/07/96	1.5	0.5	17.0	5.85	660	5.0
SW95-02	12/05/95	0.5	0.3	4.0	6.33	620	10.7
	10/07/96	0.9	0.4	16.0	5.95	650	10.4
SW95-03	12/06/95	3.0	1.5	5.3	7.16	630	11.6
	10/04/96	2.5	1.5	15.6	*8.3	790	9.2
SW95-04	12/06/95	9.0	7.5	4.0	7.60	630	9.6
	10/04/96	8.1	6.5	15.0	*8.25	860	9.2
SW95-05	12/06/95	7.0	5.5	3.0	7.60	630	8.4
	10/04/96	7.2	5.7	15.0	7.44	70	9.6
SW95-06	12/06/95	7.0	5.5	5.1	7.50	630	10.0
	10/04/96	10.5	9.0	15.0	7.39	740	9.8
SW95-07	12/07/95	5.0	3.5	4.1	7.50	680	10.0
	10/04/96	5.1	3.5	15.5	7.27	780	10.4
SW95-08	12/07/95	5.0	3.5	2.8	6.05	650	10.2
	10/04/96	5.6	4.0	14.5	7.29	750	9.5
SW95-09	12/07/95	0.3	0.1	3.0	6.50	660	7.2
	10/04/96	3.5	2.0	14.5	7.15	750	9.8
SW95-10	12/07/95	21.0	19.5	2.2	7.20	100	12.4
	10/09/96	21.5	20.0	14.0	6.61	100	10.0
SW95-11	12/07/95	3.0	1.5	3.3	6.90	120	12.4
	10/09/96	3.5	2.0	14.0	*8.3	100	9.8
SW95-12	12/07/95	10.0	8.5	3.0	6.95	110	12.4
	10/09/96	10.0	8.5	14.0	6.30	100	9.2
SW95-13	12/07/95	8.0	6.5	2.8	7.15	120	12.4
	10/09/96	7.5	6.0	14.0	NR	NR	9.4
SW95-14	12/08/95	1.5	0.5	2.5	7.30	270	13.0
	10/03/96	1.5	0.5	NR	7.80	850	NR
	11/11/96			7.5	6.20	363	10.6
SW95-15	12/08/95	1.5	0.5	3.5	7.30	180	13.2

TABLE 3-6

SUMMARY OF SURFACE WATER FIELD SCREENING RESULTS

Central Landfill - Johnston, Rhode Island

STATION LOCATION	DATE SAMPLED	DEPTH OF WATER (FT.)	SAMPLED DEPTH (FT.)	TEMP °C	pH (SU)	COND. (uS/cm)	D.O. (mg/l)
	10/03/96	1.5	0.5	NR	7.86	550	NR
SW95-16	12/08/95	2.0	1.0	3.5	7.10	230	12.6
	10/03/96	2.0	0.5	NR	7.95	580	NR
SW95-17/18	12/08/95	1.0	0.5	3.5	7.10	180	13.0
	10/02/96	1.5	0.5	17.0	6.50	340	7.2
SW95-19	12/08/95	0.2	0.2	12.0	6.20	770	2.0
	10/03/96	0.5	0.2	NR	7.54	1070	NR
SW95-20	12/08/95	3.5	2.0	4.0	7.30	110	12.6
	10/03/96	4.0	2.0	NR	8.30	230	NR
SW95-21	12/11/95	0.5	0.3	5.0	7.30	210	12.2
	10/07/96	0.3	0.1	11.5	4.71	430	8.6
SW95-22	12/11/95	2.0	1.0	7.0	7.60	180	11.4
	10/02/96	2.5	1.5	18.0	7.40	550	7.8
SW95-23	12/11/95	0.3	0.1	6.0	6.83	90	10.2
	10/07/96	0.1	0.1	12.0	5.40	130	6.0
SW95-24	12/11/95	1.5	0.5	6.0	7.15	240	14.0
	10/07/96	1.0	0.5	14.0	6.15	350	9.2
SW95-25	12/11/95	1.0	0.5	3.0	7.6	400	12.2
	10/04/96	1.0	0.5	12.0	6.02	270	10.4
SW95-26	12/11/95	0.8	0.4	1.5	7.85	320	11.2
	10/04/96	1.5	0.5	12.0	5.68	270	9.2
SW95-27	12/12/95	0.3	0.1	1.5	*8.34	100	7.2
	10/09/96	0.5	0.2	11.0	*9.8	90	4.6
SW95-28	12/12/95	0.5	0.2	3.0	6.35	60	9.5
	10/04/96	0.1	0.1	13.1	7.5	60	2.6
SW95-29	12/12/95	0.3	0.1	3.0	6.8	130	9.2
SW95-30	12/13/95	0.7	0.3	1.5	7.6	110	3.2
	10/08/96	0.5	0.2	11.0	5.2	150	4.8
SW95-31	12/12/95	1.0	0.5	2.0	5.95	30	6.0

TABLE 3-6

SUMMARY OF SURFACE WATER FIELD SCREENING RESULTS

Central Landfill - Johnston, Rhode Island

STATION LOCATION	DATE SAMPLED	DEPTH OF WATER (FT.)	SAMPLED DEPTH (FT.)	TEMP °C	pH (SU)	COND. (uS/cm)	D.O. (mg/l)
SW95-32/33	12/12/95	0.3	0.1	3.0	6.24	80	7.6
SW95-34	12/13/95	5.0	3.5	1.5	7.4	450	3.5
	10/03/96	3.5	2.0	17.0	6.93	770	7.2
SW95-35/36	12/13/95	3.0	1.5	2.0	7.8	560	10.8
	10/03/96	3.5	2.0	17.6	7.5	740	7.6
SW95-37	12/13/95	2.9	2.0	1.0	*8.52	520	11.8
	10/03/96	3.0	1.5	17.3	7.67	730	7.4
SW95-38	12/14/95	9.0	7.5	1.8	*8.25	160	14.6
	10/08/96	9.1	7.6	14.5	7.95	150	9.4
SW95-39	12/14/95	8.0	6.5	1.8	*8.3	150	14.6
	10/08/96	7.4	5.0	14.5	8.15	120	8.8
SW95-40	12/14/95	3.5	1.5	2.0	*8.25	670	15.0
	10/03/96	4.0	2.5	18.2	7.69	580	8.2
SW95-41	12/14/95	3.1	1.5	2.8	*8.25	620	16.6
	10/03/96	2.7	1.5	18.2	7.5	510	8.2
	11/11/96			9.3	6.84	580	5.5
SW95-42	12/15/95	0.5	0.2	4.0	5.52	1880	4.0
	10/03/96	0.3	0.1	14.5	5.43	1520	2.6
SW95-43	12/15/95	2.5	1.5	4.0	5.45	1200	13.2
	10/03/96	2.5	1.5	16.0	6.55	850	6.4
SW95-44	12/15/95	0.3	0.1	1.5	NR	80	12.5
	10/03/96	0.3	0.1	NR	6.8	100	NR
SW95-45	12/15/95	0.3	0.1	2.9	NR	50	10.2
	10/02/96	0.2	0.1	18.0	7.8	70	6.2
SW96-46	10/02/96	0.3	0.1	15.0	7.9	70	5.0
SW96-47	10/02/96	0.2	0.1	22.0	7.4	840	11.0
SW96-48	10/03/96	0.3	0.1	15.5	5.75	90	3.6
SW96-49	10/04/96	0.5	0.1	15.0	7.85	140	7.2
SW98-50	5/27/98	10.0	5.0	NR	NR	NR	NR

TABLE 3-6

SUMMARY OF SURFACE WATER FIELD SCREENING RESULTS

Central Landfill - Johnston, Rhode Island

STATION LOCATION	DATE SAMPLED	DEPTH OF WATER (FT.)	SAMPLED DEPTH (FT.)	TEMP °C	pH (SU)	COND. (uS/cm)	D.O. (mg/l)
SW98-51	5/27/98	2.0	1.5	NR	NR	NR	NR
SW98-52	5/27/98	7.0	3.5	NR	NR	NR	NR
SW98-53	5/28/98	1.5	1.0	NR	NR	NR	NR
SW98-54	5/28/98	1.0	0.5	NR	NR	NR	NR

NOTES:

1) Depths measured in feet from the surface of the water body.
2) NR indicates that no reading was obtained due to an instrument malfunction.
3) * indicates that the readings is suspect.
4) No field screening readings were taken during the sampling of SW98-50 through SW98-54.

TABLE 3-7

SUMMARY OF GROUNDWATER SAMPLING FIELD SCREENING RESULTS

Central Landfill - Johnston, Rhode Island

STATION LOCATION	DATE SAMPLED	SAMPLING METHOD	PURGE (GALLONS)	TEMP °C	pH (SU)	COND. (us/cm)	D.O. (mg/l)	TURBIDITY (NTU)
MW-1	1/04/96	Bailed	7.5	14**	6.6	4580	1.2**	930
WE85-16	2/09/96	Bailed	10.0	9**	7.7	100	8.8**	7.5
	2/22/96	Bailed	10.0	NR	7.2	60	NR	NR
	9/23/96	Low-Flow	4.0	14	7.3	160	8.5	3
WE85-18	2/09/96	Bailed	10.5	7**	7.5	70	10.6**	15
	2/22/96	Bailed	10.5	NR	7.3	50	NR	NR
	9/23/96	Low-Flow	2.5	14	7.2	90	5.6**	2
WE87-4	1/03/96	Bailed	7.0	13.5**	6.2	530	1.7**	5
WE87-8	2/09/96	Bailed	12.0	9**	6.7	30	9.8**	8
	2/22/96	Bailed	12.0	NR	7.1	30	NR	8
	9/24/96	Low-Flow	1.5	14	6.3	90	6.8**	1.5
WE87-17	1/05/96	Low-Flow	10.0	10	6.9	300	11	1.5
	9/23/96	Low-Flow	5.0	16	7.3	100	6.6**	2.5
MW95-ML9A	12/29/95	Low-Flow	12.0	8	7.9	290	4.7	8.5
	9/25/96	Low-Flow	13.5	14	7.8	170	3.5	5
	11/08/96	Low-Flow	4.5	14.2	6.6	186	1.31	4
MW95-ML9B	12/29/95	Low-Flow	6.0	10	8.8	390	5.4	>1000
	9/25/96	Low-Flow	12.0	13	8.5	240	4.5	400
	11/08/96	Low-Flow	9.0	13	8.5	410	1	>999
MW95-ML9C	12/29/95	Low-Flow	5.0	11	8.9	870	2.6	IM
	9/25/96	Low-Flow	5.0	16	7.8	410	3	5
	11/08/96	Low-Flow	5.5	16	8.2	550	2.6	35
	3/12/97	Low-Flow	11.5	10.3	7.9	316	2.5	391
MW95-47S	12/21/95	Low-Flow	9.0	14	6.9	1800	0.6	1
	9/25/96	Low-Flow	5.5	16	7.2	2290	2.2	13
MW95-47	12/21/96	Low-Flow	5.5	14**	6.7	1180	0.5**	0.45
	9/25/96	Low-Flow	5.0	15	7.6	750	2.8	1.8
MW95-48S	1/05/96	Low-Flow	10.0	14	6.9	4250	1	7
	9/26/96	Low-Flow	4.0	15.5	6.6	4290	1.8	14
MW95-48	1/05/96	Low-Flow	3.2	10	6.8	450	3	200
	9/26/96	Low-Flow	9.5	16.5	7.0	220	2.6	11
MW95-49	1/04/96	Low-Flow	5.2	13	6.1	60	9.2	30
	9/26/96	Low-Flow	4.0	13*	8.0	50	1.8	12
MW95-50	1/04/96	Low-Flow	3.5	13.5	6.7	270	2.2	>1000
	9/25/96	Low-Flow	4.2	13	7.6	190	1.6**	>1000
MW95-51	1/02/96	Low-Flow	4.0	11.5	7.0	390	3.4	3
	9/24/96	Low-Flow	4.5	16**	5.7	190	1**	4.5
	11/11/96	Low-Flow	4.5	15.6	5.6	210	0.84	1

TABLE 3-7

SUMMARY OF GROUNDWATER SAMPLING FIELD SCREENING RESULTS

Central Landfill - Johnston, Rhode Island

STATION LOCATION	DATE SAMPLED	SAMPLING METHOD	PURGE (GALLONS)	TEMP °C	pH (SU)	COND. (us/cm)	D.O. (mg/l)	TURBIDITY (NTU)
MW95-52	1/02/96	Low-Flow	9.0	10.2	6.0	510	1.2	20
	9/24/96	Low-Flow	5.0	17	5.4	440	1**	15
	11/11/96	Low-Flow	5.0	16	5.8	405	0.6	4
MW95-53	2/08/96	Low-Flow	7.0	14	6.8	3300	1	50
	9/25/96	Low-Flow	6.0	15	7.1	1290	8	7
MW97-54	3/12/97	Low-Flow	6.0	7.3	6.5	175	4.1	60
	4/23/97	Low-Flow	8.0	11.3	6.3	140	6.16	2
MW97ML10-A	3/13/97	Low-Flow	5.0	7.6	8.3	275	4.51	>999
	4/23/97	Low-Flow	36.0	11.3	6.9	103	4.77	>999
MW97ML10-B	3/17/97	Low-Flow	3.5	10.1	7.4	136	2.86	180
	4/23/97	Low-Flow	19.3	10.1	7.1	212	3.02	37
31/002	2/08/96	Bailed	2.5	11	6.4	940	NR	>1000
	2/22/96	Bailed	2.5	NR	7.5	930	NR	NR
31/004	3/13/97	Low-Flow	502.0	9.7	5.2	410	5.7	10
43/007	3/14/97	Low-Flow	1404.0	4.3	6.4	125	2.7	111
31/014	2/06/96	Tap	190.0	11	6.6	120	2.8	12.5
31/017	2/06//96	Tap	155.0	10	6.4	130	6.8	0.4
43/036	2/08/96	Low-Flow	307.5	10	7.2	2250	2.8	3.3
43/070	2/07/96	Tap	60.0	10	7.2	90	12	0.3
	2/22/96	Tap	60.0	NR	NR	NR	NR	NR
43/167	3/11/97	Tap	40.0	9.5	5.2	42	9	3
43/244	12/05/95	Tap	60.0	NR	NR	NR	NR	NR
43/275	12/18/00	Tap	45.0	9.5	5.2	42	9	3

NOTES:

1) IM indicates that no reading was obtained due to an instrument malfunction.

2) NR indicates that no reading was recorded.

3) ** indicates reading was taken in situ prior to purging.

4) Locations describing Pre-Purge and Post-Purge field screening results were sampled using low-flow sampling techniques.

*** indicates reading was taken in situ after sampling was completed.**

5) For well-specific groundwater sampling intervals please refer to the sampling zone descriptions on Table 4-1.

TABLE 4-1

SUMMARY OF DRILLING AND WELL INSTALLATION DETAILS

Central Landfill - Johnston, Rhode Island

WELL ID	ORIGINAL GROUND SURFACE ELEVATION	WELLHEAD ELEVATION	DEPTH OF BORING (feet)	BEDROCK SURFACE ELEVATION	BOTTOM OF SAMPLE ZONE ELEVATION	SAMPLE ZONE LENGTH AND LOCATION IN GEOLOGIC COLUMN	BOTTOM OF WELL SEAL ELEVATION
WE87-1A	403.5	NA	33.0	NA	NA	NA	GROUTED BORING
WE87-1B-A	401.0	402.30	68.0	364.3	364.3	REFUSE - 10	377.4
WE87-1B-B	401.0	402.18	68.0	364.3	334.1	ROCK - 20	358.0
WE87-1C	399.8	NA	8.0	NA	NA	NA	GROUTED BORING
WE87-2A	412.7	414.26	101.0	340.1	342.6	REFUSE - 10	354.7
WE87-2B	412.7	414.26	101.0	340.1	326.1	ROCK - 10	338.1
WE87-3A	466.7	468.09	159.0	332.7	356.1	REFUSE - 10	367.1
WE87-3B	466.7	468.09	159.0	332.7	320.5	ROCK - 10	331.1
WE87-4	387.0	389.39	46.0	373.0	351.0	ROCK - 16	369.0
WE85-5	371.1	372.59	41.5	362.3	347.7	ROCK - 10	360.1
WE85-6A	354.8	356.48	59.5	330.1	332.0	SOIL - 15	347.8
WE85-6B	354.8	356.06	59.5	330.1	296.7	ROCK - 30	327.8
WE85-7	330.9	333.48	30.0	330.9	302.1	ROCK - 24	326.9
WE87-8	330.9	333.67	16.0	330.4	315.1	ROCK - 10	327.1
WE85-9	305.2	308.38	30.0	305.2	276.3	ROCK - 25	302.2
WE87-10	329.6	331.13	39.5	326.6	296.8	ROCK - 15	313.8
WE87-11	330.4	331.47	41.0	321.4	289.1	ROCK - 13	303.1
WE87-12	358.4	360.75	32.5	355.9	337.6	ROCK - 15	352.4
WE87-13	424.8	426.75	92.3	362.5	332.7	ROCK - 25	359.7
WE87-15	352.0	353.35	47.0	309.7	310.7	REFUSE - 10	323.7

TABLE 4-1

SUMMARY OF DRILLING AND WELL INSTALLATION DETAILS

Central Landfill - Johnston, Rhode Island

WELL ID	ORIGINAL GROUND SURFACE ELEVATION	WELLHEAD ELEVATION	DEPTH OF BORING (feet)	BEDROCK SURFACE ELEVATION	BOTTOM OF SAMPLE ZONE ELEVATION	SAMPLE ZONE LENGTH AND LOCATION IN GEOLOGIC COLUMN	BOTTOM OF WELL SEAL ELEVATION
WE85-16	366.9	367.89	36.0	360.9	332.1	ROCK - 26	358.9
WE87-17	400.7	402.41	39.5	399.0	362.8	ROCK - 30	392.8
WE85-18	378.7	380.50	39.0	372.0	341.3	ROCK - 28	369.7
WE87-19	343.5	344.47	49.5	297.5	299.2	REFUSE - 10	312.2
WE85-M1	390.4	391.88	45.0	377.0	346.4	ROCK - 28	374.9
B90-20	393.0	NA	46.6	359.0	NA	NO WELL	NA
B90-21	381.7	NA	40.1	356.2	NA	NO WELL	NA
B90-22	387.1	NA	42.0	362.5	NA	NO WELL	NA
B90-23	382.6	NA	38.0	358.6	NA	NO WELL	NA
B90-24A	387.3	NA	30.5	356	NA	NO WELL	NA
MW90-24B-W	393.60	396.29	68.5	362.6	343.6	ROCK-15	361.6
MW90-24B-P	393.60	396.30	68.5	362.6	326.6	ROCK-4	331.6
MW90-25A-W	390.30	392.91	79	357.3	338.3	ROCK-18	357.3
MW90-25A-P	390.30	392.67	79	357.3	312.3	ROCK-4	318.3
MW90-26A	382.30	384.94	44	358.8	341.3	ROCK-15	357.3
MW90-27A-W	384.70	387.48	68	357.7	340.7	ROCK-15	356.7
MW90-27A-P	384.70	387.45	68	357.7	316.7	ROCK-4	321.7
MW90-28A	332.8	338.40	50	321.8	317.8	REFUSE/SOIL-10	328.8
MW90-28B	332.8	338.30	50	321.8	290.8	ROCK-20	311.8
MW90-29A	321.70	325.50	40	304.7	304.7	REFUSE/SOIL-10	317.7

TABLE 4-1

SUMMARY OF DRILLING AND WELL INSTALLATION DETAILS

Central Landfill - Johnston, Rhode Island

WELL ID	ORIGINAL GROUND SURFACE ELEVATION	WELLHEAD ELEVATION	DEPTH OF BORING (feet)	BEDROCK SURFACE ELEVATION	BOTTOM OF SAMPLE ZONE ELEVATION	SAMPLE ZONE LENGTH AND LOCATION IN GEOLOGIC COLUMN	BOTTOM OF WELL SEAL ELEVATION
MW90-29B	321.70	325.20	40	304.7	282.7	ROCK-15	298.7
MW90-30	402.40	405.20	47.5	388.9	354.5	ROCK-30	386.4
MW90-31A	409.70	412.40	83.3	399.7	379.7	ROCK-15	395.7
MW90-31B	409.70	412.50	83.3	399.7	327.7	ROCK-20	355.7
MW90-32	396.81	401.02	47.6	381.8	363.3	ROCK-15	379.8
MW90-33	310.7	313.50	47	299.7	265.7	ROCK-20	287.7
MW90-34B	366.4	369.50	55	349.4	311.4	ROCK-15	332.4
B90-35	390.1	NA	28	364.1	NA	NO WELL	NA
B90-36	393.3	NA	26.5	369.3	NA	NO WELL	NA
B90-37	391.9	NA	29.7	366.9	NA	NO WELL	NA
B90-38	392.9	NA	30	NA	NA	NO WELL	NA
MW91-39	326.0	328.54	21.6	311.0	305.5	SOIL-5/BEDROCK-5	317.5
MW91-40	325.7	328.14	60.1	303	268.7	ROCK-15	285.7
MW91-41	331.3	334.02	35	326.8	309.3	ROCK-15	326.3
MW92-42	324.2	325.90	21.5	304.2	302.7	REFUSE/SOIL-10	315.2
MW92-43	324.1	325.76	52.00	303.1	274.1	ROCK-10	286.1
MW93-44	376.2	378.53	39.50	366.7	350.7	ROCK-10	361.8
MW97-44R	379.5	381.60	39.00	371.0	348.5	ROCK-10	369.5
MW93-45	331.9	334.03	34.16	327.9	298.9	ROCK-10	309.9
MW95-45R	330.1	332.00	44.50	315.6	302.1	ROCK-10	314.1

TABLE 4-1

SUMMARY OF DRILLING AND WELL INSTALLATION DETAILS

Central Landfill - Johnston, Rhode Island

WELL ID	ORIGINAL GROUND SURFACE ELEVATION	WELLHEAD ELEVATION	DEPTH OF BORING (feet)	BEDROCK SURFACE ELEVATION	BOTTOM OF SAMPLE ZONE ELEVATION	SAMPLE ZONE LENGTH AND LOCATION IN GEOLOGIC COLUMN	BOTTOM OF WELL SEAL ELEVATION
MW93-46-W	335.3	337.61	50.00	319.8	303.3	ROCK-10	315.4
MW93-46-P	335.3	337.63	50.00	319.8	291.3	ROCK- 2.2	294.5
MW95-47	310.6	313.53	55.00	279.6	259.6	ROCK - 10	271.6
MW95-47S	310.7	312.87	34.00	278.7	280.7	SOIL - 10	292.7
MW95-48	307.6	310.78	68.50	273.6	245.6	ROCK - 10	257.6
MW95-48S	307.8	310.56	33.00	274.8	276.8	SOIL - 10	288.8
MW95-49	359.0	361.21	48.40	349.5	329.0	ROCK - 10	340.0
MW95-50	407.3	408.83	69.50	397.8	357.7	ROCK - 10	372.5
MW95-51	399.3	402.05	45.50	389.8	359.3	ROCK - 10	368.3
MW95-52	382.1	383.75	47.90	366.6	345.1	ROCK - 16	363.1
MW95-53	307.9	310.22	25.00	283.9	285.9	SOIL - 10	297.9
MW97-54	294.7	297.02	51.50	246.7	247.2	SOIL - 15	263.7
WE87-ML1A	357.4	359.60	211	336.4	320.9	ROCK - 7.2	328.1
WE87-ML1B	357.4	359.60	211	336.4	304.7	ROCK - 12.2	316.9
WE87-ML1C	357.4	359.60	211	336.4	278.6	ROCK - 12.2	290.8
WE87-ML1D	357.4	359.60	211	336.4	222.5	ROCK - 15.2	237.7
WE87-ML1E	357.4	359.60	211	336.4	165.8	ROCK - 17.6	183.4
WE87-ML2A	299.5	301.70	155	270.5	233.4	ROCK - 15.2	248.6
WE87-ML2B	299.5	301.70	155	270.5	215.5	ROCK - 5.4	220.9
WE87-ML2C	299.5	301.70	155	270.5	183.9	ROCK - 17.8	201.7

TABLE 4-1

SUMMARY OF DRILLING AND WELL INSTALLATION DETAILS

Central Landfill - Johnston, Rhode Island

WELL ID	ORIGINAL GROUND SURFACE ELEVATION	WELLHEAD ELEVATION	DEPTH OF BORING (feet)	BEDROCK SURFACE ELEVATION	BOTTOM OF SAMPLE ZONE ELEVATION	SAMPLE ZONE LENGTH AND LOCATION IN GEOLOGIC COLUMN	BOTTOM OF WELL SEAL ELEVATION
WE87-ML2D	299.5	301.70	155	270.5	170.9	ROCK - 7.2	178.1
WE87-ML3A	418.1	419.30	275	365.1	323.5	ROCK - 34.8	358.2
WE87-ML3B	418.1	419.30	275	365.1	304.4	ROCK - 17.1	321.5
WE87-ML3C	418.1	419.30	275	365.1	266.7	ROCK - 12.2	278.9
WE87-ML3D	418.1	419.30	275	365.1	237.6	ROCK - 10.4	248.0
WE87-ML3E	418.1	419.30	275	365.1	166.8	ROCK - 22.6	189.4
WE87-ML4A	314.1	316.00	165	283.1	262.7	ROCK - 9.1	271.8
WE87-ML4B	314.1	316.00	165	283.1	212.1	ROCK - 10.4	222.5
WE87-ML4C	314.1	316.00	165	283.1	169.0	ROCK - 12.7	181.7
WE87-ML4D	314.1	316.00	165	283.1	149.5	ROCK - 17.6	167.0
WE87-ML5A	401.9	402.90	252	398.9	312.9	ROCK - 26.9	339.8
WE87-ML5B	401.9	402.90	252	398.9	269.0	ROCK - 10.4	279.4
WE87-ML5C	401.9	402.90	252	398.9	174.8	ROCK - 17.6	192.4
MW91-ML6	381.2	NA	200.00	360.2	181.2	ROCK - 100	NO WELL
MW91-ML7	382.0	NA	91.00	359.5	291.0	ROCK - 52	NO WELL
MW91-ML8	383.0	NA	99.00	358.2	284.0	ROCK - 59.5	NO WELL
MW95-ML9A	310.7	313.15	311.00	279.7	217.6	ROCK - 10	228.7
MW95-ML9B	310.7	313.15	311.00	279.7	167.3	ROCK - 10	180.2
MW95-ML9C	310.7	313.15	311.00	279.7	17.4	ROCK - 20	40.7
MW97-ML10A	294.4	296.87	300.00	245.4	211.4	ROCK-10	225.4

TABLE 4-1

SUMMARY OF DRILLING AND WELL INSTALLATION DETAILS

Central Landfill - Johnston, Rhode Island

WELL ID	ORIGINAL GROUND SURFACE ELEVATION	WELLHEAD ELEVATION	DEPTH OF BORING (feet)	BEDROCK SURFACE ELEVATION	BOTTOM OF SAMPLE ZONE ELEVATION	SAMPLE ZONE LENGTH AND LOCATION IN GEOLOGIC COLUMN	BOTTOM OF WELL SEAL ELEVATION
MW97-MLI0B	294.4	296.88	300.00	245.4	-5.6	ROCK-20	15.4
MW-A	312.5	315.95	21.5	NA	297.6	SOIL - ?	NA
MW-B	313.4	317.46	34	285.4	278.9	ROCK - 5	NA
MW-B1	313.5	317.74	21.0	NA	291.6	SOIL - 5	NA
MW-C	318.2	325.67	35.0	311.4	282.3	ROCK - 5	NA
MW-C1	318.2	325.53	6.5	311.5	311.8	SOIL - 5	NA
MW-D	344.2	342.29	17.0	337.2	325.1	ROCK - NA	NA
MW-E	389.6	416.84	25.0	386.6	365.9	ROCK - 5	NA
MW-G	397.5	406.22	27.5	380.0	371.7	ROCK - 5	NA
MW-H	332.9	333.68	20.0	327.7	310.9	ROCK - NA	NA
MW-I	316.0	321.31	17.0	NA	297.6	FILL - 5	NA
MW-J	362.5	381.43	22.5	349.0	340.9	ROCK/SOIL NA	NA
MW-M	391.6	392.06	23.5	374.1	368.1	SOIL/ROCK - 10	NA
MW-N	347.6	349.79	13.5	347.6	334.4	ROCK - NA	NA
MW-O	299.3	301.55	25.0	284.3	276.6	ROCK - 5	NA
MW-P	392.1	394.13	23.0	379.1	369.1	ROCK - 5	NA
GZ88-1	340.4	343.29	32.5	332.4	307.9	SOIL/ROCK - 30	337.9
GZ88-2	351.0	353.52	40.5	341.2	310.5	SOIL/ROCK - 40	349.5
GZ88-3	350.9	353.30	34.9	340.2	335.4	SOIL/ROCK - 15	350.2
GZ88-4	353.9	355.45	44.3	335.6	309.6	SOIL/ROCK - 45	352.9

TABLE 4-1

SUMMARY OF DRILLING AND WELL INSTALLATION DETAILS

Central Landfill - Johnston, Rhode Island

WELL ID	ORIGINAL GROUND SURFACE ELEVATION	WELLHEAD ELEVATION	DEPTH OF BORING (feet)	BEDROCK SURFACE ELEVATION	BOTTOM OF SAMPLE ZONE ELEVATION	SAMPLE ZONE LENGTH AND LOCATION IN GEOLOGIC COLUMN	BOTTOM OF WELL SEAL ELEVATION
GZ88-5	368.5	370.90	39.2	354.3	329.3	SOIL/ROCK - 32	364.5
GZ88-6	379.3	NA	11	NA	NA	NO WELL	NA
GZ88-ML7A	345.5	348.34	30	331.5	316.0	ROCK-2	322.0
GZ88-ML7B	345.5	348.15	30	331.5	331.5	SOIL-2	335.5
GZ88-ML8A	348.8	351.16	30	323.8	320.0	ROCK-2	324.6
GZ88-ML8B	348.8	350.79	30	323.8	338.8	SOIL-2	342.8
GZ88-ML9A	352.3	354.42	30	342.3	323.3	ROCK-2	332.3
GZ88-ML9B	352.3	354.42	30	342.3	341.8	SOIL-2	347.3
GZ88-ML10A	340.9	343.08	25	330.7	316.9	ROCK-2	321.9
GZ88-ML10B	340.9	343.05	25	330.7	330.9	SOIL-2	334.9
GZ88-ML11A	343.7	346.74	15	342.2	329.2	ROCK-2	333.4
GZ88-ML11B	343.7	346.72	15	342.2	337.6	ROCK-2	341.7
GZ88-ML12A	356.3	358.41	20	NA	336.8	SOIL-2	340.8
GZ88-ML12B	356.3	358.42	20	NA	349.8	SOIL-2	354.3
GZ88-ML13A	387.9	390.38	23.5	379.4	364.9	ROCK-2	368.9
GZ88-ML13B	387.9	390.38	23.5	379.4	376.9	SOIL-2	380.9
GZ88-14	386.4	NA	NA	NA	NA	NO WELL	NA
LFG94-1	308.4	310.70	16.50	NA	293.9	SOIL - 10	291.9
LFG94-2	317.1	320.10	10.00	311.1	307.1	SOIL\ROCK - 7	307.1
LFG94-3	378.1	380.40	15.00	367.6	364.1	SOIL\ROCK - 10	363.1

TABLE 4-1

SUMMARY OF DRILLING AND WELL INSTALLATION DETAILS

Central Landfill - Johnston, Rhode Island

WELL ID	ORIGINAL GROUND SURFACE ELEVATION	WELLHEAD ELEVATION	DEPTH OF BORING (feet)	BEDROCK SURFACE ELEVATION	BOTTOM OF SAMPLE ZONE ELEVATION	SAMPLE ZONE LENGTH AND LOCATION IN GEOLOGIC COLUMN	BOTTOM OF WELL SEAL ELEVATION
LFG94-4	358.3	360.60	14.00	348.3	344.3	SOIL\ROCK - 10	344.3
LFG94-5	362.0	364.80	13.00	349.5	350.5	SOIL - 8	349.0
LFG94-6	390.6	393.50	15.00	376.1	377.6	SOIL - 10	375.6
LFG94-7	441.7	445.50	12.50	NA	431.2	SOIL - 7	429.2
LFG94-8	429.9	432.50	13.50	416.9	416.4	SOIL\ROCK - 10	416.4
TB88-1	349.4	351.25	20.6	338.8	329.7	ROCK - 10	338.4
TB88-2	347.1	NA	24.3	332.9	NA	NA	NA
TB88-3	339.5	NA	24.0	326.5	NA	NA	NA
TB88-4	346.5	NA	21.0	335.5	NA	NA	NA
TB88-5	340.5	NA	23.5	327.0	NA	NA	NA
RP88-1	349.3	NA	47.5	335.8	NA	NA	NA
RP88-2	346.7	345.96	44.0	335.7	302.7	ROCK - 10	330.7
RP88-3	340.7	NA	46.5	330.7	NA	NA	NA
B88-1	333.2	NA	20.3	332.9	NA	NA	NA
B88-2	330.4	NA	20.5	329.9	NA	NA	NA
TG88-1	330.2	NA	21.0	329.2	NA	NA	NA
S88-1	336.1	338.67	63.0	334.1	274.8	ROCK - 10	332.1
SWLF-15A	323.5	323.40	47.00	318.5	278.5	ROCK - 10	292.5

TABLE 4-1

SUMMARY OF DRILLING AND WELL INSTALLATION DETAILS

Central Landfill - Johnston, Rhode Island

WELL ID	ORIGINAL GROUND SURFACE ELEVATION	WELLHEAD ELEVATION	DEPTH OF BORING (feet)	BEDROCK SURFACE ELEVATION	BOTTOM OF SAMPLE ZONE ELEVATION	SAMPLE ZONE LENGTH AND LOCATION IN GEOLOGIC COLUMN	BOTTOM OF WELL SEAL ELEVATION
SWLF-15B	323.4	323.19	25.00	320.4	300.4	ROCK - 10	312.4

NOTES:

1. Wellhead elevations reported in this table represent "Top of PVC Pipe" elevation determined by various instrument survey preformed by Louis Federici & Associates.
2. Depth of boring represents approximate drilled depth with respect to ground surface.
3. Elevation of sample zone bottom based on the measured length of PVC pipe relative to wellhead elevations.
4. Ground surface and bedrock surface elevations at D, E, G, H, I, and J are approximate based on reported original ground surface elevations. Conditions may have changed due to landfilling and extention of PVC pipe and protective casing at these locations.
5. Sampling zone lengths represent the length of PVC screen used in "Stand Pipe" well installations. At locations where multi-level systems were installed this length represents the distance between packer seals.
6. Decommissioned indicates that the well was taken out of service by pumping a bentonite and cement grout into the PVC pipe.
7. NA indicates that information is not available or not applicable.

TABLE 4-2

SUMMARY OF LOCATIONS, ELEVATIONS AND CURRENT STATUS OF WELLS AND BORINGS

Central Landfill - Johnston, Rhode Island

STATION ID	SCREENED LENGTH / FORMATION	DATE COMPLETED	ORIGINAL SURFACE ELEVATION	CURRENT PVC ELEVATION	NORTHING COORDINATE	EASTING COORDINATE	COMMENTS	CURRENT STATUS	DATE DECOMMISSIONED
MW-A	SOIL - 5	31-Mar-76	312.50	315.95	262742.43	491123.98	UNUSEABLE (1.5" ID)	INACTIVE	UKN
MW-B	ROCK - 5	23-Sep-80	313.40	317.46	262629.17	490648.31	WELL CLUSTER (1.5" ID)	ACTIVE	NA
MW-B1	SOIL - 5	24-Sep-80	313.50	317.74	262630.27	490644.84		ACTIVE	NA
MW-C	ROCK - 5	15-Aug-80	318.20	325.67	262831.72	489795.55	WELL CLUSTER (1.5" ID)	INACTIVE	5-14-91
MW-C1	SOIL - 5	15-Aug-80	318.20	325.53	262832.38	489793.71	BOTH DESTROYED	INACTIVE	5-14-91
MW-D	ROCK - 5*	02-Mar-79	344.20	342.29	263440.65	488744.02	PVC WELL (1.5" ID)	INACTIVE	8-21-91
MW-E	ROCK - 5	25-Aug-80	389.60	416.84	265312.60	490708.49	PVC WELL (1.5" ID)	INACTIVE	12-87
MW-F	ROCK - 5	22-Aug-80	382.10	384.58	UKN	UKN	UNK	INACTIVE	UKN
MW-G	ROCK - 5	28-Aug-80	397.50	406.02	264611.66	491140.35	USUALLY DRY (1.5" ID)	INACTIVE	05-14-90
MW-H	ROCK - 5*	25-Aug-80	332.90	333.68	263673.61	491535.34	PVC WELL (1.5" ID)	INACTIVE	05-14-90
MW-I (OLD)	REFUSE - UKN	31-Mar-76	UKN	UKN	UKN	UKN	WELL DESTROYED	INACTIVE	UKN
MW-I (NEW)	FILL - 5	20-Aug-80	316.00	321.31	263181.62	491553.49	REPLACEMENT (1.5" ID)	INACTIVE	09-16-89
MW-J	SOIL/ROCK - 5*	26-Aug-81	362.50	380.24	264267.38	491044.37	PVC WELL (1.5" ID)	INACTIVE	5-1-97
MW-K-A	REFUSE - 10	20-Aug-81	382.10	384.71	UKN	UKN	UNK BI-LEVEL WELL	INACTIVE	UKN
MW-K-B	ROCK - 10	20-Aug-81		384.71			INSTALLATION	INACTIVE	UKN
MW-L	ROCK - 10	18-Aug-81	380.10	382.03	UKN	UKN	UKN	INACTIVE	UKN
MW-M	SOIL/ROCK - 10	31-Aug-81	391.60	392.06	266194.15	490135.70	PVC WELL (1.5" ID)	ACTIVE	NA
MW-N	ROCK - 5*	07-Mar-79	347.60	349.79	264061.05	491368.25	PVC WELL (1.5" ID)	INACTIVE	09-15-89
MW-O	ROCK - 5	18-Feb-83	299.30	301.55	262520.31	492258.89	PVC WELL (1.5" ID)	ACTIVE	NA
MW-P	ROCK - 5	22-Feb-83	392.10	394.13	261626.10	489733.55	PVC WELL (1.5" ID)	ACTIVE	NA

TABLE 4-2

SUMMARY OF LOCATIONS, ELEVATIONS AND CURRENT STATUS OF WELLS AND BORINGS

Central Landfill - Johnston, Rhode Island

STATION ID	SCREENED LENGTH / FORMATION	DATE COMPLETED	ORIGINAL SURFACE ELEVATION	CURRENT PVC ELEVATION	NORTHING COORDINATE	EASTING COORDINATE	COMMENTS	CURRENT STATUS	DATE DECOMMISSIONED
WE85-M1	ROCK - 28	23-Jan-86	390.40	391.88	266118.47	490011.41	FORMER WE85-ML1 (1.5" ID)	ACTIVE	NA
WE87-1A-A	BORING ONLY	18-Sep-87	403.50	NA	264483.38	490547.84	NO WELL	NA	NA
WE87-1B-A	REFUSE - 10	29-Sep-87	401.00	402.30	264437.11	490597.66	BI-LEVEL WELL	INACTIVE	5-30-91
WE87-1B-B	ROCK - 20	29-Sep-87		402.18			INSTALLATION (1.5" ID)	INACTIVE	5-30-91
WE87-1C	BORING ONLY	30-Sep-87	399.80	NA	264427.01	490635.55	NO WELL	NA	NA
WE87-2A	REFUSE - 10	06-Aug-87	412.70	414.26	263946.36	490898.61	BI-LEVEL WELL	INACTIVE	4-88
WE87-2B	ROCK - 10	06-Aug-87		414.26			INSTALLATION (1.5" ID)	INACTIVE	4-88
WE87-3A	REFUSE - 10	25-Aug-87	466.70	468.09	264248.52	490239.49	BI-LEVEL WELL	INACTIVE	4-88
WE87-3B	ROCK - 10	25-Aug-87		468.09			INSTALLATION (1.5" ID)	INACTIVE	4-88
WE87-4	ROCK - 16	21-Aug-87	387.00	390.42	264565.59	491337.43	PVC WELL (2.0" ID)	ACTIVE	NA
WE85-5	ROCK - 10	15-Jan-86	371.10	372.59	265635.87	491477.32	PVC WELL (1.5" ID)	ACTIVE	NA
WE85-6A	SOIL - 15	21-Jan-86	354.80	356.48	265145.51	492162.32	BI-LEVEL WELL	ACTIVE	NA
WE85-6B	ROCK - 30	21-Jan-86		356.06			INSTALLATION (1.5" ID)	ACTIVE	NA
WE85-7	ROCK - 24	29-Jan-86	330.90	333.48	263683.82	492360.57	PVC WELL (1.5" ID)	ACTIVE	NA
WE87-8	ROCK - 10	07-Sep-87	330.90	333.67	263803.95	492991.88	PVC WELL (2.0" ID)	ACTIVE	NA
WE85-9	ROCK - 25	27-Jan-86	305.20	308.38	262796.41	492870.37	PVC WELL (1.5" ID)	INACTIVE	8-88
WE87-10	ROCK - 15	13-Sep-87	329.60	331.13	262545.19	489003.54	PVC WELL (2.0" ID)	ACTIVE	NA
WE87-11	ROCK - 13	01-Sep-87	330.40	331.47	262697.60	488721.19	PVC WELL (2.0" ID)	ACTIVE	NA
WE87-12	ROCK - 15	07-Jan-88	358.40	360.75	262853.63	487417.21	PVC WELL (2.0" ID)	ACTIVE	NA
WE87-13	ROCK - 25	21-Dec-87	424.80	UKN 426.75*	262063.77	487332.17	PVC WELL (2.0" ID)	DESTROYED	UKN

TABLE 4-2

SUMMARY OF LOCATIONS, ELEVATIONS AND CURRENT STATUS OF WELLS AND BORINGS

Central Landfill - Johnston, Rhode Island

STATION ID	SCREENED LENGTH / FORMATION	DATE COMPLETED	ORIGINAL SURFACE ELEVATION	CURRENT PVC ELEVATION	NORTHING COORDINATE	EASTING COORDINATE	COMMENTS	CURRENT STATUS	DATE DECOMMISSIONED
WE87-15	REFUSE - 10	02-Sep-87	352.00	353.35	263085.97	489909.55	PVC WELL (1.5" ID)	INACTIVE	4-88
WE85-16	ROCK - 26	08-Jan-86	366.90	367.89	264307.60	487479.79	PVC WELL (1.5" ID)	ACTIVE	NA
WE87-17	ROCK - 30	26-Aug-87	400.70	402.41	264689.34	488721.72	PVC WELL (2.0" ID)	ACTIVE	NA
WE85-18	ROCK - 28	10-Jan-86	378.70	380.50	265496.59	489486.42	PVC WELL (1.5" ID)	ACTIVE	NA
WE87-19	REFUSE - 10	28-Aug-87	343.50	344.47	262868.45	490568.99	PVC WELL (1.5" ID)	INACTIVE	4-88
B90-20	BORING ONLY	15-May-90	393.00	NA	264358.93	490989.67	NO WELL	NA	NA
B90-21	BORING ONLY	07-May-90	381.70	NA	264303.67	491026.05	NO WELL	NA	NA
B90-22	BORING ONLY	11-May-90	387.10	NA	264320.92	490956.73	NO WELL	NA	NA
B90-23	BORING ONLY	18-May-90	382.60	NA	264274.95	490957.46	NO WELL	NA	NA
B90-24A	BORING ONLY	01-Jun-90	387.30	NA	264337.86	491012.00	NO WELL	NA	NA
MW90-24B-W	ROCK - 15	06-Jun-90	393.60	399.32	264362.25	490985.29	BI-LEVEL WELL (2.0" ID)	INACTIVE	4-30-97
MW90-24B-P	ROCK - 4	06-Jun-90		396.30			/ PIEZOMETER (0.5" ID)	DESTROYED	10-15-94
MW90-25A-W	ROCK - 18	08-Jun-90	390.30	392.66	264337.44	490979.85	BI-LEVEL WELL (2.0" ID)	INACTIVE	4-30-97
MW90-25A-P	ROCK - 4	08-Jun-90		392.66			/ PIEZOMETER (0.5" ID)	INACTIVE	4-30-97
MW90-26A	ROCK - 15	02-Jul-90	382.30	384.65	264286.51	491000.21	PVC WELL (2.0" ID)	INACTIVE	5-1-97
MW90-27A-W	ROCK - 15	02-Jul-90	384.70	389.89	264294.18	490931.68	BI-LEVEL WELL (2.0" ID)	INACTIVE	5-1-97
MW90-27A-P	ROCK - 4	02-Jul-90		387.45			/ PIEZOMETER (0.5" ID)	DESTROYED	10-15-94
MW90-28A	REFUSE/SOIL - 10	02-May-90	332.80	338.26	263690.45	491542.77	BI-LEVEL WELL	ACTIVE	NA
MW90-28B	ROCK - 20	02-May-90		338.11			INSTALLATION 2.0" ID	ACTIVE	NA
MW90-29A	REFUSE/SOIL - 10	20-May-90	321.70	325.50	263260.48	491633.13	BI-LEVEL WELL	WELL BENT	NA
MW90-29B	ROCK - 15	20-May-90		325.20			INSTALLATION (2.0" ID)	ACTIVE	NA

TABLE 4-2

SUMMARY OF LOCATIONS, ELEVATIONS AND CURRENT STATUS OF WELLS AND BORINGS

Central Landfill - Johnston, Rhode Island

STATION ID	SCREENED LENGTH / FORMATION	DATE COMPLETED	ORIGINAL SURFACE ELEVATION	CURRENT PVC ELEVATION	NORTHING COORDINATE	EASTING COORDINATE	COMMENTS	CURRENT STATUS	DATE DECOMMISSIONED
MW90-30	ROCK - 30	21-May-90	402.40	405.20	265574.85	490793.06	PVC WELL (2.0" ID)	ACTIVE	NA
MW90-31A	ROCK - 15	30-May-90	409.70	412.40	265399.32	491364.17	BI-LEVEL WELL INSTALLATION (2.0" ID)	ACTIVE	NA
MW90-31B	ROCK - 20	30-May-90		412.50				ACTIVE	NA
MW90-32	ROCK - 15	26-Jun-90	396.81	401.02	264848.85	491373.03	PVC WELL (2.0" ID)	ACTIVE	NA
MW90-33	ROCK - 20	10-Jul-90	310.70	313.50	262907.60	493005.70	PVC WELL (2.0" ID)	ACTIVE	NA
MW90-34	BORING ONLY	12-Jul-90	UKN	NA	UKN	UKN	NO WELL	NA	NA
MW90-34A	BORING ONLY	12-Jul-90	UKN	NA	UKN	UKN	NO WELL	NA	NA
MW90-34B	ROCK - 15	27-Jul-90	366.40	369.50	264143.13	491344.90	PVC WELL (2.0" ID)	ACTIVE	NA
B90-35	BORING ONLY	25-Jul-90	390.10	NA	264345.32	490933.26	NO WELL	NA	NA
B90-36	BORING ONLY	25-Jul-90	393.30	NA	264368.43	490907.78	NO WELL	NA	NA
B90-37	BORING ONLY	26-Jul-90	391.90	NA	264358.29	490920.75	NO WELL	NA	NA
B90-38	BORING ONLY	27-Jul-90	392.90	NA	264359.68	490951.56	NO WELL	NA	NA
MW91-39	SOIL - 10/ROCK - 5	01-Oct-91	326.01	328.54	262824.67	489786.10	PVC WELL (2.0" ID)	INACTIVE	2-11-92
MW91-40	ROCK - 15	30-Sep-91	325.70	328.14	262823.18	489790.24	PVC WELL (2.0" ID)	INACTIVE	2-11-92
MW91-41	ROCK - 15	03-Oct-91	331.27	334.02	263224.13	488463.93	PVC WELL (2.0" ID)	ACTIVE	NA
MW92-42	REFUSE/SOIL - 10	07-Aug-92	324.20	325.90	262814.35	489812.55	PVC WELL (2.0" ID)	ACTIVE	NA
MW92-43	ROCK - 10	11-Aug-92	324.10	325.76	262816.13	489806.83	PVC WELL (2.0" ID)	ACTIVE	NA
MW93-44	ROCK - 10	17-Mar-93	376.17	378.53	264875.20	489102.50	PVC WELL (2.0" ID)	INACTIVE	12-12-96
MW97-44R	ROCK-10	16-May-97	379.50	381.60	264767.87	488935.02	PVC WELL (2.0" ID)	ACTIVE	NA
MW93-45	ROCK - 10	20-Mar-93	331.91	334.03	263449.31	488050.21	PVC WELL (2.0" ID)	INACTIVE	5-5-95

TABLE 4-2

SUMMARY OF LOCATIONS, ELEVATIONS AND CURRENT STATUS OF WELLS AND BORINGS

Central Landfill - Johnston, Rhode Island

STATION ID	SCREENED LENGTH / FORMATION	DATE COMPLETED	ORIGINAL SURFACE ELEVATION	CURRENT PVC ELEVATION	NORTHING COORDINATE	EASTING COORDINATE	COMMENTS	CURRENT STATUS	DATE DECOMMISSIONED
MW95-45B	ROCK - 10	11-May-95	330.11	332.00	263292.00	488167.88	PVC WELL (2.0" ID)	ACTIVE	NA
MW93-46-W	ROCK - 10	23-Mar-93	335.30	337.61	262989.91	488838.73	BI-LEVEL WELL (2.0" ID)	ACTIVE	NA
MW93-46-P	ROCK - 2.2	23-Mar-93		337.63			/ PIEZOMETER (0.5" ID)	ACTIVE	NA
MW95-47	ROCK - 10	02-Feb-95	310.55	313.53	262600.39	491128.36	PVC WELL (2.0" ID)	ACTIVE	NA
MW95-47S	SOIL - 10	08-Feb-95	310.68	312.87	262597.16	491126.12	PVC WELL (2.0" ID)	ACTIVE	NA
MW95-48	ROCK - 10	30-Jan-95	307.58	310.78	262631.59	491280.5	PVC WELL (2.0" ID)	ACTIVE	NA
MW95-48S	SOIL - 10	07-Feb-95	307.75	310.56	262631.91	491276.17	PVC WELL (2.0" ID)	ACTIVE	NA
MW95-49	ROCK - 10	25-Jan-95	359.04	361.21	264682.64	492540.30	PVC WELL (2.0" ID)	ACTIVE	NA
MW95-50	ROCK - 10	27-Jan-95	407.30	408.83	265119.63	491389.15	PVC WELL (2.0" ID)	ACTIVE	NA
MW95-51	ROCK - 10	27-Jan-95	399.31	402.05	265683.59	490370.86	PVC WELL (2.0" ID)	ACTIVE	NA
MW95-52	ROCK - 16	23-Jan-95	382.09	383.75	265586.64	489959.87	PVC WELL (2.0" ID)	ACTIVE	NA
MW95-53	SOIL - 10	09-Feb-95	307.94	310.22	262515.77	491225.50	PVC WELL (2.0" ID)	ACTIVE	NA
MW97-54	SOIL-15	22-Jan-97	294.66	297.02	260214.26	494738.84	PVC WELL (2.0" ID)	ACTIVE	NA
WE87-ML1A	ROCK - 7.2	14-Oct-87	357.40	359.60	265212.51	491994.65	MULTI-LEVEL WATERLOO INSTALLATION	ACTIVE	NA
WE87-ML1B	ROCK - 12.2							ACTIVE	NA
WE87-ML1C	ROCK - 12.2							ACTIVE	NA
WE87-ML1D	ROCK - 15.2							ACTIVE	NA
WE87-ML1E	ROCK - 17.6							ACTIVE	NA
WE87-ML2A	ROCK - 15.2	29-Sep-87	299.50	301.70	262526.77	492284.12	MULTI-LEVEL WATERLOO INSTALLATION	ACTIVE	NA
WE87-ML2B	ROCK - 5.4							ACTIVE	NA
WE87-ML2C	ROCK - 17.8							ACTIVE	NA
WE87-ML2D	ROCK - 7.2							ACTIVE	NA

TABLE 4-2

SUMMARY OF LOCATIONS, ELEVATIONS AND CURRENT STATUS OF WELLS AND BORINGS

Central Landfill - Johnston, Rhode Island

STATION ID	SCREENED LENGTH / FORMATION	DATE COMPLETED	ORIGINAL SURFACE ELEVATION	CURRENT PVC ELEVATION	NORTHING COORDINATE	EASTING COORDINATE	COMMENTS	CURRENT STATUS	DATE DECOMMISSIONED
WE87-ML3A	ROCK - 34.8	09-Dec-87	418.10	419.30	261723.86	488039.51	MULTI-LEVEL WATERLOO INSTALLATION	ACTIVE	NA
WE87-ML3B	ROCK - 19.1							ACTIVE	NA
WE87-ML3C	ROCK - 12.2							ACTIVE	NA
WE87-ML3D	ROCK - 10.4							INACTIVE	5-91
WE87-ML3E	ROCK - 22.6							ACTIVE	NA
WE87-ML4A	ROCK - 9.1	26-Oct-87	314.10	316.00	262631.17	490628.00	MULTI-LEVEL WATERLOO INSTALLATION	ACTIVE	NA
WE87-ML4B	ROCK - 10.4							ACTIVE	NA
WE87-ML4C	ROCK - 12.2							ACTIVE	NA
WE87-ML4D	ROCK - 19.6							ACTIVE	NA
WE87-ML5A	ROCK - 26.9	13-Nov-87	401.90	402.90	266024.16	490397.27	MULTI-LEVEL WATERLOO INSTALLATION	ACTIVE	NA
WE87-ML5B	ROCK - 10.4							ACTIVE	NA
WE87-ML5C	ROCK - 17.6							ACTIVE	NA
MW91-ML6	ROCK HOLE - 100.0	17-Jun-91	381.20	NA Casing =390.23	264253.38	490973.15	OPEN ROCK BOREHOLE	INACTIVE	5/2/97
MW91-ML7	ROCK HOLE - 52.0	21-Jun-91	381.70	NA Casing =390.73	264256.82	490964.59	OPEN ROCK BOREHOLE	INACTIVE	5/1/97
MW91-ML8	ROCK HOLE - 59.5	25-Jun-91	382.20	NA Casing =391.31	264260.81	490955.07	OPEN ROCK BOREHOLE	INACTIVE	5/2/97
MW95-ML9A	ROCK - 10	30-Aug-95	310.67	313.15	262595.50	491130.25	PVC WELL (1.0" ID)	ACTIVE	NA
MW95-ML9B	ROCK - 10			313.15			WELL WIZARD (1.9" ID)	ACTIVE	NA
MW95-ML9C	ROCK - 20			313.15			WELL WIZARD (1.9" ID)	ACTIVE	NA

TABLE 4-2

SUMMARY OF LOCATIONS, ELEVATIONS AND CURRENT STATUS OF WELLS AND BORINGS

Central Landfill - Johnston, Rhode Island

STATION ID	SCREENED LENGTH / FORMATION	DATE COMPLETED	ORIGINAL SURFACE ELEVATION	CURRENT PVC ELEVATION	NORTHING COORDINATE	EASTING COORDINATE	COMMENTS	CURRENT STATUS	DATE DECOMMISSIONED
MW97-ML10A	ROCK-10	15-Jan-97	294.35	296.87	260187.22	494737.64	WELL WIZARD (1.9" ID)	ACTIVE	NA
MW97-ML10B	ROCK-20			296.88	260187.22	494737.64	WELL WIZARD (1.9" ID)	ACTIVE	NA
GZ88-1	SOIL/ROCK - 30	22-Aug-88	340.40	343.29	263334.75	488903.04	PVC WELL (1.5" ID)	DESTROYED	
GZ88-2	SOIL/ROCK - 40	23-Aug-88	351.00	353.52	263876.85	489159.77	PVC WELL (1.5" ID)	DESTROYED	
GZ88-3	SOIL/ROCK - 15	26-Aug-88	350.90	353.30	264421.94	489448.73	PVC WELL (1.5" ID)	DESTROYED	8-21-91
GZ88-4	SOIL/ROCK - 45	30-Aug-88	353.90	355.45	264946.83	489687.91	PVC WELL (1.5" ID)	DESTROYED	
GZ88-5	SOIL/ROCK - 35	02-Sep-88	368.50	370.90	265309.07	489874.87	PVC WELL (1.5" ID)	DESTROYED	8-21-91
GZ88-6	BORING ONLY	31-Aug-88	379.30	NA	265484.34	490006.30	NO WELL	DESTROYED	
GZ88-ML7A	ROCK - 2	14-Sep-88	345.50	348.34	263587.73	489014.62	BI-LEVEL PIEZOMETER (3/4" ID)	INACTIVE	8-21-91
GZ88-ML7B	SOIL - 2			348.15				INACTIVE	8-21-91
GZ88-ML8A	ROCK - 2	14-Sep-88	348.80	351.16	264174.49	489313.84	BI-LEVEL PIEZOMETER (3/4" ID)	INACTIVE	8-21-91
GZ88-ML8B	SOIL - 2			350.79				INACTIVE	8-21-91
GZ88-ML9A	ROCK - 2	16-Sep-88	352.30	354.42	264681.40	489588.93	BI-LEVEL PIEZOMETER (3/4" ID)	INACTIVE	8-21-91
GZ88-ML9B	SOIL - 2			354.42				INACTIVE	8-21-91
GZ88-ML10A	ROCK - 2	19-Sep-88	340.90	343.08	263098.79	488918.64	BI-LEVEL PIEZOMETER (3/4" ID)	INACTIVE	8-21-91
GZ88-ML10B	SOIL - 2			343.05				INACTIVE	8-21-91

TABLE 4-2

SUMMARY OF LOCATIONS, ELEVATIONS AND CURRENT STATUS OF WELLS AND BORINGS

Central Landfill - Johnston, Rhode Island

STATION ID	SCREENED LENGTH / FORMATION	DATE COMPLETED	ORIGINAL SURFACE ELEVATION	CURRENT PVC ELEVATION	NORTHING COORDINATE	EASTING COORDINATE	COMMENTS	CURRENT STATUS	DATE DECOMMISSIONED
GZ88-ML11A	ROCK - 2	20-Sep-88	343.70	346.74	264343.02	489235.97	BI-LEVEL	INACTIVE	8-21-91
GZ88-ML11B	ROCK - 2			346.72			PIEZOMETER (3/4" ID)	INACTIVE	8-21-91
GZ88-ML12A	SOIL - 2	21-Sep-88	356.30	358.41	264843.99	489356.28	BI-LEVEL	INACTIVE	
GZ88-ML12B	SOIL - 2			358.42			PIEZOMETER (3/4" ID)	DESTROYED	
GZ88-ML13A	ROCK - 2	23-Sep-88	387.90	390.38	265790.21	490131.00	BI-LEVEL	INACTIVE	
GZ88-ML13B	SOIL - 2			390.38			PIEZOMETER (3/4" ID)	DESTROYED	
GZ88-14	BORING ONLY	22-Sep-88	386.40	NA	265614.09	490132.60	NO WELL	INACTIVE	NA
LFG94-1	SOIL - 10	08-Nov-94	308.40	310.70	262701.09	492588.45	PVC WELL (2.0" ID)	ACTIVE	NA
LFG94-2	SOIL / ROCK - 7	02-Nov-94	317.10	320.10	263365.59	492465.72	PVC WELL (2.0" ID)	ACTIVE	NA
LFG94-3	SOIL / ROCK - 10	03-Nov-94	378.10	380.40	264913.57	493181.25	PVC WELL (2.0" ID)	ACTIVE	NA
LFG94-4	SOIL / ROCK - 10	03-Nov-94	358.30	360.60	265220.48	492012.07	PVC WELL (2.0" ID)	ACTIVE	NA
LFG94-5	SOIL / ROCK - 8	04-Nov-94	362.00	364.80	265632.84	491587.70	PVC WELL (2.0" ID)	ACTIVE	NA
LFG94-6	SOIL / ROCK - 10	04-Nov-94	390.60	393.50	265850.22	490170.15	PVC WELL (2.0" ID)	ACTIVE	NA
LFG94-7	SOIL / ROCK - 7	07-Nov-94	441.70	445.50	266124.93	488317.16	PVC WELL (2.0" ID)	ACTIVE	NA
LFG94-8	SOIL / ROCK - 10	07-Nov-94	429.90	432.50	264966.80	488195.00	PVC WELL (2.0" ID)	ACTIVE	NA
TB88-1	ROCK - 10	15-Jun-88	349.40	352.17	264011.00	492448.00	PVC WELL (1.5" ID)	ACTIVE	NA
TB88-2	BORING ONLY	14-Jun-88	347.11	NA	263907.00	492449.00	NO WELL	NA	NA
TB88-3	BORING ONLY	13-Jun-88	339.45	NA	263803.00	492449.00	NO WELL	NA	NA
TB88-4	BORING ONLY	01-Jun-88	346.58	NA	264009.00	492352.00	NO WELL	NA	NA

TABLE 4-2

SUMMARY OF LOCATIONS, ELEVATIONS AND CURRENT STATUS OF WELLS AND BORINGS

Central Landfill - Johnston, Rhode Island

STATION ID	SCREENED LENGTH / FORMATION	DATE COMPLETED	ORIGINAL SURFACE ELEVATION	CURRENT PVC ELEVATION	NORTHING COORDINATE	EASTING COORDINATE	COMMENTS	CURRENT STATUS	DATE DECOMMISSIONED
TB88-5	BORING ONLY	01-Jun-88	340.52	NA	263803.00	492323.00	NO WELL	NA	NA
RP88-1	BORING ONLY	03-Jun-88	349.31	NA	263960.00	492303.00	NO WELL	NA	NA
RP88-2	ROCK - 10	03-Jun-88	346.70	345.92	263894.00	492296.00	PVC WELL (1.5" ID)	ACTIVE	NA
RP88-3	BORING ONLY	08-Jun-88	340.65	NA	263850.00	492303.00	NO WELL	NA	NA
B88-1	BORING ONLY	26-May-88	333.16	NA	263915.00	492211.00	NO WELL	NA	NA
B88-2	BORING ONLY	26-May-88	330.35	NA	263839.00	492207.00	NO WELL	NA	NA
SB8-1	ROCK - 10	25-May-88	336.10	338.67	263874.00	492060.00	PVC WELL (1.5" ID)	ACTIVE	NA
SWLF-15A	ROCK-10	21-May-97	320.80	323.40	262759.67	489509.10	PVC WELL (2.0" ID)	ACTIVE	NA
SWLF-15B	ROCK-10	23-May-97	321.10	323.19	262756.49	489515.21	PVC WELL (2.0" ID)	ACTIVE	NA
TG88-1	BORING ONLY	27-May-88	330.21	NA	263759.00	492181.00	NO WELL	NA	NA

NOTES:

-1- Original surface elevations and current PVC elevations for all wells and borholes, excluding MW-F, MW-I (Old), MW-K, and MW-L, were determined from various instrument surveys performed by Louis Federici & Associates of Providence, Rhode Island. Elevations reported for other locations (e.g., MW-F) were taken from available records. This information should be considered accurate only to the degree implied by the method used.

-2- Elevations are reported with respect to the 1929 National Geodectic Vertical Datum (NGVD).

-3- Northing and easting coordinates are referenced to the Rhode Island State Plane Coordinate System.

-4- Date completed refers to data of well installation for locations with wells and data of backfilling for boreholes.

-5- UKN - indicates information is unknown.

-6- NA - indicates not applicable.

-7- * indicates information has been estimated from available records.

TABLE 4-3

BEDROCK RQD AND PACKER TEST HYDRAULIC CONDUCTIVITY DATA

Central Landfill - Johnston, Rhode Island

BOREHOLE ID	DEPTH TO BEDROCK (feet)	CORED DEPTH INTERVAL (feet)	CORE RECOVERY (%)	RQD (%)	TEST PRESSURE TOTAL HEAD (psi.)	PACKER TEST DEPTH INTERVAL (feet)	HYDRAULIC CONDUCTIVITY (K) (feet/year)	COMMENTS
WE85-M1	13.5	15.0 - 20.0	100%	97%	18	18 - 23	4.0	
		20.0 - 25.0	100%	83%	23	23 - 28	62.1	
		25.0 - 30.0	100%	83%	28	28 - 33	< 2.6	No Flow
		30.0 - 35.0	98%	92%	33	33 - 38	< 2.2	No Flow
		35.0 - 40.0	100%	91%	38	38 - 43	< 1.8	No Flow
		40.0 - 45.0	100%	95%				
WE87-1B	36.7	52.5 - 53.0	100%	100%	NA	NA	NA	
		53.0 - 55.0	83%	67%				
		55.0 - 60.0	97%	82%				
		60.0 - 61.5	89%	78%				
		61.5 - 66.5	75%	52%				
		66.5 - 68.0	100%	100%				
WE87-2	72.5	71.0 - 75.5	41%	22%				
		75.5 - 77.0	100%	83%				
		77.0 - 82.0	78%	72%	39	77.7 - 82.7	846	
		82.0 - 87.0	97%	93%	42	82.7 - 87.7	100	
		87.0 - 92.0	100%	92%	44	87.7 - 92.7	< 1.8	No Flow
		92.0 - 96.0	100%	78%	47	92.7 - 101.0	< 1.5	No Flow
		96.0 - 101.0	98%	88%				
WE87-3	134.0	134.5 - 139.5	97%	4%	68	135.7 - 140.7	1,065	
		139.5 - 144.5	100%	67%	70	140.7 - 145.7	10.2	
		144.5 - 149.5	100%	85%	73	145.7 - 150.7	< 1.1	No Flow
		149.5 - 154.5	100%	80%	76	150.7 - 159.0	6.6	
		154.5 - 159.0	94%	92%				
WE87-4	16.0	16.5 - 21.0	100%	57%				
		21.0 - 26.0	100%	58%	17	21.9 - 27.5	503	
		26.0 - 31.0	100%	64%	17	26.9 - 32.5	994	
		31.0 - 36.0	98%	93%	18	28.9 - 34.5	2,831	
		36.0 - 37.7	100%	100%	25	33.9 - 39.5	48.5	
		37.7 - 41.0	100%	52%	25	37.7 - 43.5	< 2.6	No Flow
		41.0 - 46.0	98%	94%				

TABLE 4-3

BEDROCK RQD AND PACKER TEST HYDRAULIC CONDUCTIVITY DATA

Central Landfill - Johnston, Rhode Island

BOREHOLE ID	DEPTH TO BEDROCK (feet)	CORED DEPTH INTERVAL (feet)	CORE RECOVERY (%)	RQD (%)	TEST PRESSURE TOTAL HEAD (psi.)	PACKER TEST DEPTH INTERVAL (feet)	HYDRAULIC CONDUCTIVITY (K) (feet/year)	COMMENTS
WE85-5	8.5	11.5 - 16.5	97%	63%	13	13.0 - 18.0	< 5.5	No Flow
		16.5 - 21.5	98%	75%	15	14.5 - 19.5	< 4.8	No Flow
		21.5 - 26.5	100%	83%	20	19.5 - 24.5	< 3.7	No Flow
		26.5 - 31.5	100%	93%	25	24.5 - 29.5	< 2.9	No Flow
		31.5 - 36.5	100%	90%	30	29.5 - 34.5	< 2.6	No Flow
		36.5 - 41.5	100%	95%	35	34.5 - 39.5	< 2.2	No Flow
WE85-6	24.7	29.5 - 34.5	88%	32%	32	31.5 - 36.5	687	
		34.5 - 39.5	100%	35%	35	34.5 - 39.5	228	
		39.5 - 44.5	98%	62%	40	39.5 - 44.5	< 1.8	No Flow
		44.5 - 49.5	100%	65%	45	44.5 - 49.5	1.5	
		49.5 - 54.5	100%	70%	50	49.5 - 54.5	296	
		54.5 - 59.5	88%	33%	55	54.5 - 59.5	269	
WE85-7	0.0	0.0 - 5.0	97%	55%				
		5.0 - 10.0	87%	53%	8	7.5 - 12.5	< 26.8	No Flow
		10.0 - 15.0	98%	87%	13	12.5 - 17.5	< 5.5	No Flow
		15.0 - 20.0	100%	100%	18	17.5 - 22.5	< 4.0	No Flow
		20.0 - 25.0	100%	75%	23	22.5 - 27.5	< 3.1	No Flow
		25.0 - 30.0	87%	60%				
WE87-8	0.5	3.0 - 6.0	100%	36%	5	4.3 - 9.5	1,153	
		6.0 - 11.0	85%	86%				
		11.0 - 15.3	94%	92%	5	9.3 - 14.5	< 13.5	No Flow
		15.4 - 16.1	100%	78%				
WE85-9	0.0	0.0 - 5.0	95%	73%				
		5.0 - 10.0	87%	75%	8	4.0 - 9.0	< 9.1	No Flow
		10.0 - 15.0	100%	87%	8	8.0 - 13.0	1,032	
		15.0 - 20.0	98%	98%	13	13.0 - 18.0	711	
		20.0 - 25.0	100%	90%	18	18.0 - 23.0	< 4.0	No Flow
		25.0 - 30.0	100%	100%	23	23.0 - 28.0	< 3.3	No Flow

TABLE 4-3

BEDROCK RQD AND PACKER TEST HYDRAULIC CONDUCTIVITY DATA

Central Landfill - Johnston, Rhode Island

BOREHOLE ID	DEPTH TO BEDROCK (feet)	CORED DEPTH INTERVAL (feet)	CORE RECOVERY (%)	RQD (%)	TEST PRESSURE TOTAL HEAD (psi.)	PACKER TEST DEPTH INTERVAL (feet)	HYDRAULIC CONDUCTIVITY (K) (feet/year)	COMMENTS
WE87-10	3.5	3.5 - 6.5	100%	0%				
		6.5 - 11.3	93%	39%	6	6.4 - 11.6	245	
		11.3 - 16.3	100%	91%	6	11.4 - 16.6	11.7	
		16.3 - 21.3	93%	94%	8	16.4 - 21.6	< 8.0	No Flow
		21.3 - 22.2	130%	0%	11	21.6 - 26.8	< 6.2	No Flow
		22.2 - 26.5	96%	68%				
		26.5 - 31.5	100%	88%	13	26.8 - 32.0	< 5.1	No Flow
		31.5 - 34.5	100%	77%				
WE87-11	9.1	11.0 - 16.0	97%	66%	7	12.7 - 17.9	9.5	
		16.0 - 21.0	100%	32%	9	17.7 - 22.9	< 7.3	No Flow
		21.0 - 26.0	100%	40%	12	22.7 - 27.9	< 5.5	No Flow
		26.0 - 31.0	97%	81%	14	27.7 - 32.9	< 4.8	No Flow
		31.0 - 36.0	100%	33%	17	32.7 - 37.9	< 3.7	No Flow
		36.0 - 41.0	100%	75%				
WE87-12	2.5	3.0 - 8.0	98%	88%	11	5.7 - 12.4	< 4.4	No Flow
		8.0 - 13.0	87%	75%				
		13.0 - 18.0	100%	100%	10	10.6 - 17.3	< 4.8	No Flow
		18.0 - 22.3	100%	100%	15	17.3 - 24.0	< 3.3	No Flow
		22.3 - 27.5	100%	100%	19	24.0 - 30.7	< 2.6	No Flow
		27.5 - 32.5	100%	100%				
WE87-13	62.3	62.3 - 66.3	42%	0%				
		66.3 - 71.3	78%	0%	36	66.1 - 72.5	< 1.5	No Flow
		71.3 - 76.3	48%	0%	39	71.5 - 77.9	< 1.5	No Flow
		76.3 - 81.3	93%	0%	41	77.9 - 84.3	< 1.5	No Flow
		81.3 - 86.0	70%	0%				
		86.0 - 87.3	100%	0%	45	84.3 - 90.7	< 1.5	No Flow
		87.3 - 92.3	92%	33%				
WE87-15	42	42.0 - 47.0	85%	80%	NA	NA	NA	

TABLE 4-3

BEDROCK RQD AND PACKER TEST HYDRAULIC CONDUCTIVITY DATA

Central Landfill - Johnston, Rhode Island

BOREHOLE ID	DEPTH TO BEDROCK (feet)	CORED DEPTH INTERVAL (feet)	CORE RECOVERY (%)	RQD (%)	TEST PRESSURE TOTAL HEAD (psi.)	PACKER TEST DEPTH INTERVAL (feet)	HYDRAULIC CONDUCTIVITY (K) (feet/year)	COMMENTS
WE85-16	5.5	6.0 - 11.0	83%	45%				
		11.0 - 15.5	100%	74%	16	11.0 - 16.0	< 4.4	No Flow
		15.5 - 20.5	100%	85%	16	14.0 - 19.0	< 4.4	No Flow
		20.5 - 25.5	100%	95%	16	19.0 - 24.0	< 4.4	No Flow
		25.5 - 27.0	100%	100%	21	24.0 - 29.0	776	
		27.0 - 31.0	100%	93%	22	29.0 - 34.0	< 3.3	No Flow
		31.0 - 36.0	100%	96%				
WE87-17	4.0	4.0 - 6.5	100%	46%				
		6.5 - 11.5	97%	62%	6	5.3 - 10.5	268	
		11.5 - 16.5	83%	70%	11	10.5 - 15.7	< 5.8	No Flow
		16.5 - 20.7	100%	100%	16	15.7 - 20.9	< 4.4	No Flow
		20.7 - 25.7	92%	85%	26	20.9 - 26.1	< 2.9	No Flow
		25.7 - 29.5	100%	100%	13	26.1 - 31.3	5.1	
		29.5 - 34.5	100%	85%	16	31.3 - 36.5	< 4.0	No Flow
		34.5 - 39.5	100%	89%				
WE85-18	6.7	9.0 - 10.5	67%	38%				
		10.5 - 15.5	100%	22%	6	11.0 - 16.0	< 11.3	No Flow
		15.5 - 20.5	100%	41%	6	12.0 - 17.0	< 11.3	No Flow
		20.5 - 25.5	100%	60%	9	17.0 - 22.0	230	
		25.5 - 30.5	100%	88%	11	22.0 - 27.0	< 6.2	No Flow
		30.5 - 35.5	100%	35%	14	27.0 - 32.0	< 5.1	No Flow
		35.5 - 39.0	93%	86%	16	32.0 - 37.0	< 4.4	No Flow
WE87-19	44.5	44.5 - 49.5	83%	83%	NA	NA	NA	
B90-20	34	36.4 - 40.6	82%	31%	NA	NA	NA	
		40.6 - 45.6	97%	22%				
		45.6 - 46.6	50%	0%				
B90-21	25.5	33.2 - 36.7	79%	40%	NA	NA	NA	
		36.7 - 37.2	83%	83%				
		37.2 - 39.4	100%	75%				
		39.4 - 40.1	75%	75%				
B90-22	24.6	28.0 - 32.7	52%	25%	NA	NA	NA	
		32.7 - 36.0	50%	0%				
		36.0 - 38.0	75%	0%				
		38.0 - 42.0	79%	0%				

TABLE 4-3

BEDROCK RQD AND PACKER TEST HYDRAULIC CONDUCTIVITY DATA

Central Landfill - Johnston, Rhode Island

BOREHOLE ID	DEPTH TO BEDROCK (feet)	CORED DEPTH INTERVAL (feet)	CORE RECOVERY (%)	RQD (%)	TEST PRESSURE TOTAL HEAD (psi.)	PACKER TEST DEPTH INTERVAL (feet)	HYDRAULIC CONDUCTIVITY (K) (feet/year)	COMMENTS
B90-23	24	28.0 - 32.5	19%	0%	NA	NA	NA	
		32.5 - 37.0	56%	9%				
		37.0 - 38.0	50%	0%				
MW90-28	11.0	NA	NA	NA	20	19.2 - 29.2	109	
					27	27.2 - 37.2	13.5	
					38	37.2 - 49.9	23.7	
MW90-31	10.0	NA	NA	NA	36	20.5 - 30.5	12.4	
					46	30.5 - 40.5	19.3	
					56	40.5 - 50.5	12.8	
					66	50.5 - 60.5	16.1	
					76	60.5 - 70.5	18.6	
					86	70.5 - 83.3	15.3	
MW90-32	15.0	NA	NA	NA	31	19.9 - 29.9	548	
					25	24.9 - 34.9	7.3	
					36	34.9 - 47.6	12.4	
MW91-40	22.5	NA	NA	NA	23	29.5 - 41.8	< 7.3	No Flow
					20	34.2 - 46.5	730	
					35	46.2 - 58.5	< 11.0	No Flow
MW91-41	4.5	NA	NA	NA	6	5.5 - 17.8		Data Questionable
					13	8.5 - 20.8	< 11.0	No Flow
					30	20.5 - 32.8	8.0	
MW92-43	21.0	NA	NA	NA	6	22.0 - 31.3	219	
					14	28.6 - 37.9	292	
					20.2	37.6 - 52.0	183	
MW93-44	9.5	7.5 - 12.2	75%	0%				
		11.7 - 16.7	100%	12%				
		16.7 - 19.7	93%	25%	6.5	16.75 - 21.6	1,624	
		19.7 - 20.2	42%	72%				
		20.5 - 25.5	100%	72%	11.5	21.25 - 26.10	1,132	
		25.5 - 30.5	90%	22%	25	25.75 - 30.25	200.8	
		30.5 - 33.0	100%	53%	22.5	30.25 - 35.25	< 3.7	No Flow
		32.5 - 35.5	100%	42%				
		35.5 - 37.5	88%	88%	25	35.25 - 39.75	< 3.7	No Flow
		37.5 - 39.5	88%	88%				

TABLE 4-3

BEDROCK RQD AND PACKER TEST HYDRAULIC CONDUCTIVITY DATA

Central Landfill - Johnston, Rhode Island

BOREHOLE ID	DEPTH TO BEDROCK (feet)	CORED DEPTH INTERVAL (feet)	CORE RECOVERY (%)	RQD (%)	TEST PRESSURE TOTAL HEAD (psi.)	PACKER TEST DEPTH INTERVAL (feet)	HYDRAULIC CONDUCTIVITY (K) (feet/year)	COMMENTS
MW97-44R	8.5	NA	NA	NA	16.08	12.5 - 17.5	< 2,376*	Suspect bad seal
					24.43	18.0 - 23.0	151	
					31.44	22.5 - 27.5	25.0	
					33.41	27.0 - 32.0	<9.9	No flow
					40.41	31.9 - 38.7	<5.8	No flow
MW93-45	4.0	4.0 - 8.7	84%	32%				
		8.7 - 13.7	100%	70%	17	11.7 - 16.6	< 3.7	No Flow
		13.7 - 18.7	100%	72%	8.5	16.2 - 21.1	< 3.7	No Flow
		18.7 - 23.7	100%	100%	6.5	20.7 - 25.6	< 7.3	No Flow
		23.7 - 28.7	100%	100%	8.5	25.2 - 30.1	694	
		28.7 - 30.2	100%	62%	11	29.5 - 34.2	694	
		30.2 - 34.2	86%	62%				
MW93-46	19.5	20 - 24	88%	87%	9.5	21.0 - 25.9	5,074	
		24 - 25.7	100%	68%	14.2	23.0 - 27.9	4,526	
		25.7 - 27.2	89%	44%				
		27.2 - 30.5	88%	44%	19.3	27.5 - 32.4	219	
		30.5 - 33.5	100%	69%				
		33.5 - 38.3	100%	69%	20.8	32.0 - 36.9	219	
		38.3 - 43.3	100%	38%	21.8	36.5 - 41.4	110	
		43.3 - 48.25	81%	62%	20.1	41.0 - 45.5	183	
		48.25 - 50.0	100%	81%	20.5	45.5 - 50.0	< 3.7	No Flow
MW95-47	31.0	NA	NA	NA	2	33.0 - 52.0	> 2,190	Max Flow Not Recorded
					2	35.5 - 52.0	> 2,555	Max Flow Not Recorded
					2	43.0 - 52.0	> 6,205	Max Flow Not Recorded
MW95-48	34.0	NA	NA	NA	15	37.8 - 42.8	219	
					17	46.8 - 51.8	58.4	
					20	51.8 - 56.8	18.3	
					21	56.3 - 61.3	< 7.3	No Flow
					16	60.2 - 68.6	201	
MW95-49	9.5	NA	NA	NA	12	18.0 - 22.0	183	
					26	22.1 - 27.1	< 3.7	No Flow
					22	26.6 - 31.6	< 7.3	No Flow
					26	31.1 - 36.1	< 3.7	No Flow
					30	35.6 - 40.6	18.3	
					35	40.2 - 48.5	< 3.7	No Flow

TABLE 4-3

BEDROCK RQD AND PACKER TEST HYDRAULIC CONDUCTIVITY DATA

Central Landfill - Johnston, Rhode Island

BOREHOLE ID	DEPTH TO BEDROCK (feet)	CORED DEPTH INTERVAL (feet)	CORE RECOVERY (%)	RQD (%)	TEST PRESSURE TOTAL HEAD (psi.)	PACKER TEST DEPTH INTERVAL (feet)	HYDRAULIC CONDUCTIVITY (K) (feet/year)	COMMENTS
MW95-50	9.5	NA	NA	NA	15	25.0 - 30.0	3.7	
					17	29.5 - 34.5	< 3.7	No Flow
					21	34.0 - 39.0	3.7	
					27	38.5 - 43.5	< 3.7	No Flow
					30	43.0 - 48.0	< 3.7	No Flow
					34	47.5 - 52.5	< 3.7	No Flow
					12	52.0 - 57.0	< 7.3	No Flow
					11	55.5 - 61.5	< 7.3	No Flow
					14	61 - 69.8	3.7	
MW95-51	9.5	NA	NA	NA	8	15.0 - 19.0	< 7.3	No Flow
					12	19.5 - 24.5	< 7.3	No Flow
					16	24.0 - 29.0	< 7.3	No Flow
					21	28.5 - 33.5	< 22	Vertical Fractures
					16	33.0 - 38.0	< 29	Vertical Fractures
					22	37.3 - 45.5	73.0	
SWLF-15A	5.0	NA	NA	NA	9.68	10.0 - 14.0	< 4,814*	Suspect bad seal
					14.70	14.0 - 19.0	104	
					19.90	18.5 - 23.5	66.1	
					24.90	23.0 - 28.0	< 8.0	No flow
					30.19	27.5 - 32.5	37.2	
					35.89	32.0 - 37.0	70.4	
					37.49	36.5 - 41.5	59.1	
					42.90	41.0 - 48.8	<5.5	No flow
SWLF-15B	3.0	NA	NA	NA	9.07	8.0 - 13.0	<3,579*	Suspect bad seal
					13.23	14.1 - 19.1	<27.4	No flow
					23.33	18.6 - 26.4	343	
S88-1	2	2.0 - 7.0	68%	43%	NA	NA	NA	
		7.0 - 11.7	98%	49%				
		11.7 - 16.7	100%	95%				
		16.7 - 21.7	100%	94%				
		21.7 - 26.5	100%	88%				
		26.5 - 30.5	88%	85%				
		30.5 - 33.5	100%	97%				
		33.5 - 38.5	100%	70%				
		38.5 - 43.5	87%	87%				
		43.5 - 48.5	100%	87%	NA	NA	NA	
		48.5 - 52.0	100%	100%				
		52.0 - 53.0	100%	58%				
		53.0 - 58.0	100%	93%				
		58.0 - 63.0	100%	80%				

TABLE 4-3

BEDROCK RQD AND PACKER TEST HYDRAULIC CONDUCTIVITY DATA

Central Landfill - Johnston, Rhode Island

BOREHOLE ID	DEPTH TO BEDROCK (feet)	CORED DEPTH INTERVAL (feet)	CORE RECOVERY (%)	RQD (%)	TEST PRESSURE TOTAL HEAD (psi.)	PACKER TEST DEPTH INTERVAL (feet)	HYDRAULIC CONDUCTIVITY (K) (feet/year)	COMMENTS
RP88-1	13.5	13.5 - 17.5	100%	92%	15	14.9 - 20.2	2.2	
		17.5 - 22.5	100%	83%	20	19.9 - 25.2	0.4	
		22.5 - 27.5	100%	97%	25	24.9 - 30.2	< 0.3	No Flow
		27.5 - 32.5	100%	98%	30	29.9 - 35.2	< 0.3	No Flow
		32.5 - 37.5	90%	80%	35	34.9 - 40.2	< 0.3	No Flow
		37.5 - 42.5	100%	92%	40	39.9 - 45.2	< 0.3	No Flow
		42.5 - 47.5	100%	97%				
RP88-2	11	11.0 - 16.0	85%	32%	13	13.4 - 18.7	1,666	
		16.0 - 21.0	100%	73%	16	16.4 - 21.7	1,169	
		21.0 - 26.0	100%	73%	21	21.4 - 26.7	151	
		26.0 - 31.0	100%	50%	26	26.4 - 31.7	86.9	
		31.0 - 36.0	100%	56%	31	31.4 - 36.7	< 0.3	No Flow
		36.0 - 40.0	83%	89%	37	36.4 - 41.7	< 0.3	No Flow
		40.0 - 44.0	83%	75%				
RP88-3	10	11.5 - 16.5	90%	86%	15	11.4 - 16.7	1,231	
		16.5 - 21.5	90%	85%	14	13.9 - 19.2	2,400	
		21.5 - 26.5	83%	71%	21	18.9 - 24.2	17.7	
		26.5 - 31.5	100%	92%	24	23.9 - 29.2	109	
		31.5 - 36.5	100%	87%	29	28.9 - 34.2	318	
		36.5 - 41.5	100%	100%	34	33.9 - 39.2	< 0.3	No Flow
		41.5 - 46.5	100%	72%	39	38.9 - 44.2	< 0.3	No Flow
B88-1	0.3	0.3 - 5.3	100%	95%	NA	NA	NA	
		5.3 - 10.3	100%	83%				
		10.3 - 15.3	98%	83%				
		15.3 - 20.3	98%	86%				
B88-2	0.5	0.5 - 5.5	72%	40%	NA	NA	NA	
		5.5 - 10.5	100%	83%				
		10.5 - 15.5	100%	85%				
		15.5 - 20.5	80%	63%				
TG88-1	1	1.0 - 6.0	73%	20%	NA	NA	NA	
		6.0 - 11.0	97%	10%				
		11.0 - 16.0	100%	6%				
		16.0 - 21.0	93%	16%				
TB88-1	10.6	10.6 - 15.6	87%	70%	NA	NA	NA	
		15.6 - 20.6	85%	70%				
TB88-2	14.2	14.3 - 19.3	100%	91%	NA	NA	NA	
		19.3 - 24.3	100%	97%				

TABLE 4-3

BEDROCK RQD AND PACKER TEST HYDRAULIC CONDUCTIVITY DATA

Central Landfill - Johnston, Rhode Island

BOREHOLE ID	DEPTH TO BEDROCK (feet)	CORED DEPTH INTERVAL (feet)	CORE RECOVERY (%)	RQD (%)	TEST PRESSURE TOTAL HEAD (psi)	PACKER TEST DEPTH INTERVAL (feet)	HYDRAULIC CONDUCTIVITY (K) (feet/year)	COMMENTS
TB88-3	13	14.0 - 19.0	83%	13%	NA	NA	NA	
		19.0 - 24.0	93%	50%				
TB88-4	11	11.0 - 16.0	100%	71%	NA	NA	NA	
		16.0 - 21.0	100%	95%				
TB88-5	13.5	13.5 - 14.0	83%	0%	NA	NA	NA	
		14.0 - 19.0	100%	80%				
		19.0 - 24.0	100%	73%				
GZ88-1	8	8.5 - 13.5	60%	18%				
		13.5 - 18.5	83%	77%	15	15.0 - 19.9	2,135	
		18.5 - 22.5	92%	25%	20	20.0 - 24.9	135	
		22.5 - 27.5	100%	63%	26	25.0 - 29.9	522	
		27.5 - 32.5	100%	57%				
GZ88-2	9.8	10.0 - 15.0	0%	0%				
		26.0 - 31.0	0%	0%	25	27.7 - 32.6	44.2	
		31.5 - 36.5	57%	37%	29	31.7 - 36.6	< 2.6	No Flow
		36.5 - 39.5	17%	0%				
GZ88-3	10.7	13.5 - 18.5	10%	0%				
		19.5 - 24.5	37%	14%	20	20.0 - 24.9	567	
		25.0 - 31.0	11%	0%	24	24.7 - 29.6	69.0	
		31.0 - 34.9	60%	12%				
GZ88-4	18.3	18.3 - 24.3	4%	0%				
		24.3 - 29.3	18%	7%	26	25.7 - 30.6	128	
		29.3 - 34.3	47%	25%	31	30.7 - 35.6	13.5	
		34.3 - 39.3	50%	15%	36	35.7 - 40.6	91.3	
		39.3 - 44.3	50%	23%				
GZ88-5	14.2	14.2 - 19.2	80%	60%				
		19.2 - 24.2	40%	0%	21	20.9 - 25.8	2,215	
		24.2 - 29.2	83%	22%	26	25.9 - 30.8	1,909	
		29.2 - 34.2	82%	55%	31	30.9 - 35.8	34.7	
		34.2 - 39.2	73%	42%				
GZ88-ML7	8	16.0 - 21.0	45%	33%	NA	NA	NA	
		21.0 - 30.0	65%	16%				
GZ88-ML9	10	16.8 - 21.8	53%	14%	NA	NA	NA	
		21.8 - 24.0	85%	69%				
		24.0 - 30.0	74%	53%				

TABLE 4-3

BEDROCK RQD AND PACKER TEST HYDRAULIC CONDUCTIVITY DATA

Central Landfill - Johnston, Rhode Island

BOREHOLE ID	DEPTH TO BEDROCK (feet)	CORED DEPTH INTERVAL (feet)	CORE RECOVERY (%)	RQD (%)	TEST PRESSURE TOTAL HEAD (psi.)	PACKER TEST DEPTH INTERVAL (feet)	HYDRAULIC CONDUCTIVITY (K) (feet/year)	COMMENTS
GZ88-ML10	10.2	10.8 - 15.8	17%	7%	NA	NA	NA	
		21.5 - 25.0	90%	75%				
GZ88-ML11	1.5	1.5 - 4.5	75%	13%	NA	NA	NA	
		4.5 - 9.4	97%	88%				
		9.4 - 12.6	100%	74%				
		12.6 - 15.0	93%	83%				
GZ88-ML13	8.5	8.5 - 13.5	88%	75%	NA	NA	NA	
		13.5 - 18.5	96%	78%				
		18.5 - 23.5	83%	0%				

NOTES:

1. RQD indicates Rock Quality Designation which is a measure of rock continuity and is presented as a percentage.
2. Hydraulic conductivity of bedrock was calculated based upon methods presented in the Groundwater Manual, (U.S. Department of the Interior, Revised Reprint 1981).
3. No flow indicates that no water movement was recorded during the test. Less than (<) values were calculated based on the accuracy of testing equipment to record flow during the duration of the test.
4. Packer test depth intervals indicate the length of individual test zones with reference to ground surface.
5. Test pressure represents the total water pressure (total head) at the top of the indicated zone during packer testing and is presented in pounds per square inch (psi). Packer tests were generally performed at approximately 1/2 to 1 psi per foot of depth to the top of test zone.
6. NA indicates that testing was not performed.

TABLE 4-4

BEDROCK FRACTURE FREQUENCY AND PACKER TEST HYDRAULIC CONDUCTIVITY DATA

Central Landfill - Johnston, Rhode Island

BOREHOLE ID	DEPTH TO BEDROCK (feet)	TELEVIEWER DEPTH INTERVALS (feet)	FRACTURE TRACES PER INTERVAL	FRACTURE FREQUENCY (frac./ft.)	TEST PRESSURE TOTAL HEAD (psi.)	PACKER TEST DEPTH INTERVAL (feet)	HYDRAULIC CONDUCTIVITY (K) (feet/year)	COMMENTS
WE87-ML1	22.0	25.4 - 37.6	11	0.90	13	25.4 - 37.6	188	
		37.6 - 48.9	10	0.82	19	37.6 - 48.9	< 1.8	No Flow
		48.9 - 62.0	18	1.48	25	48.9 - 62.0	85.8	
		62.0 - 74.2	14	1.15	31	62.0 - 74.2	< 1.1	No Flow
		74.2 - 86.4	11	0.90	37	74.2 - 86.4	180	
		86.4 - 98.6	9	0.74	43	86.4 - 98.6	< 0.7	No Flow
		98.6 - 110.8	9	0.74	49	98.6 - 110.8	< 0.7	No Flow
		110.8 - 123.0	5	0.41	55	110.8 - 123.0	2.9	
		123.0 - 135.2	8	0.66	62	123.0 - 135.2	24.1	
		135.2 - 147.4	9	0.74	68	135.2 - 147.4	541	
		147.4 - 159.6	14	1.14	74	147.4 - 159.6	< 0.4	No Flow
		159.6 - 171.8	17	1.39	80	159.6 - 171.8	< 0.4	No Flow
		171.8 - 184.0	15	1.23	86	171.8 - 184.0	< 0.4	No Flow
		184.0 - 196.2	15	1.23	92	184.0 - 196.2	157	
		196.2 - 207.0	13	1.07	98	196.2 - 208.4	66.4	
WE87-ML2	29.5	31.7 - 38.7	4	0.57	16	31.7 - 44.4	< 2.2	No Flow
		38.7 - 51.4	15	1.18	19	38.7 - 51.4	< 1.8	No Flow
		51.4 - 64.1	18	1.42	25	51.4 - 64.1	42.7	
		64.1 - 76.8	13	1.02	32	64.1 - 76.8	42.3	
		76.8 - 89.5	7	0.55	38	76.8 - 89.5	< 0.7	No Flow
		89.5 - 102.2	3	0.24	45	89.5 - 102.2	71.9	
		102.2 - 114.9	8	0.63	51	102.2 - 114.9	94.9	
		114.9 - 127.6	10	0.79	57	114.9 - 127.6	126	
		127.6 - 140.3	9	0.71	64	127.6 - 140.3	132	
		140.3 - 151.0	6	0.56	70	140.3 - 153.0	< 0.4	No Flow

TABLE 4-4

BEDROCK FRACTURE FREQUENCY AND PACKER TEST HYDRAULIC CONDUCTIVITY DATA

Central Landfill - Johnston, Rhode Island

BOREHOLE ID	DEPTH TO BEDROCK (feet)	TELEVIEWER DEPTH INTERVALS (feet)	FRACTURE TRACES PER INTERVAL	FRACTURE FREQUENCY (frac./ft.)	TEST PRESSURE TOTAL HEAD (psi.)	PACKER TEST DEPTH INTERVAL (feet)	HYDRAULIC CONDUCTIVITY (K) (feet/year)	COMMENTS
WE87-ML3	53.0	58.0 - 66.2	11	1.34	32	58.0 - 70.2	< 1.1	No Flow
		66.2 - 78.4	13	1.07	32	66.2 - 78.4	20.4	
		78.4 - 90.6	9	0.74	38	78.4 - 90.6	112	
		90.6 - 102.8	11	0.90	44	90.6 - 102.8	< 0.7	No Flow
		102.8 - 115.0	10	0.82	50	102.8 - 115.0	154	
		115.0 - 127.2	13	1.07	56	115.0 - 127.2	< 0.7	No Flow
		127.2 - 139.4	3	0.25	63	127.2 - 139.4	< 0.4	No Flow
		139.4 - 151.6	7	0.57	69	139.4 - 151.6	35.8	
		151.6 - 163.8	6	0.49	75	151.6 - 163.8	< 0.4	No Flow
		163.8 - 176.0	10	0.82	75	163.8 - 176.0	< 0.4	No Flow
		176.0 - 188.2	8	0.66	87	176.0 - 188.2	< 0.4	No Flow
		188.2 - 200.4	7	0.57	93	188.2 - 200.4	< 0.4	No Flow
		200.4 - 212.6	13	1.07	99	200.4 - 212.6	< 0.4	No Flow
		212.6 - 224.8	14	1.15	105	212.6 - 224.8	< 0.4	No Flow
		224.8 - 237.0	12	0.98	111	224.8 - 237.0	1.5	
		237.0 - 249.2	5	0.41	117	237.0 - 249.2	< 0.4	No Flow
		249.2 - 261.4	2	0.16	124	249.2 - 261.4	< 0.4	No Flow
		261.4 - 272.0	3	0.28	130	261.4 - 273.6	< 0.4	No Flow
WE87-ML4	29.0	33.0 - 40.9	3	0.34	17	33.0 - 45.2	< 1.8	No Flow
		40.9 - 53.1	7	0.57	20	40.9 - 53.1	< 1.8	No Flow
		53.1 - 65.3	3	0.25	27	53.1 - 65.3	< 1.1	No Flow
		65.3 - 77.5	6	0.49	33	65.3 - 77.5	< 1.1	No Flow
		77.5 - 89.7	3	0.25	39	77.5 - 89.7	< 0.7	No Flow
		89.7 - 101.9	5	0.41	45	89.7 - 101.9	630	
		101.9 - 114.1	2	0.16	51	101.9 - 114.1	< 0.7	No Flow
		114.1 - 126.3	2	0.16	57	114.1 - 126.3	< 0.7	No Flow
		126.3 - 138.5	1	0.08	63	126.3 - 138.5	16.1	
		138.5 - 150.7	3	0.25	69	138.5 - 150.7	24.1	
		150.7 - 161.0	2	0.19	75	150.7 - 162.9	4.4	

TABLE 4-4

BEDROCK FRACTURE FREQUENCY AND PACKER TEST HYDRAULIC CONDUCTIVITY DATA

Central Landfill - Johnston, Rhode Island

BOREHOLE ID	DEPTH TO BEDROCK (feet)	TELEVIEWER DEPTH INTERVALS (feet)	FRACTURE TRACES PER INTERVAL	FRACTURE FREQUENCY (frac./ft.)	TEST PRESSURE TOTAL HEAD (psi.)	PACKER TEST DEPTH INTERVAL (feet)	HYDRAULIC CONDUCTIVITY (K) (feet/year)	COMMENTS
WE87-ML5	3.5	8.0 - 20.2	NT	NT	10	8.0 - 20.2	284	(9)
		22.0 - 30.7	8	0.92	15	18.5 - 30.7	< 2.2	No Flow
		30.7 - 42.9	8	0.66	22	30.7 - 42.9	< 1.5	No Flow
		42.9 - 55.1	9	0.74	28	42.9 - 55.1	< 1.1	No Flow
		55.1 - 67.3	9	0.74	34	55.1 - 67.3	< 1.1	No Flow
		67.3 - 79.5	15	1.23	40	67.3 - 79.5	< 0.7	No Flow
		79.5 - 91.7	14	1.15	46	79.5 - 91.7	32.1	
		91.7 - 103.9	8	0.66	52	91.7 - 103.9	< 0.7	No Flow
		103.9 - 116.1	11	0.90	58	103.9 - 116.1	< 0.7	No Flow
		116.1 - 128.3	9	0.74	64	116.1 - 128.3	< 0.4	No Flow
		128.3 - 140.5	6	0.49	70	128.3 - 140.5	< 0.4	No Flow
		140.5 - 152.7	9	0.74	76	140.5 - 152.7	< 0.4	No Flow
		152.7 - 164.9	8	0.66	82	152.7 - 164.9	< 0.4	No Flow
		164.9 - 177.1	8	0.66	89	164.9 - 177.1	< 0.4	No Flow
		177.1 - 189.3	10	0.82	89	177.1 - 189.3	< 0.4	No Flow
		189.3 - 201.5	17	1.39	95	189.3 - 201.5	< 0.4	No Flow
		201.5 - 213.7	8	0.66	101	201.5 - 213.7	< 0.4	No Flow
		213.7 - 225.9	12	0.98	107	213.7 - 225.9	62.4	
		225.9 - 238.1	8	0.66	113	225.9 - 238.1	< 0.4	No Flow
		238.1 - 248.0	9	0.91	119	238.1 - 250.3	< 0.4	No Flow
MW91-ML6	21.0	108.4 - 118.5	7	0.70	NA	NA	NA	
		118.5 - 128.5	6	0.60				
		128.5 - 138.5	8	0.80				
		138.5 - 148.5	7	0.70				
		148.5 - 158.5	5	0.50				
		158.5 - 168.5	5	0.50				
		168.5 - 178.5	4	0.40				
		178.5 - 188.5	4	0.40				
		188.5 - 198.5	5	0.50				
		198.5 - 202.5	3	0.75				

TABLE 4-4

BEDROCK FRACTURE FREQUENCY AND PACKER TEST HYDRAULIC CONDUCTIVITY DATA

Central Landfill - Johnston, Rhode Island

BOREHOLE ID	DEPTH TO BEDROCK (feet)	TELEVIEWER DEPTH INTERVALS (feet)	FRACTURE TRACES PER INTERVAL	FRACTURE FREQUENCY (frac./ft.)	TEST PRESSURE TOTAL HEAD (psi.)	PACKER TEST DEPTH INTERVAL (feet)	HYDRAULIC CONDUCTIVITY (K) (feet/year)	COMMENTS
MW91-ML7	23.5	47.0 - 57.0	6	0.60	NA	NA	NA	
		57.0 - 67.0	7	0.70				
		67.0 - 77.0	8	0.80				
		77.0 - 87.0	5	0.50				
		87.0 - 93.8	7	1.03				
MW91-ML8	24.8	48.0 - 58.0	6	0.60	NA	NA	NA	
		58.0 -68.0	7	0.70				
		68.0 - 78.0	9	0.90				
		78.0 - 88.0	8	0.80				
		88.0 - 98.0	6	0.60				
		98.0 - 108.0	5	0.50				
		108.0 - 110.0	1	0.50				
MW95-ML9	31.0	82.5 - 91.0	6	0.71	90	82.5 - 91.0	119	
		85.0 - 95.0	5	0.50	90	85.0 - 95.0	< 131	Vertical Fractures
		94.2 - 104.2	3	0.30	95	94.2 - 104.2	< 22	Vertical Fractures
		103.6 - 113.6	3	0.30	105	103.6 - 113.6	< 53	Vertical Fractures
		114.5 - 124.5	6	0.60	85	114.5 - 124.5	< 82	Vertical Fractures
		124.0 - 134.0	6	0.60	125	124.0 - 134.0	6.2	
		134.0 - 144.0	7	0.70	140	134.0 - 144.0	< 88	Vertical Fractures
		145.0 - 155.0	4	0.40	145	145.0 - 155.0	< 31	Vertical Fractures
		149.1 - 159.1	2	0.20	115	149.1 - 159.1	< 8.2	Vertical Fractures
		158.6 - 168.6	1	0.10	160	158.6 - 168.6	< 1.1	No Flow
		168.1 - 178.1	0	0.00	170	168.1 - 178.1	< 7.3	Vertical Fractures
		178.1 - 188.1	1	0.10	185	178.1 - 188.1	< 1.1	No Flow
		187.6 - 197.6	1	0.10	190	187.6 - 197.6	< 1.1	No Flow
		197.1 - 207.1	3	0.30	200	197.1 - 207.1	< 1.1	No Flow
		207.0 - 217.0	2	0.20	215	207.0 - 217.0	< 1.1	No Flow
		216.5 - 226.5	4	0.40	215	216.5 - 226.5	1.1	
		226.0 - 236.0	4	0.40	225	226.0 - 236.0	1.1	

TABLE 4-4

BEDROCK FRACTURE FREQUENCY AND PACKER TEST HYDRAULIC CONDUCTIVITY DATA

Central Landfill - Johnston, Rhode Island

BOREHOLE ID	DEPTH TO BEDROCK (feet)	TELEVIEWER DEPTH INTERVALS (feet)	FRACTURE TRACES PER INTERVAL	FRACTURE FREQUENCY (frac./ft.)	TEST PRESSURE TOTAL HEAD (psi.)	PACKER TEST DEPTH INTERVAL (feet)	HYDRAULIC CONDUCTIVITY (K) (feet/year)	COMMENTS
MW95-ML9 (continued)	31.0	233.5 - 243.5	3	0.30	235	233.5 - 243.5	2.6	
		242.4 - 252.4	3	0.30	183	242.4 - 252.4	4.4	
		249.0 - 259.0	9	0.90	190	249.0 - 259.0	3.0	
		254.0 - 264.0	8	0.80	195	254.0 - 264.0	2.6	
		266.4 - 276.4	4	0.40	205	266.4 - 276.4	1.1	
		278.4 - 288.4	3	0.30	220	278.4 - 288.4	< 1.1	No Flow
		288.1 - 298.1	2	0.20	220	288.1 - 298.1	1.5	
		297.4 - 306.7	1	0.11	225	297.4 - 310.5	1.5	
MW97-ML10	49.0	69.4 - 75.0	3	0.54	71	69.4 - 75.0	281	
		75.0 - 85.0	6	0.60	78	75.0 - 85.0	14.6	
		85.0 - 95.0	3	0.30	88	85.0 - 95.0	14.6	
		95.0 - 105.0	7	0.70	98	95.0 - 105.0	11.0	
		99.5 - 109.5	7	0.70	103	99.5 - 109.5	< 0.7	No Flow
		109.5 - 113.0	0	0.00				
		113.0 - 123.0	6	0.60	118	113.0 - 123.0	< 0.7	No Flow
		123.0 - 128.0	1	0.20				
		128.0 - 138.0	6	0.50	138	128.0 - 138.0	< 0.7	Suspect packer leakage
		138.0 - 144.0	0	0.00				
		144.0 - 154.0	4	0.40	153	144.0 - 154.0	< 0.7	No Flow
		155.0 - 165.0	2	0.20	163	155.0 - 165.0	< 0.4	No Flow
		165.0 - 175.0	4	0.40	168	165.0 - 175.0	1.8	
		175.0 - 203.0	0	0.00				
		203.0 - 213.0	3	0.30	208	203.0 - 213.0	< 0.4	No Flow
		209.0 - 219.0	3	0.30	213	209.0 - 219.0	< 0.4	No Flow
		219.0 - 228.5	0	0.00				
		228.5 - 238.5	3	0.30	213	228.5 - 238.5	< 0.4	No Flow
		238.5 - 265.0	0	0.00				
		265.0 - 275.0	4	0.40	218	265.0 - 275.0	< 0.4	No Flow

TABLE 4-4

BEDROCK FRACTURE FREQUENCY AND PACKER TEST HYDRAULIC CONDUCTIVITY DATA

Central Landfill - Johnston, Rhode Island

BOREHOLE ID	DEPTH TO BEDROCK (feet)	TELEVIEWER DEPTH INTERVALS (feet)	FRACTURE TRACES PER INTERVAL	FRACTURE FREQUENCY (frac./ft.)	TEST PRESSURE TOTAL HEAD (psi.)	PACKER TEST DEPTH INTERVAL (feet)	HYDRAULIC CONDUCTIVITY (K) (feet/year)	COMMENTS
MW97-ML10 (continued)	49.0	275.0 - 280.0	0	0.00				
		280.0 - 290.0	1	0.10	233	280.0 - 290.0	< 0.4	No Flow
		287.0 - 300.0	1	0.08	233	287.0 - 300.0	< 0.4	No Flow

NOTES:

1. Hydraulic conductivity of bedrock was calculated based upon methods presented in the Groundwater Manual. (U.S. Department of the Interior, Revised Reprint 1981).
2. No flow indicates that no water movement was recorded during the test. Less than (<) values were calculated based on the accuracy of testing equipment to record flow during the duration of the test.
3. Packer test depth intervals indicate the length of individual test zones with reference to ground surface.
4. Test pressure represents the total water pressure (total head) at the top of the indicated zone during packer testing and is presented in pounds per square inch (psi). Packer tests were generally performed at approximately 1/2 to 1 psi per foot of depth to the top of test zone.
5. NA indicates that testing was not performed.
6. Televiewer and fracture trace data represent information obtained from Acoustic Borehole Televiewer Logs performed by the United States Geologic Survey (USGS). Depth intervals presented were selected to coincide with packer test depth intervals where possible. Fracture traces per interval represent the number of apparent rock fractures within each depth interval. Televiewer logs for each borehole were interpreted by GZA personnel. Borehole logs for MW91-ML6, -ML7, -ML8 and MW95-ML9 and ML97-ML10 were performed by Colog, Inc. MW91-ML6, MW91-ML7, MW91-ML8 and MW95-ML9 were first interpreted by Hager GeoSciences and supplemented by GZA personnel. The borehole log for MW97-ML10 was only interpreted by Colog, Inc. without addition review by GZA. It should be noted that the Colog's borehole feature picking computer algorithm does not typically identify all small aperture fractures in a borehole.
7. Fracture frequency refers to the number of fractures per televiewer depth interval divided by the length of the interval and is presented as Fractures per foot.
8. NT indicates no televiewer logging performed over the indicated interval.
9. Packer Test was performed at least partially above the water table.

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(pages 51-110)
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