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FUSRAP Project
Job 14501

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FUSRAP TECHNICAL MEMORANDUM

DATE: 11-20-95

TO: [redacted]

FROM: [redacted]

DATE: October 9, 1995

SUBJECT: TONAWANDA LANDFILL FIELD SAMPLING RESULTS

Prepared By	Team Lead Approval	Project Engineer Approval	Project Manager Approval
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INTRODUCTION:

Radioactive waste products from work associated with the early years of the nation's atomic energy program at Linde Air Products, Tonawanda, NY, are suspected to be in the Tonawanda landfill. The Procedure used to identify the nature and extent of DOE wastes in the Tonawanda landfill is defined in the *Field Sampling and Analysis Plan for the Town of Tonawanda Landfill* (September 1994).

Investigations of the landfill have been performed since 1960. In 1991, DOE requested Oak Ridge National Laboratory (ORNL) to conduct a radiological survey of the landfill. The survey included surface gamma scans, gamma exposure rates at 1 m above ground surface and at ground surface, 132 systematic soil samples taken at selected surface [0-15 cm (0-6 in.)] and subsurface [15-46 cm (6-18 in.)] locations, and 42 biased soil samples [up to 76 cm (30 in.)] at 14 locations shown to have elevated gamma exposure rates. No deep sampling was performed.

The present effort used borehole sampling to define the maximum depth of radiological contamination. Sediment and surface water samples were collected to complete the characterization. In addition, water was sampled when encountered in drilling boreholes. The areas chosen for sampling were based on historical data and samples were analyzed for radiological and chemical contaminants.

METHODOLOGY:

The work was performed in two stages. In Stage 1, a state Plane Grid of the landfill and mudflat area was established. Five deep boreholes (based on historical data of suspected contamination) were marked, utilities were verified, and an exclusion zone was prepared. See Attachment A for Borehole and Surface Water/Sediment locations.

Stage 1

- A total of five boreholes were drilled or hand augered (Borehole 5) to the depth of undisturbed material. Drilling logs are presented in Attachment B.

- Soil was collected continuously with a split-spoon sampler except for the following; Borehole 5 was sampled with a hand auger and Borehole 4 encountered water, preventing recovery in some intervals.

- Downhole gamma surveys were performed using a gamma probe. Survey results are presented in Attachment C. It was intended that a correlation between downhole gamma counts and actual soil activity levels would be determined in the field. However, because of equipment failure, soil samples were sent to the laboratory for the initial screening using wet gamma spectroscopy.

- All soil samples from the boreholes were screened for contamination by wet gamma spectroscopy. Results are presented in Attachment D. Soil samples that were suspected of having contaminant levels above guidelines (and the soil samples from intervals below the suspect soil samples) were dried and analyzed by alpha or gamma spectroscopy for the contaminants of concern. Analysis results are presented in Attachment E.

- One grab sample for TCLP VOA and one composite soil sample for TCLP total was collected from each of the five boreholes. Analysis results are presented in Attachment F.

- Sediment samples were collected from an area where water collects and from the entry to the storm sewer and screened for contaminants by wet gamma spectroscopy (Attachment D). Dried samples were analyzed by alpha spectroscopy (Attachment E).

- One surface water sample was collected from a small area where water collects on the north side of the landfill and water samples were collected when water was surfacing in Boreholes 4 and 5. The two water samples collected from these boreholes had significant amounts of sediment. Samples were analyzed for radiological and chemical constituents (Attachment E).

Stage 1 Radiological Results

Since the purpose of this investigation was to define the maximum depth of radiological and chemical contamination from areas showing elevated activity levels in previous surveys, no samples were taken for radiological analysis from the first 15 cm (6 in.) of soil below the surface. The wet gamma screening identified samples requiring further analysis (Table 1). Radiological data results for samples selected based on screening criteria are presented in Table 2. Samples from Boreholes 1, 2, and 3 showed no radionuclide concentrations above FUSRAP guidelines for the intervals below the surface layer . The soil sample from the 0-0.5 m (0-1.5 ft) interval in Borehole 4 exceeded the FUSRAP guideline for Ra-226 (58.3 pCi/g). Soil samples extending from 0-0.5 to 3.5 m (0-1.5 to 11.5 ft) in Borehole 5 exceeded guideline values for all contaminants of concern. Isotopic thorium results for samples B05-027, B05-063 (duplicate of B05-027), B05-028, and B05-030 were reanalyzed because the error and/or minimum detectable activity was unacceptably high. Soil from the 3.5-3.8 m (11.5-12.5 ft) interval did not exceed guidelines. Table 3 shows the radiological results of samples that exceeded FUSRAP Guidelines and Table 4 shows the soil guidelines for FUSRAP sites.

The sediment sample collected from the entry to the storm sewer had no radionuclide concentrations above FUSRAP guidelines. The sediment sample collected from the area where water collects exceeded guidelines for Ra-226 (65.7 pCi/g), Th-230 (121.8 pCi/g), and uranium-234/238 (382.3/393.5 pCi/g).

Water collected and analyzed from Borehole 4 was below DOE guidelines. Water collected and analyzed from Borehole 5 exceeded DOE guidelines for U-238 (4328 pCi/L) and Th-230 (693 pCi/L). Surface water exceeded DOE guidelines for Ra-226 (521 pCi/L). (See Table 4 for DOE Guidelines for Water.)

Stage 1 TCLP results

No TCLP-volatiles, -herbicides, -pesticides, or -semivolatiles were detected. See Table 5.

The only TCLP-metal that exceeded regulatory levels was one sample (Borehole 5) for lead. The lead, TCLP leachate results was 7320 ug/L (7.32 mg/L). The regulatory level is 5.0 mg/L.

Stage 2

- Sampling activities during Stage 2 were determined in the field based on the results of downhole gamma logging and wet gamma spectroscopy. See Attachment A for borehole locations.
- Borehole 4, on the perimeter of the landfill, had results above guidelines for radium-226 (58-3 pCi/g). To determine whether the contamination extended further into the landfill, Borehole 6 was drilled about 15 m (50 ft) to the southeast of Borehole 4.
- Boreholes 7, 8, 9, and 10 were drilled to determine the boundary of contamination from Borehole 5.

Stage 2 Results

Borehole 6, was drilled closer to the center of the landfill to determine if contamination extended to this area. Sample results from this borehole were within FUSRAP guidelines.

To determine the boundary of the contamination in Borehole 5, Boreholes 7, 8, 9, and 10 were drilled. Sample B07-039 from Borehole 7 was reanalyzed because the analysis results were so close to criteria. Sample results from these four boreholes were within FUSRAP guidelines.

SUMMARY:

The analytical results indicate that radionuclide concentrations are above FUSRAP guidelines in two of the ten boreholes (Boreholes 4 and 5), in the surface water collected from the wet area, and in the sediment from this wet area. The sample collected from Borehole 5 for RCRA characteristics exceeded the regulatory level (5.0 mg/L) for TCLP lead. This investigation successfully bounded the known areas of subsurface contamination.

Tables:

1. Tonawanda Screening Results
2. Summary of Tonawanda Landfill Sample Results
3. Radiological Results for Samples Above FUSRAP Guidelines
4. Soil and Water Guidelines
5. RCRA Characteristic Results Above Guidelines

Attachments:

A. Figure showing borehole locations
B. Drilling logs
C. Downhole gamma survey results
D. Screening results for soil and sediment
E. Analysis results for soil, sediment, surface water, and water from borehole samples
F. TCLP results
G. Guiding Documents and Data Documentation

Table 1
Tonawanda Screening Results

Borehole - 1 **The Flats**

Sample Number	Depth (ft)	Spa-3 (cpm)	Wet Gamma Spec (pCi/g) Ra-226	U-238	K-40
129-B01- 001	0-1.5	50-60	3.2	3	12.3
129-B01- 002	1.5-3	50-100	1.1	6.3	9.8
129-B01- 003	3-5	50-70	0.74	BDL	15.4
129-B01- 004	5-7	60-80	0.62	BDL	11.7

Borehole - 2 **The Flats**

Sample Number	Depth (ft)	Spa-3 (cpm)	Wet Gamma Spec (pCi/g) Ra-226	U-238	K-40
129-B02- 005	0-1.5	50-70	1.9	BDL	11
129-B02- 006	1.5-3	60-100	0.59	BDL	13.8
129-B02- 007	3-5	80-100	0.4	BDL	12.3
129-B02- 008	5-7	60-80	0.41	BDL	14.7

Borehole - 3 **Northwest Corner**

Sample Number	Depth (ft)	Spa-3 (cpm)	Wet Gamma Spec (pCi/g) Ra-226	U-238	K-40
129-B03- 015	0-1.5	60-120	0.64	BDL	6.6
129-B03- 016	1.5-3	60-100	0.27	BDL	5.3
129-B03- 017	3-5	60-80	0.2	BDL	14.7
129-B03- 018	5-7	60-80	0.52	BDL	12.8

Borehole - 4 **Northwest Corner**

Sample Number	Depth (ft)	Spa-3 (cpm)	Wet Gamma Spec (pCi/g) Ra-226	U-238	K-40
129-B04- 009	0-1.5	300	14.4	BDL	11.2
129-B04- 010	1.5-3	100	0.42	1.4	9.8
129-B04- 011	3-5	100	1.5	1.7	7.9
129-B04- 012	5-7	60-80	2.3	BDL	8.6
no recovery	7-9	background			
no recovery	9-11	50-80			
129-B04- 013	12.5-14.5	background	0.48	BDL	11.5
129-B04- 014	14.5-16.5	background	0.28	BDL	11

Note. Water discharged from hole, sampled for rad analysis.

Table 1
Tonawanda Screening Results

Borehole - 5 **Wet Area**

Sample Number	Depth (ft)	Spa-3 (cpm)	Wet Gamma Spec (pCi/g) Ra-226	U-238	K-40
129-B05- 026	0-1.5	180-200	6	13.1	6.3
129-B05- 027	1.5-3	1000-2000	217	115	2.7
129-B05- 028	3-5	600-6000	41.2	259	4.1
129-B05- 029	5-7	500	9.2	111	5
129-B05- 030	7-9	600-800	11.4	153	4.9
129-B05- 031	9-11	400-20000	5.8	192	3.8
129-B05- 032	11-11.5	60-80	4.1	66.4	6.1
129-B05- 033	11.5-12.5	60-80	0.5	3.7	13.9

Note: Hand auger - inaccessible to drill rig.
Ore or incinerated ore transport boxes?

Borehole - 6 **Northwest Corner**

Sample Number	Depth (ft)	Spa-3 (cpm)	Wet Gamma Spec (pCi/g) Ra-226	U-238	K-40
129-B06- 019	0-2	60-80	0.43	BDL	11.3
129-B06- 020	2-4	60-80	0.36	BDL	13.6
129-B06- 021	4-6	60-90	0.61	BDL	14.8
129-B06- 022	6-8	60-90	0.28	BDL	10.4
129-B06- 023	8-10	80-100	BDL	BDL	12.5
129-B06- 024	10-12	60-80	BDL	BDL	BDL
no recovery	12-14	60-80			
no recovery	14-16	60-80			
no recovery	16-18	60-80			
no recovery	18-20	60-80			
129-B06- 025	20-22	60-80	1	BDL	9.7
no recovery	22-24	60-80			
no recovery	24-26	60-80			

Note: Bottom of fill not reached. drilling stopped due to high volatile organics.

Borehole - 7 **Wet Area**

Sample Number	Depth (ft)	Spa-3 (cpm)	Wet Gamma Spec (pCi/g) Ra-226	U-238	K-40
129-B07- 034	0-2	80-100	0.45	BDL	3.7
129-B07- 035	2-4	40-120	0.89	BDL	7.8
no recovery	4-6	60-80			
no recovery	6-8	60-100			
129-B07- 036	8-10	80-100	0.52	1.8	5.1
129-B07- 037	10-12	80-100	0.63	BDL	6.1
129-B07- 038	12-14	60-80	0.94	BDL	6.3
129-B07- 039	14-16	60-80	7	23.9	7.7
129-B07- 040	16-18	160-180	0.63	19.6	5.7
no recovery	18-20				
129-B07- 041	20-22	60-80	0.27	BDL	12.2

Table 1
Tonawanda Screening Results

Borehole - 8 **Wet Area**

Sample Number	Depth (ft)	Spa-3 (cpm)	Wet Gamma Spec (pCi/g) Ra-226	U-238	K-40
129-B08- 046	0-2	60-80	BDL	BDL	4.2
129-B08- 047	2-4.5	60-80	1.3	3.3	5.9
129-B08- 048	4.5-7	60-100	0.6	2.2	5.2
129-B08- 049	7-9.5	60-80	0.98	2.4	5.1
129-B08- 050	9.5-12	60-80	no analysis		
129-B08- 051	12-14.5	80-100	0.83	3.2	8.08
no recovery	14.5-17	80-100			
129-B08- 052	17-19.5	80-100	0.67	2.7	6.7
129-B08- 053	19.5-22	60-80	0.8	11.5	5.9
129-B08- 054	22-24.5	60-80	0.38	1.9	10.8

Borehole -9 **Wet Area**

Sample Number	Depth (ft)	Spa-3 (cpm)	Wet Gamma Spec (pCi/g) Ra-226	U-238	K-40
129-B09- 055	0-2.5	60-80	0.68	BDL	10
129-B09- 056	2.5-5	60-80	2.3	BDL	55

Borehole -10 **Wet Area**

Sample Number	Depth (ft)	Spa-3 (cpm)	Wet Gamma Spec (pCi/g) Ra-226	U-238	K-40
129-B10- 057	0-2.5	60-80	0.35	BDL	10.3
129-B10- 058	2.5-5	60-80	0.45	BDL	12.8

Sediment Samples

SD02 - Hot Spot in Wet Area

Sample Number	Depth (ft)	Spa-3 (cpm)	Ra-226	U-238	K-40
129-SD2 043	n/a	n/a	32.9	164	3.4

SD01 - Entry to Storm Sewer

Sample Number	Depth (ft)	Spa-3 (cpm)	Ra-226	U-238	K-40
129-SD1 042	n/a	n/a	0.43	3.2	4.7

Note: Shaded samples were dried and analyzed by alpha or gamma spectroscopy for Ra-226,Th-228, Th-230, Th-232, and U-238
BDL = below detection limit
n/a = not applicable

Table 2
Summary of Tonawanda Landfill Sample Results

	Depth (ft)	Date Collected	Analytical Method	Analyte	Rejected pCi/g	Result pCi/g	Rejected pCi/g	Error	Rejected pCi/g	MDA*
Borehole #1				**The Flats**						
B01-001	0-1.5	11/14/94	Gamma Spec	Ra-226		4.2		0.27		0.47
B01-001	0-1.5	11/14/94	Gamma Spec	Th-232		0.88		0		0.88
B01-001	0-1.5	11/14/94	Gamma Spec	U-238		6.4		2.2		4.9
B01-001	0-1.5	11/14/94	Alpha Spec	Th-228		1.1		0.4		0.13
B01-001	0-1.5	11/14/94	Alpha Spec	Th-230		7.9		1.9		0.13
B01-001	0-1.5	11/14/94	Alpha Spec	Th-232		1.1		0.39		0.1
B01-002	1.5-3	11/14/94	Gamma Spec	Ra-226		2.4		0.32		0.84
B01-002	1.5-3	11/14/94	Gamma Spec	Th-232		1.6		0		1.6
B01-002	1.5-3	11/14/94	Gamma Spec	U-238		20.8		5.9		8
B01-002	1.5-3	11/14/94	Alpha Spec	Th-228		0.77		0.26		0.12
B01-002	1.5-3	11/14/94	Alpha Spec	Th-230		3		0.69		0.07
B01-002	1.5-3	11/14/94	Alpha Spec	Th-232		0.98		0.3		0.07
Borehole #2										
B02-005	0-1.5	11/14/94	Gamma Spec	Ra-226		4.3		0.39		0.82
B02-005	0-1.5	11/14/94	Gamma Spec	Th-232		1.8		0		1.8
B02-005	0-1.5	11/14/94	Gamma Spec	U-238		4.1		2.6		8
B02-005	0-1.5	11/14/94	Alpha Spec	Th-228		1.2		0.42		0.13
B02-005	0-1.5	11/14/94	Alpha Spec	Th-230		4		1.1		0.1
B02-005	0-1.5	11/14/94	Alpha Spec	Th-232		1.5		0.48		0.06
Borehole #3				**Northwest Corner**						
B03-015	0-1.5	11/16/94	Gamma Spec	Ra-226		1.3		0.18		0.43
B03-015	0-1.5	11/16/94	Gamma Spec	Th-232		0.85		0		0.85
B03-015	0-1.5	11/16/94	Gamma Spec	U-238		4.1		0		4.1
B03-015	0-1.5	11/16/94	Alpha Spec	Th-228		0.53		0.22		0.1
B03-015	0-1.5	11/16/94	Alpha Spec	Th-230		0.65		0.25		0.08
B03-015	0-1.5	11/16/94	Alpha Spec	Th-232		0.74		0.27		0.04
Borehole #4										
B04-009	0-1.5	11/15/94	Gamma Spec	Ra-226		58.3		1.7		1.3
B04-009	0-1.5	11/15/94	Gamma Spec	Th-232		1.7		0		1.7
B04-009	0-1.5	11/15/94	Gamma Spec	U-238		15		0		15
B04-009	0-1.5	11/15/94	Alpha Spec	Th-228		1.2		0.46		0.2
B04-009	0-1.5	11/15/94	Alpha Spec	Th-230		1.3		0.46		0.17
B04-009	0-1.5	11/15/94	Alpha Spec	Th-232		1.1		0.41		0.12
B04-010	1.5-3	11/15/94	Gamma Spec	Ra-226		1.8		0.27		0.69
B04-010	1.5-3	11/15/94	Gamma Spec	Th-232		1.7		0.3		1.1
B04-010	1.5-3	11/15/94	Gamma Spec	U-238		7		0		7
B04-010	1.5-3	11/15/94	Alpha Spec	Th-228		1.2		0.4		0.05
B04-010	1.5-3	11/15/94	Alpha Spec	Th-230		1.5		0.49		0.1
B04-010	1.5-3	11/15/94	Alpha Spec	Th-232		1.1		0.38		0.09

Table 2
Summary of Tonawanda Landfill Sample Results

	Depth (ft)	Date Collected	Analytical Method	Analyte	Rejected pCi/g	Result pCi/g	Rejected pCi/g	Error	Rejected pCi/g	MDA*
Borehole #5				**Wet Area**						
B05-026	0-1.5	11/17/94	Gamma Spec	Ra-226		1.3		0.16		0.4
B05-026	0-1.5	11/17/94	Gamma Spec	Th-232		1.3		0.15		0.59
B05-026	0-1.5	11/17/94	Gamma Spec	U-238		33.3		8.4		4.9
B05-026	0-1.5	11/17/94	Alpha Spec	Th-228		1.6		0.58		0.14
B05-026	0-1.5	11/17/94	Alpha Spec	Th-230		13.4		3.4		0.16
B05-026	0-1.5	11/17/94	Alpha Spec	Th-232		1.4		0.5		0.07
B05-027	1.5-3	11/17/94	Gamma Spec	Ra-226		557		14.7		3.7
B05-027	1.5-3	11/17/94	Gamma Spec	Th-232		1.6		0		1.6
B05-027	1.5-3	11/17/94	Gamma Spec	U-238		230		60.7		33.7
B05-027[a]	1.5-3	11/17/94	Alpha Spec	Th-228	5.3	1.5[a]	34.9	1.4[a]	104	1.7[a]
B05-027[a]	1.5-3	11/17/94	Alpha Spec	Th-230	346	376.5[a]	164.8	92.3[a]	86.7	1.3[a]
B05-027[a]	1.5-3	11/17/94	Alpha Spec	Th-232	16	2.2[a]	32.1	1.6[a]	43.3	0.74[a]
B05-dup	1.5-3	11/17/94	Gamma Spec	Ra-226		533		13.1		3
B05-063	1.5-3	11/17/94	Gamma Spec	Th-232		2.2		0		2.2
B05-063	1.5-3	11/17/94	Gamma Spec	U-238		306		94.2		55.3
B05-063[a]	1.5-3	11/17/94	Alpha Spec	Th-228	17.2	2.3[a]	29.9	1.6[a]	54.2	1.3[a]
B05-063[a]	1.5-3	11/17/94	Alpha Spec	Th-230	396	415.3[a]	149.9	98.5[a]	54.3	1.3[a]
B05-063[a]	1.5-3	11/17/94	Alpha Spec	Th-232	-3.4	2.6[a]	4.9	1.7[a]	54.2	1.3[a]
B05-028	3-5	11/17/94	Gamma Spec	Ra-226		124		3.1		1.7
B05-028	3-5	11/17/94	Gamma Spec	Th-232		1.5		0.29		0.91
B05-028	3-5	11/17/94	Gamma Spec	U-238		585		148		26.8
B05-028[a]	3-5	11/17/94	Alpha Spec	Th-228	11.3	4.2[a]	48.2	2.2[a]	134.6	1.1[a]
B05-028[a]	3-5	11/17/94	Alpha Spec	Th-230	59.4	157.8[a]	79.2	37.9[a]	121.1	1.1[a]
B05-028[a]	3-5	11/17/94	Alpha Spec	Th-232	-7.6	1.9[a]	10.9	1.4[a]	120.9	0.63[a]
B05-029	5-7	11/17/94	Gamma Spec	Ra-226		19.1		0.73		0.93
B05-029	5-7	11/17/94	Gamma Spec	Th-232		2.6		0.45		1.4
B05-029	5-7	11/17/94	Gamma Spec	U-238		244		60.2		15.8
B05-029	5-7	11/17/94	Alpha Spec	Th-228		3.1		0.95		0.18
B05-029	5-7	11/17/94	Alpha Spec	Th-230		25.5		6.4		0.15
B05-029	5-7	11/17/94	Alpha Spec	Th-232		3.4		1		0.07
B05-030	7-9	11/17/94	Gamma Spec	Ra-226		24.3		0.76		0.65
B05-030	7-9	11/17/94	Gamma Spec	Th-232		1.5		0.14		0.42
B05-030	7-9	11/17/94	Gamma Spec	U-238		244		60.9		9.7
B05-030[a]	7-9	11/17/94	Alpha Spec	Th-228	-15	1[a]	13.8	1.2[a]	119.6	1.8[a]
B05-030[a]	7-9	11/17/94	Alpha Spec	Th-230	51.3	35.7[a]	60.2	11.2[a]	46.4	1.4[a]
B05-030[a]	7-9	11/17/94	Alpha Spec	Th-232	-2.9	2[a]	5.8	1.7[a]	79	1.4[a]
B05-031	9-11	11/17/94	Gamma Spec	Ra-226		8.4		0.35		0.61
B05-031	9-11	11/17/94	Gamma Spec	Th-232		1		0.12		0.36
B05-031	9-11	11/17/94	Gamma Spec	U-238		220		55.5		10
B05-031	9-11	11/17/94	Alpha Spec	Th-228		1.3		0.45		0.12
B05-031	9-11	11/17/94	Alpha Spec	Th-230		2.9		0.84		0.1
B05-031	9-11	11/17/94	Alpha Spec	Th-232		1.5		0.51		0.1

Table 2
Summary of Tonawanda Landfill Sample Results

	Depth (ft)	Date Collected	Analytical Method	Analyte	Rejected pCi/g	Result pCi/g	Rejected pCi/g	Error	Rejected pCi/g	MDA*
Borehole #5										
B05-032	11-11.5	11/17/94	Gamma Spec	Ra-226		8.1		0.36		0.54
B05-032	11-11.5	11/17/94	Gamma Spec	Th-232		1.2		0.21		0.56
B05-032	11-11.5	11/17/94	Gamma Spec	U-238		96.8		24		8.9
B05-032	11-11.5	11/17/94	Alpha Spec	Th-228		0.94		0.32		0.08
B05-032	11-11.5	11/17/94	Alpha Spec	Th-230		3.6		0.9		0.05
B05-032	11-11.5	11/17/94	Alpha Spec	Th-232		0.77		0.28		0.05
B05-033	11.5-12.5	11/17/94	Gamma Spec	Ra-226		0.97		0.16		0.42
B05-033	11.5-12.5	11/17/94	Gamma Spec	Th-232		0.87		0.13		0.51
B05-033	11.5-12.5	11/17/94	Gamma Spec	U-238		6.1		1.9		3.7
B05-033	11.5-12.5	11/17/94	Alpha Spec	Th-228		1.1		0.38		0.11
B05-033	11.5-12.5	11/17/94	Alpha Spec	Th-230		1.1		0.39		0.1
B05-033	11.5-12.5	11/17/94	Alpha Spec	Th-232		0.72		0.29		0.1
Borehole #7										
B07-039[b]	14-16	11/17/94	Gamma Spec	Ra-226	3.4	0.32[b]	0.22	0[b]	0.39	0.32[b]
B07-039	14-16	11/17/94	Gamma Spec	Th-232	1.4	1.8[b]	0.15	0.12[b]	0.42	0.46[b]
B07-039	14-16	11/17/94	Gamma Spec	U-238	27.3	25.1[b]	6.9	2.8[b]	3.9	2.5[b]
B07-039	14-16	11/17/94	Alpha Spec	Th-228	1.4	0.98[b]	0.41	0.31[b]	0.11	0.1[b]
B07-039	14-16	11/17/94	Alpha Spec	Th-230	2.5	2[b]	0.65	0.53[b]	0.08	0.08[b]
B07-039	14-16	11/17/94	Alpha Spec	Th-232	1.2	0.83[b]	0.38	0.28[b]	0.07	0.04[b]
B07-040	16-18	11/17/94	Gamma Spec	Ra-226		1.2		0.15		0.37
B07-040	16-18	11/17/94	Gamma Spec	Th-232		1.3		0.21		0.58
B07-040	16-18	11/17/94	Gamma Spec	U-238		27.1		6.9		4.9
B07-040	16-18	11/17/94	Alpha Spec	Th-228		0.84		0.27		0.09
B07-040	16-18	11/17/94	Alpha Spec	Th-230		1.4		0.37		0.04
B07-040	16-18	11/17/94	Alpha Spec	Th-232		0.84		0.26		0.04
B07-041	20-22	11/17/94	Gamma Spec	Ra-226		0.51		0.13		0.36
B07-041	20-22	11/17/94	Gamma Spec	Th-232		0.71		0		0.71
B07-041	20-22	11/17/94	Gamma Spec	U-238		3.4		0		3.4
B07-041	20-22	11/17/94	Alpha Spec	Th-228		1.2		0.42		0.11
B07-041	20-22	11/17/94	Alpha Spec	Th-230		1.5		0.48		0.11
B07-041	20-22	11/17/94	Alpha Spec	Th-232		1.1		0.39		0.1
Borehole #8										
B08-053	19.5-22	11/18/94	Gamma Spec	Ra-226		1.7		0.18		0.43
B08-053	19.5-22	11/18/94	Gamma Spec	Th-232		1.8		0.21		0.56
B08-053	19.5-22	11/18/94	Gamma Spec	U-238		18.6		4.9		4.8
B08-053	19.5-22	11/18/94	Alpha Spec	Th-228		1.4		0.41		0.1
B08-053	19.5-22	11/18/94	Alpha Spec	Th-230		1.9		0.49		0.07
B08-053	19.5-22	11/18/94	Alpha Spec	Th-232		1.3		0.37		0.04
B08-054	22-24.5	11/18/94	Gamma Spec	Ra-226		0.7		0.1		0.26
B08-054	22-24.5	11/18/94	Gamma Spec	Th-232		0.54		0		0.54

Table 2
Summary of Tonawanda Landfill Sample Results

	Depth (ft)	Date Collected	Analytical Method	Analyte	Rejected pCi/g	Result pCi/g	Rejected pCi/g	Error	Rejected pCi/g	MDA*
Borehole #8										
B08-054	22-24.5	11/18/94	Gamma Spec	U-238		3.1		1.1		2.5
B08-054	22-24.5	11/18/94	Alpha Spec	Th-228		1		0.41		0.12
B08-054	22-24.5	11/18/94	Alpha Spec	Th-230		1.5		0.53		0.12
B08-054	22-24.5	11/18/94	Alpha Spec	Th-232		1.4		0.52		0.07
Sediment From Storm Sewer Entry										
SD-1042	N/A	11/18/94	Alpha Spec	Ra-226		2.9		0.61		0.18
SD-1042	N/A	11/18/94	Alpha Spec	Th-228		1.4		0.44		0.12
SD-1042	N/A	11/18/94	Alpha Spec	Th-230		1.1		0.36		0.08
SD-1042	N/A	11/18/94	Alpha Spec	Th-232		0.62		0.24		0.08
SD-1042	N/A	11/18/94	Alpha Spec	U-234		2.8		0.77		0.09
SD-1042	N/A	11/18/94	Alpha Spec	U-235		0.12		0.1		0.05
SD-1042	N/A	11/18/94	Alpha Spec	U-238		3.3		0.9		0.04
Sediment From Wet Area										
SD-2043	N/A	11/18/94	Alpha Spec	Ra-226		65.7		5.7		0.2
SD-2043	N/A	11/18/94	Alpha Spec	Th-228		2.7		0.72		0.09
SD-2043	N/A	11/18/94	Alpha Spec	Th-230		121.8		26.1		0.05
SD-2043	N/A	11/18/94	Alpha Spec	Th-232		2		0.55		0.08
SD-2043	N/A	11/18/94	Alpha Spec	U-234		382.3		124		1.6
SD-2043	N/A	11/18/94	Alpha Spec	U-235		19.5		8.5		2
SD-2043	N/A	11/18/94	Alpha Spec	U-238		393.5		127.5		0.93
Surface Water			**Wet Area**							
SD2-043	N/A**	11/19/94	Alpha Spec	Ra-226		521		45.7		0.37
SD2-043	N/A	11/19/94	Alpha Spec	Th-230		0.2		0.27		0.41
SD2-043	N/A	11/19/94	Alpha Spec	Th-232		0.06		0.15		0.35
SD2-043	N/A	11/19/94	Alpha Spec	U-238		48.2		12.9		0.22
Water Collected From Borehole #4										
B04-059	N/A	11/15/94	Alpha Spec	Ra-226		12.1		3.3		1
B04-059	N/A	11/15/94	Alpha Spec	Th-230		2.4		0.84		0.25
B04-059	N/A	11/15/94	Alpha Spec	Th-232		1.1		0.49		0.19
B04-059	N/A	11/15/94	Alpha Spec	U-238		20.2		5.5		0.1
Water Collected From Borehole #5										
B05-060	N/A	11/17/94	Alpha Spec	Ra-226		4.1		2.4		1.9
B05-060	N/A	11/17/94	Alpha Spec	Th-230		693		174.1		0.28
B05-060	N/A	11/17/94	Alpha Spec	Th-232		6.7		2.1		0.28
B05-060	N/A	11/17/94	Alpha Spec	U-238		4328		1154		12.7

*MDA minimum detectable activity
**N/A not applicable
[a] Reanalysis 8/15/95 results
[b] Reanalysis 8/18/95 results

Table 3
RADIOLOGICAL RESULTS FOR SAMPLES ABOVE FUSRAP GUIDELINES

STAGE 1						
Soil	Depth (ft)	Ra-226 pCi/g	Th-232 pCi/g	U-238 pCi/g	Th-228 pCi/g	Th-230 pCi/g
Borehole 4	0-1.5	58.3	1.7	15	1.2	1.3
Borehole 5	0-1.5	1.3	1.4	33.3	1.6	113.4
	1.5-3	557	R	230	R	R
reanalysis			2.2		1.5	377
	3-5	124	R	585	R	R
reanalysis			1.9		4.2	158
	5-7	19.1	3.4	244	3.1	25.5
	7-9	24.3	R	244	R	R
reanalysis			2		1	35.7
	9-11	8.4	1.5	220	1.3	2.9
	11-11.5	8.1	1.2	96.8	0.9	3.6
	11.5-12.5	No results over FUSRAP guidelines				
SEDIMENT		Ra-226 pCi/g	Th-232 pCi/g	U-238 pCi/g	Th-228 pCi/g	Th-230 pCi/g
SD-02	N/A	65.7	2	393.5	2.7	121.8
WATER		Ra-226 pCi/L	Th-232 pCi/L	U-238 pCi/L	N/A	Th-230 pCi/L
Surface Water	N/A	521	0.06	48.2	N/A	0.2
Borehole 5	N/A	4.1	6.7	4328	N/A	693
STAGE 2						
No results over FUSRAP guidelines						

R- rejected

Table 4
SOIL and WATER GUIDELINES

Soil Guidelines for residual radioactivity in soil at Tonawanda

Radionuclide	Soil Concentration (pCi/g) Above Background[a]
Ra-226, Th-230 & Th-232	5 pCi/g, averaged over the first 15 cm of soil below the surface; 15 pCi/g when averaged over any 15-cm-thick soil layer below the surface layer.
Total Uranium	60 pCi/g for any 15-cm-thick soil layer, which (proposed) equates to a cleanup guideline of approximately 30 pCi/g for U-238.

[b]DOE guidelines for radionuclide concentrations above background in water

Radionuclide	Water Concentration (pCi/L) Above Background
Ra-226	100 pCi/L
Th-232	50 pCi/L
Th-230	300 pCi/L
total uranium	600 pCi/L, which equates to approximately 300 pCi/L for U-238

[a]Average background reported for the Ashland 2 South and Tonawanda Area in the "Remedial Investigation Report for the Tonawanda Site," DOE/OR/21949-300 (February 1993).

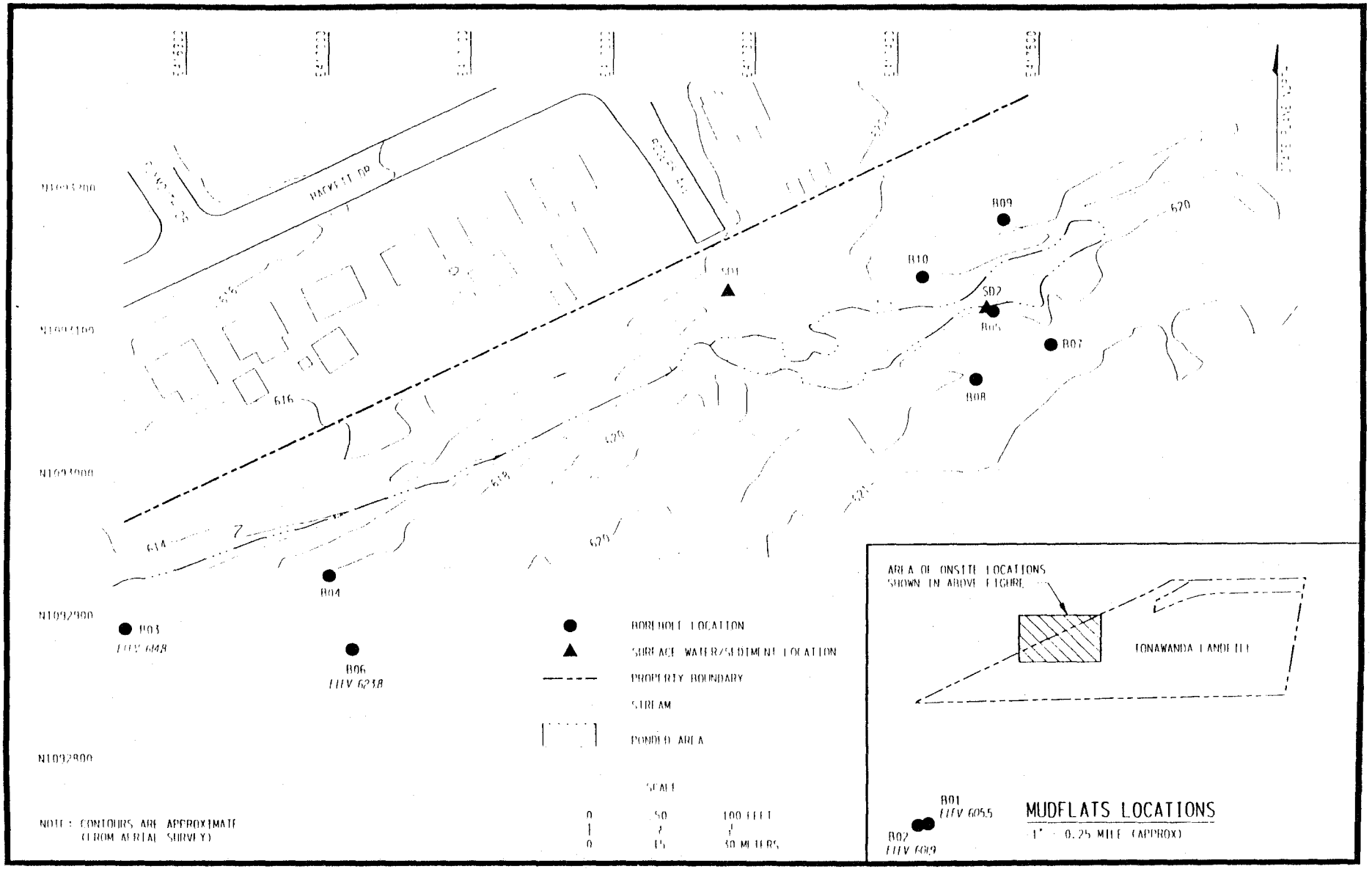
Radionuclide	Range (pCi/g)	Average Concentration (pCi/g)
Ra-226	1.0-1.6	1.1
Th-232	1.0-1.6	1.2
Th-230	1.1-1.8	1.4
U-238	2.0-4.0	3.1

Table 5
RCRA CHARACTERISTIC RESULTS ABOVE GUIDELINES

Borehole Number	Depth	Metals, TCLP	Herbicides TCLP	Pesticide, TCLP	Depth (VOA)	VOA/BNAE TCLP
B01	0-3'	None	None	None	1.3-5'	None
B02	0-3'	None	None	None	1.3-5'	None
B03	0-3'	None	None	None	1.3-5'	None
B04	0-3'	None	None	None	1.3-5'	None
B05	0-3'	7320 ug/L = 7.32 mg/L*	None	None	1.3-5'	None

*Regulatory level = 5.0 mg/L

Attachment A
Figure of Tonawanda landfill showing sample locations



1 9E033.DGN

Tonawanda Landfill
Borehole and Surface Water/Sediment Locations

Attachment B
Drilling Logs

GEOLOGIC DRILL LOG

PROJECT	JOB NO.	SHEET NO.	HOLE NO.
FUSRAP	14501-129	1 OF 1	B29RBH1

SITE	COORDINATES	ANGLE FROM HORIZ	BEARING
Tonawanda Landfill	N 1,091,351.5 E 415,952.9	Vertical	------

BEGUN	COMPLETED	DRILLER	DRILL MAKE AND MODEL	SIZE	OVERBURDEN	ROCK (FT.)	TOTAL DEPTH
11-14-94	11-14-94	Earth Dimension	Mobile Drill BH-5	8"			7.0

CORE RECOVERY (FT./%)	CORE BOXES	SAMPLES	EL. TOP CASING	GROUND EL.	DEPTH/EL. GROUND WATER	DEPTH/EL. TOP OF ROCK
6.2/88		6		605.6	/	/

SAMPLE HAMMER WEIGHT/FALL	CASING LEFT IN HOLE: DIA./LENGTH	LOGGED BY:
140lb/30"	0.0	[redacted]

(Template: 2MYWD)

SAMP. TYPE AND DIAM.	SAMP. ADV. LEN CORE	SAMPLE REC. CORE REC.	SAMPLE BLOWS % CORE RECOVERY	WATER PRESSURE TESTS: LOSS IN G.P.M	PRESS. P.S.I.	TIME IN MIN.	ELEV.	DEPTH	GRAPHICS	SAMPLE	DESCRIPTION AND CLASSIFICATION	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
SS	1.5	1.5	1-3-2				605.6				0.0 - 3.0 Ft FILL 0-3.0 ft. Disturbed Reddish brown clayey silt with 1cm angular gravels. Damp.	Rad and Chemical Samples taken using a 1.5' length, 2" OD stainless steel split spoon sampler. 0-1.5 ft RAD sample 0-3.0 ft TCLP sample
SS	1.5	1.5	13-11-12									
SS	2.0	1.2	5-7-10-15				602.6				3.0 - 7.0 Ft CLAY Reddish brown (10R4/6) damp, silty clay with some roots. Gray clay infilling, dense, with some black dendrites on broken surfaces.	1.5-3.0 ft RAD sample Sample taken using a 2'length, 2" split spoon sampler
SS	2.0	2.0	9-17-20-25					5				3.0-5.0 ft RAD only
							598.6				Bottom of borehole 7.0 ft. Backfilled (11/14/94).	5.0-7.0 ft RAD only Borehole backfilled with cement/bentonite grout (11/14/94). Sample data recorded in sample logbook 129-E-021

SS = SPLIT SPOON; NC = CORE BARREL; HX = HAND AUGER; O = OTHER

SITE: Tonawanda Landfill

Last Updated: 4/13/95

HOLE NO. B29RBH1

GEOLOGIC DRILL LOG

PROJECT	JOB NO.	SHEET NO.	HOLE NO.
FUSRAP	14501-129	1 OF 1	B29RBH2

SITE	COORDINATES	ANGLE FROM HORIZ	BEARING
Tonawanda Landfill	N 1,091,338.4 E 415,858.3	Vertical	------

BEGUN	COMPLETED	DRILLER	DRILL MAKE AND MODEL	SIZE	OVERBURDEN	ROCK (FT.)	TOTAL DEPTH
11-14-94	11-14-94	Earth Dimension	Mobile Drill BH-5	8"	7.0		7.0

CORE RECOVERY (FT./%)	CORE BOXES	SAMPLES	EL. TOP CASING	GROUND EL.	DEPTH/EL. GROUND WATER	DEPTH/EL. TOP OF ROCK
6.0/85		4		601.9	/	/

SAMPLE HAMMER WEIGHT/FALL	CASING LEFT IN HOLE: DIA./LENGTH	LOGGED BY:
140lb/30"	0.0	[redacted]

(Template: 2MYWD)

SAMP TYPE AND DIAM.	SAMP. ADV. LEN CORE	SAMPLE REC. CORE REC.	SAMPLE BLOWS % CORE RECOVERY	WATER PRESSURE TESTS: LOSS IN G.P.M	PRESS. P.S.I.	TIME IN MIN.	ELEV.	DEPTH	GRAPHICS	SAMPLE	DESCRIPTION AND CLASSIFICATION	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
SS	1.5	0.5	6-6-4				601.9				0.0 - 5.0 Ft FILL 0 - 1.5 ft Wet, silty gray clay mixed with brick, gravel, and gray slag. 3-4 inch angular gravel in sample.	Rad and Chemical samples from 0-3 ft with 2" OD, 1.5' length stainless steel split spoon.
SS	1.5	1.5	11-10-14								1.5 to 1.8 ft is gravely, wet. 1.8 to 3.0 ft is medium dense, moist, orange red clay	0-1.5 ft RAD sample 0-3.0 ft TCLP sample
SS	2.0	2.0	7-15 18-20								3-5 ft densely compacted disturbed reddish brown silty clay fill with gravels	1.5-3.0 ft RAD sample 3-7 ft samples with 2" OD, 2.0' length split spoon.
							596.9	5				
SS	2.0	2.0	7-15 19-20								5.0 - 7.0 Ft CLAY Reddish Brown (10R4/6), dense silty clay with 1cm rounded gravels. Almost Dry. Some mud cracks near the lower 6-7ft with gray infilling	3.0-5.0 ft RAD only
							594.9					
											Bottom of borehole 7.0 ft. Backfilled (11/14/94)	5.0-7.0 ft RAD only Borehole backfilled with cement/bentonite grout (11/14/94). Sample data recorded in sample logbook 129-E-021

SS = SPLIT SPOON; NC = CORE BARREL; HX = HAND AUGER; O = OTHER

SITE: Tonawanda Landfill

Last Updated: 4/13/95

HOLE NO. B29RBH2

GEOLOGIC DRILL LOG

PROJECT	JOB NO.	SHEET NO.	HOLE NO.
FUSRAP	14501-129	1 OF 1	B29RBH3

SITE	COORDINATES	ANGLE FROM HORIZ	BEARING
Tonawanda Landfill	N 1,092,896.6 E 416,859.2	Vertical	------

BEGUN	COMPLETED	DRILLER	DRILL MAKE AND MODEL	SIZE	OVERBURDEN	ROCK (FT.)	TOTAL DEPTH
11-16-94	11-16-94	Earth Dimension	Mobile Drill BH-5	8"			7.0

CORE RECOVERY (FT./%)	CORE BOXES	SAMPLES	EL. TOP CASING	GROUND EL.	DEPTH/EL. GROUND WATER	DEPTH/EL. TOP OF ROCK
4.8/69				614.8		

SAMPLE HAMMER WEIGHT/FALL	CASING LEFT IN HOLE: DIA./LENGTH	LOGGED BY:
140lb/30"	0.0	[redacted]

(Template: 2MYWD)

SAMP TYPE AND DIAM.	SAMP. ADV. LEN CORE	SAMPLE REC. CORE REC.	SAMPLE BLOWS / % CORE RECOVERY	WATER PRESSURE TESTS: LOSS IN G.P.M	PRESS. P.S.I.	TIME IN MIN.	ELEV.	DEPTH	GRAPHICS	SAMPLE	DESCRIPTION AND CLASSIFICATION	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
SS	1.5	1.5	1-8-26				614.8				0.0 - 3.0 FT **FILL** 0-3 ft Damp, reddish brown to black, organic clay with glass, metal shavings, slag, and ash.	0-3.0 ft samples collected with 1.5'length 2" OD split spoons. Water at surface, berm built to contain water. 0-1.5 ft RAD sample 0-3.0 ft TCLP metals.
SS	1.5	1.2	101-24-7									
							611.8					
SS	2.0	1.1	6-6-12-18								3.0 - 7.0 FT **CLAY** Wet, Reddish brown (10R4/6) clay with some small gravels, medium dense.	1.5-3.0 ft RAD and TCLP VOA sample. 3.0-7.0 ft samples collected with 2' length 2" OD split spoons.
SS	2.0	1.0	8-14-22-24					5				3.0-5.0 ft RAD only.
							607.8					
											Bottom of borehole 7.0 ft. Backfilled (11/16/94).	5.0-7.0 ft RAD only. Borehole backfilled with cement/bentonite grout (11/16/94). Sample data recorded in sample logbook 129-E-021

SS = SPLIT SPOON; NC = CORE BARREL; HX = HAND AUGER; O = OTHER

SITE: Tonawanda Landfill

Last Updated: 4/20/95

HOLE NO. B29RBH3

GEOLOGIC DRILL LOG

PROJECT	JOB NO.	SHEET NO.	HOLE NO.
FUSRAP	14501-129	1 OF 2	B29RBH4

SITE	COORDINATES	ANGLE FROM HORIZ	BEARING
Tonawanda Landfill	N 1,092,934.2 E 417,002.3	Vertical	------

BEGUN	COMPLETED	DRILLER	DRILL MAKE AND MODEL	SIZE	OVERBURDEN	ROCK (FT.)	TOTAL DEPTH
11-15-94	11-15-94	Earth Dimension	Mobile Drill BH-5	8"			16.5

CORE RECOVERY (FT./%)	CORE BOXES	SAMPLES	EL. TOP CASING	GROUND EL.	DEPTH/EL. GROUND WATER	DEPTH/EL. TOP OF ROCK
8.8/61		6		617.7	/ 1.0 AGS	

SAMPLE HAMMER WEIGHT/FALL	CASING LEFT IN HOLE: DIA./LENGTH	LOGGED BY:
140lb/30"	0.0	[redacted]

(Template: 2MYWD)

SAMP TYPE AND DIAM.	SAMP. ADV. LEN CORE	SAMPLE REC. CORE REC.	SAMPLE BLOWS % CORE RECOVERY	WATER PRESSURE TESTS: LOSS IN G.P.M	PRESS. P.S.I.	TIME IN MIN.	ELEV.	DEPTH	GRAPHICS	SAMPLE	DESCRIPTION AND CLASSIFICATION	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
							617.7					
SS	1.5	1.5	1-2-3								0.0 - 14.5 FILL 0 - 1.5 Ft. Grayish Red (10R 4/2) Silty clay wet. Organics with roots to 3ft. Some debris, pottery, and few gravel.	0-3.0 ft samples collected with 1.5'length 2" OD split spoons. Setup on side slope of landfill
SS	1.5	1.3	12-12-15								1.5 - 3.0 Ft. Darker Grayish red (5R 4/2) silty clay with more organics, gravel and debris. Some black charcoal like debris in the hole. Moist.	0-1.5 ft RAD sample. 0-3.0 ft TCLP metals.
SS	1.5	1.5	6-9-7-7								3-5 ft Moist, black and brown organic silt with grayish orange pink (10R 8/2) non-cohesive fill.	1.5-3.0 ft RAD and TCLP/VOA sample. 3.0-16.5 ft samples collected with 2' length. 2" OD split spoons.
												4.5-5.0 No Sample Taken
SS	2.0	0.5	2-3-4-2					5				3.0-5.0 ft RAD only. ARTESIAN FLOW.Head ~1 ft above ground, berm contains water.
SS	2.0	0.0	1-1-1-1									5.0-7.0 ft RAD only.
SS	2.0	0.0	1-0-0-0									7.0-9.0 ft No Recovery
								10				9.0-11.0 ft No Recover
												11.0-12.5 No Sample Taken
SS	2.0	2.0	8-14-21-21								12.5-14.5 ft. Disturbed, dense, moderate reddish brown (10R 4/6) clay with some small gravels.	
							603.2					
SS	2.0	2.0	11-18-25-30								14.5 - 16.5 Ft CLAY (CL) Dense, moderate reddish brown (10R4/6) clay with some small gravels	12.5 to 14.5 ft RAD only.

SS = SPLIT SPOON; NQ = CORE BARREL; HX = HAND AUGER; O = OTHER

SITE: Tonawanda Landfill

Last Updated: 4/20/95

HOLE NO. B29RBH4

GEOLOGIC DRILL LOG

PROJECT	JOB NO.	SHEET NO.	HOLE NO.
FUSRAP	14501-129	2 OF 2	B29RBH4

(Template: 2MYWD)

SAMP. TYPE AND DIAM.	SAMP. ADV. LEN CORE	SAMPLE REC. CORE REC.	SAMPLE BLOWS % CORE RECOVERY	WATER PRESSURE TESTS: LOSS IN G.P.M	PRESS. P.S.I.	TIME IN MIN.	ELEV.	DEPTH	GRAPHICS	SAMPLE	DESCRIPTION AND CLASSIFICATION	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
							601.2					14.5 to 16.5 ft RAD only.
											Bottom of borehole 16.5 ft. Backfilled (11/15/94).	Borehole backfilled with cement/bentonite grout (11/15/94).
												Sample data recorded in sample logbook 129-E-021

SS = SPLIT SPOON; NQ = CORE BARREL; HX = HAND AUGER; O = OTHER

SITE: Tonawanda Landfill

Last Update: 04/20/95

HOLE NO. B29RBH4

GEOLOGIC DRILL LOG

PROJECT	JOB NO.	SHEET NO.	HOLE NO.
FUSRAP	14501-129	1 OF 1	B29RBH5

SITE	COORDINATES	ANGLE FROM HORIZ	BEARING
Tonawanda Landfill	N 1,093,120.3 E 417,467.7	Vertical	------

BEGUN	COMPLETED	DRILLER	DRILL MAKE AND MODEL	SIZE	OVERBURDEN	ROCK (FT.)	TOTAL DEPTH
11-17-94	11-17-94			4"	12.0		12.0

CORE RECOVERY (FT./%)	CORE BOXES	SAMPLES	EL. TOP CASING	GROUND EL.	DEPTH/EL. GROUND WATER	DEPTH/EL. TOP OF ROCK
/				619.3	/ 0.5 AGS	

SAMPLE HAMMER WEIGHT/FALL	CASING LEFT IN HOLE: DIA./LENGTH	LOGGED BY:
N/A	0.0	[redacted]

(Template: 2MYWD)

SAMP. TYPE AND DIAM.	SAMP. ADV. LEN. CORE	SAMPLE REC. CORE REC.	SAMPLE BLOWS / % CORE RECOVERY	WATER PRESSURE TESTS: LOSS IN G.P.M	PRESS. P.S.I.	TIME IN MIN.	ELEV.	DEPTH	GRAPHICS	SAMPLE	DESCRIPTION AND CLASSIFICATION	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
							619.3				0.0 - 11.0 FT FILL 0-2 ft Black gravelly sand with glass and other debris.	Samples collected with 3" hand augers from 0 to 12.0 ft 0-1.5 ft RAD sample
											2-3.5 ft Wet, black and tan models silt. Looks like uranium ore similar to Linde ore found behind building 57.	ARTESIAN FLOW from borehole. 1.5-3.0 ft RAD and TCLP/VOA 0-3.0 ft composite TCLP Metals
											3.5-11 ft Wet, silty black fill.	3.5-4.0 ft RAD screen 4400-6000 cpm
								5				3.0-5.0 ft RAD sample only 5-6 ft RAD screen 500 cpm
												5.0-7.0 ft RAD sample only Sample data recorded in Sample Logbook Number 129-E-021.
												7.0-9.0 ft RAD sample only Temporary 4" PVC set to prevent sloughing to 9 ft
								10				
							608.3				11.0 - 12.0 Ft CLAY (CL) Dense, moderate reddish brown (10R4/6) clay with some small gravels.	9.0-11.0 ft RAD sampl only 11.0-11.5 ft RAD sample only
							607.3				Bottom of borehole 12.0 ft. Backfilled (11/17/94).	11.5-12.5 ft RAD sample only Borehole backfilled with bentonite pellets and chips (11/17/94). Gamma logged borehole to 11 ft in 3 inch PVC.

SS = SPLIT SPOON; NC = CORE BARREL; HX = HAND AUGER; O = OTHER

SITE: Tonawanda Landfill

Last Updated: 4/18/95

HOLE NO. B29RBH5

GEOLOGIC DRILL LOG

PROJECT	JOB NO.	SHEET NO.	HOLE NO.
FUSRAP	14501-129	1 OF 2	B29RBH6

SITE	COORDINATES	ANGLE FROM HORIZ	BEARING
Tonawanda Landfill	N 1,092,881.9 E 417,018.6	Vertical	------

BEGUN	COMPLETED	DRILLER	DRILL MAKE AND MODEL	SIZE	OVERBURDEN	ROCK (FT.)	TOTAL DEPTH
11-16-94	11-16-94	Earth Dimension	Mobile Drill BH-5	8"	26.0		26.0

CORE RECOVERY (FT./%)	CORE BOXES	SAMPLES	EL. TOP CASING	GROUND EL.	DEPTH/EL. GROUND WATER	DEPTH/EL. TOP OF ROCK
6.5/25		6		623.8	▽ / -2.0	

SAMPLE HAMMER WEIGHT/FALL	CASING LEFT IN HOLE: DIA./LENGTH	LOGGED BY:
140lb/30"	0.0	[redacted]

(Template: 2MYWD)

SAMP TYPE AND DIAM.	SAMP. ADV. LEN CORE	SAMPLE REC. CORE REC.	SAMPLE BLOWS % CORE RECOVERY	WATER PRESSURE TESTS: LOSS IN G.P.M	PRESS. P.S.I.	TIME IN MIN.	ELEV.	DEPTH	GRAPHICS	SAMPLE	DESCRIPTION AND CLASSIFICATION	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
							623.8					
SS	2.0	0.8	3-3-4-3								0.0 - 26.0 FT **FILL** 0-10.0 ft. Damp. Reddish brown, cohesive organic clay with some black specs. Clay cover.	Offset B29RBH4
SS	2.0	1.9	3-3-5-7									0-2.0 ft RAD sample only All samples taken with a 2 ft long 2" OD split spoon RAD samples only
SS	2.0	0.8	3-3-5-4					5				2.0-4.0 ft RAD sample only
SS	2.0	1.4	2-3-5-5									4.0-6.0 ft RAD sample only
SS	2.0	0.7	2-4-10-10									6.0-8.0 ft RAD sample only Organic vapors in the borehole
SS	2.0	0.2	4-9-2					10			10-12 ft. Black, wet, debris.	8.0-10.0 ft RAD sample only
SS	2.0	0.0	3-2-1-1									10.0-12.0 ft RAD sample only 12.0-14.0 ft No Recovery
SS	2.0	0.0	3-1-2-1									

SS = SPLIT SPOON; NC = CORE BARREL; HX = HAND AUGER; O = OTHER

SITE: Tonawanda Landfill

Last Updated: 4/18/95

HOLE NO. B29RBH6

GEOLOGIC DRILL LOG

PROJECT	JOB NO.	SHEET NO.	HOLE NO.
FUSRAP	14501-129	2 OF 2	B29RBH6

(Template: 2MYWD)

SAMP. TYPE AND DIAM.	SAMP. ADV. LEN CORE	SAMPLE REC. CORE REC.	SAMPLE BLOWS % CORE RECOVERY	WATER PRESSURE TESTS: LOSS IN G.P.M	PRESS. P.S.I.	TIME IN MIN.	ELEV.	DEPTH	GRAPHICS	SAMPLE	DESCRIPTION AND CLASSIFICATION	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
												14.0-16.0 ft No Recovery
SS	2.0	0.0	2-1-3-3									
												16.0-18.0 ft No Recovery
SS	2.0	0.1	3-1-1-1								18.0 - 20.0 Ft. Sandy debris, wet.	
SS	2.0	0.3	1-0-1-1					20				18.0-20.0 ft RAD sample only
SS	2.0	0.1	1-1-4-4									20.0-22.0 ft RAD sample only
												Organic vapors in breathing zone let vent to clear
SS	2.0	0.2	2-2-2-2								24-26 ft. Black organic debris, very loose. Wet	Oil sheen on drill rods.
												22.0-24.0 ft RAD sample only
								25				Borehole did not reach the base of the landfill, too hazardous.
							597.8					
											Bottom of borehole 26.0 Ft. Backfilled (11/18/94).	24.0-26.0 ft RAD sample only
												Borehole backfilled with cement/bentonite grout (11/18/94).
												Sample data recorded in Sample Logbook 129-E-021

SS = SPLIT SPOON; NC = CORE BARREL; HX = HAND AUGER; O = OTHER

SITE: Tonawanda Landfill

Last Update: 04/18/95

HOLE NO. B29RBH6

GEOLOGIC DRILL LOG

PROJECT	JOB NO.	SHEET NO.	HOLE NO.
FUSRAP	14501-129	1 OF 2	B29RBH7

SITE	COORDINATES	ANGLE FROM HORIZ	BEARING
Tonawanda Landfill	N 1,093,096.9 E 417,508.6	Vertical	------

BEGUN	COMPLETED	DRILLER	DRILL MAKE AND MODEL	SIZE	OVERBURDEN	ROCK (FT.)	TOTAL DEPTH
11-17-94	11-18-94	Earth Dimension	Mobile Drill BH-5	8"	22.0		22.0

CORE RECOVERY (FT./%)	CORE BOXES	SAMPLES	EL. TOP CASING	GROUND EL.	DEPTH/EL. GROUND WATER	DEPTH/EL. TOP OF ROCK
5.4/27		7		619.4	/	/

SAMPLE HAMMER WEIGHT/FALL	CASING LEFT IN HOLE: DIA./LENGTH	LOGGED BY:
140lb/30"	0.0	[redacted]

(Template: 2MYWD)

SAMP. TYPE AND DIAM.	SAMP. ADV. LEN CORE	SAMPLE REC. CORE REC.	SAMPLE BLOWS % CORE RECOVERY	WATER PRESSURE TESTS: LOSS IN G.P.M	PRESS. P.S.I.	TIME IN MIN.	ELEV.	DEPTH	GRAPHICS	SAMPLE	DESCRIPTION AND CLASSIFICATION	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
SS	2.0	1.0	1-1-2-2				619.4				0.0 - 21.0 Ft FILL 0-2 ft. Dark brown clayey fill with debris, loose, damp.	Offset B29RBH5 Samples taken with a 2 ft. long, 2"OD split spoon sampler. Rad samples only.
SS	2.0	0.5	0-1-2-1									0-2.0 ft RAD sample only
SS	2.0	0.0	2-2-1-0									2.0-4.0 ft RAD sample only
								5				4.0-6.0 ft No Recovery
SS	2.0	0.3	WOB									Drilling mud poured into augers to prevent offgassing of methane.
SS	2.0	0.6	3-1-1-2									6.0-8.0 ft RAD sample only
SS	2.0	0.4	4-2-2-2					10			10-12 ft. Loose, wet, debris with more clay. Dark gray, some reddish brown chunks.	8.0-10.0 ft RAD sample only
SS	2.0	0.5	4-1-1-2									10.0-12.0 ft RAD sample only
SS	2.0	0.5	4-1-1-1									12.0-14.0 ft RAD sample only

SS = SPLIT SPOON; NC = CORE BARREL; HA = HAND AUGER; O = OTHER

SITE: Tonawanda Landfill

Last Updated: 4/20/95

HOLE NO. B29RBH7

GEOLOGIC DRILL LOG

PROJECT	JOB NO.	SHEET NO.	HOLE NO.
FUSRAP	14501-129	2 OF 2	B29RBH7

(Template: 2MYWD)

SAMP. TYPE AND DIAM.	SAMP. ADV. LEN CORE	SAMPLE REC. CORE REC.	SAMPLE BLOWS % CORE RECOVERY	WATER PRESSURE TESTS: LOSS IN G.P.M	PRESS. P.S.I.	TIME IN MIN.	ELEV.	DEPTH	GRAPHICS	SAMPLE	DESCRIPTION AND CLASSIFICATION	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
SS	2.0	0.6	7-2-4-2									14.0-16.0 ft RAD sample only
												16.0-18.0 ft RAD sample only
												18.0-20.0 ft No Sample Taken
SS	2.0	1.0	5-6-17-16					20			20-21 ft. Soft, loose, debris with some disturbed moderate reddish brown clay	
							598.4				21.0 - 22.0 Ft **CLAY** (CL) Medium dense, moderate reddish brown (10R4/6) clay with some small gravels	
							597.4				Bottom of borehole 22.0 Ft. Backfilled (11/18/94)	20.0-22.0 ft RAD sample only Borehole backfilled with cement/bentonite grout (11/18/94). Sample data recorded in Sample Logbook number 129-E-021.

SS = SPLIT SPOON; NQ = CORE BARREL; HX = HAND AUGER; O = OTHER

SITE: Tonawanda Landfill

Last Update: 04/20/95

HOLE NO. B29RBH7

GEOLOGIC DRILL LOG

PROJECT	JOB NO.	SHEET NO.	HOLE NO.
FUSRAP	14501-129	1 OF 2	B29RBH8

SITE	COORDINATES	ANGLE FROM HORIZ	BEARING
Tonawanda Landfill	N 1,093,072.4 E 417,455.5	Vertical	------

BEGUN	COMPLETED	DRILLER	DRILL MAKE AND MODEL	SIZE	OVERBURDEN	ROCK (FT.)	TOTAL DEPTH
11-18-94	11-18-94	Earth Dimension	Mobile Drill BH-5	8"	23.5		24.0

CORE RECOVERY (FT./%)	CORE BOXES	SAMPLES	EL. TOP CASING	GROUND EL.	DEPTH/EL. GROUND WATER	DEPTH/EL. TOP OF ROCK
10.6/45		4		619.9		

SAMPLE HAMMER WEIGHT/FALL	CASING LEFT IN HOLE: DIA./LENGTH	LOGGED BY:
140lb/30"	0.0	[redacted]

(Template: 2MYWD)

SAMP. TYPE AND DIAM.	SAMP. ADV. LEN CORE	SAMPLE REC. CORE REC.	SAMPLE BLOWS / % CORE RECOVERY	WATER PRESSURE TESTS: LOSS IN G.P.M	PRESS. P.S.I.	TIME IN MIN.	ELEV.	DEPTH	GRAPHICS	SAMPLE	DESCRIPTION AND CLASSIFICATION	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
SS	2.0	0.2	1-2-2-3				619.9				0.0 - 22.0 Ft **FILL** 0-2 ft. Roots, grass, ash, and glass with other organic debris.	Offset B29RBH5 Sample collected with 2 ft. long 2" OD split spoon sampler.
SS	2.5	2.0	3-6-9-7								2-5 ft Loose, fine sandy ash and debris	0-2.0 ft RAD sample only 2.0-24.0 ft Samples collected with a 2.5 ft. OD split spoon.
SS	2.5	2.1	5-2-4-2-1					5				2.0-4.5 ft RAD sample only Drilling mud poured into augers to prevent offgassing of methane
SS	2.5	2.0	2-1-1-0-1									4.5-7.0 ft RAD sample only
SS	2.5	0.0	5-5-5-5-4					10				7.0-9.5 ft RAD sample only
SS	2.5	0.3	7-3-1-1-1									9.5-12.0 ft RAD sample only
SS	2.5	0.0	2-1-0-1									12.0-14.5 ft RAD sample only

SS = SPLIT SPOON; NC = CORE BARREL; HA = HAND AUGER; O = OTHER

SITE: Tonawanda Landfill

Last Updated: 4/18/95

HOLE NO. B29RBH8

GEOLOGIC DRILL LOG

PROJECT	JOB NO.	SHEET NO.	HOLE NO.
FUSRAP	14501-129	2 OF 2	B29RBH8

(Template: 2MYWD)

SAMP TYPE AND DIAM.	SAMP. ADV. LEN CORE	SAMPLE REC. CORE REC.	SAMPLE BLOWS % CORE RECOVERY	WATER PRESSURE TESTS: LOSS IN G.P.M	PRESS. P.S.I.	TIME IN MIN.	ELEV.	DEPTH	GRAPHICS	SAMPLE	DESCRIPTION AND CLASSIFICATION	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
SS	2.5	0.8	7-2-2-2-2									14.5-17.0 ft No Recovery Sample data recorded in Sample Loghook number 129-E-021.
SS	2.5	1.2	6-4-2-2-2					20				17.0-19.5 ft RAD sample only Oil sheen on drill roc
SS	2.0	2.0	9-7-8-12								22-23 ft Black organic debris	19.5-22.0 ft RAD sample only
							597.0				23.0 - 24.0 Ft CLAY Stiff, reddish brown (10R4/6) clay with rounded gravels. Base of landfill.	22.0-24.5 ft RAD sample only
							595.0				Bottom of borehole 24.0 Ft. Backfilled (11/18/94)	Borehole backfilled with granular bentor and topped off with cement/bentonite gr (11/18/94).

SS = SPLIT SPOON; NC = CORE BARREL; HA = HAND AUGER; O = OTHER

SITE: Tonawanda Landfill

Last Update: 04/18/95

HOLE NO. B29RBH8

GEOLOGIC DRILL LOG

PROJECT	JOB NO.	SHEET NO.	HOLE NO.
FUSRAP	14501-129	1 OF 1	B29RBH9

SITE	COORDINATES	ANGLE FROM HORIZ	BEARING
Tonawanda Landfill	N 1,093,184.4 E 417,475.4	Vertical	------

BEGUN	COMPLETED	DRILLER	DRILL MAKE AND MODEL	SIZE	OVERBURDEN	ROCK (FT.)	TOTAL DEPTH
11-19-94	11-19-94	Earth Dimension	Mobile Drill BH-5	8"	5.0		5.0

CORE RECOVERY (FT./%)	CORE BOXES	SAMPLES	EL. TOP CASING	GROUND EL.	DEPTH/EL. GROUND WATER	DEPTH/EL. TOP OF ROCK
4.2/84		2		619.8		

SAMPLE HAMMER WEIGHT/FALL	CASING LEFT IN HOLE: DIA./LENGTH	LOGGED BY:
140lb/30"	0.0	[redacted]

(Template: 2MYWD)

SAMP TYPE AND DIAM.	SAMP. ADV. LEN CORE	SAMPLE REC. CORE REC.	SAMPLE BLOWS / % CORE RECOVERY	WATER PRESSURE TESTS: LOSS IN G.P.M	PRESS. P.S.I.	TIME IN MIN.	ELEV.	DEPTH	GRAPHICS	SAMPLE	DESCRIPTION AND CLASSIFICATION	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
							619.8					
SS	2.5	2.0	2-4-9 9-15								0.0 - 5.0 Ft FILL 0-2.8 ft. Reddish brown clay mixed with ash and organic debris. Loose, wet.	Offset B29RBH5 Samples taken using a 2.5 ft. long, 3" OD split spoon sampler.
SS	2.5	2.2	5-7-9 13-17									0-2.5 ft RAD sample only
							616.6				3.2 - 5.0 Ft CLAY (CL) Reddish brown (10R4/6) clay with roots and gray mud cracks, stiff clay.	
							614.8	5			Bottom of borehole 5.0 Ft. Backfilled (11/19/94).	2.5-5.0 ft RAD sample only Borehole backfilled with granular benton (11/19/94). Sample data recorded in Sample Logbook number 129-E-021.

SS = SPLIT SPOON; NC = CORE BARREL; HX = HAND AUGER; O = OTHER

SITE: Tonawanda Landfill

Last Updated: 4/18/95

HOLE NO. B29RBH9

GEOLOGIC DRILL LOG

PROJECT	JOB NO.	SHEET NO.	HOLE NO.
FUSRAP	14501-129	1 OF 1	B29RBH10

SITE	COORDINATES	ANGLE FROM HORIZ	BEARING
Tonawanda Landfill	N 1,093,144.3 E 417,418.0	Vertical	------

BEGUN	COMPLETED	DRILLER	DRILL MAKE AND MODEL	SIZE	OVERBURDEN	ROCK (FT.)	TOTAL DEPTH
11-19-94	11-19-94	Earth Dimension	Mobile Drill BH-5	8"			5.0

CORE RECOVERY (FT./%)	CORE BOXES	SAMPLES	EL. TOP CASING	GROUND EL.	DEPTH/EL. GROUND WATER	DEPTH/EL. TOP OF ROCK
4.8/96		2		619.1		

SAMPLE HAMMER WEIGHT/FALL	CASING LEFT IN HOLE: DIA./LENGTH	LOGGED BY:
140lb/30"	0.0	[redacted]

(Template: 2MYWD)

SAMP TYPE AND DIAM.	SAMP. ADV. LEN CORE	SAMPLE REC. CORE REC.	SAMPLE BLOWS / % CORE RECOVERY	WATER PRESSURE TESTS: LOSS IN G.P.M	PRESS. P.S.I.	TIME IN MIN.	ELEV.	DEPTH	GRAPHICS	SAMPLE	DESCRIPTION AND CLASSIFICATION	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
SS	2.5	2.3	2-6-7-7-9				619.1				0.0 - 2.7 Ft FILL 0-0.4 ft Silty dark brown organic clay with roots and debris. 0.4 - 2.5 ft Reddish fill and clay with ash and debris.	Offset from B29RBH15 Sampled with a 2 1/2' length, 3" OD stainless steel
SS	2.5	2.5	5-11-17-28-39				616.4				2.7 - 5.0 Ft. CLAY Reddish brown (10R4/6) clay with some gravels, desication cracks, and roots in gray clay material. Some lighter pinkish brown silt stringers. Almost dry at the bottom. Crumbly, stiff, clay.	0-2.5 ft RAD sample only
							614.1				Bottom of borehole 5.0 ft.Backfilled (11/19/94).	2.5-5.0 ft RAD sample only Borehole backfilled granular bentonite (11/19/94) Sample data recorded in Sample Logbook number 129-E-021.

SS = SPLIT SPOON; NC = CORE BARREL; HX = HAND AUGER; O = OTHER

SITE: Tonawanda Landfill

Last Updated: 4/13/95

HOLE NO. B29RBH10

Attachment C
Downhole Gamma Survey Results

TMA/Eberline
SUBSURFACE GAMMA-RAY RADIATION LOG

D-19426

SURVEY #: 129SG9401

SITE: TONAWANDA LANDFILL JOB NUMBER: 129 SURVEYORS: [redacted]

AREA: MUD FLATS RECORDER: [redacted]

DATE: 11-14-94 COUNT TIME: 1 MINUTE(S) DEPTH (UNITS)= FEET

W(-X) / S(-Y) COORDINATES E(+X) / N(-Y)

	Hole # & Coord.		Hole # & Coord.		Hole # & Coord.		Hole # & Coord.
	129BH01		129BH02				
Depth		Depth		Depth		Depth	
1	19628	1	19481				
2	19328	2	12683				
3	13414	3	10876				
4	13380	4	10609				
5	11807	5	11011				
6	11260	6	7396				
7	11020	7	11795				

SCALER MODEL: LUDLUM 2350 SERIAL NUMBER: S 7640

DETECTOR(SHIELDED): BHP SERIAL NUMBER: S 7797

SCALER MODEL: SERIAL NUMBER:

DETECTOR(UNSHIELDED): SERIAL NUMBER:

COMMENTS:

NOTE: COMMENTS MUST BE MADE FOR SPECIFIC GRID LOCATIONS. GIVE COORDINATES OF THE LOCATIONS TO WHICH EACH COMMENT APPLIES.

TMA/Eberline
SUBSURFACE GAMMA-RAY RADIATION LOG

D-19426

SURVEY #: 129SG9403

SITE: TONAWANDA LANDFILL JOB NUMBER: 129 SURVEYORS: [redacted]

AREA: NORTH SIDE OF LANDFILL RECORDER: [redacted]

DATE: 11-16-94 COUNT TIME: 1 MINUTE(S) DEPTH (UNITS)= FEET

W(-X)		E(+X)
S(-Y)	COORDINATES	N(-Y)

	Hole # & Coord.		Hole # & Coord.		Hole # & Coord.		Hole # & Coord.
	129BH03						
Depth		Depth		Depth		Depth	
0	17852						
1	8037						
2	7052						
3	12996						
4	13305						
5	13275						
6	13117						
7	9913						

SCALER MODEL: LUDLUM 2350 SERIAL NUMBER: S 7640

DETECTOR(SHIELDED): BHP SERIAL NUMBER: S 7797

SCALER MODEL: SERIAL NUMBER:

DETECTOR(UNSHIELDED): SERIAL NUMBER:

COMMENTS:

NOTE: COMMENTS MUST BE MADE FOR SPECIFIC GRID LOCATIONS. GIVE COORDINATES OF THE LOCATIONS TO WHICH EACH COMMENT APPLIES.

D-19426

TMA/Eberline
SUBSURFACE GAMMA-RAY RADIATION LOG

SURVEY #: 129SG9402

SITE: TONAWANDA LANDFILL JOB NUMBER: 129 SURVEYORS: [redacted]

AREA: NORTH SIDE OF LANDFILL RECORDER: [redacted]

DATE: 11-15-94 COUNT TIME: 1 MINUTE(S) [redacted]PTH (UNITS)= FEET

W(-X) / S(-Y) COORDINATES E(+X) / N(-Y)

Depth	Hole # & Coord. 129BH04	Depth	Hole # & Coord.	Depth	Hole # & Coord.	Depth	Hole # & Coord.
0	9883						
1	33905						
2	21107						
3	10318						
4	9280						
5	11851						

SCALER MODEL: LUDLUM 2350 SERIAL NUMBER: S 7640

DETECTOR(SHIELDED): BHP SERIAL NUMBER: S 7797

SCALER MODEL: SERIAL NUMBER:

DETECTOR(UNSHIELDED): SERIAL NUMBER:

COMMENTS: DUE TO A HEAVY INFLUX OF WATER IT WAS POSSIBLE TO LOG ONLY THE FIRST FIVE FEET OF THE BOREHOLE.

NOTE: COMMENTS MUST BE MADE FOR SPECIFIC GRID LOCATIONS. GIVE COORDINATES OF THE LOCATIONS TO WHICH EACH COMMENT APPLIES.

TMA/Eberline
SUBSURFACE GAMMA-RAY RADIATION LOG

D-19426

SURVEY #: 129SG9404

SITE: TONAWANDA LANDFILL JOB NUMBER: 129 SURVEYORS: [redacted]

AREA: NORTH SIDE OF LANDFILL RECORDER:

DATE: 11-17-94 COUNT TIME: 1 MINUTE(S) DEPTH (UNITS)= FEET

W(-X) / S(-Y) COORDINATES E(+X) / N(-Y)

	Hole # & Coord.		Hole # & Coord.		Hole # & Coord.		Hole # & Coord.
	129BH05						
Depth		Depth		Depth		Depth	
0	16295						
0.5	24628						
1.5	141725						
2.5	1014834						
3.5	892292						
4.5	203217						
5.5	67609						
6.5	55501						
7.5	54010						
8.5	21843						
9.5	18960						
10.5	18902						

SCALER MODEL: LUDLUM 2350 SERIAL NUMBER: S 7640

DETECTOR(SHIELDED): BHP SERIAL NUMBER: S 7797

SCALER MODEL: SERIAL NUMBER:

DETECTOR(UNSHIELDED): SERIAL NUMBER:

COMMENTS:

NOTE: COMMENTS MUST BE MADE FOR SPECIFIC GRID LOCATIONS. GIVE COORDINATES OF THE LOCATIONS TO WHICH EACH COMMENT APPLIES.

TMA/Eberline

D-19426

SUBSURFACE GAMMA-RAY RADIATION LOG

SURVEY #: 129SG9405

SITE: TONAWANDA LANDFILL JOB NUMBER: 129 SURVEYORS: [redacted]

AREA: NORTH SIDE OF LANDFILL RECORDER: [redacted]

DATE: 11-18-94 COUNT TIME: 1 MINUTE(S) DEPTH (UNITS)= FEET

W(-X) / S(-Y) COORDINATES E(+X) / N(-Y)

	Hole # & Coord.		Hole # & Coord.		Hole # & Coord.		Hole # & Coord.
	129BH07		129BH07		129BH08		129BH08
Depth		Depth		Depth		Depth	
0	3770	18	9594	0	3549	17.5	13926
1	5553	19	8209	0.5	4713	18.5	13139
2	10629	20	8863	1.5	4338	19.5	12742
3	13623	21	9343	2.5	9945	20.5	12510
4	14226	22	9136	3.5	13086	21.5	12742
5	18987			4.5	13888	22.5	8739
6	13576			5.5	14322	23.5	9192
7	12307			6.5	11540		
8	11157			7.5	9966		
9	11292			8.5	9461		
10	10474			9.5	10946		
11	10263			10.5	10548		
12	10002			11.5	10434		
13	12231			12.5	9763		
14	11423			13.5	12270		
15	11717			14.5	11810		
16	11594			15.5	11709		
17	11329			16.5	12382		

SCALER MODEL: LUDLUM 2350 SERIAL NUMBER: S 7640

DETECTOR(SHIELDED): BHP SERIAL NUMBER: S 7797

SCALER MODEL: SERIAL NUMBER:

DETECTOR(UNSHIELDED): SERIAL NUMBER:

COMMENTS:

NOTE: COMMENTS MUST BE MADE FOR SPECIFIC GRID LOCATIONS. GIVE COORDINATES OF THE LOCATIONS TO WHICH EACH COMMENT APPLIES.

TMA/Eberline Oak Ridge, FUSRAP Radiological Reports
Sampling Event: LIN CH94

Sample ID	Top Depth	Bottom Depth	Date Collected	Analyte	Result	Error	Units	MDA	BNI Flag	Qualifier Code	Analytical Method	TMA/E Number	DATAFUSR Number
LIN SB2 043	0.000	0.000	11/19/94	RA 226	521.00	45.700	PCI/L	0.37	J	TCR	ALPHASPEC	9411099	19790
LIN SB2 043	0.000	0.000	11/19/94	TH 230	0.20	0.270	PCI/L	0.41	UJ	EGR	ALPHASPEC	9411099	19790
LIN SB2 043	0.000	0.000	11/19/94	TH 232	0.06	0.150	PCI/L	0.35	UJ	EGR	ALPHASPEC	9411099	19790
LIN SB2 043	0.000	0.000	11/19/94	U 238	48.20	12.900	PCI/L	0.22			ALPHASPEC	9411099	19790

Borehole Water Results

TMA/Eberline Oak Ridge, FUSRAP Radiological Reports

Sampling Event: LIN CH94

Sample ID	Date Collected	Analyte	Result	Error	Units	MDA	BNI Flag	Qualifier Code	Analytical Method	TMA/E Number	DATAFUSR Number
129 B04 059	11/15/94	RA-226	12.10	3.300	PCI/L	1.00	J	TCR	ALPHASPEC	9411099	19790
129 B04 059	11/15/94	TH-230	2.40	0.840	PCI/L	0.25			ALPHASPEC	9411099	19790
129 B04 059	11/15/94	TH-232	1.10	0.490	PCI/L	0.19			ALPHASPEC	9411099	19790
129 B04 059	11/15/94	U 238	20.20	5.500	PCI/L	0.10			ALPHASPEC	9411099	19790
129 B05 060	11/17/94	RA-226	4.10	2.400	PCI/L	1.00	F	TCR	ALPHASPEC	9411099	19790
129 B05 060	11/17/94	TH-230	693.00	174.100	PCI/L	0.28	J	TCR	ALPHASPEC	9411099	19790
129 B05 060	11/17/94	TH 232	6.70	2.100	PCI/L	0.28	J	TCR	ALPHASPEC	9411099	19790
129 B05 060	11/17/94	U 238	4,328.00	1154.000	PCI/L	12.70	J	AIQ	ALPHASPEC	9411099	19790

Sediment Results

TMA/Eberline Oak Ridge, FUSRAP Radiological Reports
Sampling Event: LIN CH95

Sample ID	Top Depth	Bottom Depth	Date Collected	Analyte	Result	Error	Units	MDA	RNI Flag	Qualifier Code	Analytical Method	TMA/E Number	DATAFUSR Number
1293D1042	0.000	0.220	11/18/94	U 234	2.80	0.770	PCI/G	0.09	J	LCS	ALPHASPEC	9502071	20292
1293D1042	0.000	0.220	11/18/94	U 235	0.12	0.100	PCI/G	0.05	J	LCS	ALPHASPEC	9502071	20292
1293D1042	0.000	0.220	11/18/94	U 238	3.30	0.900	PCI/G	0.04			ALPHASPEC	9502071	20292
1293D1042	0.000	0.220	11/18/94	RA 226	2.90	0.610	PCI/G	0.18			ALPHASPEC	9502071	20292
1293D1042	0.000	0.220	11/18/94	TH 228	1.40	0.440	PCI/G	0.12			ALPHASPEC	9502071	20292
1293D1042	0.000	0.220	11/18/94	TH 230	1.10	0.360	PCI/G	0.08			ALPHASPEC	9502071	20292
1293D1042	0.000	0.220	11/18/94	TH 232	0.62	0.240	PCI/G	0.08			ALPHASPEC	9502071	20292
1293D2043	0.000	0.220	11/18/94	U 234	382.30	124.000	PCI/G	1.60	J	LCS	ALPHASPEC	9502071	20292
1293D2043	0.000	0.220	11/18/94	U 235	19.50	8.500	PCI/G	2.00	J	LCS	ALPHASPEC	9502071	20292
1293D2043	0.000	0.220	11/18/94	U 238	393.50	127.500	PCI/G	0.93	J	TCR	ALPHASPEC	9502071	20292
1293D2043	0.000	0.220	11/18/94	RA 226	65.70	5.700	PCI/G	0.20			ALPHASPEC	9502071	20292
1293D2043	0.000	0.220	11/18/94	TH 228	2.70	0.720	PCI/G	0.09			ALPHASPEC	9502071	20292
1293D2043	0.000	0.220	11/18/94	TH 230	121.80	26.100	PCI/G	0.05			ALPHASPEC	9502071	20292
1293D2043	0.000	0.220	11/18/94	TH 232	2.00	0.550	PCI/G	0.08			ALPHASPEC	9502071	20292

FLAGS AND CODES

Flags	Meaning
A	Acceptable
J	Estimate, qualitatively correct but quantitatively suspect
R	Reject, data are not suitable for any purpose. Resampling or reanalysis may be necessary for verification.
UJ	Undetected-estimated. The result is below the MDA or less than the associated error.
U	Undetected. The blank's result is = to the MDA, or above the MDA and the results of the sample are< 5 times the blank's result.

Codes	
ALQ	Aliquot
BLK	Blank
COC	Chain of custody
CCR	Continuing Calibration Range
EGR	Error greater than result
ERR	Error term
HT	Holding time
ICR	Initial Calibration Range
LCS	Lab control sample
MDA	Minimum detectable activity
MTH	Method
PSV	Preservative
RPL	Replicate
SAF	Self-Absorption
TCR	Tracer Recovery
WET	Wet (soil sample)

Attachment D

Screening results for soil and sediment - depth units = feet

TMA/Eberline Oak Ridge, FUSRAP Radiological Reports
Sampling Event: LIN CH94

Sample ID	Top Depth	Bottom Depth	Date Collected	Analyte	Result	Error	Units	MDA	BNI Flag	Qualifier Code	Analytical Method	TMA/E Number	DATAFUSR Number
129-B01-001	0.000	1.500	11/14/94	RA-226	3.20	0.130	PCI/G	0.16			GAMMASPEC	9411100	19281
129-B01-001	0.000	1.500	11/14/94	RA-228	0.32	0.000	PCI/G	0.32	UJ	LCS	GAMMASPEC	9411100	19281
129-B01-001	0.000	1.500	11/14/94	TH-228	0.06	0.110	PCI/G	0.32	UJ	LCS	GAMMASPEC	9411100	19281
129-B01-001	0.000	1.500	11/14/94	TH-232	0.58	0.070	PCI/G	0.17	J	LCS	GAMMASPEC	9411100	19281
129-B01-001	0.000	1.500	11/14/94	U-235	0.42	0.040	PCI/G	0.08	J	LCS	GAMMASPEC	9411100	19281
129-B01-001	0.000	1.500	11/14/94	U-238	3.00	0.860	PCI/G	1.30			GAMMASPEC	9411100	19281
129-B01-001	0.000	1.500	11/14/94	AM-241	0.16	0.000	PCI/G	0.16	UJ	LCS	GAMMASPEC	9411100	19281
129-B01-001	0.000	1.500	11/14/94	K-40	12.30	1.000	PCI/G	1.20	J	LCS	GAMMASPEC	9411100	19281
129-B01-002	1.500	3.000	11/14/94	RA-226	1.10	0.090	PCI/G	0.16			GAMMASPEC	9411100	19281
129-B01-002	1.500	3.000	11/14/94	RA-228	0.53	0.000	PCI/G	0.53	UJ	LCS	GAMMASPEC	9411100	19281
129-B01-002	1.500	3.000	11/14/94	TH-228	0.53	0.000	PCI/G	0.53	UJ	LCS	GAMMASPEC	9411100	19281
129-B01-002	1.500	3.000	11/14/94	TH-232	0.61	0.070	PCI/G	0.24	J	LCS	GAMMASPEC	9411100	19281
129-B01-002	1.500	3.000	11/14/94	U-235	0.41	0.040	PCI/G	0.08	J	LCS	GAMMASPEC	9411100	19281
129-B01-002	1.500	3.000	11/14/94	U-238	6.30	1.600	PCI/G	1.30			GAMMASPEC	9411100	19281
129-B01-002	1.500	3.000	11/14/94	AM-241	0.16	0.000	PCI/G	0.16	UJ	LCS	GAMMASPEC	9411100	19281
129-B01-002	1.500	3.000	11/14/94	K-40	9.80	0.960	PCI/G	1.50	J	LCS	GAMMASPEC	9411100	19281
129-B01-003	3.000	5.000	11/14/94	RA-226	0.74	0.060	PCI/G	0.14			GAMMASPEC	9411100	19281
129-B01-003	3.000	5.000	11/14/94	RA-228	0.29	0.000	PCI/G	0.29	UJ	LCS	GAMMASPEC	9411100	19281
129-B01-003	3.000	5.000	11/14/94	TH-228	0.29	0.000	PCI/G	0.29	UJ	LCS	GAMMASPEC	9411100	19281
129-B01-003	3.000	5.000	11/14/94	TH-232	0.59	0.070	PCI/G	0.02	J	LCS	GAMMASPEC	9411100	19281
129-B01-003	3.000	5.000	11/14/94	U-235	0.09	0.020	PCI/G	0.06	J	LCS	GAMMASPEC	9411100	19281
129-B01-003	3.000	5.000	11/14/94	U-238	1.20	0.000	PCI/G	1.20	UJ	ERR	GAMMASPEC	9411100	19281
129-B01-003	3.000	5.000	11/14/94	AM-241	0.12	0.000	PCI/G	0.12	UJ	LCS	GAMMASPEC	9411100	19281
129-B01-003	3.000	5.000	11/14/94	K-40	15.40	1.200	PCI/G	1.00	J	LCS	GAMMASPEC	9411100	19281
129-B01-004	5.000	7.000	11/14/94	RA-226	0.62	0.060	PCI/G	0.10			GAMMASPEC	9411100	19281
129-B01-004	5.000	7.000	11/14/94	RA-228	0.25	0.000	PCI/G	0.25	UJ	LCS	GAMMASPEC	9411100	19281
129-B01-004	5.000	7.000	11/14/94	TH-228	0.25	0.000	PCI/G	0.25	UJ	LCS	GAMMASPEC	9411100	19281
129-B01-004	5.000	7.000	11/14/94	TH-232	0.57	0.050	PCI/G	0.16	J	LCS	GAMMASPEC	9411100	19281
129-B01-004	5.000	7.000	11/14/94	U-235	0.08	0.020	PCI/G	0.05	J	LCS	GAMMASPEC	9411100	19281
129-B01-004	5.000	7.000	11/14/94	U-238	0.94	0.000	PCI/G	0.94	UJ	ERR	GAMMASPEC	9411100	19281
129-B01-004	5.000	7.000	11/14/94	AM-241	0.09	0.000	PCI/G	0.09	UJ	LCS	GAMMASPEC	9411100	19281
129-B01-004	5.000	7.000	11/14/94	K-40	11.70	0.940	PCI/G	0.91	J	LCS	GAMMASPEC	9411100	19281
129-B02-005	0.000	1.500	11/14/94	RA-226	1.90	0.120	PCI/G	0.21			GAMMASPEC	9411100	19281
129-B02-005	0.000	1.500	11/14/94	RA-228	0.42	0.000	PCI/G	0.42	UJ	LCS	GAMMASPEC	9411100	19281
129-B02-005	0.000	1.500	11/14/94	TH-228	0.12	0.190	PCI/G	0.42	UJ	LCS	GAMMASPEC	9411100	19281
129-B02-005	0.000	1.500	11/14/94	TH-232	0.50	0.140	PCI/G	0.37	J	LCS	GAMMASPEC	9411100	19281
129-B02-005	0.000	1.500	11/14/94	U-235	0.19	0.030	PCI/G	0.09	J	LCS	GAMMASPEC	9411100	19281
129-B02-005	0.000	1.500	11/14/94	U-238	0.97	0.500	PCI/G	1.40	UJ	MDA	GAMMASPEC	9411100	19281
129-B02-005	0.000	1.500	11/14/94	AM-241	0.17	0.000	PCI/G	0.17	UJ	LCS	GAMMASPEC	9411100	19281

TMA/Eberline Oak Ridge, FUSRAP Radiological Reports
Sampling Event: LIN CH94

Sample ID	Top Depth	Bottom Depth	Date Collected	Analyte	Result	Error	Units	MDA	BNI Flag	Qualifier Code	Analytical Method	TMA/E Number	DATAFUSR Number
129-B02-005	0.000	1.500	11/14/94	K-40	11.00	1.100	PCI/G	1.50	J	LCS	GAMMASPEC	9411100	19281
129-B02-006	1.500	3.000	11/14/94	RA-226	0.59	0.060	PCI/G	0.12			GAMMASPEC	9411100	19281
129-B02-006	1.500	3.000	11/14/94	RA-228	0.36	0.000	PCI/G	0.36	UJ	LCS	GAMMASPEC	9411100	19281
129-B02-006	1.500	3.000	11/14/94	TH-228	0.36	0.000	PCI/G	0.36	UJ	LCS	GAMMASPEC	9411100	19281
129-B02-006	1.500	3.000	11/14/94	TH-232	0.58	0.050	PCI/G	0.22	J	LCS	GAMMASPEC	9411100	19281
129-B02-006	1.500	3.000	11/14/94	U-235	0.06	0.020	PCI/G	0.06	UJ	LCS	GAMMASPEC	9411100	19281
129-B02-006	1.500	3.000	11/14/94	U-238	0.83	0.340	PCI/G	0.87	UJ	MDA	GAMMASPEC	9411100	19281
129-B02-006	1.500	3.000	11/14/94	AM-241	0.11	0.000	PCI/G	0.11	UJ	LCS	GAMMASPEC	9411100	19281
129-B02-006	1.500	3.000	11/14/94	K-40	13.80	1.100	PCI/G	1.10	J	LCS	GAMMASPEC	9411100	19281
129-B02-007	3.000	5.000	11/14/94	RA-226	0.40	0.040	PCI/G	0.11			GAMMASPEC	9411100	19281
129-B02-007	3.000	5.000	11/14/94	RA-228	0.24	0.000	PCI/G	0.24	UJ	LCS	GAMMASPEC	9411100	19281
129-B02-007	3.000	5.000	11/14/94	TH-228	0.24	0.000	PCI/G	0.24	UJ	LCS	GAMMASPEC	9411100	19281
129-B02-007	3.000	5.000	11/14/94	TH-232	0.63	0.050	PCI/G	0.18	J	LCS	GAMMASPEC	9411100	19281
129-B02-007	3.000	5.000	11/14/94	U-235	0.06	0.000	PCI/G	0.06	UJ	LCS	GAMMASPEC	9411100	19281
129-B02-007	3.000	5.000	11/14/94	U-238	1.00	0.000	PCI/G	1.00	UJ	ERR	GAMMASPEC	9411100	19281
129-B02-007	3.000	5.000	11/14/94	AM-241	0.10	0.000	PCI/G	0.10	UJ	LCS	GAMMASPEC	9411100	19281
129-B02-007	3.000	5.000	11/14/94	K-40	12.30	1.000	PCI/G	1.00	J	LCS	GAMMASPEC	9411100	19281
129-B02-008	5.000	7.000	11/14/94	RA-226	0.41	0.050	PCI/G	0.11	J	WET	GAMMASPEC	9411110	19313
129-B02-008	5.000	7.000	11/14/94	RA-228	0.21	0.000	PCI/G	0.21	UJ	LCS	GAMMASPEC	9411110	19313
129-B02-008	5.000	7.000	11/14/94	TH-228	0.21	0.000	PCI/G	0.21	UJ	LCS	GAMMASPEC	9411110	19313
129-B02-008	5.000	7.000	11/14/94	TH-232	0.60	0.050	PCI/G	0.17	J	LCS	GAMMASPEC	9411110	19313
129-B02-008	5.000	7.000	11/14/94	U-235	0.05	0.020	PCI/G	0.05	UJ	LCS	GAMMASPEC	9411110	19313
129-B02-008	5.000	7.000	11/14/94	U-238	0.69	0.350	PCI/G	1.00	UJ	RPL	GAMMASPEC	9411110	19313
129-B02-008	5.000	7.000	11/14/94	AM-241	0.12	0.000	PCI/G	0.12	UJ	LCS	GAMMASPEC	9411110	19313
129-B02-008	5.000	7.000	11/14/94	K-40	14.70	1.100	PCI/G	0.74	J	LCS	GAMMASPEC	9411110	19313
129-B03-015	0.000	1.500	11/16/94	RA-226	0.64	0.090	PCI/G	0.18	J	WET	GAMMASPEC	9411074	19164
129-B03-015	0.000	1.500	11/16/94	RA-228	0.54	0.000	PCI/G	0.54	UJ	LCS	GAMMASPEC	9411074	19164
129-B03-015	0.000	1.500	11/16/94	TH-228	0.54	0.000	PCI/G	0.54	UJ	LCS	GAMMASPEC	9411074	19164
129-B03-015	0.000	1.500	11/16/94	TH-232	0.40	0.000	PCI/G	0.40	UJ	LCS	GAMMASPEC	9411074	19164
129-B03-015	0.000	1.500	11/16/94	U-235	0.10	0.000	PCI/G	0.10	UJ	LCS	GAMMASPEC	9411074	19164
129-B03-015	0.000	1.500	11/16/94	U-238	1.50	0.000	PCI/G	1.50	UJ	WET	GAMMASPEC	9411074	19164
129-B03-015	0.000	1.500	11/16/94	AM-241	0.14	0.000	PCI/G	0.14	UJ	LCS	GAMMASPEC	9411074	19164
129-B03-015	0.000	1.500	11/16/94	K-40	6.60	0.800	PCI/G	1.30	J	LCS	GAMMASPEC	9411074	19164
129-B03-016	1.500	3.000	11/16/94	RA-226	0.27	0.060	PCI/G	0.13	J	WET	GAMMASPEC	9411074	19164
129-B03-016	1.500	3.000	11/16/94	RA-228	0.46	0.000	PCI/G	0.46	UJ	LCS	GAMMASPEC	9411074	19164
129-B03-016	1.500	3.000	11/16/94	TH-228	0.46	0.000	PCI/G	0.46	UJ	LCS	GAMMASPEC	9411074	19164
129-B03-016	1.500	3.000	11/16/94	TH-232	0.30	0.000	PCI/G	0.30	UJ	LCS	GAMMASPEC	9411074	19164
129-B03-016	1.500	3.000	11/16/94	U-235	0.07	0.000	PCI/G	0.07	UJ	LCS	GAMMASPEC	9411074	19164
129-B03-016	1.500	3.000	11/16/94	U-238	1.00	0.000	PCI/G	1.00	UJ	WET	GAMMASPEC	9411074	19164

Sample ID	Top Depth	Bottom Depth	Date Collected	Analyte	Result	Error	Units	MDA	BNI Flag	Qualifier Code	Analytical Method	TMA/E Number	DATAFUSR Number
129-B03-016	1.500	3.000	11/16/94	AM-241	0.10	0.000	PCI/G	0.10	UJ	LCS	GAMMASPEC	9411074	19164
129-B03-016	1.500	3.000	11/16/94	K-40	5.30	0.660	PCI/G	1.10	J	LCS	GAMMASPEC	9411074	19164
129-B03-017	3.000	5.000	11/16/94	RA-226	0.20	0.070	PCI/G	0.16	J	WET	GAMMASPEC	9411074	19164
129-B03-017	3.000	5.000	11/16/94	RA-228	0.42	0.000	PCI/G	0.42	UJ	LCS	GAMMASPEC	9411074	19164
129-B03-017	3.000	5.000	11/16/94	TH-228	0.17	0.150	PCI/G	0.42	UJ	LCS	GAMMASPEC	9411074	19164
129-B03-017	3.000	5.000	11/16/94	TH-232	0.57	0.100	PCI/G	0.27	J	LCS	GAMMASPEC	9411074	19164
129-B03-017	3.000	5.000	11/16/94	U-235	0.09	0.000	PCI/G	0.09	UJ	LCS	GAMMASPEC	9411074	19164
129-B03-017	3.000	5.000	11/16/94	U-238	1.60	0.000	PCI/G	1.60	UJ	WET	GAMMASPEC	9411074	19164
129-B03-017	3.000	5.000	11/16/94	AM-241	0.16	0.000	PCI/G	0.16	UJ	LCS	GAMMASPEC	9411074	19164
129-B03-017	3.000	5.000	11/16/94	K-40	14.70	1.400	PCI/G	1.60	J	LCS	GAMMASPEC	9411074	19164
129-B03-018	5.000	7.000	11/16/94	RA-226	0.52	0.080	PCI/G	0.15	J	WET	GAMMASPEC	9411074	19164
129-B03-018	5.000	7.000	11/16/94	RA-228	0.38	0.000	PCI/G	0.38	UJ	LCS	GAMMASPEC	9411074	19164
129-B03-018	5.000	7.000	11/16/94	TH-228	0.21	0.190	PCI/G	0.38	UJ	LCS	GAMMASPEC	9411074	19164
129-B03-018	5.000	7.000	11/16/94	TH-232	0.34	0.160	PCI/G	0.24	J	LCS	GAMMASPEC	9411074	19164
129-B03-018	5.000	7.000	11/16/94	U-235	0.08	0.000	PCI/G	0.08	UJ	LCS	GAMMASPEC	9411074	19164
129-B03-018	5.000	7.000	11/16/94	U-238	1.40	0.000	PCI/G	1.40	UJ	WET	GAMMASPEC	9411074	19164
129-B03-018	5.000	7.000	11/16/94	AM-241	0.14	0.000	PCI/G	0.14	UJ	LCS	GAMMASPEC	9411074	19164
129-B03-018	5.000	7.000	11/16/94	K-40	12.80	1.200	PCI/G	1.20	J	LCS	GAMMASPEC	9411074	19164
129-B04-009	0.000	1.500	11/15/94	RA-226	14.40	0.510	PCI/G	0.35			GAMMASPEC	9411100	19281
129-B04-009	0.000	1.500	11/15/94	RA-228	0.84	0.000	PCI/G	0.84	UJ	LCS	GAMMASPEC	9411100	19281
129-B04-009	0.000	1.500	11/15/94	TH-228	0.84	0.000	PCI/G	0.84	UJ	LCS	GAMMASPEC	9411100	19281
129-B04-009	0.000	1.500	11/15/94	TH-232	0.39	0.000	PCI/G	0.39	UJ	LCS	GAMMASPEC	9411100	19281
129-B04-009	0.000	1.500	11/15/94	U-235	1.20	0.090	PCI/G	0.19	J	LCS	GAMMASPEC	9411100	19281
129-B04-009	0.000	1.500	11/15/94	U-238	3.30	0.000	PCI/G	3.30	UJ	ERR	GAMMASPEC	9411100	19281
129-B04-009	0.000	1.500	11/15/94	AM-241	0.33	0.000	PCI/G	0.33	UJ	LCS	GAMMASPEC	9411100	19281
129-B04-009	0.000	1.500	11/15/94	K-40	11.20	1.100	PCI/G	2.30	J	LCS	GAMMASPEC	9411100	19281
129-B04-010	1.500	3.000	11/15/94	RA-226	0.42	0.080	PCI/G	0.15			GAMMASPEC	9411100	19281
129-B04-010	1.500	3.000	11/15/94	RA-228	0.32	0.000	PCI/G	0.32	UJ	LCS	GAMMASPEC	9411100	19281
129-B04-010	1.500	3.000	11/15/94	TH-228	0.32	0.000	PCI/G	0.32	UJ	LCS	GAMMASPEC	9411100	19281
129-B04-010	1.500	3.000	11/15/94	TH-232	0.61	0.070	PCI/G	0.27	J	LCS	GAMMASPEC	9411100	19281
129-B04-010	1.500	3.000	11/15/94	U-235	0.08	0.020	PCI/G	0.07	J	LCS	GAMMASPEC	9411100	19281
129-B04-010	1.500	3.000	11/15/94	U-238	1.40	0.520	PCI/G	1.20			GAMMASPEC	9411100	19281
129-B04-010	1.500	3.000	11/15/94	AM-241	0.13	0.000	PCI/G	0.13	UJ	LCS	GAMMASPEC	9411100	19281
129-B04-010	1.500	3.000	11/15/94	K-40	9.80	0.980	PCI/G	1.50	J	LCS	GAMMASPEC	9411100	19281
129-B04-011	3.000	5.000	11/15/94	RA-226	1.50	0.080	PCI/G	0.13			GAMMASPEC	9411100	19281
129-B04-011	3.000	5.000	11/15/94	RA-228	0.23	0.000	PCI/G	0.23	UJ	LCS	GAMMASPEC	9411100	19281
129-B04-011	3.000	5.000	11/15/94	TH-228	0.50	0.200	PCI/G	0.23	J	LCS	GAMMASPEC	9411100	19281
129-B04-011	3.000	5.000	11/15/94	TH-232	0.98	0.180	PCI/G	0.08	J	LCS	GAMMASPEC	9411100	19281
129-B04-011	3.000	5.000	11/15/94	U-235	0.15	0.020	PCI/G	0.06	J	LCS	GAMMASPEC	9411100	19281

Sample ID	Top Depth	Bottom Depth	Date Collected	Analyte	Result	Error	Units	MDA	BNI Flag	Qualifier Code	Analytical Method	TMA/E Number	DATAFUSR Number
129-B04-011	3.000	5.000	11/15/94	U-238	1.70	0.540	PCI/G	1.10			GAMMASPEC	9411100	19281
129-B04-011	3.000	5.000	11/15/94	AM-241	0.13	0.000	PCI/G	0.13	UJ	LCS	GAMMASPEC	9411100	19281
129-B04-011	3.000	5.000	11/15/94	K-40	7.90	0.720	PCI/G	1.00	J	LCS	GAMMASPEC	9411100	19281
129-B04-012	5.000	7.000	11/15/94	RA-226	2.30	0.130	PCI/G	0.18			GAMMASPEC	9411100	19281
129-B04-012	5.000	7.000	11/15/94	RA-228	0.47	0.000	PCI/G	0.47	UJ	LCS	GAMMASPEC	9411100	19281
129-B04-012	5.000	7.000	11/15/94	TH-228	0.47	0.000	PCI/G	0.47	UJ	LCS	GAMMASPEC	9411100	19281
129-B04-012	5.000	7.000	11/15/94	TH-232	1.30	0.090	PCI/G	0.34	J	LCS	GAMMASPEC	9411100	19281
129-B04-012	5.000	7.000	11/15/94	U-235	0.26	0.030	PCI/G	0.09	J	LCS	GAMMASPEC	9411100	19281
129-B04-012	5.000	7.000	11/15/94	U-238	1.90	0.000	PCI/G	1.90	UJ	ERR	GAMMASPEC	9411100	19281
129-B04-012	5.000	7.000	11/15/94	AM-241	0.19	0.000	PCI/G	0.19	UJ	LCS	GAMMASPEC	9411100	19281
129-B04-012	5.000	7.000	11/15/94	K-40	8.60	0.930	PCI/G	1.70	J	LCS	GAMMASPEC	9411100	19281
129-B04-013	12.500	14.500	11/15/94	RA-226	0.48	0.050	PCI/G	0.10			GAMMASPEC	9411100	19281
129-B04-013	12.500	14.500	11/15/94	RA-228	0.23	0.000	PCI/G	0.23	UJ	LCS	GAMMASPEC	9411100	19281
129-B04-013	12.500	14.500	11/15/94	TH-228	0.15	0.080	PCI/G	0.23	UJ	LCS	GAMMASPEC	9411100	19281
129-B04-013	12.500	14.500	11/15/94	TH-232	0.46	0.050	PCI/G	0.16	J	LCS	GAMMASPEC	9411100	19281
129-B04-013	12.500	14.500	11/15/94	U-235	0.08	0.020	PCI/G	0.05	J	LCS	GAMMASPEC	9411100	19281
129-B04-013	12.500	14.500	11/15/94	U-238	0.92	0.000	PCI/G	0.92	UJ	ERR	GAMMASPEC	9411100	19281
129-B04-013	12.500	14.500	11/15/94	AM-241	0.10	0.000	PCI/G	0.10	UJ	LCS	GAMMASPEC	9411100	19281
129-B04-013	12.500	14.500	11/15/94	K-40	11.50	0.920	PCI/G	0.78	J	LCS	GAMMASPEC	9411100	19281
129-B04-014	14.500	16.500	11/15/94	RA-226	0.28	0.030	PCI/G	0.08			GAMMASPEC	9411100	19281
129-B04-014	14.500	16.500	11/15/94	RA-228	0.19	0.000	PCI/G	0.19	UJ	LCS	GAMMASPEC	9411100	19281
129-B04-014	14.500	16.500	11/15/94	TH-228	0.19	0.000	PCI/G	0.19	UJ	LCS	GAMMASPEC	9411100	19281
129-B04-014	14.500	16.500	11/15/94	TH-232	0.51	0.040	PCI/G	0.13	J	LCS	GAMMASPEC	9411100	19281
129-B04-014	14.500	16.500	11/15/94	U-235	0.05	0.010	PCI/G	0.04	J	LCS	GAMMASPEC	9411100	19281
129-B04-014	14.500	16.500	11/15/94	U-238	0.76	0.000	PCI/G	0.76	UJ	ERR	GAMMASPEC	9411100	19281
129-B04-014	14.500	16.500	11/15/94	AM-241	0.08	0.000	PCI/G	0.08	UJ	LCS	GAMMASPEC	9411100	19281
129-B04-014	14.500	16.500	11/15/94	K-40	11.00	0.840	PCI/G	0.65	J	LCS	GAMMASPEC	9411100	19281
129-B05-026	0.000	1.500	11/17/94	RA-226	6.00	0.240	PCI/G	0.24	J	WET	GAMMASPEC	9411092	19213
129-B05-026	0.000	1.500	11/17/94	RA-228	0.46	0.000	PCI/G	0.46	UJ	LCS	GAMMASPEC	9411092	19213
129-B05-026	0.000	1.500	11/17/94	TH-228	0.46	0.000	PCI/G	0.46	UJ	LCS	GAMMASPEC	9411092	19213
129-B05-026	0.000	1.500	11/17/94	TH-232	0.76	0.100	PCI/G	0.21	J	LCS	GAMMASPEC	9411092	19213
129-B05-026	0.000	1.500	11/17/94	U-235	1.20	0.070	PCI/G	0.14	J	LCS	GAMMASPEC	9411092	19213
129-B05-026	0.000	1.500	11/17/94	U-238	13.10	3.300	PCI/G	2.50	J	LCS	GAMMASPEC	9411092	19213
129-B05-026	0.000	1.500	11/17/94	AM-241	0.28	0.000	PCI/G	0.28	UJ	LCS	GAMMASPEC	9411092	19213
129-B05-026	0.000	1.500	11/17/94	K-40	6.30	0.720	PCI/G	1.40	J	LCS	GAMMASPEC	9411092	19213
129-B05-027	1.500	3.000	11/17/94	RA-226	217.00	5.700	PCI/G	1.10	J	WET	GAMMASPEC	9411092	19213
129-B05-027	1.500	3.000	11/17/94	RA-228	2.30	0.000	PCI/G	2.30	UJ	LCS	GAMMASPEC	9411092	19213
129-B05-027	1.500	3.000	11/17/94	TH-228	2.30	0.000	PCI/G	2.30	UJ	LCS	GAMMASPEC	9411092	19213
129-B05-027	1.500	3.000	11/17/94	TH-232	0.44	0.000	PCI/G	0.44	UJ	LCS	GAMMASPEC	9411092	19213

Sample ID	Top Depth	Bottom Depth	Date Collected	Analyte	Result	Error	Units	MDA	RNI Flag	Qualifier Code	Analytical Method	TMA/E Number	DATAFUSR Number
129-B05-027	1.500	3.000	11/17/94	U-235	12.00	0.710	PCI/G	0.64	J	LCS	GAMMASPEC	9411092	19213
129-B05-027	1.500	3.000	11/17/94	U-238	115.00	34.900	PCI/G	11.70	J	LCS	GAMMASPEC	9411092	19213
129-B05-027	1.500	3.000	11/17/94	AM-241	1.20	0.000	PCI/G	1.20	UJ	LCS	GAMMASPEC	9411092	19213
129-B05-027	1.500	3.000	11/17/94	K-40	2.70	1.600	PCI/G	5.10	UJ	LCS	GAMMASPEC	9411092	19213
129-B05-028	3.000	5.000	11/17/94	RA-226	41.20	1.400	PCI/G	0.69	J	WET	GAMMASPEC	9411092	19213
129-B05-028	3.000	5.000	11/17/94	RA-228	1.40	0.000	PCI/G	1.40	UJ	LCS	GAMMASPEC	9411092	19213
129-B05-028	3.000	5.000	11/17/94	TH-228	1.40	0.000	PCI/G	1.40	UJ	LCS	GAMMASPEC	9411092	19213
129-B05-028	3.000	5.000	11/17/94	TH-232	0.66	0.160	PCI/G	0.49	J	LCS	GAMMASPEC	9411092	19213
129-B05-028	3.000	5.000	11/17/94	U-235	14.90	0.550	PCI/G	0.39	J	LCS	GAMMASPEC	9411092	19213
129-B05-028	3.000	5.000	11/17/94	U-238	259.00	65.400	PCI/G	8.90	J	LCS	GAMMASPEC	9411092	19213
129-B05-028	3.000	5.000	11/17/94	AM-241	0.94	0.000	PCI/G	0.94	UJ	LCS	GAMMASPEC	9411092	19213
129-B05-028	3.000	5.000	11/17/94	K-40	4.10	1.000	PCI/G	3.10	J	LCS	GAMMASPEC	9411092	19213
129-B05-029	5.000	7.000	11/17/94	RA-226	9.20	0.330	PCI/G	0.30	J	WET	GAMMASPEC	9411092	19213
129-B05-029	5.000	7.000	11/17/94	RA-228	0.62	0.000	PCI/G	0.62	UJ	LCS	GAMMASPEC	9411092	19213
129-B05-029	5.000	7.000	11/17/94	TH-228	0.62	0.000	PCI/G	0.62	UJ	LCS	GAMMASPEC	9411092	19213
129-B05-029	5.000	7.000	11/17/94	TH-232	1.00	0.120	PCI/G	0.72	J	LCS	GAMMASPEC	9411092	19213
129-B05-029	5.000	7.000	11/17/94	U-235	5.80	0.240	PCI/G	0.18	J	LCS	GAMMASPEC	9411092	19213
129-B05-029	5.000	7.000	11/17/94	U-238	111.00	27.100	PCI/G	5.00	J	LCS	GAMMASPEC	9411092	19213
129-B05-029	5.000	7.000	11/17/94	AM-241	0.56	0.000	PCI/G	0.56	UJ	LCS	GAMMASPEC	9411092	19213
129-B05-029	5.000	7.000	11/17/94	K-40	5.00	0.730	PCI/G	1.70	J	LCS	GAMMASPEC	9411092	19213
129-B05-030	7.000	9.000	11/17/94	RA-226	11.40	0.400	PCI/G	0.37	J	WET	GAMMASPEC	9411092	19213
129-B05-030	7.000	9.000	11/17/94	RA-228	0.66	0.000	PCI/G	0.66	UJ	LCS	GAMMASPEC	9411092	19213
129-B05-030	7.000	9.000	11/17/94	TH-228	0.66	0.000	PCI/G	0.66	UJ	LCS	GAMMASPEC	9411092	19213
129-B05-030	7.000	9.000	11/17/94	TH-232	0.94	0.100	PCI/G	0.20	J	LCS	GAMMASPEC	9411092	19213
129-B05-030	7.000	9.000	11/17/94	U-235	9.80	0.360	PCI/G	0.22	J	LCS	GAMMASPEC	9411092	19213
129-B05-030	7.000	9.000	11/17/94	U-238	153.00	37.400	PCI/G	5.90	J	LCS	GAMMASPEC	9411092	19213
129-B05-030	7.000	9.000	11/17/94	AM-241	0.66	0.000	PCI/G	0.66	UJ	LCS	GAMMASPEC	9411092	19213
129-B05-030	7.000	9.000	11/17/94	K-40	4.90	0.750	PCI/G	1.90	J	LCS	GAMMASPEC	9411092	19213
129-B05-031	9.000	11.000	11/17/94	RA-226	5.80	2.500	PCI/G	0.45	J	WET	GAMMASPEC	9411092	19213
129-B05-031	9.000	11.000	11/17/94	RA-228	0.60	0.000	PCI/G	0.60	UJ	LCS	GAMMASPEC	9411092	19213
129-B05-031	9.000	11.000	11/17/94	TH-228	0.60	0.000	PCI/G	0.60	UJ	LCS	GAMMASPEC	9411092	19213
129-B05-031	9.000	11.000	11/17/94	TH-232	0.78	0.220	PCI/G	0.52	J	LCS	GAMMASPEC	9411092	19213
129-B05-031	9.000	11.000	11/17/94	U-235	16.80	0.570	PCI/G	0.28	J	LCS	GAMMASPEC	9411092	19213
129-B05-031	9.000	11.000	11/17/94	U-238	192.00	47.300	PCI/G	7.10	J	LCS	GAMMASPEC	9411092	19213
129-B05-031	9.000	11.000	11/17/94	AM-241	0.78	0.000	PCI/G	0.78	UJ	LCS	GAMMASPEC	9411092	19213
129-B05-031	9.000	11.000	11/17/94	K-40	3.80	0.640	PCI/G	1.70	J	LCS	GAMMASPEC	9411092	19213
129-B05-032	11.000	11.500	11/17/94	RA-226	4.10	0.190	PCI/G	0.25	J	WET	GAMMASPEC	9411092	19213
129-B05-032	11.000	11.500	11/17/94	RA-228	0.51	0.000	PCI/G	0.51	UJ	LCS	GAMMASPEC	9411092	19213
129-B05-032	11.000	11.500	11/17/94	TH-228	0.51	0.000	PCI/G	0.51	UJ	LCS	GAMMASPEC	9411092	19213

TMA/Eberline Oak Ridge, FUSRAP Radiological Reports
Sampling Event : LIN CH94

Sample ID	Top Depth	Bottom Depth	Date Collected	Analyte	Result	Error	Units	MDA	RNI Flag	Qualifier Code	Analytical Method	TMA/E Number	DATAFUSR Number
129-B05-032	11.000	11.500	11/17/94	TH 232	0.61	0.090	PCI/G	0.37	J	LCS	GAMMASPEC	9411092	19213
129-B05-032	11.000	11.500	11/17/94	U-235	4.20	0.180	PCI/G	0.15	J	LCS	GAMMASPEC	9411092	19213
129-B05-032	11.000	11.500	11/17/94	U 238	66.40	16.300	PCI/G	0.40	J	LCS	GAMMASPEC	9411092	19213
129-B05-032	11.000	11.500	11/17/94	AM 241	0.44	0.000	PCI/G	0.44	UJ	LCS	GAMMASPEC	9411092	19213
129-B05-032	11.000	11.500	11/17/94	K 40	6.10	0.700	PCI/G	1.30	J	LCS	GAMMASPEC	9411092	19213
129-B05-033	11.500	12.500	11/17/94	RA 226	0.50	0.060	PCI/G	0.14	J	WET	GAMMASPEC	9411092	19213
129-B05-033	11.500	12.500	11/17/94	RA 228	0.34	0.000	PCI/G	0.34	UJ	LCS	GAMMASPEC	9411092	19213
129-B05-033	11.500	12.500	11/17/94	TH 228	0.34	0.000	PCI/G	0.34	UJ	LCS	GAMMASPEC	9411092	19213
129-B05-033	11.500	12.500	11/17/94	TH 232	0.66	0.050	PCI/G	0.18	J	LCS	GAMMASPEC	9411092	19213
129-B05-033	11.500	12.500	11/17/94	U-235	0.23	0.030	PCI/G	0.07	J	LCS	GAMMASPEC	9411092	19213
129-B05-033	11.500	12.500	11/17/94	U 238	3.70	1.000	PCI/G	1.40	J	LCS	GAMMASPEC	9411092	19213
129-B05-033	11.500	12.500	11/17/94	AM 241	0.16	0.000	PCI/G	0.16	UJ	LCS	GAMMASPEC	9411092	19213
129-B05-033	11.500	12.500	11/17/94	K 40	13.90	1.200	PCI/G	1.10	J	LCS	GAMMASPEC	9411092	19213
129-B06-019	0.000	2.000	11/16/94	RA 226	0.43	0.100	PCI/G	0.19	J	WET	GAMMASPEC	9411074	19164
129-B06-019	0.000	2.000	11/16/94	RA 228	0.42	0.000	PCI/G	0.42	UJ	LCS	GAMMASPEC	9411074	19164
129-B06-019	0.000	2.000	11/16/94	TH 228	0.52	0.120	PCI/G	0.42	J	LCS	GAMMASPEC	9411074	19164
129-B06-019	0.000	2.000	11/16/94	TH 232	0.50	0.000	PCI/G	0.50	UJ	LCS	GAMMASPEC	9411074	19164
129-B06-019	0.000	2.000	11/16/94	U 235	0.11	0.000	PCI/G	0.11	UJ	LCS	GAMMASPEC	9411074	19164
129-B06-019	0.000	2.000	11/16/94	U 238	1.70	0.000	PCI/G	1.70	UJ	WET	GAMMASPEC	9411074	19164
129-B06-019	0.000	2.000	11/16/94	AM 241	0.18	0.000	PCI/G	0.18	UJ	LCS	GAMMASPEC	9411074	19164
129-B06-019	0.000	2.000	11/16/94	K-40	11.30	1.300	PCI/G	2.00	J	LCS	GAMMASPEC	9411074	19164
129-B06-020	2.000	4.000	11/16/94	RA 226	0.36	0.080	PCI/G	0.19	J	WET	GAMMASPEC	9411074	19164
129-B06-020	2.000	4.000	11/16/94	RA-228	0.37	0.000	PCI/G	0.37	UJ	LCS	GAMMASPEC	9411074	19164
129-B06-020	2.000	4.000	11/16/94	TH 228	0.16	0.150	PCI/G	0.37	UJ	LCS	GAMMASPEC	9411074	19164
129-B06-020	2.000	4.000	11/16/94	TH-232	0.56	0.090	PCI/G	0.30	J	LCS	GAMMASPEC	9411074	19164
129-B06-020	2.000	4.000	11/16/94	U 235	0.09	0.000	PCI/G	0.09	UJ	LCS	GAMMASPEC	9411074	19164
129-B06-020	2.000	4.000	11/16/94	U-238	1.70	0.000	PCI/G	1.70	UJ	WET	GAMMASPEC	9411074	19164
129-B06-020	2.000	4.000	11/16/94	AM 241	0.17	0.000	PCI/G	0.17	UJ	LCS	GAMMASPEC	9411074	19164
129-B06-020	2.000	4.000	11/16/94	K 40	13.60	1.300	PCI/G	1.80	J	LCS	GAMMASPEC	9411074	19164
129-B06-021	4.000	6.000	11/16/94	RA 226	0.61	0.060	PCI/G	0.23	J	WET	GAMMASPEC	9411074	19164
129-B06-021	4.000	6.000	11/16/94	RA-228	0.80	0.000	PCI/G	0.80	UJ	LCS	GAMMASPEC	9411074	19164
129-B06-021	4.000	6.000	11/16/94	TH 228	0.80	0.000	PCI/G	0.80	UJ	LCS	GAMMASPEC	9411074	19164
129-B06-021	4.000	6.000	11/16/94	TH 232	0.63	0.110	PCI/G	0.36	J	LCS	GAMMASPEC	9411074	19164
129-B06-021	4.000	6.000	11/16/94	U 235	0.12	0.000	PCI/G	0.12	UJ	LCS	GAMMASPEC	9411074	19164
129-B06-021	4.000	6.000	11/16/94	U-238	1.70	0.000	PCI/G	1.70	UJ	WET	GAMMASPEC	9411074	19164
129-B06-021	4.000	6.000	11/16/94	AM 241	0.19	0.000	PCI/G	0.19	UJ	LCS	GAMMASPEC	9411074	19164
129-B06-021	4.000	6.000	11/16/94	K 40	14.80	1.500	PCI/G	1.90	J	LCS	GAMMASPEC	9411074	19164
129-B06-022	6.000	8.000	11/16/94	RA 226	0.28	0.070	PCI/G	0.19	J	WET	GAMMASPEC	9411074	19164
129-B06-022	6.000	8.000	11/16/94	RA 228	0.56	0.000	PCI/G	0.56	UJ	LCS	GAMMASPEC	9411074	19164

Sample ID	Top Depth	Bottom Depth	Date Collected	Analyte	Result	Error	Units	MDA	BNI Flag	Qualifier Code	Analytical Method	TMA/E Number	DATAFUSR Number
129-B06-022	6.000	8.000	11/16/94	TH-228	0.56	0.000	PCI/G	0.56	UJ	LCS	GAMMASPEC	9411074	19164
129-B06-022	6.000	8.000	11/16/94	TH-232	0.55	0.110	PCI/G	0.28	J	LCS	GAMMASPEC	9411074	19164
129-B06-022	6.000	8.000	11/16/94	U-235	0.03	0.000	PCI/G	0.03	UJ	LCS	GAMMASPEC	9411074	19164
129-B06-022	6.000	8.000	11/16/94	U-238	0.60	0.440	PCI/G	1.40	UJ	WET	GAMMASPEC	9411074	19164
129-B06-022	6.000	8.000	11/16/94	AM-241	0.14	0.000	PCI/G	0.14	UJ	LCS	GAMMASPEC	9411074	19164
129-B06-022	6.000	8.000	11/16/94	K-40	10.40	1.000	PCI/G	1.30	J	LCS	GAMMASPEC	9411074	19164
129-B06-023	8.000	10.000	11/16/94	RA-226	0.22	0.000	PCI/G	0.22	UJ	WET	GAMMASPEC	9411074	19164
129-B06-023	8.000	10.000	11/16/94	RA-228	0.71	0.000	PCI/G	0.71	UJ	LCS	GAMMASPEC	9411074	19164
129-B06-023	8.000	10.000	11/16/94	TH-228	0.71	0.000	PCI/G	0.71	UJ	LCS	GAMMASPEC	9411074	19164
129-B06-023	8.000	10.000	11/16/94	TH-232	0.60	0.000	PCI/G	0.60	UJ	LCS	GAMMASPEC	9411074	19164
129-B06-023	8.000	10.000	11/16/94	U-235	0.11	0.000	PCI/G	0.11	UJ	LCS	GAMMASPEC	9411074	19164
129-B06-023	8.000	10.000	11/16/94	U-238	1.90	0.000	PCI/G	1.90	UJ	WET	GAMMASPEC	9411074	19164
129-B06-023	8.000	10.000	11/16/94	AM-241	0.19	0.000	PCI/G	0.19	UJ	LCS	GAMMASPEC	9411074	19164
129-B06-023	8.000	10.000	11/16/94	K-40	12.50	1.400	PCI/G	2.20	J	LCS	GAMMASPEC	9411074	19164
129-B06-024	10.000	12.000	11/16/94	RA-226	0.91	0.000	PCI/G	0.91	UJ	WET	GAMMASPEC	9411074	19164
129-B06-024	10.000	12.000	11/16/94	RA-228	2.40	0.000	PCI/G	2.40	UJ	LCS	GAMMASPEC	9411074	19164
129-B06-024	10.000	12.000	11/16/94	TH-228	2.40	0.000	PCI/G	2.40	UJ	LCS	GAMMASPEC	9411074	19164
129-B06-024	10.000	12.000	11/16/94	TH-232	1.40	0.000	PCI/G	1.40	UJ	LCS	GAMMASPEC	9411074	19164
129-B06-024	10.000	12.000	11/16/94	U-235	0.33	0.000	PCI/G	0.33	UJ	LCS	GAMMASPEC	9411074	19164
129-B06-024	10.000	12.000	11/16/94	U-238	5.30	0.000	PCI/G	5.30	UJ	WET	GAMMASPEC	9411074	19164
129-B06-024	10.000	12.000	11/16/94	AM-241	0.48	0.000	PCI/G	0.48	UJ	LCS	GAMMASPEC	9411074	19164
129-B06-024	10.000	12.000	11/16/94	K-40	5.50	2.400	PCI/G	7.50	UJ	LCS	GAMMASPEC	9411074	19164
129-B06-025	20.000	22.000	11/16/94	RA-226	1.00	0.210	PCI/G	0.54	J	WET	GAMMASPEC	9411074	19164
129-B06-025	20.000	22.000	11/16/94	RA-228	1.90	0.000	PCI/G	1.90	UJ	LCS	GAMMASPEC	9411074	19164
129-B06-025	20.000	22.000	11/16/94	TH-228	1.90	0.000	PCI/G	1.90	UJ	LCS	GAMMASPEC	9411074	19164
129-B06-025	20.000	22.000	11/16/94	TH-232	1.20	0.000	PCI/G	1.20	UJ	LCS	GAMMASPEC	9411074	19164
129-B06-025	20.000	22.000	11/16/94	U-235	0.30	0.000	PCI/G	0.30	UJ	LCS	GAMMASPEC	9411074	19164
129-B06-025	20.000	22.000	11/16/94	U-238	4.90	0.000	PCI/G	4.90	UJ	WET	GAMMASPEC	9411074	19164
129-B06-025	20.000	22.000	11/16/94	AM-241	0.44	0.000	PCI/G	0.44	UJ	LCS	GAMMASPEC	9411074	19164
129-B06-025	20.000	22.000	11/16/94	K-40	9.70	2.100	PCI/G	5.20	J	LCS	GAMMASPEC	9411074	19164
129-B07-034	0.000	2.000	11/17/94	RA-226	0.45	0.090	PCI/G	0.19	J	WET	GAMMASPEC	9411092	19213
129-B07-034	0.000	2.000	11/17/94	RA-228	0.70	0.000	PCI/G	0.70	UJ	LCS	GAMMASPEC	9411092	19213
129-B07-034	0.000	2.000	11/17/94	TH-228	0.70	0.000	PCI/G	0.70	UJ	LCS	GAMMASPEC	9411092	19213
129-B07-034	0.000	2.000	11/17/94	TH-232	0.48	0.000	PCI/G	0.48	UJ	LCS	GAMMASPEC	9411092	19213
129-B07-034	0.000	2.000	11/17/94	U-235	0.12	0.000	PCI/G	0.12	UJ	LCS	GAMMASPEC	9411092	19213
129-B07-034	0.000	2.000	11/17/94	U-238	1.70	0.000	PCI/G	1.70	UJ	LCS	GAMMASPEC	9411092	19213
129-B07-034	0.000	2.000	11/17/94	AM-241	0.16	0.000	PCI/G	0.16	UJ	LCS	GAMMASPEC	9411092	19213
129-B07-034	0.000	2.000	11/17/94	K-40	3.70	0.810	PCI/G	2.20	J	LCS	GAMMASPEC	9411092	19213
129-B07-035	2.000	4.000	11/17/94	RA-226	0.89	0.130	PCI/G	0.26	J	WET	GAMMASPEC	9411092	19213

Sample ID	Top Depth	Bottom Depth	Date Collected	Analyte	Result	Error	Units	MDA	RNI Flag	Qualifier Code	Analytical Method	TMA/E Number	DATAFUSR Number
129-B07-035	2.000	4.000	11/17/94	RA-228	0.98	0.000	PCI/G	0.98	UJ	LCS	GAMMASPEC	9411092	19213
129-B07-035	2.000	4.000	11/17/94	TH-228	0.98	0.000	PCI/G	0.98	UJ	LCS	GAMMASPEC	9411092	19213
129-B07-035	2.000	4.000	11/17/94	TH-232	0.80	0.000	PCI/G	0.80	UJ	LCS	GAMMASPEC	9411092	19213
129-B07-035	2.000	4.000	11/17/94	U-235	0.29	0.050	PCI/G	0.15	J	LCS	GAMMASPEC	9411092	19213
129-B07-035	2.000	4.000	11/17/94	U-238	2.90	0.000	PCI/G	2.90	UJ	LCS	GAMMASPEC	9411092	19213
129-B07-035	2.000	4.000	11/17/94	AM-241	0.28	0.000	PCI/G	0.28	UJ	LCS	GAMMASPEC	9411092	19213
129-B07-035	2.000	4.000	11/17/94	K-40	7.80	1.200	PCI/G	2.30	J	LCS	GAMMASPEC	9411092	19213
129-B07-036	8.000	10.000	11/17/94	RA-226	0.52	0.070	PCI/G	0.16	J	WET	GAMMASPEC	9411092	19213
129-B07-036	8.000	10.000	11/17/94	RA-228	0.28	0.000	PCI/G	0.28	UJ	LCS	GAMMASPEC	9411092	19213
129-B07-036	8.000	10.000	11/17/94	TH-228	0.28	0.000	PCI/G	0.28	UJ	LCS	GAMMASPEC	9411092	19213
129-B07-036	8.000	10.000	11/17/94	TH-232	0.95	0.070	PCI/G	0.21	J	LCS	GAMMASPEC	9411092	19213
129-B07-036	8.000	10.000	11/17/94	U-235	0.18	0.030	PCI/G	0.08	J	LCS	GAMMASPEC	9411092	19213
129-B07-036	8.000	10.000	11/17/94	U-238	1.80	0.660	PCI/G	1.50	J	LCS	GAMMASPEC	9411092	19213
129-B07-036	8.000	10.000	11/17/94	AM-241	0.15	0.000	PCI/G	0.15	UJ	LCS	GAMMASPEC	9411092	19213
129-B07-036	8.000	10.000	11/17/94	K-40	5.10	0.680	PCI/G	1.30	J	LCS	GAMMASPEC	9411092	19213
129-B07-037	10.000	12.000	11/17/94	RA-226	0.63	0.080	PCI/G	0.15	J	WET	GAMMASPEC	9411092	19213
129-B07-037	10.000	12.000	11/17/94	RA-228	0.32	0.000	PCI/G	0.32	UJ	LCS	GAMMASPEC	9411092	19213
129-B07-037	10.000	12.000	11/17/94	TH-228	0.32	0.000	PCI/G	0.32	UJ	LCS	GAMMASPEC	9411092	19213
129-B07-037	10.000	12.000	11/17/94	TH-232	0.76	0.090	PCI/G	0.24	J	LCS	GAMMASPEC	9411092	19213
129-B07-037	10.000	12.000	11/17/94	U-235	0.11	0.030	PCI/G	0.08	J	LCS	GAMMASPEC	9411092	19213
129-B07-037	10.000	12.000	11/17/94	U-238	1.60	0.000	PCI/G	1.60	UJ	LCS	GAMMASPEC	9411092	19213
129-B07-037	10.000	12.000	11/17/94	AM-241	0.16	0.000	PCI/G	0.16	UJ	LCS	GAMMASPEC	9411092	19213
129-B07-037	10.000	12.000	11/17/94	K-40	6.10	0.730	PCI/G	1.30	J	LCS	GAMMASPEC	9411092	19213
129-B07-038	12.000	14.000	11/17/94	RA-226	0.94	0.090	PCI/G	0.18	J	WET	GAMMASPEC	9411092	19213
129-B07-038	12.000	14.000	11/17/94	RA-228	0.51	0.000	PCI/G	0.51	UJ	LCS	GAMMASPEC	9411092	19213
129-B07-038	12.000	14.000	11/17/94	TH-228	0.51	0.000	PCI/G	0.51	UJ	LCS	GAMMASPEC	9411092	19213
129-B07-038	12.000	14.000	11/17/94	TH-232	0.97	0.110	PCI/G	0.29	J	LCS	GAMMASPEC	9411092	19213
129-B07-038	12.000	14.000	11/17/94	U-235	0.14	0.030	PCI/G	0.08	J	LCS	GAMMASPEC	9411092	19213
129-B07-038	12.000	14.000	11/17/94	U-238	1.80	0.000	PCI/G	1.80	UJ	LCS	GAMMASPEC	9411092	19213
129-B07-038	12.000	14.000	11/17/94	AM-241	0.18	0.000	PCI/G	0.18	UJ	LCS	GAMMASPEC	9411092	19213
129-B07-038	12.000	14.000	11/17/94	K-40	6.30	0.830	PCI/G	1.60	J	LCS	GAMMASPEC	9411092	19213
129-B07-039	14.000	16.000	11/17/94	RA-226	7.00	0.270	PCI/G	0.27	J	WET	GAMMASPEC	9411092	19213
129-B07-039	14.000	16.000	11/17/94	RA-228	0.59	0.000	PCI/G	0.59	UJ	LCS	GAMMASPEC	9411092	19213
129-B07-039	14.000	16.000	11/17/94	TH-228	0.59	0.000	PCI/G	0.59	UJ	LCS	GAMMASPEC	9411092	19213
129-B07-039	14.000	16.000	11/17/94	TH-232	1.00	0.150	PCI/G	0.40	J	LCS	GAMMASPEC	9411092	19213
129-B07-039	14.000	16.000	11/17/94	U-235	1.80	0.110	PCI/G	0.15	J	LCS	GAMMASPEC	9411092	19213
129-B07-039	14.000	16.000	11/17/94	U-238	23.90	6.000	PCI/G	3.30	J	LCS	GAMMASPEC	9411092	19213
129-B07-039	14.000	16.000	11/17/94	AM-241	0.35	0.000	PCI/G	0.35	UJ	LCS	GAMMASPEC	9411092	19213
129-B07-039	14.000	16.000	11/17/94	K-40	7.70	0.900	PCI/G	1.70	J	LCS	GAMMASPEC	9411092	19213

TMA/Eberline Oak Ridge, FUSRAP Radiological Reports
Sampling Event: LIN CH94

Sample ID	Top Depth	Bottom Depth	Date Collected	Analyte	Result	Error	Units	MDA	BNI Flag	Qualifier Code	Analytical Method	TMA/E Number	DATAFUSR Number
129-B07-040	16.000	18.000	11/17/94	RA-226	0.63	0.070	PCI/G	0.14	J	WET	GAMMASPEC	9411092	19213
129-B07-040	16.000	18.000	11/17/94	RA-228	0.30	0.000	PCI/G	0.30	UJ	LCS	GAMMASPEC	9411092	19213
129-B07-040	16.000	18.000	11/17/94	TH-228	0.30	0.000	PCI/G	0.30	UJ	LCS	GAMMASPEC	9411092	19213
129-B07-040	16.000	18.000	11/17/94	TH-232	0.78	0.080	PCI/G	0.17	J	LCS	GAMMASPEC	9411092	19213
129-B07-040	16.000	18.000	11/17/94	U-235	1.20	0.070	PCI/G	0.08	J	LCS	GAMMASPEC	9411092	19213
129-B07-040	16.000	18.000	11/17/94	U-238	19.60	4.900	PCI/G	2.00	J	LCS	GAMMASPEC	9411092	19213
129-B07-040	16.000	18.000	11/17/94	AM-241	0.22	0.000	PCI/G	0.22	UJ	LCS	GAMMASPEC	9411092	19213
129-B07-040	16.000	18.000	11/17/94	K-40	5.70	0.620	PCI/G	0.94	J	LCS	GAMMASPEC	9411092	19213
129-B07-041	20.000	22.000	11/17/94	RA-226	0.27	0.060	PCI/G	0.14	J	WET	GAMMASPEC	9411092	19213
129-B07-041	20.000	22.000	11/17/94	RA-228	0.56	0.000	PCI/G	0.56	UJ	LCS	GAMMASPEC	9411092	19213
129-B07-041	20.000	22.000	11/17/94	TH-228	0.56	0.000	PCI/G	0.56	UJ	LCS	GAMMASPEC	9411092	19213
129-B07-041	20.000	22.000	11/17/94	TH-232	0.59	0.080	PCI/G	0.27	J	LCS	GAMMASPEC	9411092	19213
129-B07-041	20.000	22.000	11/17/94	U-235	0.04	0.020	PCI/G	0.07	UJ	LCS	GAMMASPEC	9411092	19213
129-B07-041	20.000	22.000	11/17/94	U-238	1.40	0.000	PCI/G	1.40	UJ	LCS	GAMMASPEC	9411092	19213
129-B07-041	20.000	22.000	11/17/94	AM-241	0.14	0.000	PCI/G	0.14	UJ	LCS	GAMMASPEC	9411092	19213
129-B07-041	20.000	22.000	11/17/94	K-40	12.20	1.100	PCI/G	1.30	J	LCS	GAMMASPEC	9411092	19213
129-B08-046	0.000	2.000	11/18/94	RA-226	0.31	0.000	PCI/G	0.31	UJ	ERR	GAMMASPEC	9411100	19281
129-B08-046	0.000	2.000	11/18/94	RA-228	0.57	0.000	PCI/G	0.57	UJ	LCS	GAMMASPEC	9411100	19281
129-B08-046	0.000	2.000	11/18/94	TH-228	0.57	0.000	PCI/G	0.57	UJ	LCS	GAMMASPEC	9411100	19281
129-B08-046	0.000	2.000	11/18/94	TH-232	0.17	0.080	PCI/G	0.33	UJ	LCS	GAMMASPEC	9411100	19281
129-B08-046	0.000	2.000	11/18/94	U-235	0.10	0.000	PCI/G	0.10	UJ	LCS	GAMMASPEC	9411100	19281
129-B08-046	0.000	2.000	11/18/94	U-238	1.50	0.000	PCI/G	1.50	UJ	ERR	GAMMASPEC	9411100	19281
129-B08-046	0.000	2.000	11/18/94	AM-241	0.15	0.000	PCI/G	0.15	UJ	LCS	GAMMASPEC	9411100	19281
129-B08-046	0.000	2.000	11/18/94	K-40	4.20	0.800	PCI/G	2.10	J	LCS	GAMMASPEC	9411100	19281
129-B08-047	2.000	4.500	11/18/94	RA-226	1.30	0.070	PCI/G	0.11	J	WET	GAMMASPEC	9411101	19280
129-B08-047	2.000	4.500	11/18/94	RA-228	0.12	0.100	PCI/G	0.21	UJ	LCS	GAMMASPEC	9411101	19280
129-B08-047	2.000	4.500	11/18/94	TH-228	0.21	0.000	PCI/G	0.21	UJ	LCS	GAMMASPEC	9411101	19280
129-B08-047	2.000	4.500	11/18/94	TH-232	0.99	0.070	PCI/G	0.10	J	LCS	GAMMASPEC	9411101	19280
129-B08-047	2.000	4.500	11/18/94	U-235	0.26	0.020	PCI/G	0.05	J	LCS	GAMMASPEC	9411101	19280
129-B08-047	2.000	4.500	11/18/94	U-238	3.30	0.880	PCI/G	0.91	J	WET	GAMMASPEC	9411101	19280
129-B08-047	2.000	4.500	11/18/94	AM-241	0.12	0.000	PCI/G	0.12	UJ	LCS	GAMMASPEC	9411101	19280
129-B08-047	2.000	4.500	11/18/94	K-40	5.90	0.520	PCI/G	0.63	J	LCS	GAMMASPEC	9411101	19280
129-B08-048	4.500	7.000	11/18/94	RA-226	0.60	0.050	PCI/G	0.09	J	WET	GAMMASPEC	9411101	19280
129-B08-048	4.500	7.000	11/18/94	RA-228	0.20	0.000	PCI/G	0.20	UJ	LCS	GAMMASPEC	9411101	19280
129-B08-048	4.500	7.000	11/18/94	TH-228	0.10	0.080	PCI/G	0.20	UJ	LCS	GAMMASPEC	9411101	19280
129-B08-048	4.500	7.000	11/18/94	TH-232	0.70	0.060	PCI/G	0.12	J	LCS	GAMMASPEC	9411101	19280
129-B08-048	4.500	7.000	11/18/94	U-235	0.20	0.020	PCI/G	0.05	J	LCS	GAMMASPEC	9411101	19280
129-B08-048	4.500	7.000	11/18/94	U-238	2.20	0.600	PCI/G	0.73	J	WET	GAMMASPEC	9411101	19280
129-B08-048	4.500	7.000	11/18/94	AM-241	0.10	0.000	PCI/G	0.10	UJ	LCS	GAMMASPEC	9411101	19280

Sample ID	Top Depth	Bottom Depth	Date Collected	Analyte	Result	Error	Units	MDA	BNI Flag	Qualifier Code	Analytical Method	TMA/E Number	DATAFUSR Number
129-B08-048	4.500	7.000	11/18/94	K-40	5.20	0.500	PCI/G	0.60	J	LCS	GAMMASPEC	9411101	19280
129-B08-049	7.000	9.500	11/18/94	RA-226	0.98	0.060	PCI/G	0.11	J	WET	GAMMASPEC	9411101	19280
129-B08-049	7.000	9.500	11/18/94	RA-228	0.27	0.000	PCI/G	0.27	UJ	LCS	GAMMASPEC	9411101	19280
129-B08-049	7.000	9.500	11/18/94	TH-228	0.12	0.100	PCI/G	0.27	UJ	LCS	GAMMASPEC	9411101	19280
129-B08-049	7.000	9.500	11/18/94	TH-232	0.77	0.070	PCI/G	0.13	J	LCS	GAMMASPEC	9411101	19280
129-B08-049	7.000	9.500	11/18/94	U-235	0.21	0.020	PCI/G	0.06	J	LCS	GAMMASPEC	9411101	19280
129-B08-049	7.000	9.500	11/18/94	U-238	2.40	0.680	PCI/G	0.93	J	WET	GAMMASPEC	9411101	19280
129-B08-049	7.000	9.500	11/18/94	AM-241	0.11	0.000	PCI/G	0.11	UJ	LCS	GAMMASPEC	9411101	19280
129-B08-049	7.000	9.500	11/18/94	K-40	5.10	0.520	PCI/G	0.85	J	LCS	GAMMASPEC	9411101	19280
129-B08-051	12.000	14.500	11/18/94	RA-226	0.83	0.080	PCI/G	0.18	J	WET	GAMMASPEC	9411101	19280
129-B08-051	12.000	14.500	11/18/94	RA-228	0.38	0.000	PCI/G	0.38	UJ	LCS	GAMMASPEC	9411101	19280
129-B08-051	12.000	14.500	11/18/94	TH-228	0.06	0.150	PCI/G	0.38	UJ	LCS	GAMMASPEC	9411101	19280
129-B08-051	12.000	14.500	11/18/94	TH-232	0.97	0.100	PCI/G	0.29	J	LCS	GAMMASPEC	9411101	19280
129-B08-051	12.000	14.500	11/18/94	U-235	0.21	0.030	PCI/G	0.08	J	LCS	GAMMASPEC	9411101	19280
129-B08-051	12.000	14.500	11/18/94	U-238	3.20	0.900	PCI/G	1.30	J	WET	GAMMASPEC	9411101	19280
129-B08-051	12.000	14.500	11/18/94	AM-241	0.17	0.000	PCI/G	0.17	UJ	LCS	GAMMASPEC	9411101	19280
129-B08-051	12.000	14.500	11/18/94	K-40	8.08	0.820	PCI/G	1.30	J	LCS	GAMMASPEC	9411101	19280
129-B08-052	17.000	19.500	11/18/94	RA-226	0.67	0.060	PCI/G	0.12			GAMMASPEC	9411100	19281
129-B08-052	17.000	19.500	11/18/94	RA-228	0.28	0.000	PCI/G	0.28	UJ	LCS	GAMMASPEC	9411100	19281
129-B08-052	17.000	19.500	11/18/94	TH-228	0.28	0.000	PCI/G	0.28	UJ	LCS	GAMMASPEC	9411100	19281
129-B08-052	17.000	19.500	11/18/94	TH-232	1.10	0.080	PCI/G	0.17	J	LCS	GAMMASPEC	9411100	19281
129-B08-052	17.000	19.500	11/18/94	U-235	0.25	0.020	PCI/G	0.06	J	LCS	GAMMASPEC	9411100	19281
129-B08-052	17.000	19.500	11/18/94	U-238	2.70	0.780	PCI/G	1.20			GAMMASPEC	9411100	19281
129-B08-052	17.000	19.500	11/18/94	AM-241	0.13	0.000	PCI/G	0.13	UJ	LCS	GAMMASPEC	9411100	19281
129-B08-052	17.000	19.500	11/18/94	K-40	6.70	0.610	PCI/G	0.90	J	LCS	GAMMASPEC	9411100	19281
129-B08-053	19.500	22.000	11/18/94	RA-226	0.80	0.060	PCI/G	0.10	J	WET	GAMMASPEC	9411101	19280
129-B08-053	19.500	22.000	11/18/94	RA-228	0.30	0.000	PCI/G	0.30	UJ	LCS	GAMMASPEC	9411101	19280
129-B08-053	19.500	22.000	11/18/94	TH-228	0.50	0.200	PCI/G	0.30	J	LCS	GAMMASPEC	9411101	19280
129-B08-053	19.500	22.000	11/18/94	TH-232	0.80	0.200	PCI/G	0.10	J	LCS	GAMMASPEC	9411101	19280
129-B08-053	19.500	22.000	11/18/94	U-235	0.70	0.040	PCI/G	0.06	J	LCS	GAMMASPEC	9411101	19280
129-B08-053	19.500	22.000	11/18/94	U-238	11.50	2.800	PCI/G	1.20	J	WET	GAMMASPEC	9411101	19280
129-B08-053	19.500	22.000	11/18/94	AM-241	0.20	0.000	PCI/G	0.20	UJ	LCS	GAMMASPEC	9411101	19280
129-B08-053	19.500	22.000	11/18/94	K-40	5.90	0.500	PCI/G	0.80	J	LCS	GAMMASPEC	9411101	19280
129-B08-054	22.000	24.500	11/18/94	RA-226	0.38	0.040	PCI/G	0.08	J	WET	GAMMASPEC	9411101	19280
129-B08-054	22.000	24.500	11/18/94	RA-228	0.19	0.000	PCI/G	0.19	UJ	LCS	GAMMASPEC	9411101	19280
129-B08-054	22.000	24.500	11/18/94	TH-228	0.16	0.100	PCI/G	0.19	UJ	LCS	GAMMASPEC	9411101	19280
129-B08-054	22.000	24.500	11/18/94	TH-232	0.35	0.080	PCI/G	0.11	J	LCS	GAMMASPEC	9411101	19280
129-B08-054	22.000	24.500	11/18/94	U-235	0.09	0.010	PCI/G	0.04	J	LCS	GAMMASPEC	9411101	19280
129-B08-054	22.000	24.500	11/18/94	U-238	1.90	0.510	PCI/G	0.68	J	WET	GAMMASPEC	9411101	19280

TMA/Eberline Oak Ridge, FUSRAP Radiological Reports
Sampling Event: LIN_CH94

Sample ID	Top Depth	Bottom Depth	Date Collected	Analyte	Result	Error	Units	MDA	BNI Flag	Qualifier Code	Analytical Method	TMA/E Number	DATAFUSR Number
129-B08-054	22.000	24.500	11/18/94	AM-241	0.09	0.000	PCI/G	0.09	UJ	LCS	GAMMASPEC	9411101	19280
129-B08-054	22.000	24.500	11/18/94	K-40	10.80	0.810	PCI/G	0.57	J	LCS	GAMMASPEC	9411101	19280
129-B09-055	0.000	2.500	11/19/94	RA-226	0.68	0.060	PCI/G	0.11			GAMMASPEC	9411100	19281
129-B09-055	0.000	2.500	11/19/94	RA-228	0.12	0.090	PCI/G	0.24	UJ	LCS	GAMMASPEC	9411100	19281
129-B09-055	0.000	2.500	11/19/94	TH-228	0.24	0.000	PCI/G	0.24	UJ	LCS	GAMMASPEC	9411100	19281
129-B09-055	0.000	2.500	11/19/94	TH-232	0.66	0.060	PCI/G	0.17	J	LCS	GAMMASPEC	9411100	19281
129-B09-055	0.000	2.500	11/19/94	U-235	0.08	0.020	PCI/G	0.05	J	LCS	GAMMASPEC	9411100	19281
129-B09-055	0.000	2.500	11/19/94	U-238	0.43	0.270	PCI/G	0.83	UJ	MDA	GAMMASPEC	9411100	19281
129-B09-055	0.000	2.500	11/19/94	AM-241	0.11	0.000	PCI/G	0.11	UJ	LCS	GAMMASPEC	9411100	19281
129-B09-055	0.000	2.500	11/19/94	K-40	10.00	0.830	PCI/G	0.89	J	LCS	GAMMASPEC	9411100	19281
129-B09-056	2.500	5.000	11/19/94	RA-226	2.30	0.180	PCI/G	0.37			GAMMASPEC	9411100	19281
129-B09-056	2.500	5.000	11/19/94	RA-228	0.87	0.000	PCI/G	0.87	UJ	LCS	GAMMASPEC	9411100	19281
129-B09-056	2.500	5.000	11/19/94	TH-228	0.38	0.570	PCI/G	0.87	UJ	LCS	GAMMASPEC	9411100	19281
129-B09-056	2.500	5.000	11/19/94	TH-232	2.60	0.520	PCI/G	0.35	J	LCS	GAMMASPEC	9411100	19281
129-B09-056	2.500	5.000	11/19/94	U-235	0.26	0.060	PCI/G	0.18	J	LCS	GAMMASPEC	9411100	19281
129-B09-056	2.500	5.000	11/19/94	U-238	3.60	0.000	PCI/G	3.60	UJ	ERR	GAMMASPEC	9411100	19281
129-B09-056	2.500	5.000	11/19/94	AM-241	0.37	0.000	PCI/G	0.37	UJ	LCS	GAMMASPEC	9411100	19281
129-B09-056	2.500	5.000	11/19/94	K-40	55.00	4.100	PCI/G	2.50	J	LCS	GAMMASPEC	9411100	19281
129-B10-057	0.000	2.500	11/19/94	RA-226	0.35	0.040	PCI/G	0.09			GAMMASPEC	9411100	19281
129-B10-057	0.000	2.500	11/19/94	RA-228	0.23	0.000	PCI/G	0.23	UJ	LCS	GAMMASPEC	9411100	19281
129-B10-057	0.000	2.500	11/19/94	TH-228	0.26	0.090	PCI/G	0.23	J	LCS	GAMMASPEC	9411100	19281
129-B10-057	0.000	2.500	11/19/94	TH-232	0.53	0.060	PCI/G	0.15	J	LCS	GAMMASPEC	9411100	19281
129-B10-057	0.000	2.500	11/19/94	U-235	0.08	0.020	PCI/G	0.05	J	LCS	GAMMASPEC	9411100	19281
129-B10-057	0.000	2.500	11/19/94	U-238	0.07	0.270	PCI/G	0.90	UJ	EGR	GAMMASPEC	9411100	19281
129-B10-057	0.000	2.500	11/19/94	AM-241	0.09	0.000	PCI/G	0.09	UJ	LCS	GAMMASPEC	9411100	19281
129-B10-057	0.000	2.500	11/19/94	K-40	10.30	0.850	PCI/G	0.95	J	LCS	GAMMASPEC	9411100	19281
129-B10-058	2.500	5.000	11/19/94	RA-226	0.45	0.050	PCI/G	0.11	J	WET	GAMMASPEC	9411101	19280
129-B10-058	2.500	5.000	11/19/94	RA-228	0.24	0.000	PCI/G	0.24	UJ	LCS	GAMMASPEC	9411101	19280
129-B10-058	2.500	5.000	11/19/94	TH-228	0.24	0.000	PCI/G	0.24	UJ	LCS	GAMMASPEC	9411101	19280
129-B10-058	2.500	5.000	11/19/94	TH-232	0.58	0.040	PCI/G	0.16	J	LCS	GAMMASPEC	9411101	19280
129-B10-058	2.500	5.000	11/19/94	U-235	0.06	0.020	PCI/G	0.05	J	LCS	GAMMASPEC	9411101	19280
129-B10-058	2.500	5.000	11/19/94	U-238	0.95	0.000	PCI/G	0.95	UJ	WET	GAMMASPEC	9411101	19280
129-B10-058	2.500	5.000	11/19/94	AM-241	0.10	0.000	PCI/G	0.10	UJ	LCS	GAMMASPEC	9411101	19280
129-B10-058	2.500	5.000	11/19/94	K-40	12.80	0.990	PCI/G	0.79	J	LCS	GAMMASPEC	9411101	19280

TMA/Eberline Oak Ridge, FUSRAP Radiological Reports
Sampling Event: LIN CH94

Sample ID	Top Depth	Bottom Depth	Date Collected	Analyte	Result	Error	Units	MDA	BNI Flag	Qualifier Code	Analytical Method	TMA/E Number	DATAFUSR Number
129-SD1-042	0.000	0.030	11/18/94	RA-226	0.43	0.080	PCI/G	0.19	J	WET	GAMMASPEC	9411101	19280
129-SD1-042	0.000	0.030	11/18/94	RA-228	0.56	0.000	PCI/G	0.56	UJ	LCS	GAMMASPEC	9411101	19280
129-SD1-042	0.000	0.030	11/18/94	TH-228	0.56	0.000	PCI/G	0.56	UJ	LCS	GAMMASPEC	9411101	19280
129-SD1-042	0.000	0.030	11/18/94	TH-232	0.44	0.200	PCI/G	0.21	J	LCS	GAMMASPEC	9411101	19280
129-SD1-042	0.000	0.030	11/18/94	U-235	0.07	0.030	PCI/G	0.10	UJ	LCS	GAMMASPEC	9411101	19280
129-SD1-042	0.000	0.030	11/18/94	U-238	3.20	0.950	PCI/G	1.40	J	WET	GAMMASPEC	9411101	19280
129-SD1-042	0.000	0.030	11/18/94	AM-241	0.16	0.000	PCI/G	0.16	UJ	LCS	GAMMASPEC	9411101	19280
129-SD1-042	0.000	0.030	11/18/94	K-40	4.70	0.950	PCI/G	2.70	J	LCS	GAMMASPEC	9411101	19280
129-SD2-043	0.000	0.000	11/19/94	RA-226	521.00	45.700	PCI/L	0.37	J	TCR	ALPHASPEC	9411099	19790
129-SD2-043	0.000	0.030	11/18/94	RA-226	32.00	0.980	PCI/G	0.66	J	WET	GAMMASPEC	9411101	19280
129-SD2-043	0.000	0.030	11/18/94	RA-228	1.40	0.000	PCI/G	1.40	UJ	LCS	GAMMASPEC	9411101	19280
129-SD2-043	0.000	0.030	11/18/94	TH-228	1.40	0.000	PCI/G	1.40	UJ	LCS	GAMMASPEC	9411101	19280
129-SD2-043	0.000	0.030	11/18/94	TH-232	0.52	0.330	PCI/G	0.27	J	LCS	GAMMASPEC	9411101	19280
129-SD2-043	0.000	0.030	11/18/94	U-235	10.40	0.500	PCI/G	0.43	J	LCS	GAMMASPEC	9411101	19280
129-SD2-043	0.000	0.030	11/18/94	U-238	164.00	41.400	PCI/G	9.00	J	WET	GAMMASPEC	9411101	19280
129-SD2-043	0.000	0.030	11/18/94	AM-241	1.00	0.000	PCI/G	1.00	UJ	LCS	GAMMASPEC	9411101	19280
129-SD2-043	0.000	0.030	11/18/94	K-40	3.40	1.400	PCI/G	4.30	UJ	LCS	GAMMASPEC	9411101	19280
129-SD2-043	0.000	0.000	11/19/94	TH-230	0.20	0.270	PCI/L	0.41	UJ	EGR	ALPHASPEC	9411099	19790
129-SD2-043	0.000	0.000	11/19/94	TH-232	0.06	0.150	PCI/L	0.35	UJ	EGR	ALPHASPEC	9411099	19790
129-SD2-043	0.000	0.000	11/19/94	U-238	48.20	12.900	PCI/L	0.22			ALPHASPEC	9411099	19790

FLAGS AND CODES

Flags	Meaning
A	Acceptable
J	Estimate, qualitatively correct but quantitatively suspect
R	Reject, data are not suitable for any purpose. Resampling or reanalysis may be necessary for verification.
UJ	Undetected-estimated. The result is below the MDA or less than the associated error.
U	Undetected. The blank's result is = to the MDA, or above the MDA and the results of the sample are< 5 times the blank's result.

Codes	
ALQ	Aliquot
BLK	Blank
COC	Chain of custody
CCR	Continuing Calibration Range
EGR	Error greater than result
ERR	Error term
HT	Holding time
ICR	Initial Calibration Range
LCS	Lab control sample
MDA	Minimum detectable activity
MTH	Method
PSV	Preservative
RPL	Replicate
SAF	Self-Absorption
TCR	Tracer Recovery
WET	Wet (soil sample)

Attachment E

Analysis Results for soil, sediment, surface water, and water from borehole samples - depth units = feet

Soil Results

TMA/Eberline Oak Ridge, FUSRAP Radiological Reports
Sampling Event: LIN_CH94

Sample ID	Top Depth	Bottom Depth	Date Collected	Analyte	Result	Error	Units	MDA	BNI Flag	Qualifier Code	Analytical Method	TMA/E Number	DATAFUSR Number
129-B01-001	0.000	1.500	11/14/94	RA-226	4.20	0.270	PCI/G	0.47			GAMMASPEC	9412013	19683
129-B01-001	0.000	1.500	11/14/94	TH-232	0.88	0.000	PCI/G	0.88	UJ	ERR	GAMMASPEC	9412013	19683
129-B01-001	0.000	1.500	11/14/94	U-238	6.40	2.200	PCI/G	4.90			GAMMASPEC	9412013	19683
129-B01-001	0.000	1.500	11/14/94	TH-228	1.10	0.400	PCI/G	0.13			ALPHASPEC	9412013	19683
129-B01-001	0.000	1.500	11/14/94	TH-230	7.90	1.900	PCI/G	0.13			ALPHASPEC	9412013	19683
129-B01-001	0.000	1.500	11/14/94	TH-232	1.10	0.390	PCI/G	0.10	U	BLK	ALPHASPEC	9412013	19683
129-B01-002	1.500	3.000	11/14/94	RA-226	2.40	0.320	PCI/G	0.84			GAMMASPEC	9412013	19683
129-B01-002	1.500	3.000	11/14/94	TH-232	1.60	0.000	PCI/G	1.60	UJ	ERR	GAMMASPEC	9412013	19683
129-B01-002	1.500	3.000	11/14/94	U-238	20.80	5.900	PCI/G	8.00			GAMMASPEC	9412013	19683
129-B01-002	1.500	3.000	11/14/94	TH-228	0.77	0.260	PCI/G	0.12			ALPHASPEC	9412013	19683
129-B01-002	1.500	3.000	11/14/94	TH-230	3.00	0.690	PCI/G	0.07	U	BLK	ALPHASPEC	9412013	19683
129-B01-002	1.500	3.000	11/14/94	TH-232	0.98	0.300	PCI/G	0.07	U	BLK	ALPHASPEC	9412013	19683
129-B02-005	0.000	1.500	11/14/94	RA-226	4.30	0.390	PCI/G	0.82			GAMMASPEC	9412013	19683
129-B02-005	0.000	1.500	11/14/94	TH-232	1.80	0.000	PCI/G	1.80	UJ	ERR	GAMMASPEC	9412013	19683
129-B02-005	0.000	1.500	11/14/94	U-238	4.10	2.600	PCI/G	8.00	UJ	MDA	GAMMASPEC	9412013	19683
129-B02-005	0.000	1.500	11/14/94	TH-228	1.20	0.420	PCI/G	0.13			ALPHASPEC	9412013	19683
129-B02-005	0.000	1.500	11/14/94	TH-230	4.00	1.100	PCI/G	0.10			ALPHASPEC	9412013	19683
129-B02-005	0.000	1.500	11/14/94	TH-232	1.50	0.480	PCI/G	0.06	U	BLK	ALPHASPEC	9412013	19683
129-B03-015	0.000	1.500	11/16/94	RA-226	1.30	0.180	PCI/G	0.43			GAMMASPEC	9412013	19683
129-B03-015	0.000	1.500	11/16/94	TH-232	0.85	0.000	PCI/G	0.85	UJ	ERR	GAMMASPEC	9412013	19683
129-B03-015	0.000	1.500	11/16/94	U-238	4.10	0.000	PCI/G	4.10	UJ	ERR	GAMMASPEC	9412013	19683
129-B03-015	0.000	1.500	11/16/94	TH-228	0.53	0.220	PCI/G	0.10			ALPHASPEC	9412013	19683
129-B03-015	0.000	1.500	11/16/94	TH-230	0.65	0.250	PCI/G	0.08	U	BLK	ALPHASPEC	9412013	19683
129-B03-015	0.000	1.500	11/16/94	TH-232	0.74	0.270	PCI/G	0.04	U	BLK	ALPHASPEC	9412013	19683
129-B04-009	0.000	1.500	11/15/94	RA-226	58.30	1.700	PCI/G	1.30			GAMMASPEC	9412013	19683
129-B04-009	0.000	1.500	11/15/94	TH-232	1.70	0.000	PCI/G	1.70	UJ	ERR	GAMMASPEC	9412013	19683
129-B04-009	0.000	1.500	11/15/94	U-238	15.00	0.000	PCI/G	15.00	UJ	ERR	GAMMASPEC	9412013	19683
129-B04-009	0.000	1.500	11/15/94	TH-228	1.20	0.460	PCI/G	0.20	J	TCR	ALPHASPEC	9412013	19683
129-B04-009	0.000	1.500	11/15/94	TH-230	1.30	0.460	PCI/G	0.17	J	TCR	ALPHASPEC	9412013	19683
129-B04-009	0.000	1.500	11/15/94	TH-232	1.10	0.410	PCI/G	0.12	J	TCR	ALPHASPEC	9412013	19683
129-B04-010	1.500	3.000	11/15/94	RA-226	1.80	0.270	PCI/G	0.69			GAMMASPEC	9412013	19683
129-B04-010	1.500	3.000	11/15/94	TH-232	1.70	0.300	PCI/G	1.10	U	BLK	GAMMASPEC	9412013	19683
129-B04-010	1.500	3.000	11/15/94	U-238	7.00	0.000	PCI/G	7.00	UJ	ERR	GAMMASPEC	9412013	19683
129-B04-010	1.500	3.000	11/15/94	TH-228	1.20	0.400	PCI/G	0.05			ALPHASPEC	9412013	19683
129-B04-010	1.500	3.000	11/15/94	TH-230	1.50	0.490	PCI/G	0.10	U	BLK	ALPHASPEC	9412013	19683
129-B04-010	1.500	3.000	11/15/94	TH-232	1.10	0.380	PCI/G	0.09	U	BLK	ALPHASPEC	9412013	19683
129-B05-026	0.000	1.500	11/17/94	RA-226	1.30	0.160	PCI/G	0.40			GAMMASPEC	9412013	19683
129-B05-026	0.000	1.500	11/17/94	TH-232	1.30	0.150	PCI/G	0.59	U	BLK	GAMMASPEC	9412013	19683
129-B05-026	0.000	1.500	11/17/94	U-238	33.30	8.400	PCI/G	4.90			GAMMASPEC	9412013	19683

TMA/Eberline Oak Ridge, FUSRAP Radiological Reports
Sampling Event: LIN_CH94

Sample ID	Top Depth	Bottom Depth	Date Collected	Analyte	Result	Error	Units	MDA	BNI Flag	Qualifier Code	Analytical Method	TMA/E Number	DATAFUSR Number
129-B05-026	0.000	1.500	11/17/94	TH-228	1.60	0.580	PCI/G	0.14	J	TCR	ALPHASPEC	9412013	19683
129-B05-026	0.000	1.500	11/17/94	TH-230	13.40	3.400	PCI/G	0.16	J	TCR	ALPHASPEC	9412013	19683
129-B05-026	0.000	1.500	11/17/94	TH-232	1.40	0.500	PCI/G	0.07	J	TCR	ALPHASPEC	9412013	19683
129-B05-027	1.500	3.000	11/17/94	U-238	230.00	60.700	PCI/G	33.70			GAMMASPEC	9412014	19688
129-B05-027	1.500	3.000	11/17/94	RA-226	557.00	14.700	PCI/G	3.70			GAMMASPEC	9412014	19688
129-B05-027	1.500	3.000	11/17/94	TH-232	1.60	0.000	PCI/G	1.60	UJ	ERR	GAMMASPEC	9412014	19688
129-B05-027	1.500	3.000	11/17/94	TH-228	5.30	34.900	PCI/G	104.50	UJ	EGR	ALPHASPEC	9412014	19688
129-B05-027	1.500	3.000	11/17/94	TH-230	346.30	164.800	PCI/G	86.70			ALPHASPEC	9412014	19688
129-B05-027	1.500	3.000	11/17/94	TH-232	16.00	32.100	PCI/G	43.30	UJ	EGR	ALPHASPEC	9412014	19688
129-B05-027	1.500	3.000	11/17/94	TH-228	1.50	1.400	PCI/G	1.70	UJ	MDA	ALPHASPEC	9508056	22367
129-B05-027	1.500	3.000	11/17/94	TH-230	376.50	92.300	PCI/G	1.30	J	TCR	ALPHASPEC	9508056	22367
129-B05-027	1.500	3.000	11/17/94	TH-232	2.20	1.600	PCI/G	0.74	J	TCR	ALPHASPEC	9508056	22367
129-B05-028	3.000	5.000	11/17/94	U-238	585.00	148.000	PCI/G	26.80			GAMMASPEC	9412014	19688
129-B05-028	3.000	5.000	11/17/94	RA-226	124.00	3.100	PCI/G	1.70			GAMMASPEC	9412014	19688
129-B05-028	3.000	5.000	11/17/94	TH-232	1.50	0.290	PCI/G	0.91			GAMMASPEC	9412014	19688
129-B05-028	3.000	5.000	11/17/94	TH-228	11.30	48.200	PCI/G	134.60	UJ	EGR	ALPHASPEC	9412014	19688
129-B05-028	3.000	5.000	11/17/94	TH-230	59.40	79.200	PCI/G	121.10	UJ	EGR	ALPHASPEC	9412014	19688
129-B05-028	3.000	5.000	11/17/94	TH-232	-7.60	10.900	PCI/G	120.90	UJ	EGR	ALPHASPEC	9412014	19688
129-B05-028	3.000	5.000	11/17/94	TH-228	4.20	2.200	PCI/G	1.10	J	TCR	ALPHASPEC	9508056	22367
129-B05-028	3.000	5.000	11/17/94	TH-230	157.80	37.900	PCI/G	1.10	J	TCR	ALPHASPEC	9508056	22367
129-B05-028	3.000	5.000	11/17/94	TH-232	1.90	1.400	PCI/G	0.63	J	TCR	ALPHASPEC	9508056	22367
129-B05-029	5.000	7.000	11/17/94	RA-226	19.10	0.730	PCI/G	0.93			GAMMASPEC	9412013	19683
129-B05-029	5.000	7.000	11/17/94	TH-232	2.60	0.450	PCI/G	1.40			GAMMASPEC	9412013	19683
129-B05-029	5.000	7.000	11/17/94	U-238	244.00	60.200	PCI/G	15.80			GAMMASPEC	9412013	19683
129-B05-029	5.000	7.000	11/17/94	TH-228	3.10	0.950	PCI/G	0.18	J	TCR	ALPHASPEC	9412013	19683
129-B05-029	5.000	7.000	11/17/94	TH-230	25.50	6.400	PCI/G	0.15	J	TCR	ALPHASPEC	9412013	19683
129-B05-029	5.000	7.000	11/17/94	TH-232	3.40	1.000	PCI/G	0.07	J	TCR	ALPHASPEC	9412013	19683
129-B05-030	7.000	9.000	11/17/94	U-238	244.00	60.900	PCI/G	9.70			GAMMASPEC	9412014	19688
129-B05-030	7.000	9.000	11/17/94	RA-226	24.30	0.760	PCI/G	0.65			GAMMASPEC	9412014	19688
129-B05-030	7.000	9.000	11/17/94	TH-232	1.50	0.140	PCI/G	0.42			GAMMASPEC	9412014	19688
129-B05-030	7.000	9.000	11/17/94	TH-228	-15.00	13.800	PCI/G	119.60	UJ	EGR	ALPHASPEC	9412014	19688
129-B05-030	7.000	9.000	11/17/94	TH-230	51.30	60.200	PCI/G	46.40	UJ	EGR	ALPHASPEC	9412014	19688
129-B05-030	7.000	9.000	11/17/94	TH-232	-2.90	5.800	PCI/G	79.00	UJ	EGR	ALPHASPEC	9412014	19688
129-B05-030	7.000	9.000	11/17/94	TH-228	1.00	1.200	PCI/G	1.80	UJ	EGR	ALPHASPEC	9508056	22367
129-B05-030	7.000	9.000	11/17/94	TH-230	35.70	11.200	PCI/G	1.40	J	TCR	ALPHASPEC	9508056	22367
129-B05-030	7.000	9.000	11/17/94	TH-232	2.00	1.700	PCI/G	1.40	J	TCR	ALPHASPEC	9508056	22367
129-B05-031	9.000	11.000	11/17/94	RA-226	8.40	0.350	PCI/G	0.61			GAMMASPEC	9412013	19683
129-B05-031	9.000	11.000	11/17/94	TH-232	1.00	0.120	PCI/G	0.36	U	BLK	GAMMASPEC	9412013	19683
129-B05-031	9.000	11.000	11/17/94	U-238	220.00	55.500	PCI/G	10.00			GAMMASPEC	9412013	19683

TMA/Eberline Oak Ridge, FUSRAP Radiological Reports
Sampling Event: LIN_CH94

Sample ID	Top Depth	Bottom Depth	Date Collected	Analyte	Result	Error	Units	MDA	BNI Flag	Qualifier Code	Analytical Method	TMA/E Number	DATAFUSR Number
129-B05-031	9.000	11.000	11/17/94	TH-228	1.30	0.450	PCI/G	0.12			ALPHASPEC	9412013	19683
129-B05-031	9.000	11.000	11/17/94	TH-230	2.90	0.840	PCI/G	0.10	U	BLK	ALPHASPEC	9412013	19683
129-B05-031	9.000	11.000	11/17/94	TH-232	1.50	0.510	PCI/G	0.10	U	BLK	ALPHASPEC	9412013	19683
129-B05-032	11.000	11.500	11/17/94	RA-226	8.10	0.360	PCI/G	0.54			GAMMASPEC	9412013	19683
129-B05-032	11.000	11.500	11/17/94	TH-232	1.20	0.210	PCI/G	0.56	U	BLK	GAMMASPEC	9412013	19683
129-B05-032	11.000	11.500	11/17/94	U-238	96.80	24.000	PCI/G	8.90			GAMMASPEC	9412013	19683
129-B05-032	11.000	11.500	11/17/94	TH-228	0.94	0.320	PCI/G	0.08			ALPHASPEC	9412013	19683
129-B05-032	11.000	11.500	11/17/94	TH-230	3.60	0.900	PCI/G	0.05			ALPHASPEC	9412013	19683
129-B05-032	11.000	11.500	11/17/94	TH-232	0.77	0.280	PCI/G	0.05	U	BLK	ALPHASPEC	9412013	19683
129-B05-033	11.500	12.500	11/17/94	RA-226	0.97	0.160	PCI/G	0.42			GAMMASPEC	9412013	19683
129-B05-033	11.500	12.500	11/17/94	TH-232	0.87	0.130	PCI/G	0.51	U	BLK	GAMMASPEC	9412013	19683
129-B05-033	11.500	12.500	11/17/94	U-238	6.10	1.900	PCI/G	3.70			GAMMASPEC	9412013	19683
129-B05-033	11.500	12.500	11/17/94	TH-228	1.10	0.380	PCI/G	0.11			ALPHASPEC	9412013	19683
129-B05-033	11.500	12.500	11/17/94	TH-230	1.10	0.390	PCI/G	0.10	U	BLK	ALPHASPEC	9412013	19683
129-B05-033	11.500	12.500	11/17/94	TH-232	0.72	0.290	PCI/G	0.10	U	BLK	ALPHASPEC	9412013	19683
129-B05-063	1.500	3.000	11/17/94	U-238	306.00	94.200	PCI/G	55.30			GAMMASPEC	9412014	19688
129-B05-063	1.500	3.000	11/17/94	RA-226	533.00	13.100	PCI/G	3.00			GAMMASPEC	9412014	19688
129-B05-063	1.500	3.000	11/17/94	TH-232	2.20	0.000	PCI/G	2.20	UJ	ERR	GAMMASPEC	9412014	19688
129-B05-063	1.500	3.000	11/17/94	TH-228	17.20	29.900	PCI/G	54.20	UJ	EGR	ALPHASPEC	9412014	19688
129-B05-063	1.500	3.000	11/17/94	TH-230	396.90	149.900	PCI/G	54.30			ALPHASPEC	9412014	19688
129-B05-063	1.500	3.000	11/17/94	TH-232	-3.40	4.900	PCI/G	54.20	UJ	EGR	ALPHASPEC	9412014	19688
129-B05-063	1.500	3.000	11/17/94	TH-228	2.30	1.600	PCI/G	1.30	J	TCR	ALPHASPEC	9508056	22367
129-B05-063	1.500	3.000	11/17/94	TH-230	415.30	98.500	PCI/G	1.30	J	TCR	ALPHASPEC	9508056	22367
129-B05-063	1.500	3.000	11/17/94	TH-232	2.60	1.700	PCI/G	1.30	J	TCR	ALPHASPEC	9508056	22367
129-B07-039	14.000	16.000	11/17/94	RA-226	3.40	0.220	PCI/G	0.39			GAMMASPEC	9412013	19683
129-B07-039	14.000	16.000	11/17/94	TH-232	1.40	0.150	PCI/G	0.42	U	BLK	GAMMASPEC	9412013	19683
129-B07-039	14.000	16.000	11/17/94	U-238	27.30	6.900	PCI/G	3.90			GAMMASPEC	9412013	19683
129-B07-039	14.000	16.000	11/17/94	TH-228	1.40	0.410	PCI/G	0.11			ALPHASPEC	9412013	19683
129-B07-039	14.000	16.000	11/17/94	TH-230	2.50	0.650	PCI/G	0.08	U	BLK	ALPHASPEC	9412013	19683
129-B07-039	14.000	16.000	11/17/94	TH-232	1.20	0.380	PCI/G	0.07	U	BLK	ALPHASPEC	9412013	19683
129-B07-039	14.000	16.000	11/17/94	TH-228	0.98	0.310	PCI/G	0.10			ALPHASPEC	9508055	22321
129-B07-039	14.000	16.000	11/17/94	TH-230	2.00	0.530	PCI/G	0.08			ALPHASPEC	9508055	22321
129-B07-039	14.000	16.000	11/17/94	TH-232	0.83	0.280	PCI/G	0.04			ALPHASPEC	9508055	22321
129-B07-039	14.000	16.000	11/17/94	RA-226	0.32	0.000	PCI/G	0.32	UJ	ERR	GAMMASPEC	9508055	22321
129-B07-039	14.000	16.000	11/17/94	TH-232	1.80	0.120	PCI/G	0.46			GAMMASPEC	9508055	22321
129-B07-039	14.000	16.000	11/17/94	U-238	25.10	2.800	PCI/G	2.50			GAMMASPEC	9508055	22321
129-B07-040	16.000	18.000	11/17/94	RA-226	1.20	0.150	PCI/G	0.37			GAMMASPEC	9412013	19683
129-B07-040	16.000	18.000	11/17/94	TH-232	1.30	0.210	PCI/G	0.58	U	BLK	GAMMASPEC	9412013	19683
129-B07-040	16.000	18.000	11/17/94	U-238	27.10	6.900	PCI/G	4.90			GAMMASPEC	9412013	19683

TMA/Eberline Oak Ridge, FUSRAP Radiological Reports
Sampling Event: LIN_CH94

Sample ID	Top Depth	Bottom Depth	Date Collected	Analyte	Result	Error	Units	MDA	BNI Flag	Qualifier Code	Analytical Method	TMA/E Number	DATAFUSR Number
129-B07-040	16.000	18.000	11/17/94	TH-228	0.84	0.270	PCI/G	0.09			ALPHASPEC	9412013	19683
129-B07-040	16.000	18.000	11/17/94	TH-230	1.40	0.370	PCI/G	0.04	U	BLK	ALPHASPEC	9412013	19683
129-B07-040	16.000	18.000	11/17/94	TH-232	0.84	0.260	PCI/G	0.04	U	BLK	ALPHASPEC	9412013	19683
129-B07-041	20.000	22.000	11/17/94	RA-226	0.51	0.130	PCI/G	0.36			GAMMASPEC	9412013	19683
129-B07-041	20.000	22.000	11/17/94	TH-232	0.71	0.000	PCI/G	0.71	UJ	ERR	GAMMASPEC	9412013	19683
129-B07-041	20.000	22.000	11/17/94	U-238	3.40	0.000	PCI/G	3.40	UJ	ERR	GAMMASPEC	9412013	19683
129-B07-041	20.000	22.000	11/17/94	TH-228	1.20	0.420	PCI/G	0.11			ALPHASPEC	9412013	19683
129-B07-041	20.000	22.000	11/17/94	TH-230	1.50	0.480	PCI/G	0.11	U	BLK	ALPHASPEC	9412013	19683
129-B07-041	20.000	22.000	11/17/94	TH-232	1.10	0.390	PCI/G	0.10	U	BLK	ALPHASPEC	9412013	19683
129-B08-053	19.500	22.000	11/18/94	RA-226	1.70	0.180	PCI/G	0.43			GAMMASPEC	9412013	19683
129-B08-053	19.500	22.000	11/18/94	TH-232	1.80	0.210	PCI/G	0.56	U	BLK	GAMMASPEC	9412013	19683
129-B08-053	19.500	22.000	11/18/94	U-238	18.60	4.900	PCI/G	4.80			GAMMASPEC	9412013	19683
129-B08-053	19.500	22.000	11/18/94	TH-228	1.40	0.410	PCI/G	0.10			ALPHASPEC	9412013	19683
129-B08-053	19.500	22.000	11/18/94	TH-230	1.90	0.490	PCI/G	0.07	U	BLK	ALPHASPEC	9412013	19683
129-B08-053	19.500	22.000	11/18/94	TH-232	1.30	0.370	PCI/G	0.04	U	BLK	ALPHASPEC	9412013	19683
129-B08-054	22.000	24.500	11/18/94	RA-226	0.70	0.100	PCI/G	0.26			GAMMASPEC	9412013	19683
129-B08-054	22.000	24.500	11/18/94	TH-232	0.54	0.000	PCI/G	0.54	UJ	ERR	GAMMASPEC	9412013	19683
129-B08-054	22.000	24.500	11/18/94	U-238	3.10	1.100	PCI/G	2.50			GAMMASPEC	9412013	19683
129-B08-054	22.000	24.500	11/18/94	TH-228	1.00	0.410	PCI/G	0.12			ALPHASPEC	9412013	19683
129-B08-054	22.000	24.500	11/18/94	TH-230	1.50	0.530	PCI/G	0.12	U	BLK	ALPHASPEC	9412013	19683
129-B08-054	22.000	24.500	11/18/94	TH-232	1.40	0.520	PCI/G	0.07	U	BLK	ALPHASPEC	9412013	19683

Surface Water Results

Attachment F
TCLP results

R.F. Weston Lionville, FUSRAP Chemical Reports
Sampling Event: LINDE
Parameter: Herbicides, TCLP

Sample ID Number	Analyte	Results	Units	Detection Limit	Date Analyzed	BNI Flag	RFW Flag	D-Num
129-B01-002	2,4-D	10.000	UG/L	10.000	12/05/94		U	19601
129-B01-002	2,4,5-TP (Silvex)	5.000	UG/L	5.000	12/05/94		U	19601
129-B01-002	2,4,5-T	5.000	UG/L	5.000	12/05/94		U	19601
129-B02-006	2,4-D	10.000	UG/L	10.000	12/05/94		U	19601
129-B02-006	2,4,5-TP (Silvex)	5.000	UG/L	5.000	12/05/94		U	19601
129-B02-006	2,4,5-T	5.000	UG/L	5.000	12/05/94		U	19601
129-B03-016	2,4-D	10.000	UG/L	10.000	12/06/94		U	19602
129-B03-016	2,4,5-TP (Silvex)	5.000	UG/L	5.000	12/06/94		U	19602
129-B03-016	2,4,5-T	5.000	UG/L	5.000	12/06/94		U	19602
129-B04-010	2,4-D	10.000	UG/L	10.000	12/05/94		U	19600
129-B04-010	2,4,5-TP (Silvex)	5.000	UG/L	5.000	12/05/94		U	19600
129-B04-010	2,4,5-T	5.000	UG/L	5.000	12/05/94		U	19600
129-B05-027	2,4-D	10.000	UG/L	10.000	12/09/94		U	19603
129-B05-027	2,4,5-TP (Silvex)	5.000	UG/L	5.000	12/09/94		U	19603
129-B05-027	2,4,5-T	5.000	UG/L	5.000	12/09/94		U	19603

R.F. Weston Lionville, FUSRAP Chemical Reports
Sampling Event: LINDE
Parameter: Volatile Organics, TCLP

Sample ID Number	Analyte	Results	Units	Detection Limit	Date Analyzed	BNI Flag	RFW Flag	D-Num
129-B01-002	Vinyl Chloride	0.100	MG/L	0.100	12/06/94		U	19601
129-B01-002	1,1-Dichloroethene	0.050	MG/L	0.050	12/06/94		U	19601
129-B01-002	Chloroform	0.050	MG/L	0.050	12/06/94		U	19601
129-B01-002	1,2-Dichloroethane	0.050	MG/L	0.050	12/06/94		U	19601
129-B01-002	2-Butanone	0.100	MG/L	0.100	12/06/94		U	19601
129-B01-002	Carbon Tetrachloride	0.050	MG/L	0.050	12/06/94		U	19601
129-B01-002	Trichloroethene	0.050	MG/L	0.050	12/06/94		U	19601
129-B01-002	Benzene	0.050	MG/L	0.050	12/06/94		U	19601
129-B01-002	Tetrachloroethene	0.050	MG/L	0.050	12/06/94		U	19601
129-B01-002	Chlorobenzene	0.050	MG/L	0.050	12/06/94		U	19601
129-B02-006	Vinyl Chloride	0.100	MG/L	0.100	12/06/94		U	19601
129-B02-006	1,1-Dichloroethene	0.050	MG/L	0.050	12/06/94		U	19601
129-B02-006	Chloroform	0.050	MG/L	0.050	12/06/94		U	19601
129-B02-006	1,2-Dichloroethane	0.050	MG/L	0.050	12/06/94		U	19601
129-B02-006	2-Butanone	0.100	MG/L	0.100	12/06/94		U	19601
129-B02-006	Carbon Tetrachloride	0.050	MG/L	0.050	12/06/94		U	19601
129-B02-006	Trichloroethene	0.050	MG/L	0.050	12/06/94		U	19601
129-B02-006	Benzene	0.050	MG/L	0.050	12/06/94		U	19601
129-B02-006	Tetrachloroethene	0.050	MG/L	0.050	12/06/94		U	19601
129-B02-006	Chlorobenzene	0.050	MG/L	0.050	12/06/94		U	19601
129-B03-016	Vinyl Chloride	0.100	MG/L	0.100	12/06/94		U	19602
129-B03-016	1,1-Dichloroethene	0.050	MG/L	0.050	12/06/94		U	19602
129-B03-016	Chloroform	0.050	MG/L	0.050	12/06/94		U	19602
129-B03-016	1,2-Dichloroethane	0.050	MG/L	0.050	12/06/94		U	19602
129-B03-016	2-Butanone	0.100	MG/L	0.100	12/06/94		U	19602
129-B03-016	Carbon Tetrachloride	0.050	MG/L	0.050	12/06/94		U	19602
129-B03-016	Trichloroethene	0.050	MG/L	0.050	12/06/94		U	19602
129-B03-016	Benzene	0.050	MG/L	0.050	12/06/94		U	19602
129-B03-016	Tetrachloroethene	0.050	MG/L	0.050	12/06/94		U	19602
129-B03-016	Chlorobenzene	0.050	MG/L	0.050	12/06/94		U	19602
129-B04-010	Vinyl Chloride	0.100	MG/L	0.100	12/06/94		U	19600
129-B04-010	1,1-Dichloroethene	0.050	MG/L	0.050	12/06/94		U	19600
129-B04-010	Chloroform	0.050	MG/L	0.050	12/06/94		U	19600
129-B04-010	1,2-Dichloroethane	0.050	MG/L	0.050	12/06/94		U	19600
129-B04-010	2-Butanone	0.100	MG/L	0.100	12/06/94		U	19600
129-B04-010	Carbon Tetrachloride	0.050	MG/L	0.050	12/06/94		U	19600
129-B04-010	Trichloroethene	0.050	MG/L	0.050	12/06/94		U	19600
129-B04-010	Benzene	0.050	MG/L	0.050	12/06/94		U	19600
129-B04-010	Tetrachloroethene	0.050	MG/L	0.050	12/06/94		U	19600
129-B04-010	Chlorobenzene	0.050	MG/L	0.050	12/06/94		U	19600
129-B05-027	Vinyl Chloride	0.100	MG/L	0.100	12/07/94		U	19603

R.F. Weston Lionville, FUSRAP Chemical Reports
Sampling Event: LINDE
Parameter: Volatile Organics, TCLP

Sample ID Number	Analyte	Results	Units	Detection Limit	Date Analyzed	BNI Flag	RFW Flag	D-Num
129-B05-027	1,1-Dichloroethene	0.050	MG/L	0.050	12/07/94		U	19603
129-B05-027	Chloroform	0.012	MG/L	0.050	12/07/94	U	JB	19603
129-B05-027	1,2-Dichloroethane	0.050	MG/L	0.050	12/07/94		U	19603
129-B05-027	2-Butanone	0.100	MG/L	0.100	12/07/94		U	19603
129-B05-027	Carbon Tetrachloride	0.050	MG/L	0.050	12/07/94		U	19603
129-B05-027	Trichloroethene	0.056	MG/L	0.050	12/07/94		=	19603
129-B05-027	Benzene	0.050	MG/L	0.050	12/07/94		U	19603
129-B05-027	Tetrachloroethene	0.050	MG/L	0.050	12/07/94		U	19603
129-B05-027	Chlorobenzene	0.050	MG/L	0.050	12/07/94		U	19603

R.F. Weston Lionville, FUSRAP Chemical Reports

Sampling Event: LINDE

Parameter: Metals, TCLP

Sample ID Number	Analyte	Results	Units	Detection Limit	Date Analyzed	BNI Flag	RFW Flag	D-Num
129-B01-002	Silver, TCLP Leachate	2.900	UG/L	2.900	12/03/94		U	19601
129-B01-002	Arsenic, TCLP	55.400	UG/L	55.400	12/03/94		U	19601
129-B01-002	Barium, TCLP Leachate	930.000	UG/L	3.400	12/03/94		=	19601
129-B01-002	Cadmium, TCLP	3.900	UG/L	3.900	12/03/94		U	19601
129-B01-002	Chromium, TCLP	3.900	UG/L	3.900	12/03/94		U	19601
129-B01-002	Mercury, TCLP	0.100	UG/L	0.100	11/30/94		U	19601
129-B01-002	Lead, TCLP Leachate	22.200	UG/L	22.200	12/03/94		U	19601
129-B01-002	Selenium, TCLP	61.800	UG/L	61.800	12/03/94		U	19601
129-B02-006	Silver, TCLP Leachate	7.000	UG/L	2.900	12/03/94		=	19601
129-B02-006	Arsenic, TCLP	55.400	UG/L	55.400	12/03/94		U	19601
129-B02-006	Barium, TCLP Leachate	555.000	UG/L	3.400	12/03/94		=	19601
129-B02-006	Cadmium, TCLP	3.900	UG/L	3.900	12/03/94		U	19601
129-B02-006	Chromium, TCLP	3.900	UG/L	3.900	12/03/94		U	19601
129-B02-006	Mercury, TCLP	0.100	UG/L	0.100	11/30/94		U	19601
129-B02-006	Lead, TCLP Leachate	22.200	UG/L	22.200	12/03/94		U	19601
129-B02-006	Selenium, TCLP	61.800	UG/L	61.800	12/03/94		U	19601
129-B03-016	Silver, TCLP Leachate	2.900	UG/L	2.900	12/11/94	R	U	19602
129-B03-016	Arsenic, TCLP	55.400	UG/L	55.400	12/12/94		U	19602
129-B03-016	Barium, TCLP Leachate	1,540.000	UG/L	3.400	12/11/94	J	=	19602
129-B03-016	Cadmium, TCLP	3.900	UG/L	3.900	12/12/94		U	19602
129-B03-016	Chromium, TCLP	3.900	UG/L	3.900	12/11/94		U	19602
129-B03-016	Mercury, TCLP	0.100	UG/L	0.100	11/30/94		U	19602
129-B03-016	Lead, TCLP Leachate	398.000	UG/L	22.200	12/11/94		=	19602
129-B03-016	Selenium, TCLP	61.800	UG/L	61.800	12/11/94		U	19602
129-B04-010	Silver, TCLP Leachate	2.900	UG/L	2.900	12/03/94		U	19600
129-B04-010	Arsenic, TCLP	55.400	UG/L	55.400	12/03/94		U	19600
129-B04-010	Barium, TCLP Leachate	1,290.000	UG/L	3.400	12/03/94		=	19600
129-B04-010	Cadmium, TCLP	3.900	UG/L	3.900	12/03/94		U	19600
129-B04-010	Chromium, TCLP	10.900	UG/L	3.900	12/03/94		=	19600
129-B04-010	Mercury, TCLP	0.100	UG/L	0.100	11/30/94		U	19600
129-B04-010	Lead, TCLP Leachate	22.200	UG/L	22.200	12/03/94		U	19600
129-B04-010	Selenium, TCLP	61.800	UG/L	61.800	12/03/94		U	19600
129-B05-027	Silver, TCLP Leachate	20.200	UG/L	2.900	12/12/94	J	=	19603
129-B05-027	Arsenic, TCLP	234.000	UG/L	55.400	12/12/94	U	=	19603
129-B05-027	Barium, TCLP Leachate	2,500.000	UG/L	3.400	12/11/94		=	19603
129-B05-027	Cadmium, TCLP	55.100	UG/L	3.900	12/12/94		=	19603
129-B05-027	Chromium, TCLP	305.000	UG/L	3.900	12/11/94		=	19603
129-B05-027	Mercury, TCLP	0.100	UG/L	0.100	12/05/94		U	19603
129-B05-027	Lead, TCLP Leachate	7,320.000	UG/L	22.200	12/11/94		=	19603
129-B05-027	Selenium, TCLP	61.800	UG/L	61.800	12/11/94		U	19603

R.F. Weston Lionville, FUSRAP Chemical Reports
Sampling Event: LINDE
Parameter: Semi Volatiles, TCLP

Sample ID Number	Analyte	Results	Units	Detection Limit	Date Analyzed	BNI Flag	RFW Flag	D-Num
129-B01-002	Pyridine	0.100	MG/L	0.100	12/06/94	UJ	U	19601
129-B01-002	1,4-Dichlorobenzene	0.100	MG/L	0.100	12/06/94		U	19601
129-B01-002	2-Methylphenol	0.100	MG/L	0.100	12/06/94		U	19601
129-B01-002	3- and/or	0.100	MG/L	0.100	12/06/94		U	19601
129-B01-002	Hexachloroethane	0.100	MG/L	0.100	12/06/94		U	19601
129-B01-002	Nitrobenzene	0.100	MG/L	0.100	12/06/94		U	19601
129-B01-002	Hexachlorobutadiene	0.100	MG/L	0.100	12/06/94		U	19601
129-B01-002	2,4,6-Trichlorophenol	0.100	MG/L	0.100	12/06/94		U	19601
129-B01-002	2,4,5-Trichlorophenol	0.500	MG/L	0.500	12/06/94		U	19601
129-B01-002	2,4-Dinitrotoluene	0.100	MG/L	0.100	12/06/94		U	19601
129-B01-002	Hexachlorobenzene	0.100	MG/L	0.100	12/06/94		U	19601
129-B01-002	Pentachlorophenol	0.500	MG/L	0.500	12/06/94		U	19601
129-B02-006	Pyridine	0.100	MG/L	0.100	12/06/94	UJ	U	19601
129-B02-006	1,4-Dichlorobenzene	0.100	MG/L	0.100	12/06/94		U	19601
129-B02-006	2-Methylphenol	0.100	MG/L	0.100	12/06/94		U	19601
129-B02-006	3- and/or	0.100	MG/L	0.100	12/06/94		U	19601
129-B02-006	Hexachloroethane	0.100	MG/L	0.100	12/06/94		U	19601
129-B02-006	Nitrobenzene	0.100	MG/L	0.100	12/06/94		U	19601
129-B02-006	Hexachlorobutadiene	0.100	MG/L	0.100	12/06/94		U	19601
129-B02-006	2,4,6-Trichlorophenol	0.100	MG/L	0.100	12/06/94		U	19601
129-B02-006	2,4,5-Trichlorophenol	0.500	MG/L	0.500	12/06/94		U	19601
129-B02-006	2,4-Dinitrotoluene	0.100	MG/L	0.100	12/06/94		U	19601
129-B02-006	Hexachlorobenzene	0.100	MG/L	0.100	12/06/94		U	19601
129-B02-006	Pentachlorophenol	0.500	MG/L	0.500	12/06/94		U	19601
129-B03-016	Pyridine	0.100	MG/L	0.100	12/05/94	UJ	U	19602
129-B03-016	1,4-Dichlorobenzene	0.100	MG/L	0.100	12/05/94		U	19602
129-B03-016	2-Methylphenol	0.100	MG/L	0.100	12/05/94		U	19602
129-B03-016	3- and/or	0.100	MG/L	0.100	12/05/94		U	19602
129-B03-016	Hexachloroethane	0.100	MG/L	0.100	12/05/94		U	19602
129-B03-016	Nitrobenzene	0.100	MG/L	0.100	12/05/94		U	19602
129-B03-016	Hexachlorobutadiene	0.100	MG/L	0.100	12/05/94		U	19602
129-B03-016	2,4,6-Trichlorophenol	0.100	MG/L	0.100	12/05/94		U	19602
129-B03-016	2,4,5-Trichlorophenol	0.500	MG/L	0.500	12/05/94		U	19602
129-B03-016	2,4-Dinitrotoluene	0.100	MG/L	0.100	12/05/94		U	19602
129-B03-016	Hexachlorobenzene	0.100	MG/L	0.100	12/05/94		U	19602
129-B03-016	Pentachlorophenol	0.500	MG/L	0.500	12/05/94		U	19602
129-B04-010	Pyridine	0.100	MG/L	0.100	12/06/94	UJ	U	19600
129-B04-010	1,4-Dichlorobenzene	0.100	MG/L	0.100	12/06/94		U	19600
129-B04-010	2-Methylphenol	0.100	MG/L	0.100	12/06/94		U	19600
129-B04-010	3- and/or	0.100	MG/L	0.100	12/06/94		U	19600
129-B04-010	Hexachloroethane	0.100	MG/L	0.100	12/06/94		U	19600

R.F. Weston Lionville, FUSRAP Chemical Reports
Sampling Event: LINDE
Parameter: Semi Volatiles, TCLP

Sample ID Number	Analyte	Results	Units	Detection Limit	Date Analyzed	BNI Flag	RFW Flag	D Num
129-B04-010	Nitrobenzene	0.100	MG/L	0.100	12/06/94		U	19600
129-B04-010	Hexachlorobutadiene	0.100	MG/L	0.100	12/06/94		U	19600
129-B04-010	2,4,6-Trichlorophenol	0.100	MG/L	0.100	12/06/94		U	19600
129-B04-010	2,4,5-Trichlorophenol	0.500	MG/L	0.500	12/06/94		U	19600
129-B04-010	2,4-Dinitrotoluene	0.100	MG/L	0.100	12/06/94		U	19600
129-B04-010	Hexachlorobenzene	0.100	MG/L	0.100	12/06/94		U	19600
129-B04-010	Pentachlorophenol	0.500	MG/L	0.500	12/06/94		U	19600
129-B05-027	Pyridine	0.100	MG/L	0.100	12/19/94	UJ	U	19603
129-B05-027	1,4-Dichlorobenzene	0.100	MG/L	0.100	12/19/94		U	19603
129-B05-027	2-Methylphenol	0.100	MG/L	0.100	12/19/94		U	19603
129-B05-027	3- and/or	0.100	MG/L	0.100	12/19/94		U	19603
129-B05-027	Hexachloroethane	0.100	MG/L	0.100	12/19/94		U	19603
129-B05-027	Nitrobenzene	0.100	MG/L	0.100	12/19/94		U	19603
129-B05-027	Hexachlorobutadiene	0.100	MG/L	0.100	12/19/94		U	19603
129-B05-027	2,4,6-Trichlorophenol	0.100	MG/L	0.100	12/19/94		U	19603
129-B05-027	2,4,5-Trichlorophenol	0.500	MG/L	0.500	12/19/94		U	19603
129-B05-027	2,4-Dinitrotoluene	0.100	MG/L	0.100	12/19/94		U	19603
129-B05-027	Hexachlorobenzene	0.100	MG/L	0.100	12/19/94		U	19603
129-B05-027	Pentachlorophenol	0.500	MG/L	0.500	12/19/94		U	19603

R.F. Weston Lionville, FUSRAP Chemical Reports
Sampling Event: LINDE
Parameter: Pesticides, TCLP

Sample ID Number	Analyte	Results	Units	Detection Limit	Date Analyzed	BNI Flag	RFW Flag	D-Num
129-B01-002	Heptachlor	0.120	UG/L	0.120	12/04/94		U	19601
129-B01-002	alpha-Chlordane	0.120	UG/L	0.120	12/04/94		U	19601
129-B01-002	gamma-Chlordane	0.120	UG/L	0.120	12/04/94		U	19601
129-B01-002	gamma-BHC (Lindane)	0.120	UG/L	0.120	12/04/94		U	19601
129-B01-002	Endrin	0.240	UG/L	0.240	12/04/94		U	19601
129-B01-002	Methoxychlor	1.200	UG/L	1.200	12/04/94		U	19601
129-B01-002	Toxaphene	2.400	UG/L	2.400	12/04/94		U	19601
129-B01-002	Heptachlor Epoxide	0.120	UG/L	0.120	12/04/94		U	19601
129-B02-006	Heptachlor	0.120	UG/L	0.120	12/04/94		U	19601
129-B02-006	alpha-Chlordane	0.120	UG/L	0.120	12/04/94		U	19601
129-B02-006	gamma-Chlordane	0.120	UG/L	0.120	12/04/94		U	19601
129-B02-006	gamma-BHC (Lindane)	0.120	UG/L	0.120	12/04/94		U	19601
129-B02-006	Endrin	0.250	UG/L	0.250	12/04/94		U	19601
129-B02-006	Methoxychlor	1.200	UG/L	1.200	12/04/94		U	19601
129-B02-006	Toxaphene	2.500	UG/L	2.500	12/04/94		U	19601
129-B02-006	Heptachlor Epoxide	0.120	UG/L	0.120	12/04/94		U	19601
129-B03-016	Heptachlor	0.110	UG/L	0.110	12/05/94		U	19602
129-B03-016	alpha-Chlordane	0.110	UG/L	0.110	12/05/94		U	19602
129-B03-016	gamma-Chlordane	0.110	UG/L	0.110	12/05/94		U	19602
129-B03-016	gamma-BHC (Lindane)	0.110	UG/L	0.110	12/05/94		U	19602
129-B03-016	Endrin	0.230	UG/L	0.230	12/05/94		U	19602
129-B03-016	Methoxychlor	1.100	UG/L	1.100	12/05/94		U	19602
129-B03-016	Toxaphene	2.300	UG/L	2.300	12/05/94		U	19602
129-B03-016	Heptachlor Epoxide	0.110	UG/L	0.110	12/05/94		U	19602
129-B04-010	Heptachlor	0.130	UG/L	0.130	12/05/94		U	19600
129-B04-010	alpha-Chlordane	0.130	UG/L	0.130	12/05/94		U	19600
129-B04-010	gamma-Chlordane	0.130	UG/L	0.130	12/05/94		U	19600
129-B04-010	gamma-BHC (Lindane)	0.130	UG/L	0.130	12/05/94		U	19600
129-B04-010	Endrin	0.260	UG/L	0.260	12/05/94		U	19600
129-B04-010	Methoxychlor	1.300	UG/L	1.300	12/05/94		U	19600
129-B04-010	Toxaphene	2.600	UG/L	2.600	12/05/94		U	19600
129-B04-010	Heptachlor Epoxide	0.130	UG/L	0.130	12/05/94		U	19600
129-B05-027	Heptachlor	0.120	UG/L	0.120	12/16/94		U	19603
129-B05-027	alpha-Chlordane	0.120	UG/L	0.120	12/16/94		U	19603
129-B05-027	gamma-Chlordane	0.120	UG/L	0.120	12/16/94		U	19603
129-B05-027	gamma-BHC (Lindane)	0.120	UG/L	0.120	12/16/94		U	19603
129-B05-027	Endrin	0.230	UG/L	0.230	12/16/94		U	19603
129-B05-027	Methoxychlor	1.200	UG/L	1.200	12/16/94		U	19603
129-B05-027	Toxaphene	2.300	UG/L	2.300	12/16/94		U	19603
129-B05-027	Heptachlor Epoxide	0.120	UG/L	0.120	12/16/94		U	19603

FLAGS AND CODES

Flags	Meaning
A	Acceptable
J	Estimate, qualitatively correct but quantitatively suspect
R	Reject, data are not suitable for any purpose. Resampling or reanalysis may be necessary for verification.
UJ	Undetected-estimated. The result is below the MDA or less than the associated error.
U	Undetected. The blank's result is = to the MDA, or above the MDA and the results of the sample are< 5 times the blank's result.

Codes	
ALQ	Aliquot
BLK	Blank
COC	Chain of custody
CCR	Continuing Calibration Range
EGR	Error greater than result
ERR	Error term
HT	Holding time
ICR	Initial Calibration Range
LCS	Lab control sample
MDA	Minimum detectable activity
MTH	Method
PSV	Preservative
RPL	Replicate
SAF	Self-Absorption
TCR	Tracer Recovery
WET	Wet (soil sample)

Attachment G
Guiding Documents
and
Data documentation

Guiding Documents
Tonawanda Landfill Characterization

Field Sampling Plan: CCN 121109
Site Work Instruction (SWI) 129-S00.001: CCN 122836
Field Change Notices (FCNs) 129-01 through 129-10
Quality Assurance Assessment (QAA) 129A-02: CCN 122806

Tonawanda Landfill Sample Documentation								
Subcontractor Batch #	BNI Document #	Work Order	Analyses	Date Collected	Sample ID.	Purpose	Description	Matrix
E14425	19164	9411074	Wet Gamma Spec	11/16/94	129-B03-015 to 018, 129-B06-019 to 025	Characterization	Screening	Soil
E14467	19213	9411092	Wet Gamma Spec	11/17/94	129-B05-026 to 033, 129-B07-034 to 041	Characterization	Screening	Soil
E14490	19280	9411101	Wet Gamma Spec	11/18/94	129-B08-047 to 049,051,053,054, 129-B10-058, 129SD2043, 129SD1042	Characterization	Screening	Soil
E14491	19281	9411100	Wet Gamma Spec	11/14/94	129-B01-001 to 004, 129-B02-005 to 007, 129-B04-009, 011 to 014, 129-B08-046,052, 129-B09-055, 056, 129-B10-057	Characterization	Screening	Soil
E14493	19313	9411110	Wet Gamma Spec	11/14/94		Characterization	Screening	Soil
	19408					QA/QC	Rinse Blank	Water
9412L283	19610	888	Mercury		129-DW-062	QA/QC	Decon	Water
9411L166	19512	888	GC/MS, VOA, BNA, Metals (except Hg)		129-DW-062	QA/QC	Decon	Water
9411L030	19600	868	TCLP total	11/15/94	129-B04-010	Characterization		Soil
9411L002	19601	868	TCLP total	11/25/94	129-B02-006,* 129-B01-002	Characterization		Soil
9411L048	19602	868	TCLP total	11/25/94	129-B03-016	Characterization		Soil
9411L065	19603	868	TCLP total	11/17/94	129-B05-027	Characterization	Failed for lead	Soil
E14777	19683	9412013	U-238, Iso Th, Ra-226	11/15/94	129-B01-001, 002, 129-B02-005, 129-B03-015, 129-B04-009, 010, 129-B05-026, 029, 031 to 033, 129-B07-039 to 041, 129-B08-053, 054	Characterization		Soil
E14809	19688	9412014	U-238, Iso Th, Ra-226	11/17/94	129-B05-027, 028, 030, 063**	Characterization		Soil
E14864	19782	9411120	Tot U, Iso Th, Ra-226	11/28/94	129-DW-062	QA/QC	Decon	Water
E14865	19790	94411099	U-238, Th-230, Th-232, Ra-226	11/15/94	129-B04-059, 129 B05-060, 129-SD2-043, 129-RB 061	Characterization	Discharge water, surface water	Water
E15222	20292	9502071	Iso U, Iso Th, Ra-226	11/18/94	129-SD-1042, 129-SD-2043	Characterization	Sediment may be listed as "SD01" and "SD02"	Sediment
*incorrectly listed as129-B01-006								
**Sample 129-B05-063 is a split of 129-B05-027								

Tonawanda Landfill Characterization Surveys and Logs						
TNS Document Number	BNI Document Number	Survey Type	Purpose	Date	Survey/Log	Comments
E14590	19425	Field source check	Health and Safety log	11/13/94		
E14589	19426	Subsurface	Characterization survey	11/14/94	129SG9401	Borehole 1 and 2
E14589	19426	Subsurface	Characterization survey	11/15/94	129SG9402	Borehole 4
E14589	19426	Subsurface	Characterization survey	11/16/94	129SG9403	Borehole 3
E14589	19426	Subsurface	Characterization survey	11/17/94	129SG9404	Borehole 5
E14589	19426	Subsurface	Characterization survey	11/18/94	129SG9405	Borehole 7 and 8
E14589	19426	Subsurface	Characterization survey	11/18/94	129SG9406	Borehole 6, 9, and 10
E14586	19429	Noise Monitor	Health and Safety- Noise	12/15/94		Borehole drilling
E14585	19430	AMDS	Health and Safety- Air	12/15/94		Direct Reading
E16116	21729	Sample Logbook	Characterization log	11/15/94	129-T-010	Sample Shipment
E16117	21730	Sample Logbook	Characterization log	11/14/94	129-T-014	Chemical Samples
E16118	21731	Sample Logbook	Characterization log	11/14/94	129-T-017	Vol. 1 Rad Samples
E16119	21732	Sample Logbook	Characterization log	11/17/94	129-T-018	Vol. 11 Rad Samples
E16120	21733	Sample Logbook	Characterization log	11/18/94	129-T-019	Vol. 111 Rad Samples
	19365	Logbook	Characterization log	12/15/94	129-E-021	Environmental Technologies Logbook
		Logbook	log		129-T-001	Site Managers Logbook
		Logbook	log		129-T-006	Air Monitoring Data Sheets

D-19426

TMA/Eberline
SUBSURFACE GAMMA-RAY RADIATION LOG

SURVEY #: 129SG9406

SITE: TONAWANDA LANDFILL JOB NUMBER: 129 SURVEYORS: [redacted]

AREA: NORTH SIDE OF LANDFILL RECORDER: [redacted]

DATE: 11-18-94 COUNT TIME: 1 MINUTE(S) DEPTH (UNITS)= FEET

W(-X) / S(-Y) COORDINATES E(+X) / N(-Y)

	Hole # & Coord.		Hole # & Coord.		Hole # & Coord.		Hole # & Coord.
	129BH09		129BH10		129BH06		
Depth		Depth		Depth		Depth	
0	11853	0	8810	0	8985		
1	13785	1	10300	1	10516		
2	14558	2	10900	2	10511		
3	13266	3	13000	3	10779		
4	12625	4	11000	4	10937		
5	10596	5	9940	5	9058		
				6	8458		
				7	8203		
				8	7996		
				9	7758		
				10	4272		

SCALER MODEL: LUDLUM 2350 SERIAL NUMBER: S 7640

DETECTOR(SHIELDED): BHP SERIAL NUMBER: S 7797

SCALER MODEL: SERIAL NUMBER:

DETECTOR(UNSHIELDED): SERIAL NUMBER:

COMMENTS:

NOTE: COMMENTS MUST BE MADE FOR SPECIFIC GRID LOCATIONS. GIVE COORDINATES OF THE LOCATIONS TO WHICH EACH COMMENT APPLIES.