



Nuclear Fuel Services, Inc.
1205 Banner Hill Road
Erwin, TN 37650

(423) 743-9141

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

21G-98-0146
GOV-01-60
ACF-98-234

September 11, 1998

Mr. G. A. Farmer, Chief, RCRA Branch
Waste Management Division
U. S. Environmental Protection Agency, Region IV
100 Alabama Street, S. W.
Atlanta, GA 30303

Mr. Thomas Tiesler, Director
Division of Solid Waste Management
Tennessee Department of Environment & Conservation
Fifth Floor, L & C Tower
401 Church Street
Nashville, TN 37243-1535

Reference: 1) HSWA Permit for 1984 RCRA Amendments
Nuclear Fuel Services, Inc., Erwin, TN
EPA ID: TND 003 095 635

Dear Messrs. Farmer and Tiesler:

As required by the above-referenced permit, Condition II.E.3.a. and Condition II.F.3.a., Nuclear Fuel Services, Inc. (NFS) is enclosing the quarterly RCRA Facility Investigation (RFI) and Interim Measures (IM) Progress Reports as Attachments I and II. The next quarterly RFI/IM Progress Reports will be submitted by December 11, 1998.

If you or your staff have any questions, require additional information, or wish to discuss this, please contact me or Ms. Janice Greene, Environmental Safety Manager, at (423) 743-1730. Please reference our unique document identification number (21G-98-0146) in any correspondence concerning this letter.

Sincerely,

NUCLEAR FUEL SERVICES, INC.

Thomas S. Baer, Ph. D.
Vice President
Safety & Regulatory

EAS/mfh

Attachment

FE02

xc:

Regional Administrator
U. S. Nuclear Regulatory Commission
Region II, Atlanta Federal Center
61 Forsyth Street, SW, Suite 23T85
Atlanta, GA 30303

Ms. Debra Shults
Technical Services Section
Division of Radiological Health
L&C Annex, Third Floor
401 Church Street
Nashville, TN 37243-1532

Mr. Charles Emeigh, Chief
Licensing Branch, NMSS
U. S. Nuclear Regulatory Commission
Mail Stop T8D14
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Mr. Bill Gloersen
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U. S. Nuclear Regulatory Commission
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Mr. Larry Gilliam
Regional Director
TN Department of Environment and Conservation
2305 Silverdale Road
Johnson City, TN 37601-2162

Mr. Gary Humphrey
Senior Resident Inspector, NRC

T. S. Baer to Messrs. Farmer and Tiesler
September 11, 1998

21G-98-0146
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Attachment I to letter
T. S. Baer to Mr. Alan Farmer and Mr. Thomas Tiesler

RFI Progress Report

(11 pages to follow)

**RFI PROGRESS REPORT
NUCLEAR FUEL SERVICES, INC.
EPA ID NO. TND 00 309 5635**

1.0 SWMU 20 (Building 130 Scale Pit)

1.1 Work Completed

The groundwater from the Building 130 scale pit (SWMU 20) is pumped monthly and water is transferred to the Wastewater Treatment Facility. The groundwater is sampled for PCE, TCE, 1,2 DCE (total) and vinyl chloride. The groundwater is then treated and released in accordance with applicable regulations. A total of 118,689 gallons of groundwater has been pumped and treated since September 1995.

NFS completed backfilling of the scale pit with gravel and installed a concrete cap on August 3. The pit will be sampled monthly by means of a four-inch PVC screen which is accessed by a manhole cover.

1.2 Findings and Observations

The analytical results for samples obtained from the scale pit during this and previous reporting periods are presented in Table 1. PCE, TCE, and 1,2-DCE concentrations remained consistent with previous quarters, however the PCE concentration decreased significantly during the June sampling event. A small increase in vinyl chloride was noted during the May sampling event.

1.3 Work Projected (Fourth Quarter 1998)

Monthly pumping and sampling of the groundwater from the Building 130 scale pit (SWMU 20) will continue.

2.0 Off-Site Groundwater Investigation

2.1 Work Completed

Second quarter groundwater sampling of the nine off-site monitoring wells was conducted May 5 through May 6. The samples were analyzed for PCE, TCE, 1,2-DCE, vinyl chloride, isotopic uranium and technetium-99 by the NFS Laboratory. Analytical results are presented in this report.

2.2 Findings and Observations

Second quarter 1998 volatile organic data for the off-site wells are presented in Table 2. A slight decrease in PCE concentrations was noted for the second quarter results as compared to the first quarter results. Trichloroethylene and 1,2-dichloroethylene concentrations remained consistent with the previous quarter. Vinyl chloride concentrations remained consistent with the previous quarter except for a decrease below the detection limit in Well 116A.

Second quarter 1998 radiological data are presented in Table 3. Overall, uranium concentrations are consistent with previous sampling events. Uranium has not been detected at concentrations greater than the proposed MCL (30 pCi/L) during any offsite sampling event. Technetium-99 results are less than ten percent of the proposed action level.

2.3 Work Projected (Fourth Quarter 1998)

Third quarter 1998 analytical results will be received from the NFS Laboratory and validated. Fourth quarter 1998 sampling of off-site wells is planned for November.

3.0 **Vertical Extent Investigation**

3.1 Work Completed

A draft report on the Investigation to Define the Vertical Extent of Groundwater Contamination Report has been completed. The draft report will be reviewed by NFS management prior to submittal.

3.2 Work Projected (Fourth Quarter 1998)

The final report on the Investigation to Define the Vertical Extent of Groundwater Contamination is expected to be submitted to EPA Region IV and the State Division of Solid Waste Management during the fourth quarter 1998.

4.0 **Area of Concern (AOC 6) North of Building 200 Complex**

4.1 Work Completed

An RFI Report for AOC 6 (mercury contaminated soil) was completed for internal NFS review in early August. The preliminary findings are summarized in Section 4.2. In order to characterize the extent of mercury contamination, 46 soil samples were collected from AOC 6 during late May and early June. Soil samples were analyzed for total mercury and radionuclides.

Total mercury analysis was not performed on 1 of the 46 soil samples collected due to the large amount of fine gravel present in the sample. Radiological analysis was not performed on 4 of the 46 soil samples due to the collection of an insufficient volume of soil.

All analytical results have been received and validated. Total mercury and radionuclide results are discussed below.

4.2 Findings and Observations

AOC 6 sample locations are presented in Figure 1. Total mercury and radiological analytical results are presented in Tables 4 and 5.

Total Mercury

Total mercury results for AOC 6 are presented in Table 4. Total mercury was detected in 44 of the 45 soil samples analyzed, with concentrations ranging from 0.4 mg/kg to 72.4 mg/kg. Concentrations exceeding the action level of 20 mg/kg were detected in 11 of the 45 samples (24%). The mean concentration of 17.1 mg/kg is below the action level.

Nine of the eleven (82%) samples which exceeded the action level were collected from depths in the range of 0 to a maximum of 1.6 feet. The mean concentration of samples collected from the range of 0 to a maximum of 1.6 feet is 24.6 mg/kg. The remaining two (18%) samples which exceeded the action level were collected from 1.0 to approximately 2.5 feet deep. The mean concentration of samples collected from 1.0 to approximately 2.5 feet deep is 6.9 mg/kg. None of the samples collected from 2.5 feet deep to auger refusal exceeded the action level.

Radiological Analytical Results

Results of radiological constituents detected at elevated levels for AOC 6 are presented in Table 5.

Total Uranium - Total uranium concentrations ranged from 7.8 pCi/g to 690.3 pCi/g, with a mean concentration of 232.9 pCi/g. Thirty-eight of the 42 samples (91%) exceeded the NRC 1981 Branch Technical Position for total uranium (30 pCi/g).

Twenty-six of the 38 (68%) samples which exceeded 30 pCi/g were collected from depths in the range of 0 to a maximum of 1.6 feet. The mean concentration of samples collected from the range of 0 to a maximum of 1.6 feet is 276.6 pCi/g. Eleven of the 38 (29%) samples which exceeded 30 pCi/g were collected from 1.0 to approximately 2.5 feet deep. The mean concentration of samples collected from 1.0 to approximately 2.5 feet deep is 182.0 pCi/g. The remaining sample

(3%) which exceeded 30 pCi/g was collected from 2.5 feet deep to auger refusal. The mean concentration of samples collected from 2.5 feet deep to auger refusal is 20.3 pCi/g.

Natural Thorium (Thorium-228 and Thorium-232) - Natural thorium concentrations ranged from 3.9 pCi/g to 132.9 pCi/g, with a mean concentration of 22.8 pCi/g. Thirty-one of the 42 samples (74%) were equal to or exceeded the NRC 1981 Branch Technical Position for natural thorium (10 pCi/g).

Twenty-one of the 31 (68%) samples which were equal to or exceeded 10 pCi/g were collected from depths in the range of 0 to a maximum of 1.6 feet. The mean concentration of samples collected from the range of 0 to a maximum of 1.6 feet is 20.6 pCi/g. Nine of the 31 (29%) samples which exceeded 10 pCi/g were collected from 1.0 to approximately 2.5 feet deep. The mean concentration of samples collected from 1.0 to approximately 2.5 feet deep is 28.9 pCi/g. The remaining sample (3%) which exceeded 10 pCi/g was collected from 2.5 feet deep to auger refusal. The mean concentration of samples collected from 2.5 feet deep to auger refusal is 8.7 pCi/g.

Thorium-230 - Thorium-230 concentrations ranged from 1.2 pCi/g to 28.7 pCi/g, with a mean concentration of 5.7 pCi/g. Seventeen of the 42 samples (41%) were equal to or exceeded the proposed release criteria for thorium-230 (5 pCi/g).

Eleven of the 17 (65%) samples which exceeded the proposed release criteria were collected from depths in the range of 0 to a maximum of 1.6 feet. The mean concentration of samples collected from the range of 0 to a maximum of 1.6 feet is 5.3 pCi/g. The remaining six (35%) samples which exceeded the proposed release criteria were collected from 1.0 to approximately 2.5 feet deep. The mean concentration of samples collected from 1.0 to approximately 2.5 feet deep is 6.8 pCi/g. None of the samples from 2.5 feet deep to auger refusal exceeded the proposed release criteria.

4.3 Work Projected (Fourth Quarter 1998)

The RFI Report is expected to be submitted to EPA Region IV and the State Division of Solid Waste Management during fourth quarter 1998.

5.0 **General Information**

As requested by EPA, Region IV, NFS has evaluated options for legally enforceable restrictions to prevent the withdrawal and potable use of groundwater at the adjacent industrial park. The preferred options include deed restrictions and lease agreements. During third quarter 1998, NFS continued to pursue these options with offsite property owners.

Please note that the March 1998 pumping date in Table 1 were reported incorrectly in the June 12, 1998 RFI Progress Report (EPA ID NO. TND 003 095 635) due to a typographical error. The correct date should be 03/23/98.

**Table 1. Analytical Results for SWMU 20
Groundwater**

Sample ID	Pumping Date	Collection Date	PCE (mg/L)	TCE (mg/L)	1,2 DCE (mg/L)	Vinyl Chloride (mg/L)
Baseline 1377124	9/11/95	9/11/95	0.0258	0.0021	0.0193	< 0.005
1377299	9/11/95	9/12/95	0.0428	0.0027	0.0191	0.0053
1379194	9/27/95	9/29/95	0.1846	0.0090	0.0583	< 0.005
1380354	10/11/95	10/12/95	0.1601	0.0039	0.0557	< 0.005
1381571	10/24/95	10/25/95	0.0022	< 0.00038	< 0.008	< 0.005
1382926	11/9/95	11/10/95	0.2079	< 0.00038	< 0.008	< 0.005
1384040	11/21/95	11/22/95	0.2045	0.0239	0.0253	< 0.005
1385232	12/6/95	12/7/95	1.2020	< 0.00038	0.0808	< 0.005
1388088	1/16/96	1/17/96	0.5455	< 0.00038	< 0.008	< 0.005
1389653	2/13/96	2/14/96	0.1732	0.3507	0.1742	< 0.005
1401424	9/18/96	9/18/96	0.1965	< 0.00038	0.0806	< 0.005
1402978	10/15/96	10/15/96	0.047	0.003	UJ 0.009	< 0.004
1404091	11/5/96	11/5/96	0.103	0.027	0.091	0.006
1405586	12/3/96	12/3/96	0.098	0.005	0.010	< 0.004
1409085	01/20/97	1/21/97	0.039	< 0.004	< 0.004	< 0.004
1411441	02/10/97	2/10/97	0.071	< 0.004	< 0.004	< 0.004
1415212	03/12/97	3/13/97	0.149	0.011	0.024	< 0.004
1417118	04/09/97	4/10/97	0.097	0.008	0.017	< 0.004
1420305	05/16/97	05/16/97	0.055	< 0.004	0.064	< 0.005
1422332	06/12/97	06/18/97	0.089	0.008	0.016	< 0.004
1423746	07/10/97	07/11/97	0.037	0.006	0.032	< 0.004
236201	08/06/97	08/06/97	0.043	0.008	0.046	< 0.004
1430335	9/10/97	9/10/97	0.043	0.009	0.043	< 0.004
1439413	10/17/97	10/17/97	0.006	< 0.004	0.006	< 0.004
1445200	11/20/97	11/20/97	0.022	< 0.004	0.015	< 0.005
1447262	12/12/97	12/15/97	0.111	0.011	0.051	0.007
1449087	1/6/98	1/6/98	0.072	< 0.004	0.008	< 0.004
1464655	2/23/98	2/23/98	0.070	0.006	0.019	< 0.004
1473859	3/23/98	3/23/98	0.070	< 0.004	0.009	< 0.004
1484605	4/28/98	4/28/98	0.103	0.004	0.013	< 0.004
1489380	5/14/98	5/14/98	0.076	0.005	0.016	0.011
1501755	6/25/98	6/25/98	0.005	< 0.004	< 0.004	< 0.004
Mean			0.140	0.017	0.033	0.005
Standard Deviation			0.222	0.062	0.037	0.001
t-value			1.310	1.310	1.310	1.310
No of Observations			31	31	31	31
90% UCL			0.192	0.032	0.041	0.005
Action Level (mg/L)			0.005	0.005	0.07	0.002
Notes:						
Analysis performed by NFS 105 Laboratory						
UJ - estimated value below detection limit						
< - below detection limit						

**Table 2. Second Quarter (1998) Offsite Groundwater Analytical Results for
Volatile Organic Compounds**

<u>Sample ID</u>	<u>Well Number</u>	<u>Tetrachloroethylene</u> mg/L	<u>Trichloroethylene</u> mg/L	<u>1,2-Dichloroethylene (cis)</u> mg/L	<u>1,2-Dichloroethylene (trans)</u> mg/L	<u>Vinyl chloride</u> mg/L
00361	116A	0.040	< 0.004	< 0.004	< 0.004	< 0.004
00362	116B	HJ 2.595	0.097	0.148	< 0.004	0.022
00367	117A	0.127	0.005	0.005	< 0.004	< 0.004
00365	117B	0.462	0.023	0.025	< 0.004	< 0.004
00363	118A	0.049	0.008	0.006	< 0.004	< 0.004
00364	118B	0.009	< 0.004	0.014	< 0.004	< 0.004
00360	119A	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
00368	120A	0.279	0.015	0.012	< 0.004	< 0.004
00369	120B	0.309	0.019	0.019	< 0.004	< 0.004
Statistics						
	Mean	0.430	0.020	0.026	< 0.004	0.006
	Standard Deviation	0.827	0.030	0.046	0.000	0.006
	Observations	9	9	9	9	9
	t-value	1.860	1.860	1.860	1.860	1.860
	95% Upper Confidence Limit	0.943	0.038	0.055	0.004	0.010
	MCL	0.005	0.005	0.07	0.1	0.002

Notes

Samples obtained 05/05/98 - 05/06/98. Analysis completed by NFS 105 Laboratory
 < - less than detection limit; value given is the quantitation limit.
 HJ - sample result exceeds holding time; value is estimated.
 MCL - Maximum Contaminant Level (EPA, 1996)

Table 3. Second Quarter (1998) Offsite Groundwater Analytical Results for Radionuclides

Sample ID	Well Number	U-238 pCi/L			U-235 (pCi/L)			U-234 (pCi/L)			Total U (pCi/L)	Tc-99 (pCi/L)					
		Result	Error	MDC	Result	Error	MDC	Result	Error	MDC		Result	Error	MDC			
00361	116A	0.085	0.038	0.046	0.051	0.029	0.046	0.713	0.119	0.183	0.849	B	19.71	8.94	14.46		
00362	116B	0.214	0.054	0.036	UJ	0.027	0.019	0.036	0.267	0.068	0.144	UJ	0.508	B	191.21	10.85	14.46
00367	117A	0.121	0.054	0.065	UJ	0.024	0.024	0.065	0.749	0.136	0.065	UJ	0.894	UJ,B	7.45	8.79	14.46
00365	117B	0.121	0.041	0.037	UJ	0.000	0.033	0.145	0.459	0.079	0.037	UJ	0.580	B	47.32	9.28	14.46
00363	118A	0.794	0.109	0.039	0.058	0.029	0.039	2.788	0.220	0.240	3.640	B	43.07	9.22	14.46		
00364	118B	0.292	0.082	0.061	0.067	0.039	0.061	0.967	0.150	0.061	1.326	UJ,B	-6.18	8.61	14.46		
00360	119A	0.044	0.025	0.039	0.073	0.033	0.039	0.263	0.072	0.157	0.380	B	69.07	9.53	14.46		
00368	120A	0.169	0.054	0.046	0.068	0.048	0.016	0.338	0.076	0.046	0.575	B	36.05	9.14	14.46		
00369	120B	1.022	0.164	0.071	UJ	0.052	0.074	0.282	0.995	0.162	0.071	UJ	2.069	B	27.33	9.03	14.46
Mean		0.318			0.047			0.838			1.202		48.34				
Standard Deviation		0.347			0.025			0.784			1.053		58.02				
Observations		9			9			9			9		9				
t-value		1.860			1.860			1.860			1.860		1.86				
95% Upper confidence		0.53			0.06			1.32			1.85		84.30				
Action Level		ND			ND			ND			30*		3760**				

Notes:
 < = less than the MDC
 UJ = value is less than the MDC; value is estimated.
 B = sample result is less than 5 times the activity detected in the blank
 Total uranium is the sum of the activities of U-234, U-235, and U-238
 ND=no data
 *=Action levels based on EPA proposed maximum contaminant level (MCL) for radionuclides in drinking water (EPA, 1996)
 **=Action level based on site dose assessment model

Impoundment #2

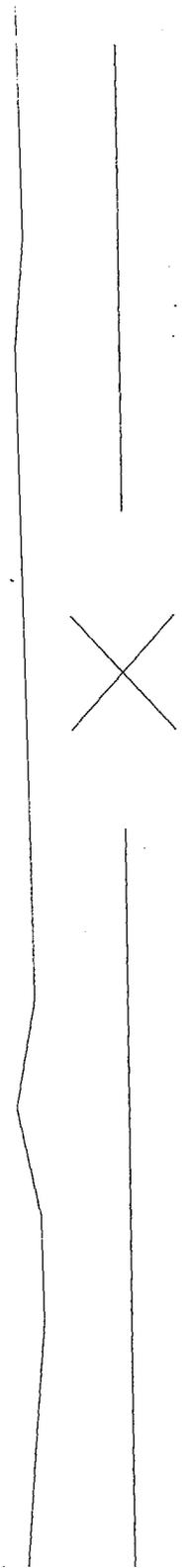
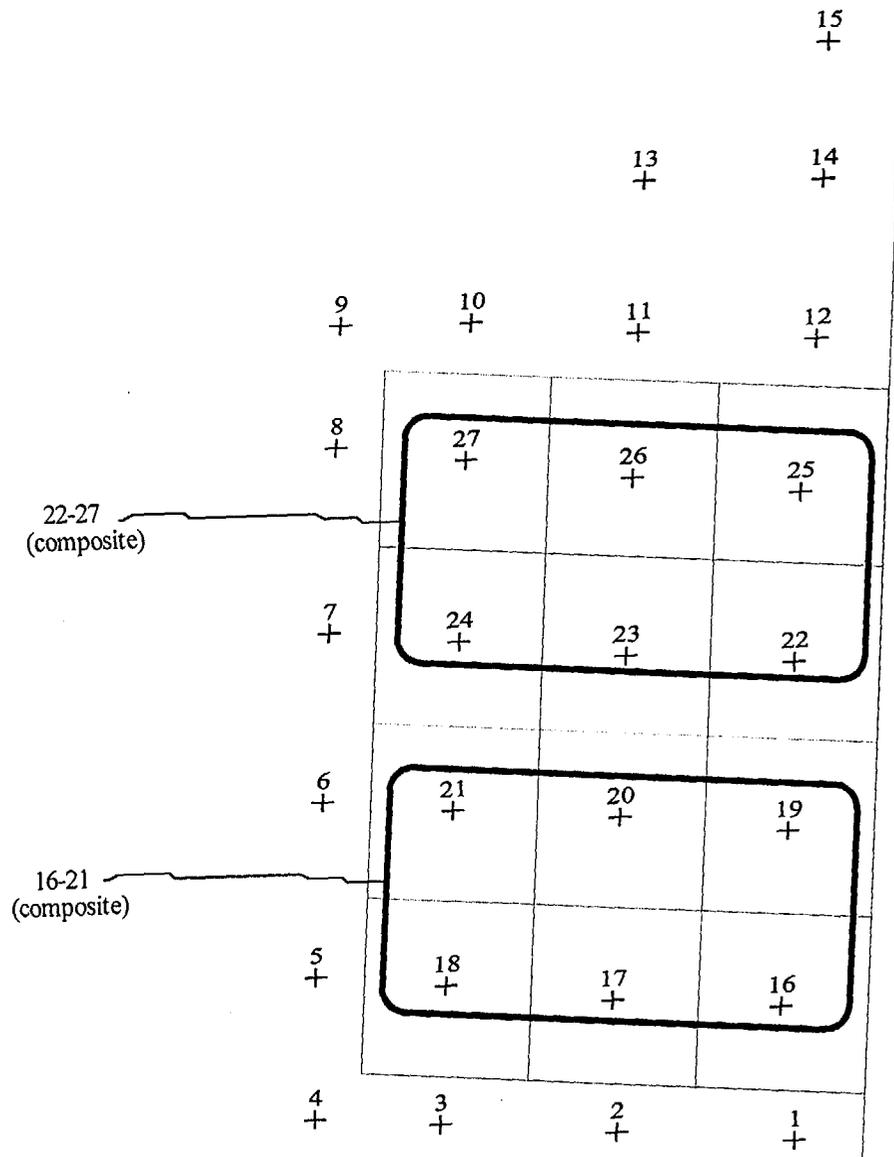


Figure 1. Sample Location (AOC 6)



Building 220

SCALE: 1" = 9'
Plant North

Table 4. AOC 6 Total Mercury Analytical Results				
Location	Sample ID	Depth (ft)	Total Hg (mg/kg)	
1	374	0-0.5	B	9.4
	334	0-1.3	B,J	19.2
2	373	0-0.5	B	13.9
	337	0-1.6	B,J	35.6
	338	1.0-2.6	B	3.4
	339	2.6-2.7	B	15.0
3	372-2	0-0.5	B	7.2
	340	0-1.2	B,J	32.7
4	371	0-0.5	B	9.5
	343	0-1.3	B	4.3
5	354	0-0.5	B	6.7
	358	1.0-2.4	J	1.3
6	375	0-0.5	B	8.7
	401	0-1.3	B,J	9.1
	423	1.0-2.5	J	8.2
	380	2.5-3.0	B	0.8
7	376	0-0.5	B	7.1
	372-1	0-1.3	B	53.7
8	377	0-0.5	B	9.8
	381	0-1.0	B	19.8
9	378	0-0.5	B	6.6
	393	0-1.2	B	72.4
10	390	0-0.5	B	7.8
	418	1.0-2.5	J <	0.5
11	387	0-0.5	B	16.8
	416	1.1-2.4	J	0.6
12	379	0-0.5	B	48.4
	384	0-0.9	B	66.1
13	433	0-0.4	B	14.5
14	429	0-0.7	B	66.0
	430	1.0-2.5	B	4.1
	431	2.5-2.7	B	3.0
15	436	0-0.6	B	13.8
	437	1.0-2.0	B	4.2
16-21	346 (composite)	0-0.5	B,J >	38.2
16	348	1.0-1.8	B	0.9
17	425	1.0-2.5	B	8.9
	426	2.5-2.8	B	12.5
19	357	1.0-2.5	J	30.6
20	427	1.0-2.3	B	6.9
22-27	347 (composite)	0-0.5	B	43.6
22	350	1.0-1.1	B,J >	24.1
23	352	1.0-1.5	B	1.7
26	355	1.0-2.5	B	0.9
	356	2.5-2.8	B	0.4
Mean				17.1
Standard Deviation				19.0
Observations				45
t-value				1.680
95% Upper Confidence				21.8
Action Level				20
Samples collected May 12 through May 21, 1998 and June 9, 1998.				
Analyzed by the NFS 105 Laboratory				
J=estimated value				
B=Blank				
<=less than the detection limit				
>=greater than the standard curve				

Table 5. AOC 6 Estimated Total Uranium, Natural Thorium and Thorium-230 Values

Location	Sample ID	Depth (ft)	Total U (estimated) ¹	Natural Th (estimated) ²	Th-230 (estimated) ³
1	374	0-0.5	J 263.2	J 8.3	J 2.4
	334	0-1.3	J 58.5	J 10.5	J 2.9
2	373	0-0.5	J 263.5	J 5.2	J 1.6
	337	0-1.6	J 83.5	J 15.2	J 4.1
	338	1.0-2.6	J 115.2	J 23.3	J 6.0
3	372-2	0-0.5	J 149.7	J 43.4	J 10.5
	340	0-1.2	J 235.9	J 17.8	J 4.7
4	371	0-0.5	J 100.2	J 10.0	J 2.8
	343	0-1.3	J 119.7	J 11.0	J 3.0
	344	1.0-2.4	J 104.5	J 11.0	J 3.0
5	354	0-0.5	J 153.5	J 14.9	J 4.0
	358	1.0-2.4	J 227.5	J 8.8	J 2.5
6	375	0-0.5	J 72.3	J 7.5	J 2.1
	401	0-1.3	J 164.4	J 15.7	J 4.2
	423	1.0-2.5	J 547.4	J 132.9	J 28.7
	380	2.5-3.0	J 31.7	J 13.4	J 3.6
7	376	0-0.5	J 275.0	J 26.0	J 6.6
	372-1	0-1.3	J 164.7	J 14.2	J 3.8
8	377	0-0.5	J 239.6	J 25.3	J 6.4
	381	0-1.0	J 322.0	J 35.7	J 8.8
9	378	0-0.5	J 194.1	J 22.0	J 5.7
	393	0-1.2	J 455.0	J 41.8	J 10.1
10	390	0-0.5	J 405.8	J 9.7	J 2.7
	418	1.0-2.5	J 7.8	J 4.2	J 1.3
11	387	0-0.5	J 690.3	J 15.9	J 4.2
	416	1.1-2.4	J 108.0	J 11.6	J 3.2
12	379	0-0.5	J 502.5	J 35.1	J 8.6
	384	0-0.9	J 315.0	J 23.4	J 6.0
13	433	0-0.4	J 434.8	J 9.6	J 2.7
14	429	0-0.7	J 504.0	J 34.0	J 8.4
	430	1.0-2.5	J 233.3	J 4.0	J 1.2
15	436	0-0.6	J 498.2	J 14.0	J 3.8
	437	1.0-2.0	J 483.8	J 22.8	J 5.9
16-21	346 (composite)	0-0.5	J 181.4	J 39.0	J 9.5
16	348	1.0-1.8	J 11.2	J 4.1	J 1.2
17	425	1.0-2.5	J 46.1	J 23.6	J 6.0
19	357	1.0-2.5	J 154.1	J 19.3	J 5.0
20	427	1.0-2.3	J 351.3	J 119.2	J 26.0
22-27	347 (composite)	0-0.5	J 345.0	J 29.7	J 7.4
23	352	1.0-1.5	J 12.7	J 5.0	J 1.5
26	355	1.0-2.5	J 145.1	J 15.3	J 4.1
	356	2.5-2.8	J 8.9	J 3.9	J 1.2
Mean			232.9	22.8	5.7
Standard Deviation			170.6	25.5	5.5
Observations			42	42	42
t-value			1.683	1.683	1.683
95% Upper Confidence			277.2	29.4	7.1
Release Criteria			30*	10*	5**

Samples collected May 12 through May 21, 1998 and June 9, 1998.
Analyzed by the NFS NDA and 105 Laboratories
J=estimated value
Natural Th=Th-228+Th-232
1=estimation equation based on enrichment
2=estimated from Th-232 gamma spectroscopy results
3=estimation equation based on historical data
*=Branch Technical Position Option 1
**=Based on site dose assessment model

T. S. Baer to Messrs. Farmer and Tiesler
September 11, 1998

21G-98-0146
GOV-01-60
ACF-98-234

Attachment II to letter
T. S. Baer to Mr. Alan Farmer and Mr. Thomas Tiesler

Interim Measures Progress Report

(13 pages to follow)

INTERIM MEASURES (IM) PROGRESS REPORT
SWMU's 2, 4, 6, 7, 9 and 10
NUCLEAR FUEL SERVICES, INC.
EPA ID. NO. TND 00 309 5635

1.0 Work Completed

Since the last IM Progress Report dated June 12, 1998, work has continued on the North Site excavation. Since the startup (April 10, 1997) of the excavation process for the North Site Burial Grounds approximately 318,789 cubic feet of soil and debris have been transported into Building 410 as of August 24, 1998. Approximately 170,610 cubic feet of soil has been shipped in 5,687 bulk shipping bags and approximately 92,778 cubic feet of soil has been shipped in 188 intermodal shipping containers. In addition, 27,593 cubic feet of debris has been shipped in 345 burial boxes.

Shipping of the South Soil Pile soil is now complete. A total of 98 intermodal shipping containers were loaded with approximately 48,443 cubic feet of soil have been shipped off-site for disposal at Envirocare of Utah.

Through August 14, 1998, 6,140,740 gallons of groundwater have been treated and discharged in accordance with applicable regulations to the Erwin POTW in the 1,456 days since start-up. The total groundwater being pumped from the groundwater drawdown wells and the adjacent ponds (Ponds 1, 2 and 3) has averaged 2.93 gallons per minute.

In accordance with Addendum 1 to the Pond 4 Decommissioning/Interim Measures Workplan, wells in the vicinity of the burial ground are sampled routinely to monitor the effect of waste removal on groundwater quality (Figure 1). PCE and uranium were identified during the North Site Characterization Project as the primary constituents present in groundwater in the vicinity of the burial ground. Second quarter 1998 PCE data, and first and second quarter 1998 total uranium data are discussed in Section 2.2.2.

2.0 Finding and Observations

Analytical data indicate that the excavated waste and debris from the North Site Burial Grounds (Trenches L, M, K, and J) do not contain any hazardous constituents above the TCLP regulatory limits.

2.1 Influent Data

All pumps for the Pond 4 groundwater drawdown system have been operational for this reporting period. The condition of pumps and the groundwater levels have been checked on a weekly basis.

Since initial start-up, groundwater has been sampled weekly for the following constituents: 1,2 dichloroethylene (1,2 DCE), tetrachloroethylene (PCE), trichloroethylene (TCE), vinyl chloride, tributyl phosphate (TBP), bis(2-ethylhexyl)phthalate (BEHP), and di-n-octyl phthalate (DOP). Influent data (Pond 4 drawdown wells and Ponds 1, 2, & 3) for constituents detected in samples collected May 16, 1997 through June 22, 1998 are presented in Table 1 and are discussed below.

1,2 Dichloroethylene - 1,2 DCE was detected in 45 of 58 samples (78%) at concentrations at or exceeding the 0.07 mg/L MCL. The detected concentrations of 1,2 DCE at or above the MCL ranged from 0.068 to 0.960 mg/L. 1,2 DCE was not detected in concentrations greater than the PQL in 12 samples, however, the PQL in 9 of these samples is greater than the MCL (0.07 mg/L).

Tetrachloroethylene - PCE was detected in all samples at concentrations exceeding the 0.005 mg/L MCL. PCE concentrations ranged from 0.013 to 7.970 mg/L.

Trichloroethylene - TCE was detected in 52 of 58 samples (90%) at concentrations exceeding the 0.005 mg/L MCL. TCE concentrations exceeding the MCL ranged from 0.006 to 6.079 mg/L. TCE was not detected in concentrations greater than the PQL in 5 samples, however, the PQL in 3 samples is greater than the MCL (0.005 mg/L).

Vinyl Chloride - Vinyl chloride was detected in 6 of 58 samples (10%) at concentrations exceeding the 0.002 mg/L MCL. Concentrations exceeding the MCL ranged from 0.071 to 0.086 mg/L. All other samples were at concentrations less than the respective PQL, however, the PQL is greater than the MCL of 0.002 mg/L.

Tributyl Phosphate - TBP was detected in 13 of 58 samples (22%) at concentrations exceeding the 0.2 mg/L provisional action level. Concentrations exceeding the action level ranged from 0.312 mg/L to 110 mg/L. The cause of the high TBP result (109.929 mg/L) collected on June 15 is unknown.

Bis(2-ethylhexyl)phthalate - BEHP was not detected in any influent samples obtained since May 16, 1997.

Di-n-octyl phthalate - DOP was not detected in any influent samples obtained since May 16, 1997.

2.2 Groundwater Data

2.2.1 Pond 4 Downgradient Wells (Wells 101A and 102A)

Monthly sampling has continued for Wells 101A and 102A that are located along the western perimeter of the NFS site and downgradient of Pond 4. Analytical results presented in Table 2 include data from Wells 101A and 102A for July 1992 through June 1998.

Tetrachloroethylene - PCE was detected in 30 of 42 samples (71%) obtained from Well 101A. PCE concentrations greater than the 0.005 mg/L MCL were detected in 29 of 42 samples (69%) obtained from Well 101A. Concentrations above the MCL ranged from 0.006 to 0.949 mg/L. PCE was detected at concentrations greater than the MCL in all samples obtained from Well 102A. Concentrations ranged from 0.052 to 5.798 mg/L.

Vinyl Chloride - Vinyl chloride was detected in 26 of 43 samples (60%) obtained from Well 101A. Concentrations of vinyl chloride detected in these samples were all above the 0.002 mg/L MCL. Concentrations above the MCL ranged from 0.007 to 0.179 mg/L. Vinyl chloride was not detected in the remaining samples from Well 101A at concentrations greater than the PQL; however, the PQL is greater than the MCL. Vinyl chloride was detected in 3 of 42 samples (7%) obtained from Well 102A. These concentrations were 0.011, 0.024, and 0.069 mg/L which are greater than the MCL. Vinyl chloride was not detected in the remaining samples from Well 102A; however, the PQL is greater than the MCL (0.002 mg/L).

Tributyl Phosphate - TBP was detected in 28 of 42 samples (67%) obtained from Well 101A. All concentrations detected were less than the provisional MCL of 0.2 mg/L. TBP has not been detected in Well 102A.

2.2.2 Burial Ground Wells

Monthly sampling has continued for wells in the vicinity of the burial ground. Analytical results are presented in Tables 3 and 4.

Tetrachloroethylene - Second quarter 1998 results for PCE in the upgradient and downgradient wells are presented in Table 3. Concentrations of PCE in the downgradient wells during second quarter 1998 ranged from 0.005 mg/L to 0.041 mg/L. Results from second quarter are similar to concentrations observed in previous months.

Concentrations of PCE for each well were plotted monthly. The corresponding graphs are presented in Figure 2. Trends for PCE in the burial ground wells were not apparent.

Total Uranium - First and second quarter 1998 results for total uranium in the upgradient and downgradient wells are presented in Table 4. Beginning November 1997, groundwater samples with gross alpha results less than 15 pCi/L were not analyzed for isotopic uranium. Concentrations of total uranium in the downgradient wells during first quarter 1998 ranged from 208.8 pCi/L to 2664.6 pCi/L, and during second quarter 1998 ranged from 43.7 pCi/L to 1955.2 pCi/L.

Concentrations of total uranium for wells with first and second quarter isotopic uranium results (Wells 60, 60B and 95A) were plotted monthly. The corresponding graphs are presented in Figure 3. An increase in total uranium concentrations in the first quarter 1998 was observed for Wells 60 and 95A. A slight increase was observed in Well 60B.

3.0 Deviations from Workplan

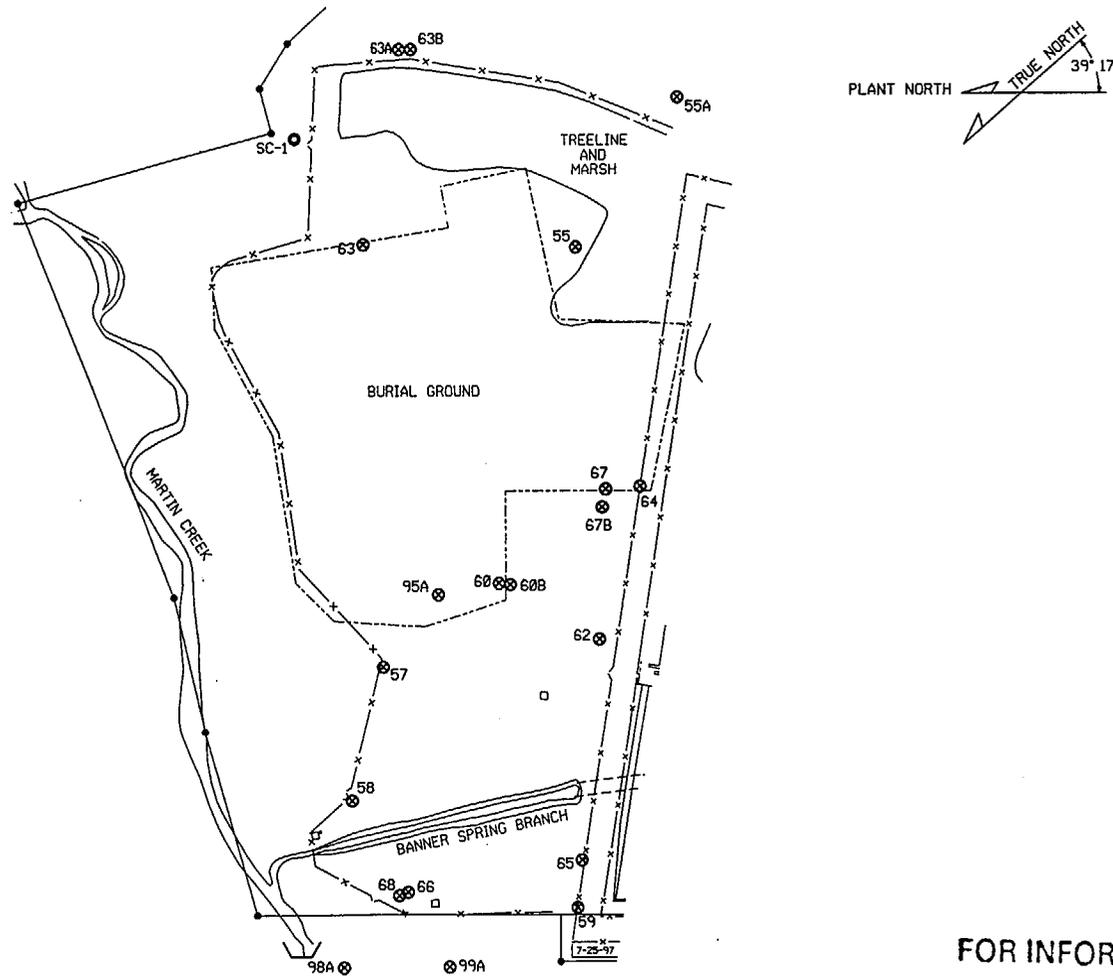
There have been no deviations from the workplan for this quarter.

4.0 Work Projected

Work Projected for the fourth quarter of 1998:

- Continue excavation and processing soil and debris of North Site Burial Grounds.
- Perform maintenance and continue monitoring depths of the groundwater drawdown wells for Pond 4.
- PCE and total uranium data will continue to be evaluated to determine trends in groundwater quality during the burial ground project. Third quarter 1998 PCE and total uranium results will be received and validated. Findings will be presented in the next RFI Progress Report.

Figure 1



Nuclear Fuel Services, Inc.
IM Progress Report
ACF-98-234

FOR INFORMATION ONLY

LEGEND

- ⊗ - MONITORING WELL LOCATION
- - PIEZOMETER LOCATION

				TOLERANCE UNLESS SPECIFIED				NUCLEAR FUEL SERVICES, INC. ERWIN, TENNESSEE				
				FRACTIONAL ± 1/16"				REVIEWED BY <i>W. H. Tracy</i>		NORTH SITE BURIAL GROUND WELL LOCATIONS		
		ORIGINAL ISSUE		ANGULAR ± 1/2°		PROPOSED COMPLETION DATE:						
BY	DATE	REVISION	LET	DECIMAL		DRAFTER		DRAFTER	SCALE	DATE		
THIS DRAWING AND ALL INFORMATION CONTAINED HEREON IS THE PROPERTY OF NUCLEAR FUEL SERVICES, INC. AND SHALL NOT BE USED OR DISCLOSED FOR ANY PURPOSES OTHER THAN THAT FOR WHICH IT HAS BEEN FURNISHED WITHOUT THE EXPRESS WRITTEN CONSENT OF NFS.				XX ± .01		DRAFTER		W. G. HENSLEY	1" = 150'	3-12-98		
				XXX ± .001		PROPOSED APPROVALS		AS-BUILT APPROVALS		005-C0126-B DRAWING NO.		
						REQ.		REQ.					OWNER

5

Table 1. Analytical Results for Constituents Detected in Pond 4 Groundwater and Ponds 1, 2, & 3 Influent Data.

Date Collected	1-2 Dichloro-ethylene (mg/L)	Tetrachloro-ethylene (mg/L)	Trichloro-ethylene (mg/L)	Vinyl Chloride (mg/L)	Tributyl Phosphate (mg/L)	Bis(2-ethylhexyl) pthalate (mg/L)	Di-n-octyl pthalate (mg/L)
5/16/97	< 0.008	0.022	< 0.0004	< 0.005	< 0.030	< 0.030	< 0.030
5/19/97	0.132	0.121	0.006	0.075	< 0.030	< 0.030	< 0.030
5/30/97	0.147	0.170	0.058	0.073	< 0.030	< 0.030	< 0.030
6/5/97	0.107	0.187	0.053	< 0.005	< 0.030	< 0.030	< 0.030
6/11/97	0.110	0.212	0.059	0.071	< 0.030	< 0.030	< 0.030
6/19/97	0.139	0.215	0.062	0.073	< 0.030	< 0.030	< 0.030
6/23/97	0.113	0.225	0.055	0.071	< 0.030	< 0.030	< 0.030
7/2/97	0.589	1.802	0.340	0.086	8.154	< 0.030	< 0.030
7/9/97	0.111	0.185	0.054	< 0.005	< 0.030	< 0.030	< 0.030
7/15/97	0.125	0.641	0.058	< 0.005	< 0.030	< 0.030	< 0.030
7/22/97	0.129	0.781	0.075	< 0.005	< 0.030	< 0.030	< 0.030
8/4/97	0.164	0.704	0.071	< 0.005	< 0.030	< 0.030	< 0.030
8/14/97	0.264	2.586	0.201	< 0.005	< 0.030	< 0.030	< 0.030
8/21/97	0.330	3.538	0.244	< 0.005	< 0.030	< 0.030	< 0.030
8/29/97	0.363	2.709	0.197	< 0.005	< 0.030	< 0.030	< 0.030
9/3/97	0.630	3.235	0.315	< 0.250	< 0.030	< 0.030	< 0.030
9/9/97	0.500	2.990	0.303	< 0.125	< 0.030	< 0.030	< 0.030
9/15/97	0.508	2.490	0.275	< 0.125	< 0.030	< 0.030	< 0.030
9/22/97	0.498	2.973	0.313	< 0.125	< 0.030	< 0.030	< 0.030
9/30/97	0.650	4.740	0.390	< 0.250	< 0.030	< 0.030	< 0.030
10/9/97	0.503	2.368	0.268	< 0.125	< 0.030	< 0.030	< 0.030
10/15/97	0.615	1.620	0.250	< 0.250	< 0.030	< 0.030	< 0.030
10/22/97	0.670	2.395	0.285	< 0.250	< 0.030	< 0.030	< 0.030
10/28/97	0.670	5.330	0.430	< 0.250	< 0.120	< 0.030	< 0.030
11/3/97	0.680	5.045	0.440	< 0.250	0.084	< 0.030	< 0.030
11/10/97	0.475	2.060	0.250	< 0.250	< 0.030	< 0.030	< 0.030
11/17/97	0.610	3.740	0.370	< 0.250	< 0.030	< 0.030	< 0.030
11/26/97	0.665	2.063	0.290	< 0.250	< 0.030	< 0.030	< 0.030
12/3/97	0.733	2.398	0.325	< 0.250	< 0.030	< 0.030	< 0.030
12/9/97	0.758	2.133	0.299	< 0.250	< 0.030	< 0.030	< 0.030
12/17/97	< 0.400	0.762	< 0.020	< 0.250	< 0.030	< 0.030	< 0.030
12/22/97	< 0.400	0.683	0.245	< 0.250	< 0.030	< 0.030	< 0.030
1/2/98	0.559	0.580	< 0.020	< 0.250	< 0.030	< 0.030	< 0.030
1/6/98	< 0.400	0.350	< 0.020	< 0.250	< 0.030	< 0.030	< 0.030
1/15/98	0.933	7.970	0.994	< 0.500	0.335	< 0.030	< 0.030
1/19/98	0.905	7.923	0.996	< 0.500	0.392	< 0.030	< 0.030
1/27/98	0.860	7.830	1.413	< 0.500	0.162	< 0.030	< 0.030
2/4/98	0.801	4.583	0.731	< 0.500	< 0.030	< 0.030	< 0.030
2/10/98	< 0.005	0.172	< 0.0004	< 0.005	< 0.030	< 0.030	< 0.030
2/17/98	0.824	6.902	6.079	< 0.500	0.551	< 0.030	< 0.030
2/26/98	0.543	5.584	0.616	< 0.250	0.568	< 0.030	< 0.030
3/5/98	0.306	1.296	0.159	< 0.250	< 0.030	< 0.030	< 0.030
3/12/98	< 0.400	0.455	0.110	< 0.250	< 0.030	< 0.030	< 0.030
3/19/98	0.068	0.636	0.102	< 0.050	< 0.030	< 0.030	< 0.030
3/24/98	0.017	0.076	0.012	< 0.013	< 0.030	< 0.030	< 0.030
3/31/98	< 0.400	0.522	0.212	< 0.250	< 0.030	< 0.030	< 0.030
4/9/98	0.456	7.426	0.432	< 0.250	0.932	< 0.030	< 0.030
4/17/98	0.333	6.473	0.731	< 0.250	0.760	< 0.030	< 0.030
4/23/98	0.400	7.564	0.769	< 0.250	0.992	< 0.030	< 0.030
4/28/98	< 0.400	3.843	0.600	< 0.250	0.728	< 0.030	< 0.030
5/4/98	< 0.400	6.436	0.817	< 0.250	0.918	< 0.030	< 0.030
5/11/98	< 0.008	0.013	0.004	< 0.005	< 0.030	< 0.030	< 0.030
5/20/98	0.248	2.971	0.880	< 0.250	0.076	< 0.030	< 0.030
5/28/98	0.435	3.255	0.220	< 0.250	0.064	< 0.030	< 0.030
6/2/98	< 0.400	0.558	0.050	< 0.250	< 0.030	< 0.030	< 0.030
6/8/98	0.433	4.277	0.331	< 0.250	0.312	< 0.030	< 0.030
6/15/98	0.960	1.543	1.004	< 0.250	110.0	< 0.030	< 0.030
6/22/98	< 0.080	0.024	0.010	< 0.050	1.565	< 0.030	< 0.030
Mean	0.420	2.593	0.412	0.187	2.204*	0.030	0.030
Standard Deviation	0.259	2.427	0.093	0.034	2.026*	0.000	0.000
No. Observations	58	58	58	58	58	58	58
t-value	1.297	1.297	1.297	1.297	1.297	1.297	1.297
90% Conf. Limit	0.464	3.006	0.428	0.193	2.549*	0.030	0.030
Action Level	0.07	0.005	0.005	0.002	0.2**	0.003	0.7

Notes: Action Levels based on US EPA Maximum Contaminant Levels (MCL) for drinking water (February 1996).
 * Value skewed by 6/15/98 sample
 ** Provisional action level based on Issue Paper (1992), verified with USEPA RCRA Health Assessment Office (May 1996).
 < Less than detection limit
 Analysis performed by NFS
 ND - No data available.

Table 2. Analytical Results for Wells 101A and 102A

Date Collected	Tetrachloroethylene (mg/L)		Vinyl Chloride mg/L		Tributyl Phosphate (mg/L)	
	Well 101A	Well 102A	Well 101A	Well 102A	Well 101A	Well 102A
7/29/92	...	...	...	...	...	...
11/93	0.114	2.960	0.054	0.011	< 0.005	< 0.005
2/94	0.155	0.634	0.047	...	< 0.118	< 0.005
5/94	...	...	...	...	...	< 0.005
7/94	...	...	...	...	...	...
8/94	...	...	...	...	...	...
9/94	0.006	0.399	0.008	< 0.005	...	...
10/94	0.004	0.629	< 0.005	< 0.005	0.035	< 0.030
11/94	...	...	...	...	...	< 0.005
12/94	...	...	...	...	...	...
1/95	...	...	...	...	...	...
2/95	0.015	0.897	0.007	< 0.005	0.078	< 0.030
3/95	...	...	...	...	...	...
4/95	...	...	...	...	...	...
5/95	0.011	0.879	< 0.005	< 0.005	0.051	< 0.030
6/95	< 0.0001	0.809	< 0.005	< 0.005	0.038	< 0.030
7/95	0.016	1.054	< 0.005	< 0.005	0.034	< 0.030
8/95	0.012	0.925	< 0.005	< 0.005	0.031	< 0.030
9/95	0.042	1.195	< 0.005	< 0.005	0.036	< 0.030
10/95	0.011	1.203	< 0.005	< 0.005	0.032	< 0.030
11/95	0.024	0.998	< 0.005	< 0.005	0.052	< 0.030
12/95	0.059	0.622	0.031	< 0.005	0.099	< 0.030
1/96	0.052	0.236	0.083	< 0.005	0.068	< 0.030
2/96	...	0.396	0.081	< 0.005	0.078	< 0.030
3/96	< 0.0001	0.133	0.080	< 0.005	0.062	< 0.030
4/96	< 0.0001	1.206	< 0.005	< 0.005	0.048	< 0.030
5/96	< 0.0001	1.534	0.026	0.024	0.044	< 0.030
6/96	0.082	0.983	0.115	< 0.005	0.042	< 0.030
7/96	< 0.0001	1.069	0.120	< 0.005	0.041	< 0.030
8/96	< 0.001	0.702	< 0.005	< 0.005	0.036	< 0.030
9/96	< 0.001	0.649	< 0.005	< 0.005	0.036	< 0.030
10/96	0.949	0.084	< 0.005	0.069	0.031	< 0.030
11/96	0.073	1.904	0.066	< 0.005	0.034	< 0.030
12/96	0.076	1.028	0.070	< 0.005	0.035	< 0.030
01/97	0.078	0.728	0.074	< 0.005	0.042	< 0.300
02/97	< 0.0001	1.077	< 0.005	< 0.005	0.048	< 0.300
03/97	0.045	0.813	0.062	< 0.005	0.032	< 0.300
04/97	< 0.0001	1.247	0.064	< 0.005	< 0.030	< 0.030
05/97	0.022	0.756	0.072	< 0.005	< 0.030	< 0.030
06/97	< 0.0001	0.776	0.069	< 0.005	< 0.030	< 0.030
07/97	0.022	1.393	0.069	< 0.005	< 0.030	< 0.030
08/97	< 0.0001	1.542	0.068	< 0.005	< 0.030	< 0.030
09/97	0.060	1.797	< 0.050	< 0.062	< 0.030	< 0.030
10/97	0.060	1.798	< 0.050	< 0.062	< 0.030	< 0.030
11/97	0.014	1.431	< 0.050	< 0.083	< 0.030	< 0.030
12/97	0.151	1.561	0.119	< 0.063	0.094	< 0.030
01/98	0.088	5.798	0.160	< 0.250	0.037	< 0.030
02/98	0.093	1.267	0.179	< 0.250	0.044	< 0.030
03/98	0.050	1.111	0.084	< 0.063	< 0.030	< 0.030
04/98	0.054	1.130	0.085	< 0.063	< 0.030	< 0.030
05/98	0.616	0.052	< 0.050	< 0.050	< 0.030	< 0.030
06/98	< 0.001	0.589	0.012	< 0.050	< 0.030	< 0.030
Mean	0.073	1.116	0.050	0.030	0.043	0.046
Standard Deviation	0.168	0.899	0.044	0.055	0.022	0.069
No. Observations	42	43	43	42	42	44
t-value	1.303	1.302	1.302	1.303	1.303	1.302
90% Conf. Limit	0.107	1.295	0.059	0.041	0.048	0.060
Action Level	0.005	0.005	0.002	0.002	0.2*	0.2*

NOTES:

Action Levels are based on US EPA Maximum Contaminant Levels (MCL) for drinking water (February 1996)
 * - Provisional action level based on Issue Paper (1992), verified with USEPA RCRA Health Assessment Office (May 1996)
 < - Less than detection limit
 ... - No sample collected from the well
 All analysis performed by NFS

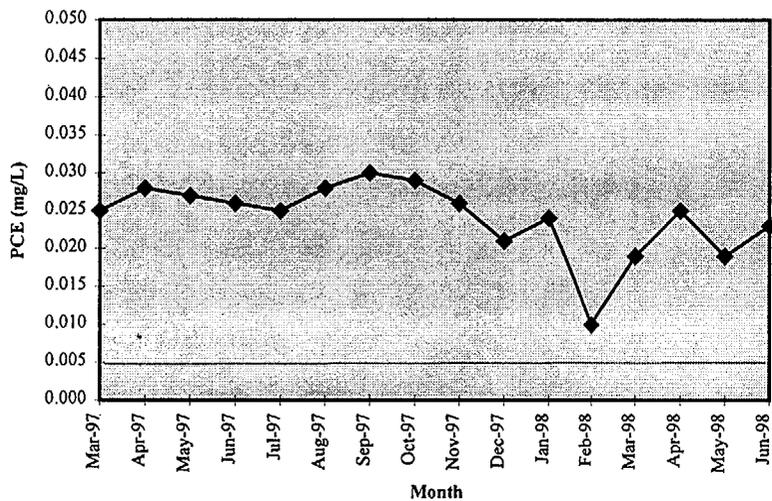
Table 3. Second Quarter 1998 Tetrachloroethylene Results for the Burial Ground Wells

Results are reported as mg/L

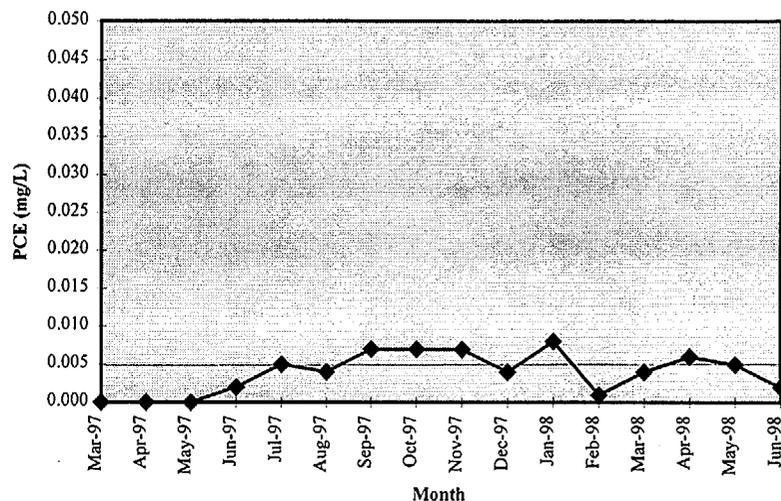
	Upgradient		Downgradient							
	Well 55	Well 63A	Well 57	Well 60	Well 60B	Well 63	Well 64	Well 67	Well 67B	Well 95A
2nd Quarter 1998										
Apr-98	0.025	0.006	0.015	0.011	0.014	0.033	0.005	0.017	0.039	0.006
May-98	0.019	0.005	0.012	0.005	0.011	0.032	0.008	0.014	0.039	0.005
Jun-98	0.023	0.002	0.010	0.005	0.010	0.031	0.014	0.014	0.041	0.006
Mean	0.022	0.004	0.012	0.007	0.012	0.032	0.009	0.014	0.040	0.006
MCL = 0.005 mg/L										

Graphs of Tetrachloroethylene Concentrations for the Burial Ground Wells

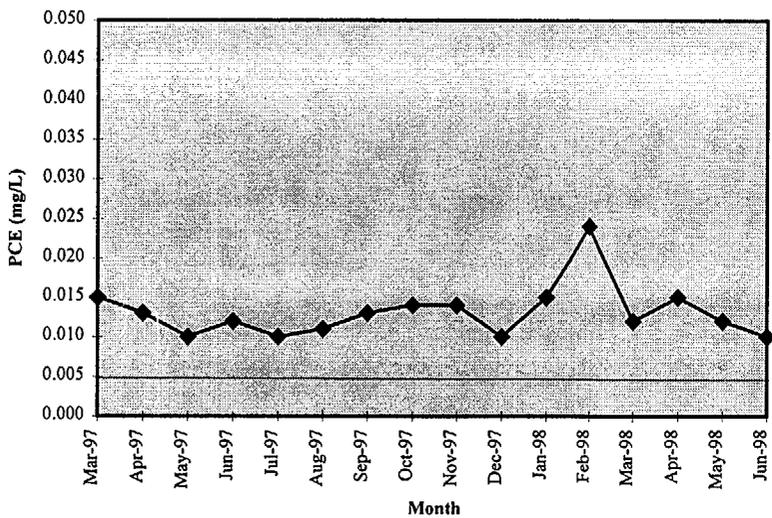
Well 55
Upgradient



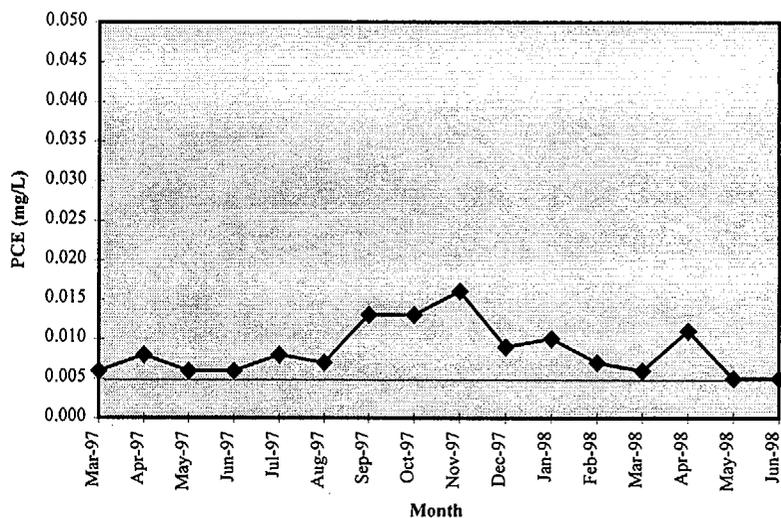
Well 63A
Upgradient



Well 57

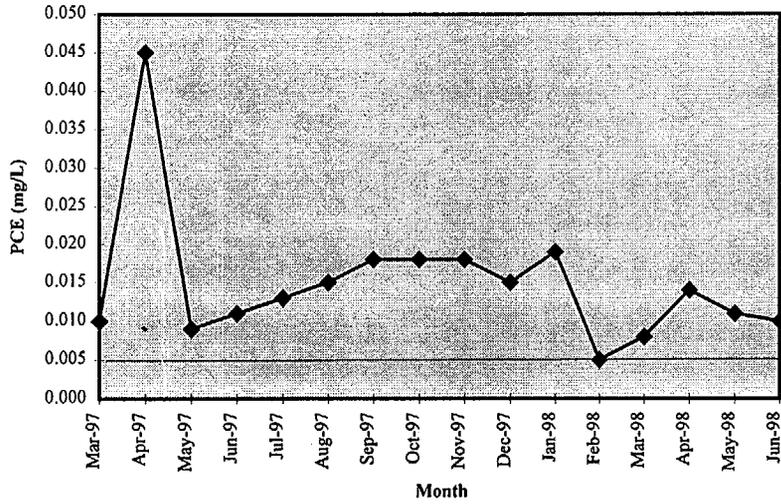


Well 60

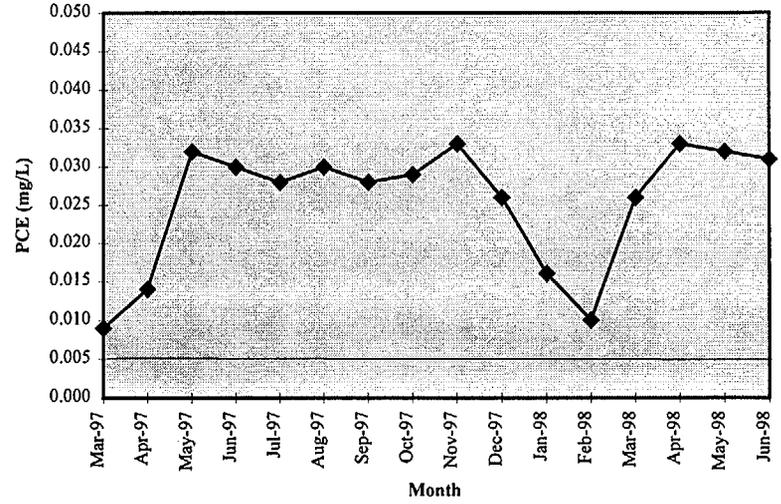


Graphs of Tetrachloroethylene Concentrations for the Burial Ground Wells

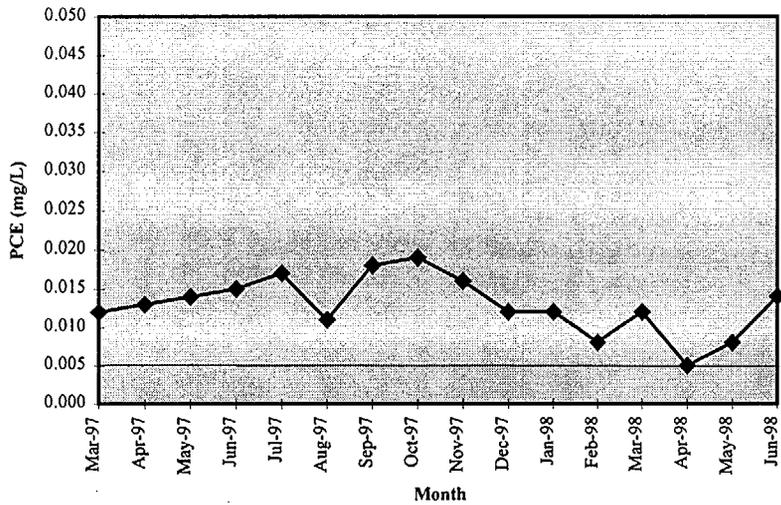
Well 60B



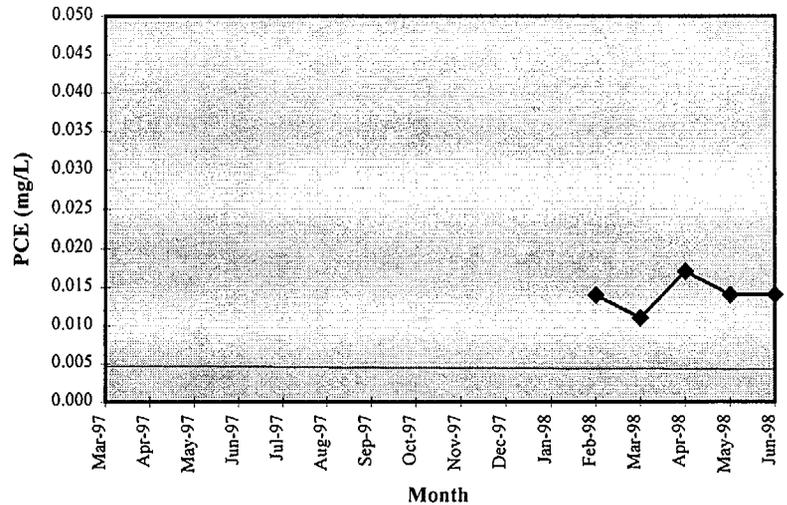
Well 63



Well 64



Well 67*



* Sampling of Well 67 began in February 1998

Graphs of Tetrachloroethylene Concentrations for the Burial Ground Wells

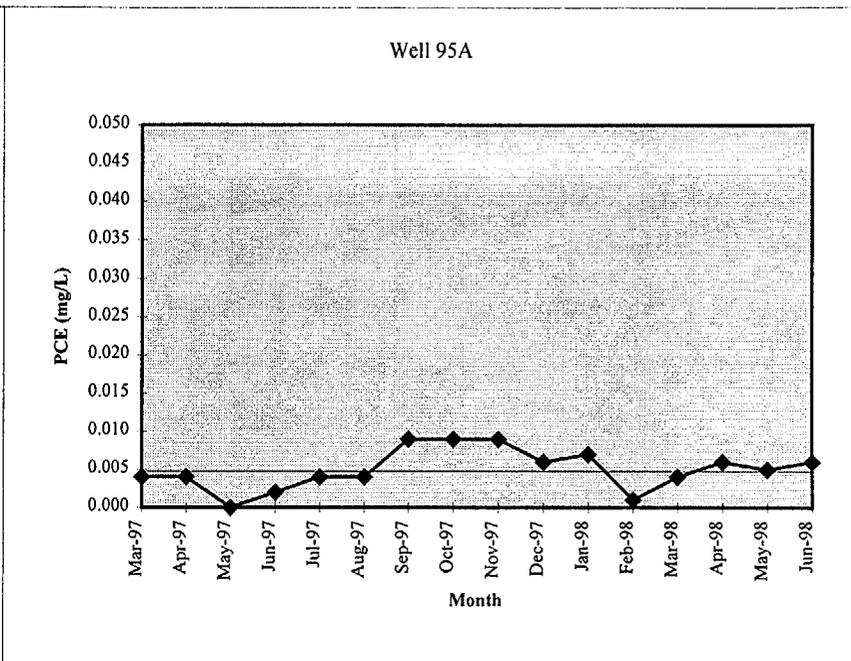
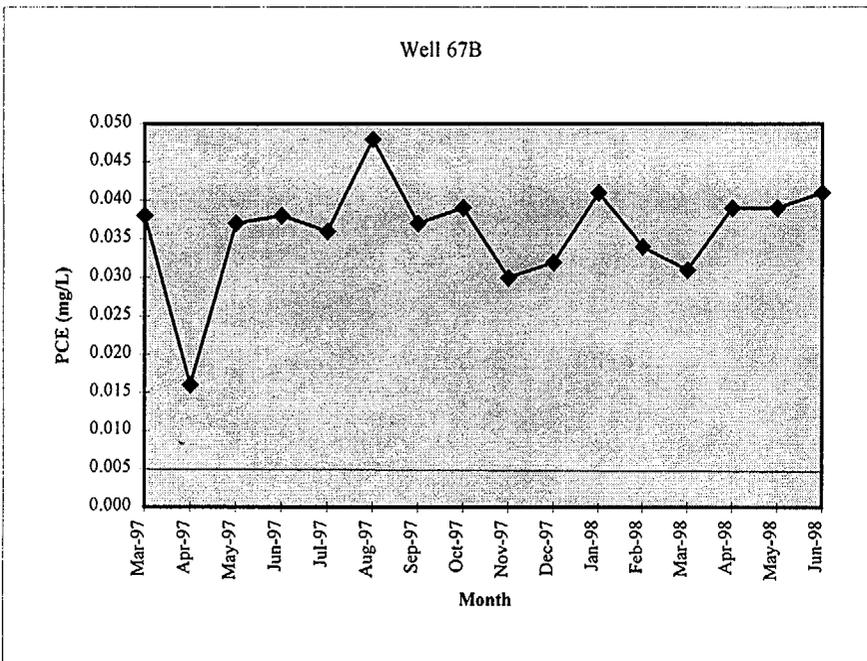


Table 4. First and Second Quarter 1998 Total Uranium Results for the Burial Ground Wells ¹

Results are reported as pCi/L

	Upgradient		Downgradient							
	Well 55	Well 63A	Well 57	Well 60	Well 60B	Well 63	Well 64	Well 67	Well 67B	Well 95A
1st Quarter										
Jan-98	gross alpha < 15 pCi/L	gross alpha < 15 pCi/L	gross alpha < 15 pCi/L	340.9	265.0	gross alpha < 15 pCi/L	gross alpha < 15 pCi/L	ND	gross alpha < 15 pCi/L	360.3
Feb-98	gross alpha < 15 pCi/L	gross alpha < 15 pCi/L	gross alpha < 15 pCi/L	213.5	208.8	gross alpha < 15 pCi/L	2185.7			
Mar-98	gross alpha < 15 pCi/L	gross alpha < 15 pCi/L	gross alpha < 15 pCi/L	2664.6	815.9	gross alpha < 15 pCi/L	1797.9			
Mean	n/a	n/a	n/a	1073.0	429.9	n/a	n/a	n/a	n/a	1448.0
2nd Quarter										
Apr-98	gross alpha < 15 pCi/L	gross alpha < 15 pCi/L	gross alpha < 15 pCi/L	972.8	436.6	gross alpha < 15 pCi/L	43.7	gross alpha < 15 pCi/L	gross alpha < 15 pCi/L	1531.2
May-98	gross alpha < 15 pCi/L	gross alpha < 15 pCi/L	gross alpha < 15 pCi/L	1437.6	812.8	gross alpha < 15 pCi/L	1430.4			
Jun-98	gross alpha < 15 pCi/L	gross alpha < 15 pCi/L	gross alpha < 15 pCi/L	1955.2	708.2	gross alpha < 15 pCi/L	gross alpha < 15 pCi/L	gross alpha < 15 pCi/L	gross alpha < 15 pCi/L	1358.3
Mean	n/a	n/a	n/a	1455.2	652.5	n/a	n/a	n/a	n/a	1440.0

EPA Proposed MCL = 30 pCi/L

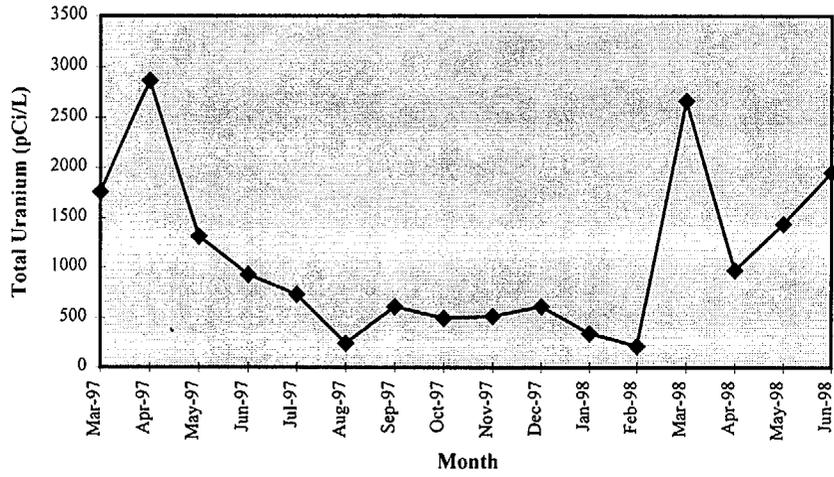
ND=No data. Sampling of Well 67 began in February 1998.

n/a=not applicable

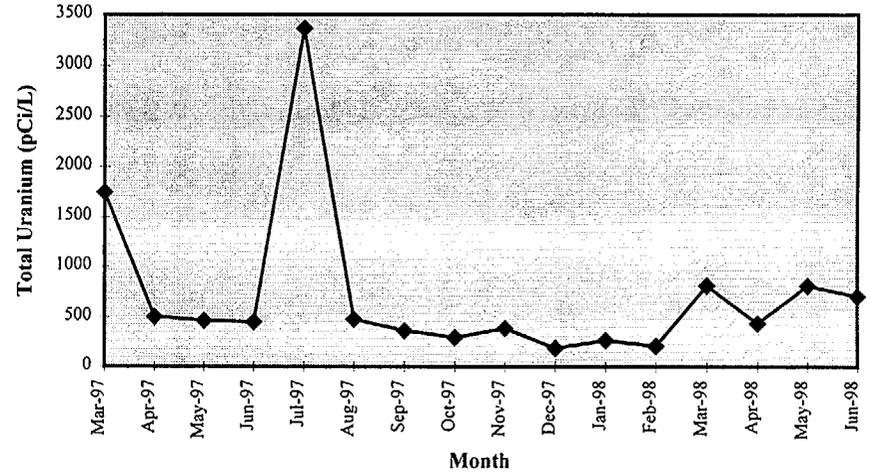
¹ Beginning November 1997, groundwater samples with gross alpha results less than 15 pCi/L were not analyzed for isotopic uranium.

Graphs of Total Uranium Concentrations for the Burial Ground Wells

Well 60



Well 60B



Well 95A

