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Nuclear Fuel Services, Inc.
1205 Banner Hill Road
Erwin, TN 37650
(423) 743-9141

*CERTIFIED MAIL
RETURN RECEIPT REQUESTED*

21G-99-0029
GOV-01-60
ACF-99-0047

March 11, 1999

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 June 9, 1999.

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-99-0029) in any correspondence concerning this letter.

Sincerely,

NUCLEAR FUEL SERVICES, INC.

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

LGG/mfh

IE07

Attachment

xc:

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Senior Resident Inspector,
U. S. Nuclear Regulatory Commission

T. S. Baer to Messrs. Farmer and Tiesler

21G-99-0029
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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)

**RCRA FACILITY INVESTIGATION (RFI) PROGRESS REPORT
NUCLEAR FUEL SERVICES, INC. (NFS)
ENVIRONMENTAL PROTECTION AGENCY (EPA) ID NO. TND 00 309 5635**

1.0 Solid Waste Management Unit (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 tetrachloroethylene (PCE), trichloroethylene (TCE), 1,2-dichloroethylene (DCE) total, and vinyl chloride (VC). The groundwater is then treated and released in accordance with applicable regulations. A total of 132,525 gallons of groundwater has been pumped and treated since September 1995. Due to an oversight, a sample was not collected during the month of October 1998.

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 showed a decrease as compared to the previous quarter. However, concentrations are consistent with historical data. Vinyl chloride concentrations remained consistent.

1.3 Work Projected (First Quarter 1999)

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

Fourth quarter groundwater sampling of the nine off-site monitoring wells was conducted November 16 and 17. 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

Nonradiological

Fourth quarter 1998 results for volatile organic compounds in the offsite wells are presented in Table 2.

PCE and TCE concentrations for offsite wells were plotted quarterly. The corresponding graphs are presented in Figure 1 and discussed below.

PCE - Detected concentrations of PCE in the offsite wells during fourth quarter 1998 ranged from 0.052 mg/L to 2.763 mg/L. All wells contained PCE at concentrations greater than the 0.005 mg/L MCL. Trends for PCE in the offsite wells were not apparent.

TCE - Detected concentrations of TCE in the offsite wells during fourth quarter 1998 ranged from < 0.004 mg/L to 0.092 mg/L. Eight of the nine wells contained TCE at concentrations equal to or greater than the 0.005 mg/L MCL. TCE was not detected in Well 118B. Trends for TCE in the offsite wells were not apparent.

1,2 DCE (cis) - Detected concentrations of 1,2 DCE (cis) in the offsite wells during fourth quarter 1998 ranged from 0.005 mg/L to 0.153 mg/L. Only Well 116B contained 1,2 DCE (cis) at a concentration greater than the 0.07 mg/L MCL. Results from fourth quarter are similar to concentrations observed in previous months.

1,2 DCE (trans) - 1,2 DCE (trans) was not detected in offsite wells during fourth quarter 1998.

Vinyl Chloride - Vinyl chloride was detected in two wells, 116A and 116B, at concentrations greater than the 0.002 mg/L MCL. Vinyl chloride was not detected in the remaining wells at concentrations greater than the PQL; however, the PQL is greater than the MCL.

Radiological

Fourth quarter 1998 results for total uranium and technetium-99 in the offsite wells are presented in Table 3.

Total Uranium - Concentrations of total uranium in the offsite wells during third quarter 1998 ranged from 0.327 pCi/L to 2.123 pCi/L. Uranium has not been detected at concentrations greater than the proposed MCL (30 pCi/L) during any offsite sampling event.

Technetium-99 - Concentrations of technetium-99 in the offsite wells during fourth quarter 1998 ranged from 8.68 pCi/L to 88.78 pCi/L. Technetium-99 results were less than the EPA drinking water MCL of 4 mrem/yr for beta/gamma emitters (4 mrem/yr = 3,760 pCi/L).

2.3 Work Projected (First Quarter 1999)

First quarter 1999 analytical results will be received from the NFS Laboratory and validated. Second quarter 1999 sampling of off-site wells is planned for May. Beginning second quarter 1999, NFS plans to sample offsite wells for volatile organics (PCE, TCE, 1,2-DCE, and VC) and gross alpha/beta. If gross alpha concentrations are greater than 15 pCi/L, then samples will be analyzed for isotopic uranium. If gross beta concentrations exceed 50 pCi/L, then samples will be analyzed for technetium-99.

3.0 **Vertical Extent Investigation**

3.1 Work Completed

The final report on the Investigation to Define the Vertical Extent of Groundwater Contamination was submitted to EPA Region IV, the Tennessee Department of Environment and Conservation (TDEC), and the Nuclear Regulatory Commission (NRC) on December 16, 1998.

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

4.1 Work Completed

The RFI Report for AOC 6 was submitted to the EPA Region IV, TDEC, the NRC on February 3, 1999.

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 first quarter 1999, NFS will continue to pursue these options with offsite property owners.

The revised Groundwater Flow and Solute - Transport Modeling Report was completed in February 1999. This report will be submitted to EPA Region IV, TDEC, and the NRC during second quarter 1999.

| 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 |
| 1512676 | 7/31/98 | 7/31/98 | 0.198 | J< 0.004 | 0.006 | < 0.004 |
| 1514547 | 8/4/98 | 8/4/98 | *J 4.155 | 0.069 | 0.074 | 0.009 |
| 1531379 | 9/25/98 | 9/25/98 | 0.205 | 0.012 | 0.038 | < 0.004 |
| | | ** | | | | |
| 1545647 | 11/4/98 | 11/4/98 | 0.066 | < 0.004 | 0.007 | < 0.004 |
| 1554093 | 12/3/98 | 12/3/98 | 0.206 | 0.007 | 0.014 | < 0.004 |
| Mean | | | 0.254 | 0.018 | 0.032 | 0.005 |
| Standard Deviation | | | 0.700 | 0.058 | 0.035 | 0.001 |
| t-value | | | 1.306 | 1.306 | 1.306 | 1.306 |
| No. of Observations | | | 36 | 36 | 36 | 36 |
| 90% UCL | | | 0.407 | 0.030 | 0.040 | 0.005 |
| Action Level (mg/L) | | | 0.005 | 0.005 | 0.07 | 0.002 |
| Notes: | | | | | | |
| Analysis performed by NFS 105 Laboratory | | | | | | |
| * result above the calibration curve; SWMU - Solid Waste Management Unit | | | | | | |
| ** sample inadvertently not collected; mg/L - milligrams per liter | | | | | | |
| UJ - estimated value below detection limit; UCL - upper confidence limit | | | | | | |
| J - estimated value | | | | | | |
| < - below detection limit | | | | | | |

**Table 2. Fourth 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 |
|---|----------------------------|------------------------------------|----------------------------------|---|---|-------------------------------|
| 00785 | 116A | HJ 1.221 | 0.043 | 0.055 | < 0.004 | 0.009 |
| 00786 | 116B | 2.763 | 0.092 | 0.153 | < 0.004 | 0.023 |
| 00790 | 117A | 0.300 | 0.013 | 0.014 | < 0.004 | < 0.004 |
| 00789 | 117B | 0.459 | 0.023 | 0.022 | < 0.004 | < 0.004 |
| 00787 | 118A | 0.068 | 0.008 | 0.007 | < 0.004 | < 0.004 |
| 00788 | 118B | 0.052 | < 0.004 | 0.012 | < 0.004 | < 0.004 |
| 00784 | 119A | 0.146 | 0.011 | 0.005 | < 0.004 | < 0.004 |
| 00791 | 120A | 0.209 | 0.011 | 0.010 | < 0.004 | < 0.004 |
| 00792 | 120B | 0.351 | 0.018 | 0.020 | < 0.004 | < 0.004 |
| Statistics | | | | | | |
| | Mean | 0.619 | 0.025 | 0.033 | < 0.004 | 0.007 |
| | Standard Deviation | 0.879 | 0.028 | 0.047 | 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 | 1.163 | 0.042 | 0.062 | 0.004 | 0.011 |
| | MCL | 0.005 | 0.005 | 0.07 | 0.1 | 0.002 |
| <p><u>Notes</u> Samples obtained 11/16/98 - 11/17/98. Analysis completed by NFS 105 Laboratory HJ - sample exceeded holding time and is an estimated value. < - less than detection limit; value given is the quantitation limit. mg/L - milligrams per liter MCL - Maximum Contaminant Level (EPA, 1996)</p> | | | | | | |

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Nuclear Fuel Services, Inc.
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Table 3. Fourth 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 | | | | |
| 00785 | 116A | 0.081 | 0.031 | 0.031 | UJ | 0.069 | 0.036 | 0.107 | 0.357 | 0.071 | 0.124 | J | 0.507 | 17.53 | 6.91 | 11.13 | | |
| 00786 | 116B | 0.072 | 0.027 | 0.028 | UJ | 0.072 | 0.031 | 0.076 | 0.248 | 0.051 | 0.028 | J | 0.392 | 88.78 | 7.74 | 11.13 | | |
| 00790 | 117A | J | 0.013 | 0.013 | 0.034 | UJ | 0.063 | 0.038 | 0.116 | 1.842 | 0.161 | 0.135 | J | 1.918 | 36.86 | 7.15 | 11.13 | |
| 00789 | 117B | | 0.012 | 0.012 | 0.033 | UJ | -0.012 | 0.021 | 0.113 | 0.327 | 0.070 | 0.131 | J | 0.327 | 44.52 | 7.24 | 11.13 | |
| 00787 | 118A | | 0.482 | 0.078 | 0.033 | | 0.037 | 0.021 | 0.033 | 1.310 | 0.132 | 0.091 | | 1.829 | UJ | 10.51 | 6.83 | 11.13 |
| 00788 | 118B | | 0.220 | 0.070 | 0.060 | | 0.198 | 0.073 | 0.162 | 0.703 | 0.129 | 0.162 | | 1.121 | UJ | 8.68 | 6.80 | 11.13 |
| 00784 | 119A | UJ | 0.000 | 0.000 | 0.031 | | 0.057 | 0.026 | 0.031 | 0.390 | 0.069 | 0.084 | J | 0.447 | 27.37 | 7.03 | 11.13 | |
| 00791 | 120A | | 0.327 | 0.134 | 0.148 | UJ | 0.163 | 0.122 | 0.401 | 1.633 | 0.312 | 0.401 | J | 2.123 | 34.17 | 7.11 | 11.13 | |
| 00792 | 120B | | 0.765 | 0.129 | 0.058 | | 0.085 | 0.043 | 0.058 | 2.251 | 0.224 | 0.058 | | 3.101 | 23.07 | 6.98 | 11.13 | |
| Mean | | | 0.219 | | | | 0.081 | | | 1.007 | | | | 1.307 | 32.39 | | | |
| Standard Deviation | | | 0.263 | | | | 0.063 | | | 0.763 | | | | 0.984 | 24.30 | | | |
| Observations | | | 9 | | | | 9 | | | 9 | | | | 9 | 9 | | | |
| t-value | | | 1.860 | | | | 1.860 | | | 1.860 | | | | 1.860 | 1.86 | | | |
| 95% Upper confidence | | | 0.38 | | | | 0.12 | | | 1.48 | | | | 1.92 | 47.45 | | | |
| Action Level | | | ND | | | | ND | | | ND | | | | 30* | 3760** | | | |

Notes:

J - estimated value

UJ = value is less than the MDC; value is estimated.

Samples collected on 11/16/98 - 11/17/98; Analysis completed by NFS 105 and 110D Laboratories.

Total uranium is the sum of the activities of U-234, U-235, and U-238

MDC = minimal detectable concentration; ND = no data; pCi/L - pico curies per liter

* Action level based on EPA maximum contaminant level (MCL) for radionuclides in drinking water (EPA, 1996).

** Action level based on EPA MCL of 4 mrem/yr (3760 pCi/L) for beta/gamma emitters (EPA, 1996).

Nuclear Fuel Services, Inc.
 RFI Progress Report
 March 11, 1999

Fig.

Graphs of PCE and TCE Concentrations for the Offsite Wells

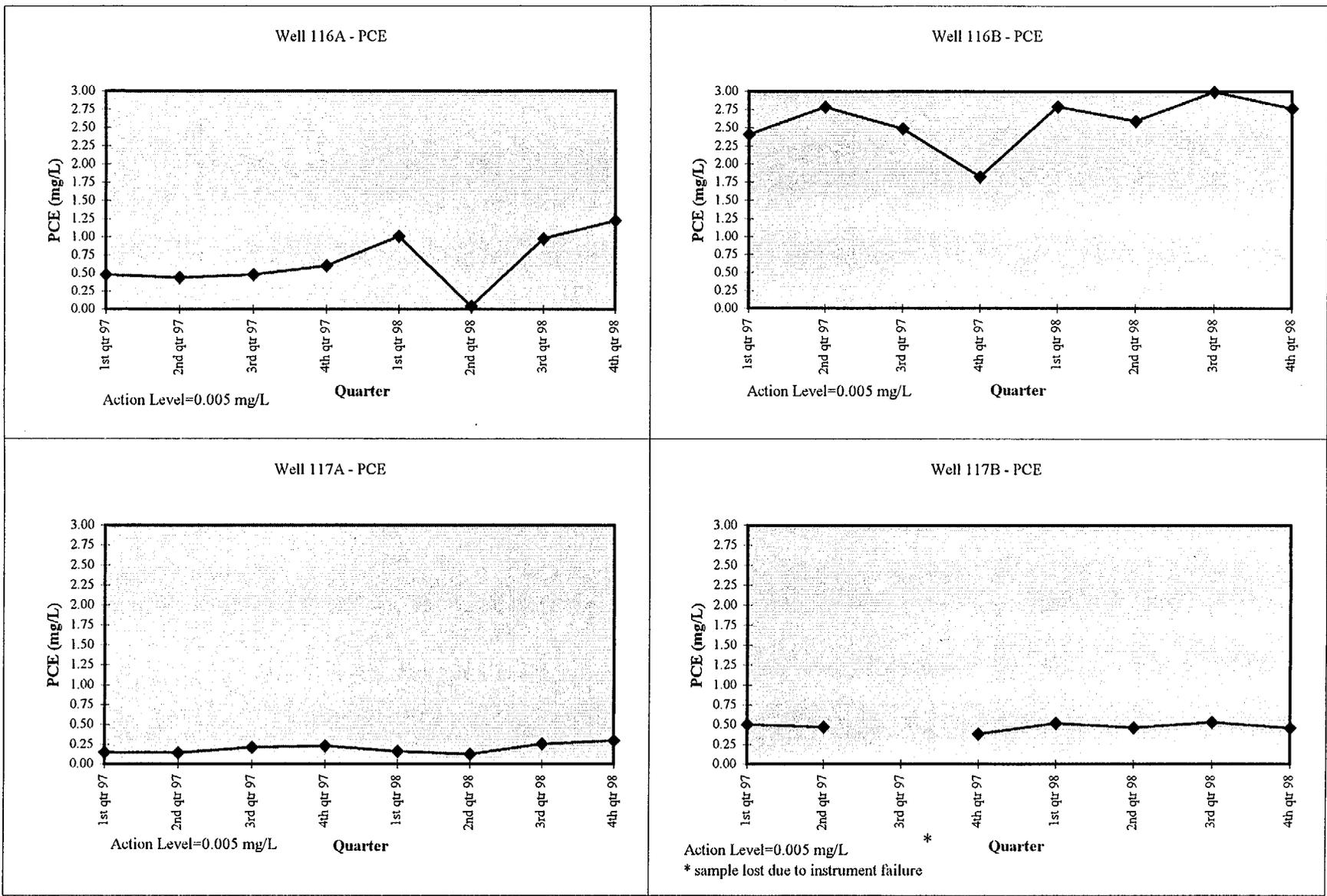


Fig.
Graphs of PCE and TCE Concentrations for the Offsite Wells

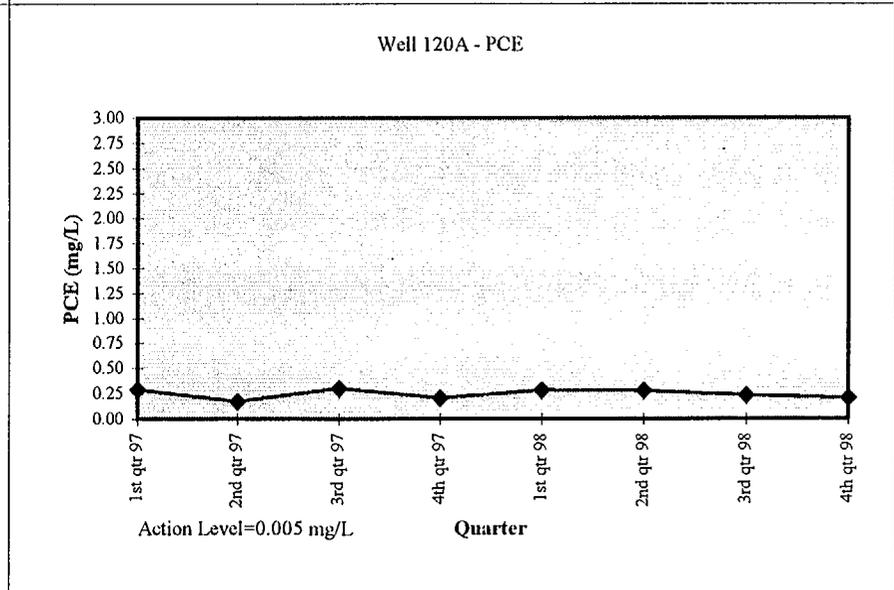
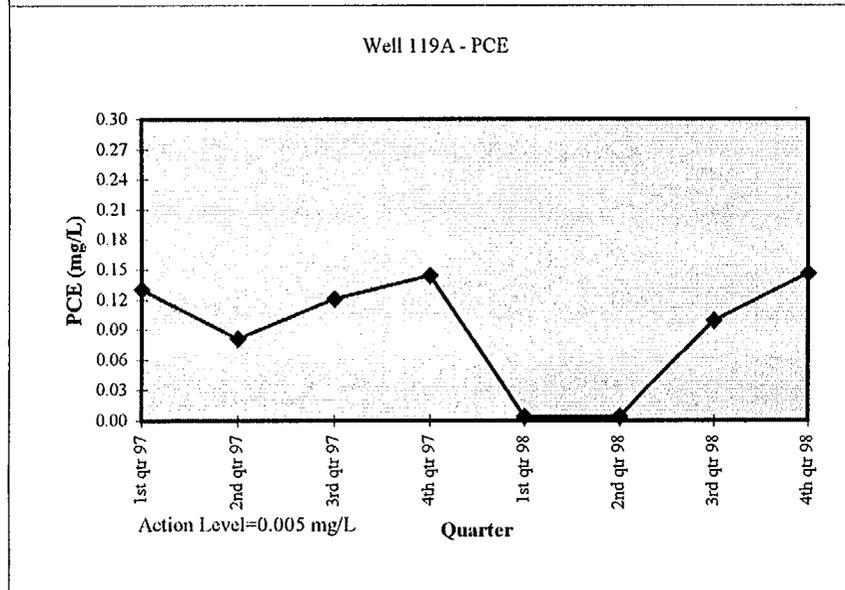
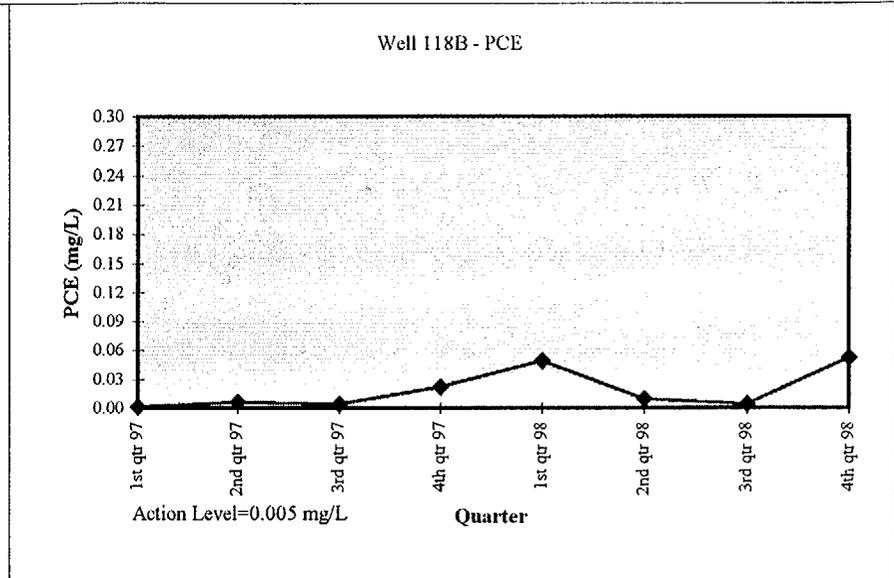
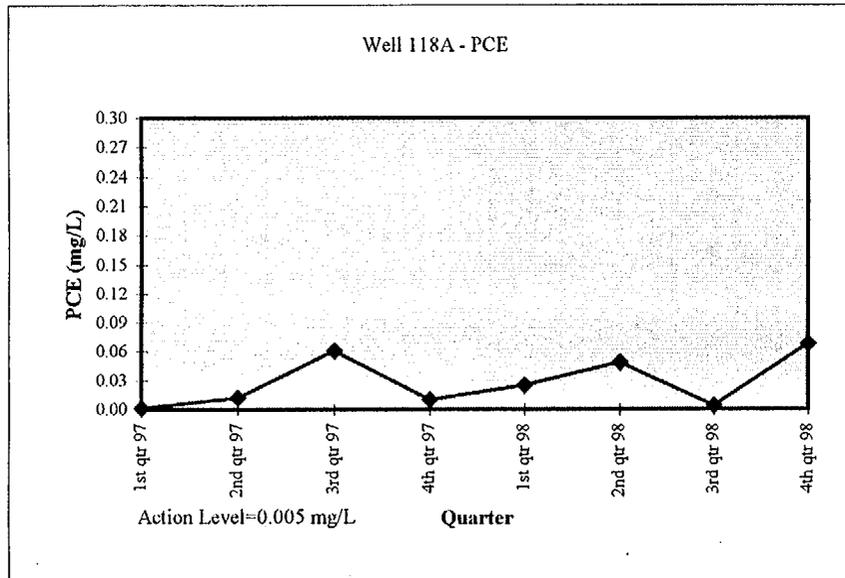
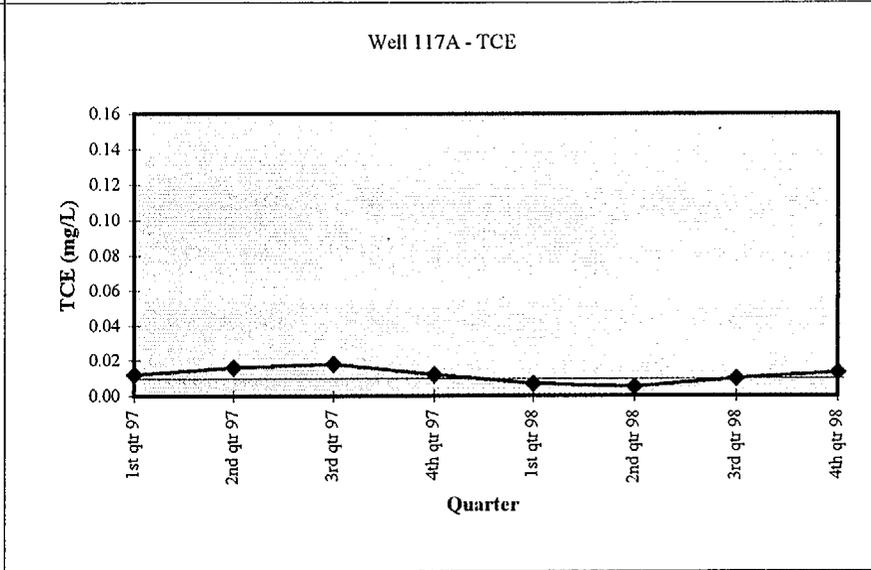
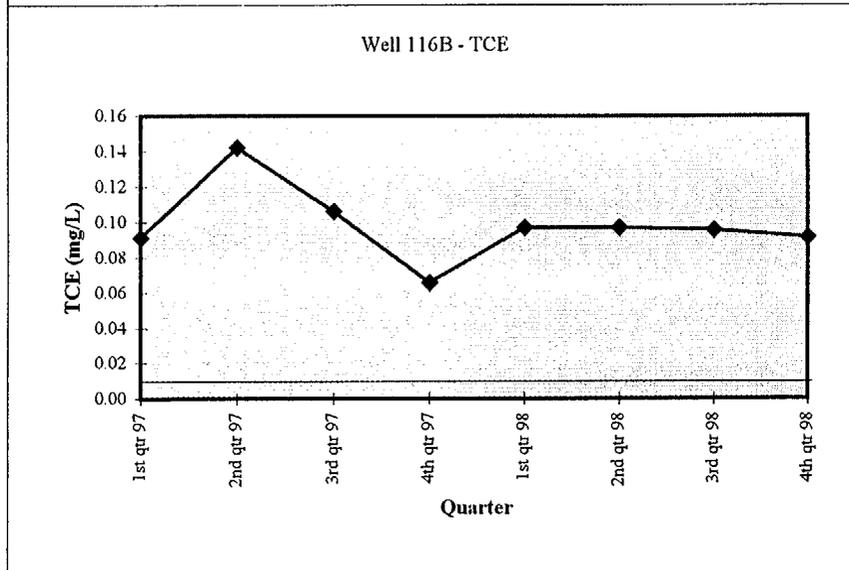
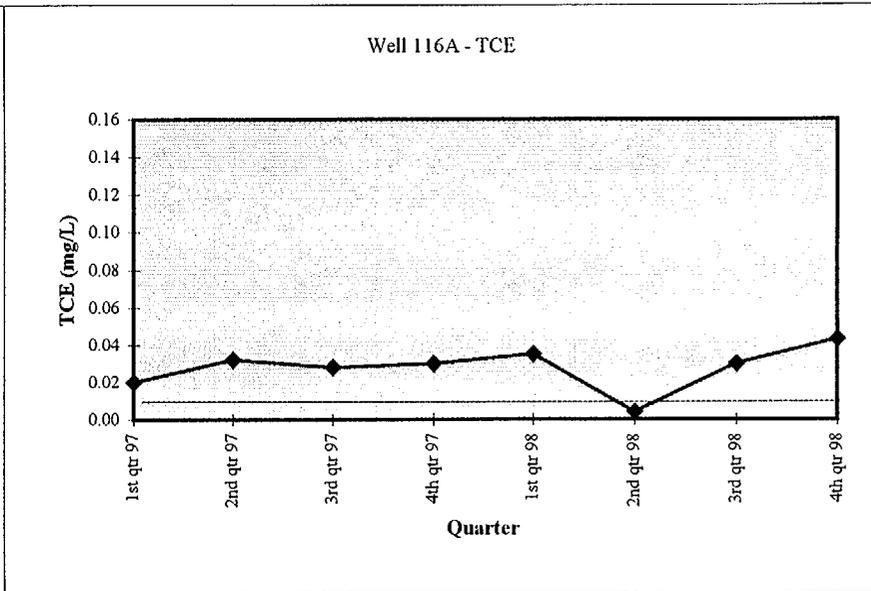
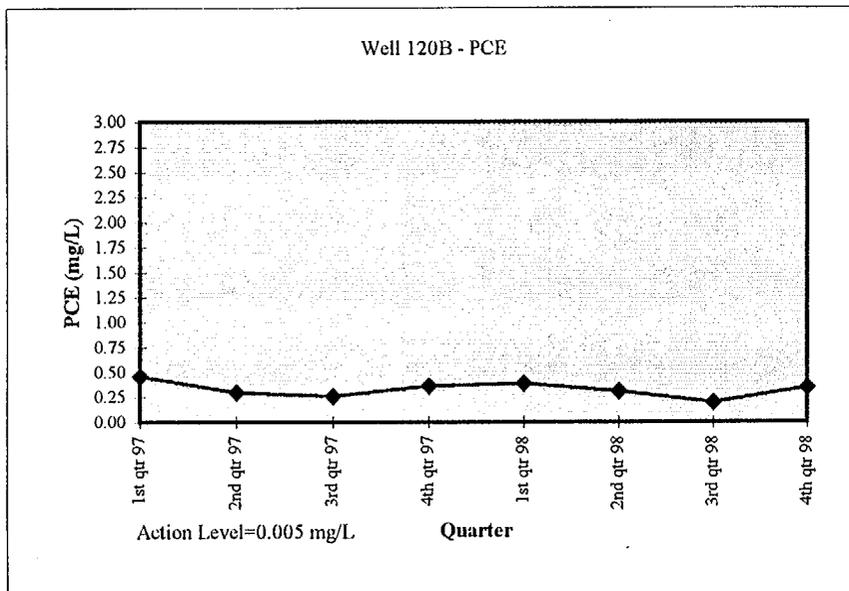


Fig. 1
 Graphs of PCE and TCE Concentrations for the Offsite Wells



Figure

Graphs of PCE and TCE Concentrations for the Offsite Wells

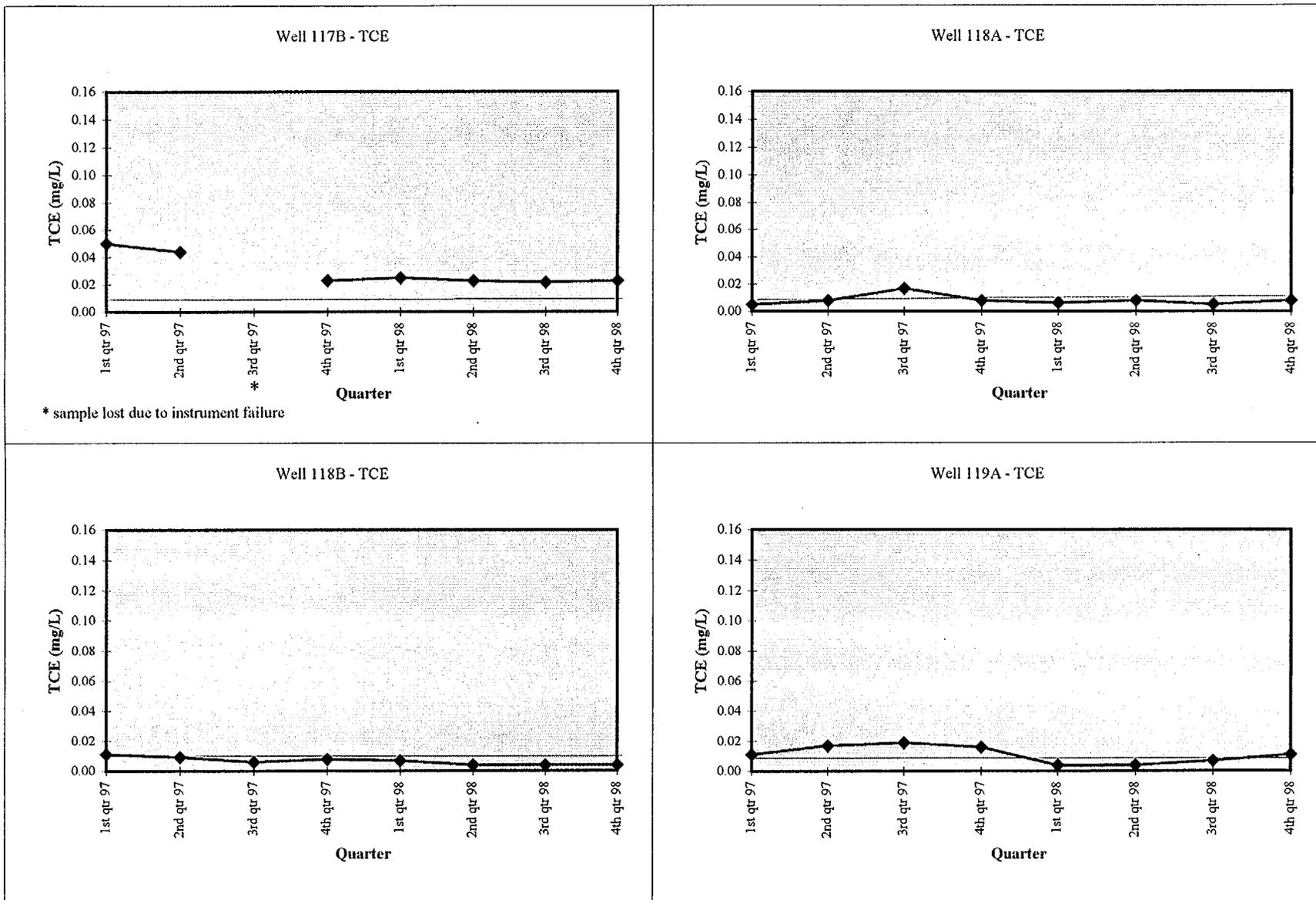
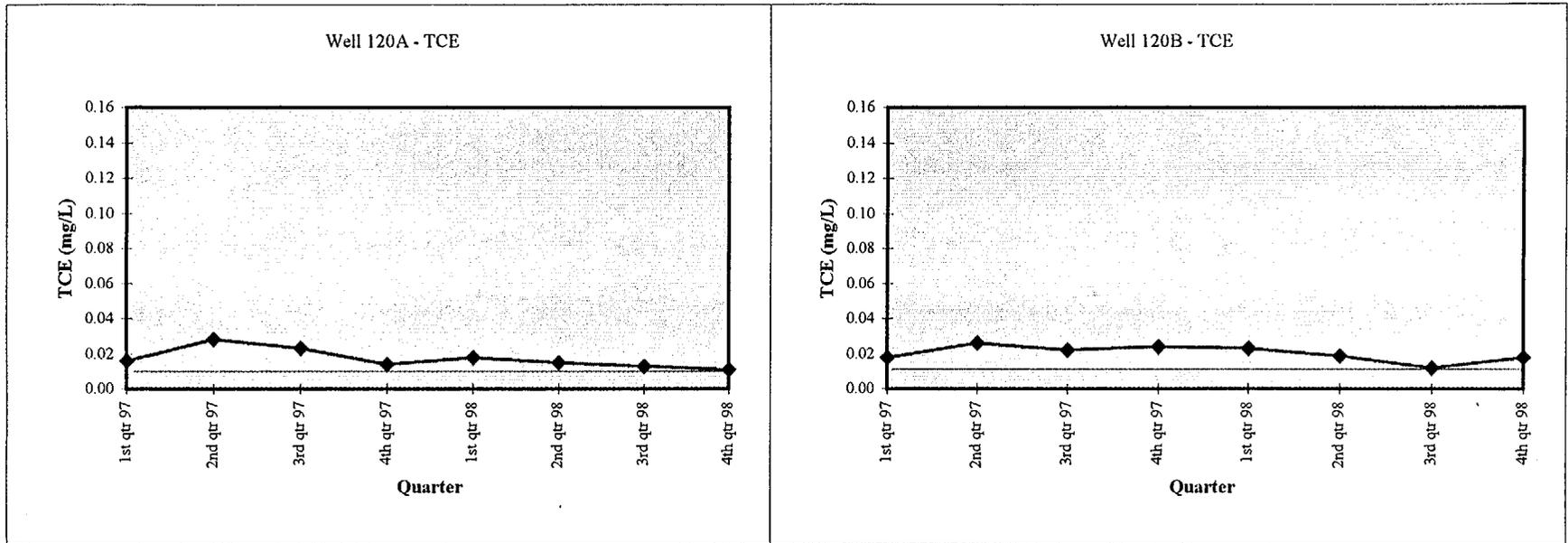


Fig. 1
Graphs of PCE and TCE Concentrations for the Offsite Wells



T. S. Baer to Messrs. Farmer and Tiesler

21G-99-0029
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Attachment II to letter
T. S. Baer to Mr. Alan Farmer and Mr. Thomas Tiesler

Interim Measures Progress Report

(12 pages to follow)

**INTERIM MEASURES (IM) PROGRESS REPORT
SOLID WASTE MANAGEMENT UNITS (SWMU) 2, 4, 6, 7, 9 and 10
NUCLEAR FUEL SERVICES, INC. (NFS)
ENVIRONMENTAL PROTECTION AGENCY (EPA) ID. NO. TND 00 309 5635**

1.0 Work Completed

Since the last IM Progress Report dated December 11, 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 558,051 cubic feet of soil and debris have been transported into Building 410 as of February 9, 1999. Approximately 215,070 cubic feet of soil has been shipped in 7,164 bulk shipping bags and approximately 219,096 cubic feet of soil has been shipped in 444 intermodal shipping containers. In addition, 57,604 cubic feet of debris has been shipped in 545 burial boxes and 42 intermodals.

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. Tetrachloroethylene (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. Fourth quarter 1998 PCE and third quarter 1998 uranium data are discussed in Section 2.2.2. Fourth quarter 1998 uranium data have not been received from the laboratory and will be reported in the next update.

2.0 Finding and Observations

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

2.1 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. Fourth quarter 1998 PCE, vinyl chloride and tributyl phosphate (TBP) analytical results from Wells 101A and 102A are presented in Table 1.

PCE and vinyl chloride were plotted monthly for both wells. The corresponding graphs are presented in Figure 1 and discussed below.

Tetrachloroethylene - Detected concentrations of PCE for fourth quarter in Well 102A ranged from 2.428 milligrams per liter (mg/L) to 3.171 mg/L. PCE was not detected in Well 101A during the fourth quarter. Trends for PCE in Wells 101A and 102A were not apparent.

Vinyl Chloride - Vinyl chloride was not detected in Wells 101A and 102A during the fourth quarter; however, the PQL is greater than the 0.002 mg/L maximum contaminant level (MCL).

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 2 and 3.

Tetrachloroethylene - Detected concentrations of PCE in the downgradient wells during fourth quarter 1998 ranged from 0.007 mg/L to 0.045 mg/L. Results from fourth quarter are similar to concentrations observed in previous months. However, there was a notable decrease below the MCL in Well 64 during December 1998.

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.

Uranium - Detected concentrations of uranium in the downgradient wells during fourth quarter 1998 ranged from 447.8 pCi/L to 3248.7 pCi/L. Results from fourth quarter are similar to concentrations observed in previous months. However, there was an increase in total uranium concentrations in Well 95A during July and August. This may be attributable to excavation that occurred in that area during this time frame.

Concentrations of uranium for each well were plotted monthly. The corresponding graphs are presented in Figure 3. Trends for uranium in the burial ground wells were not apparent.

3.0 **Deviations from Workplan**

There have been no deviations from the workplan for the fourth quarter 1998.

4.0 Work Projected

Work Projected for the first quarter of 1999:

- Continue excavation and processing soil and debris of North Site Burial Grounds.
- PCE and total uranium data will continue to be evaluated to determine trends in groundwater quality during the burial ground project. First quarter 1999 PCE and fourth quarter 1998 uranium results will be received and validated. Findings will be presented in the next IM Progress Report.

Table 1. Fourth Quarter 1998 Analytical Results for Wells 101A and 102A

Results are reported as mg/L

| | Tetrachloroethylene | | Vinyl Chloride | | Tributyl Phosphate | |
|-------------------------|---------------------|-----------|----------------|-----------|--------------------|-----------|
| | Well 101A | Well 102A | Well 101A | Well 102A | Well 101A | Well 102A |
| 4th Quarter 1998 | | | | | | |
| Oct-98 | < 0.001 | 2.428 | < 0.050 | < 0.125 | < 0.030 | < 0.030 |
| Nov-98 | < 0.001 | 3.171 | < 0.050 | < 0.125 | < 0.030 | < 0.030 |
| Dec-98 | < 0.001 | 2.723 | < 0.050 | < 0.250 | < 0.030 | < 0.030 |
| Mean | < 0.001 | 2.774 | < 0.050 | < 0.167 | < 0.030 | < 0.030 |
| Action Level | 0.005 | 0.005 | 0.002 | 0.002 | 0.2* | 0.2* |

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

mg/L = milligram per liter

All analysis performed by NFS

Figure
 Graphs of Analytical Results for Wells 101A and 102A

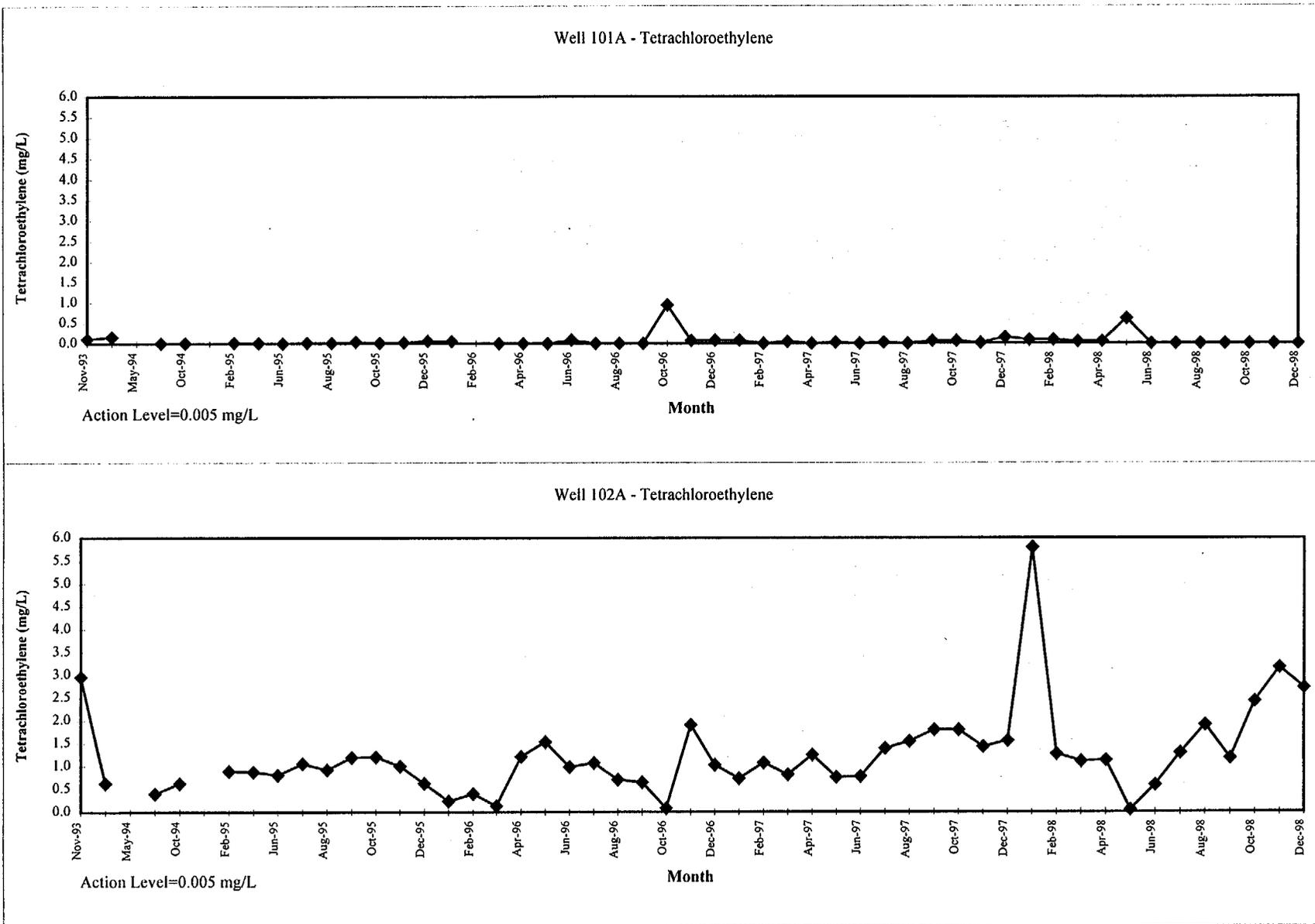


Figure
 Graphs of Analytical Results for Wells 101A and 102A (cont.)

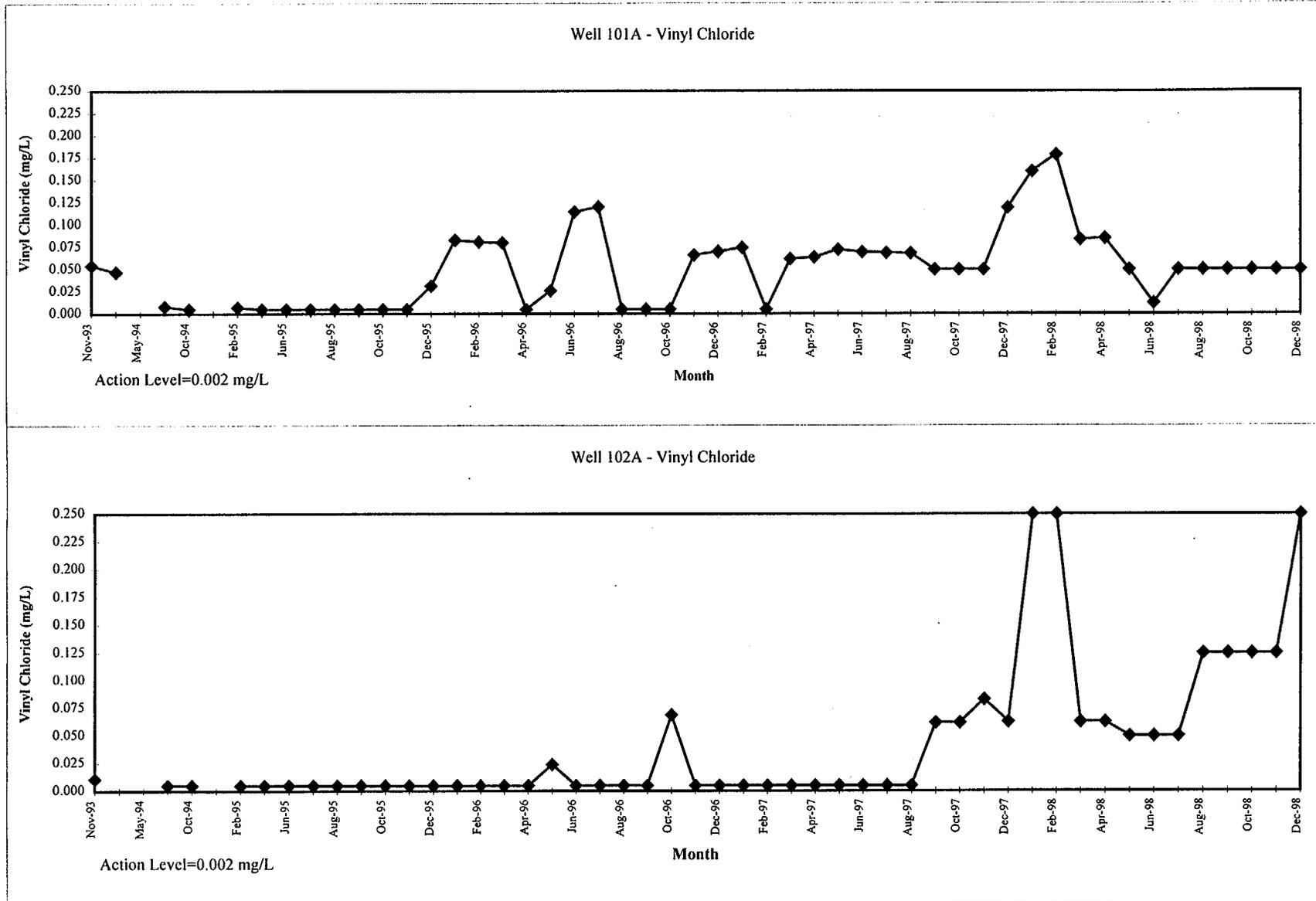


Table 2. Fourth Quarter 1998 Tetrachloroethylene Results for the Burial Ground Wells

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 |
| 4th Quarter 1998 | | | | | | | | | | |
| Oct-98 | 0.026 | 0.006 | 0.011 | 0.008 | 0.017 | 0.031 | 0.026 | 0.010 | 0.045 | 0.007 |
| Nov-98 | 0.029 | 0.005 | 0.012 | 0.009 | 0.016 | 0.026 | 0.026 | 0.007 | 0.045 | 0.007 |
| Dec-98 | 0.028 | 0.009 | 0.012 | 0.011 | 0.017 | 0.033 | <0.0001 | 0.009 | 0.044 | 0.008 |
| Mean | 0.028 | 0.007 | 0.012 | 0.009 | 0.017 | 0.030 | 0.017 | 0.008 | 0.044 | 0.007 |
| MCL = 0.005 mg/L mg/L = milligram per liter | | | | | | | | | | |

Dec 98 BG Wells - PCE
Revision Date: 02/16/99
Table: JPS
Verified: LML

Table 3. Third 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 |
| 3rd Quarter | | | | | | | | | | |
| Jul-98 | alpha < 15 pCi/L | alpha < 15 pCi/L | alpha < 15 pCi/L | 1103.9 | 745.5 | alpha < 15 pCi/L | 2224.0 |
| Aug-98 | alpha < 15 pCi/L | alpha < 15 pCi/L | alpha < 15 pCi/L | 1621.8 | 1249.9 | alpha < 15 pCi/L | 3248.7 |
| Sep-98 | alpha < 15 pCi/L | alpha < 15 pCi/L | alpha < 15 pCi/L | 447.8 | 576.9 | alpha < 15 pCi/L | 706.8 |
| Mean | n/a | n/a | n/a | 1057.8 | 857.4 | n/a | n/a | n/a | n/a | 2059.8 |

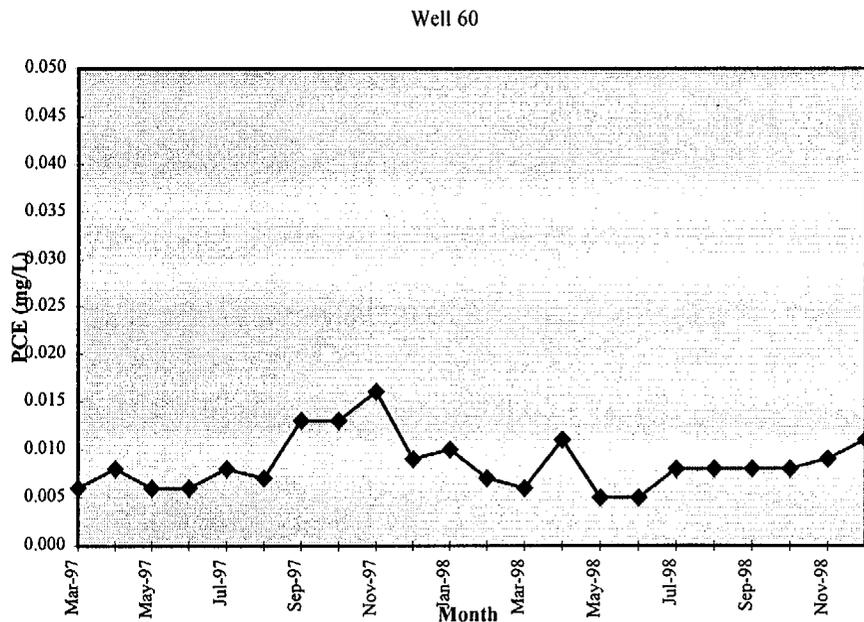
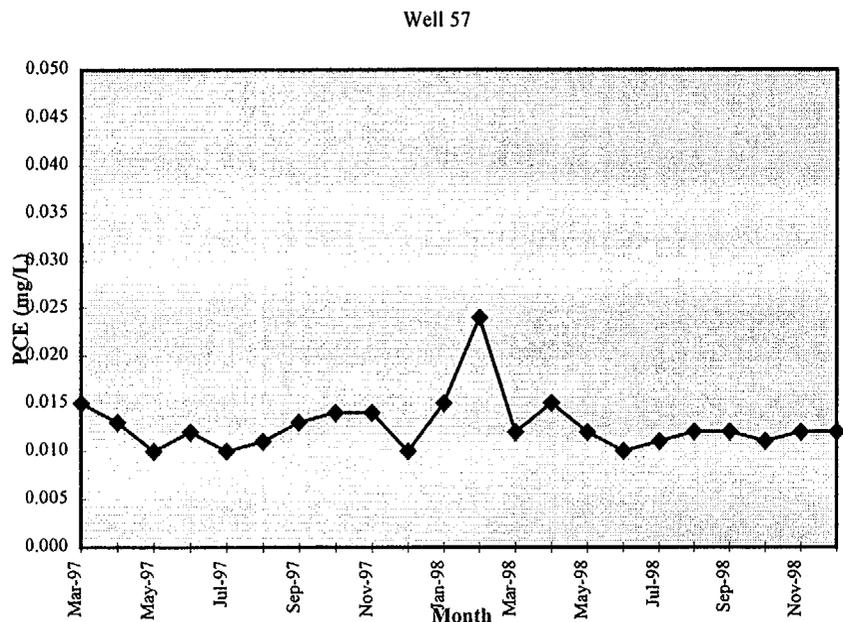
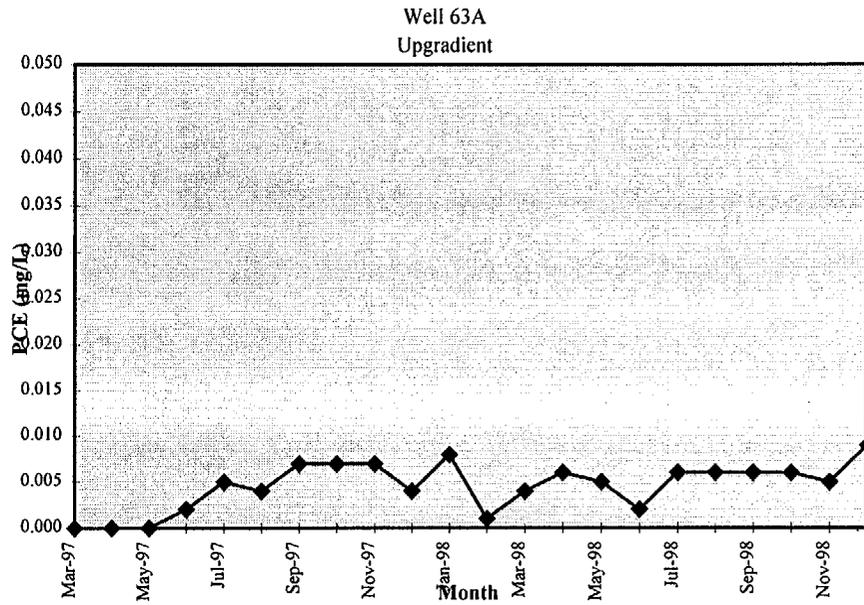
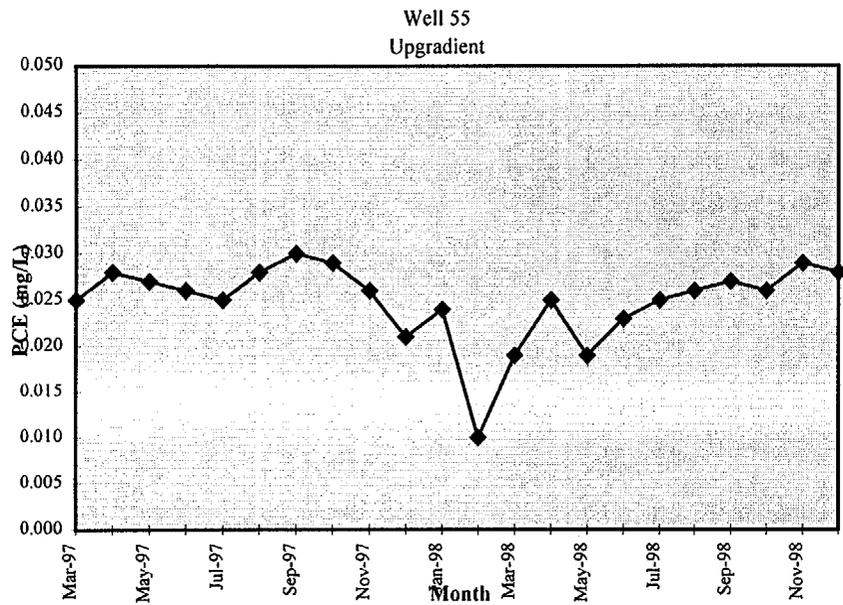
EPA Proposed MCL = 30 pCi/L

n/a=not applicable

pCi/L = picocuries per liter

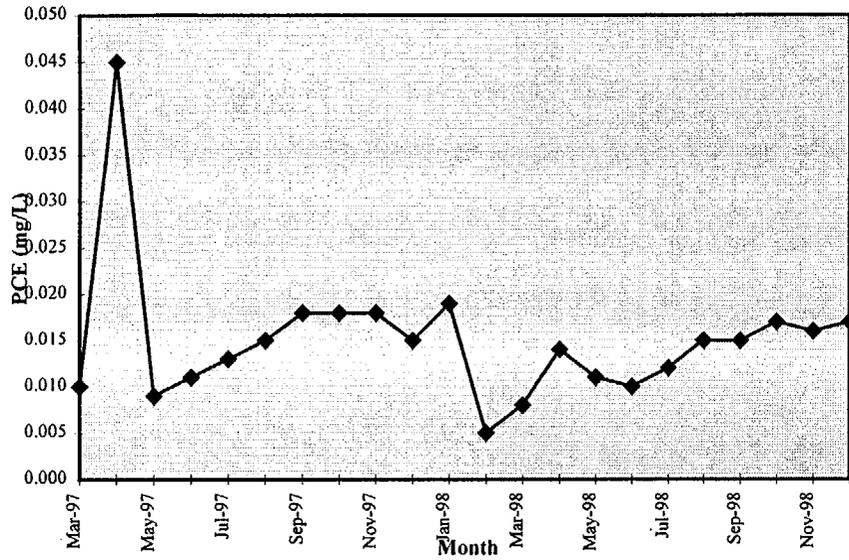
¹ Beginning November 1997, groundwater samples with gross alpha results less than 15 pCi/L were not analyzed for isotopic uranium.

Fig
 Graphs of Tetrachloroethylene Concentrations for the Burial Ground Wells

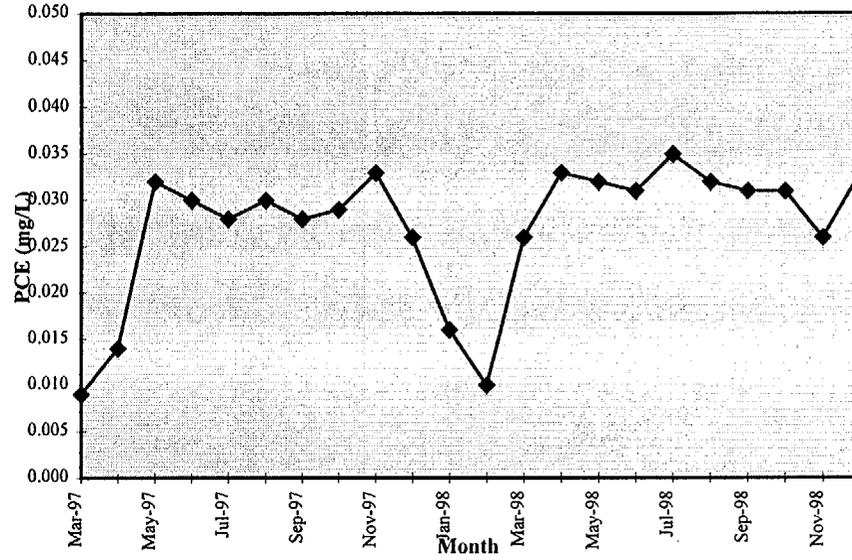


Graphs of Tetrachloroethylene Concentrations for the Burial Ground Wells

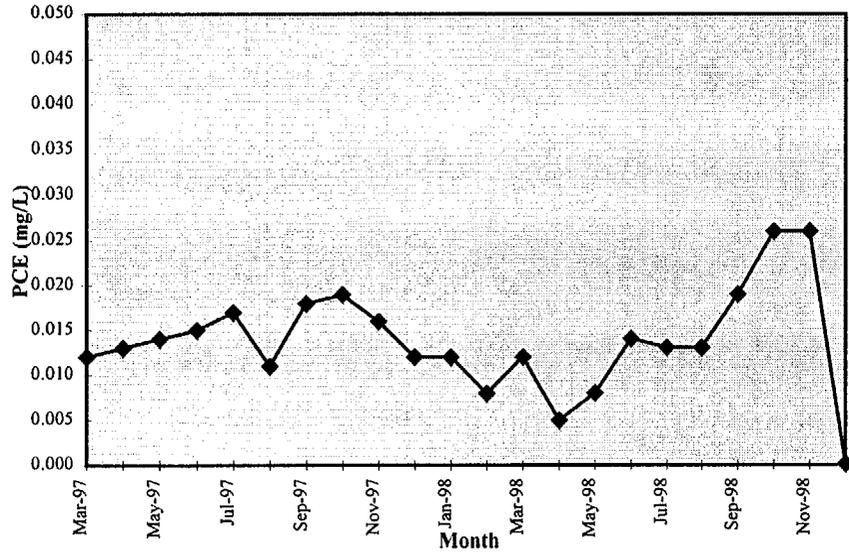
Well 60B



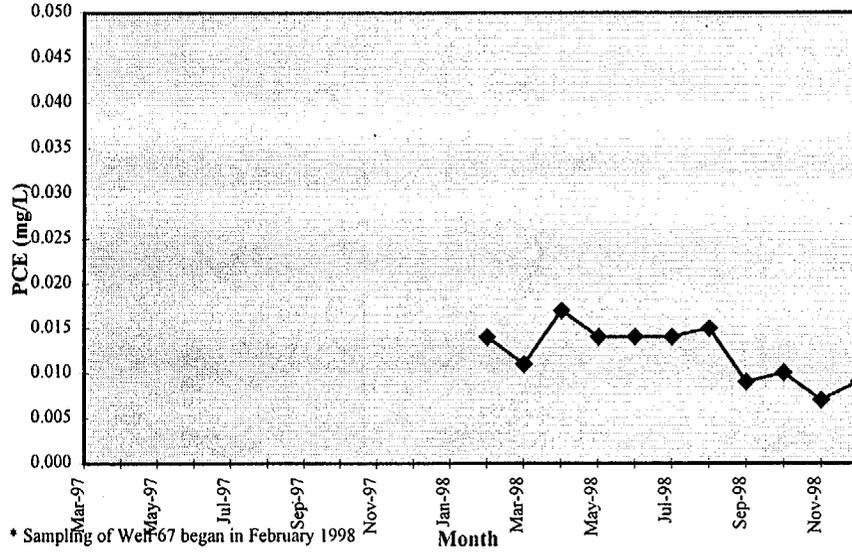
Well 63



Well 64



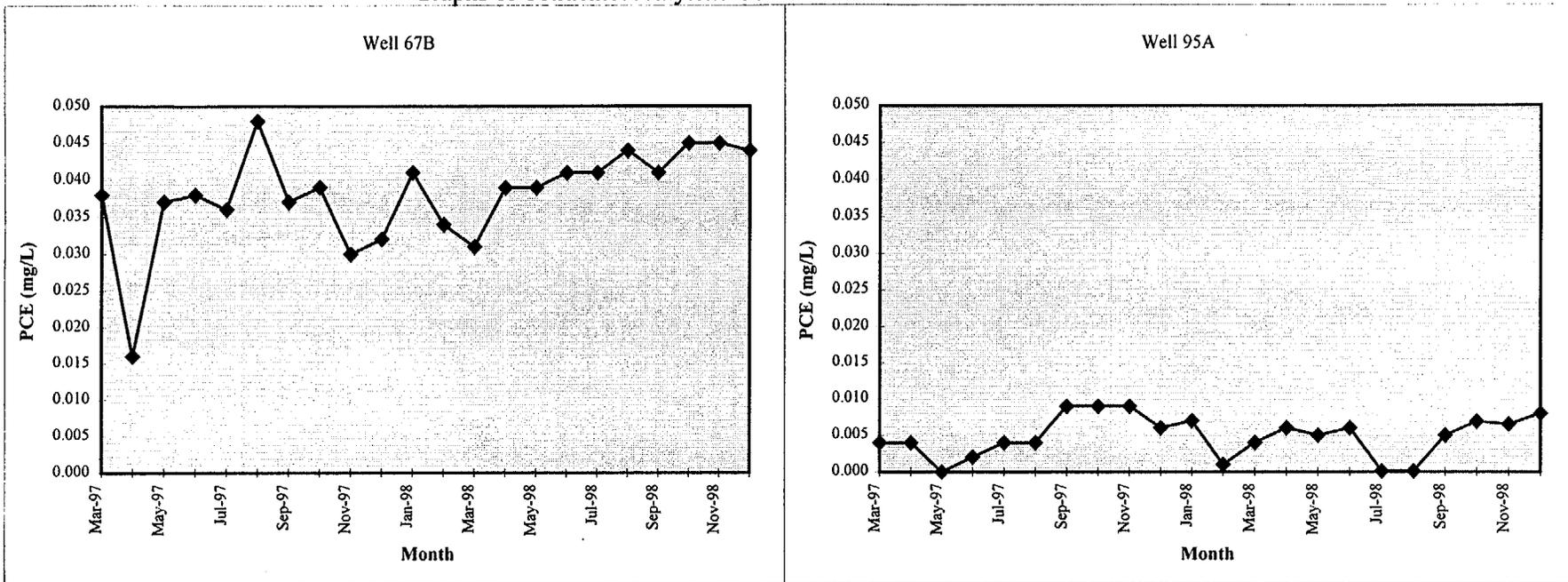
Well 67*



* Sampling of Well 67 began in February 1998

Fig

Graphs of Tetrachloroethylene Concentrations for the Burial Ground Wells

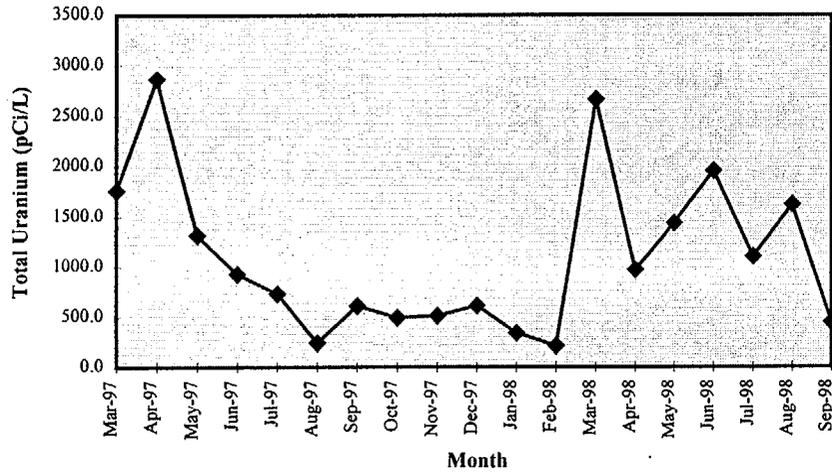


11

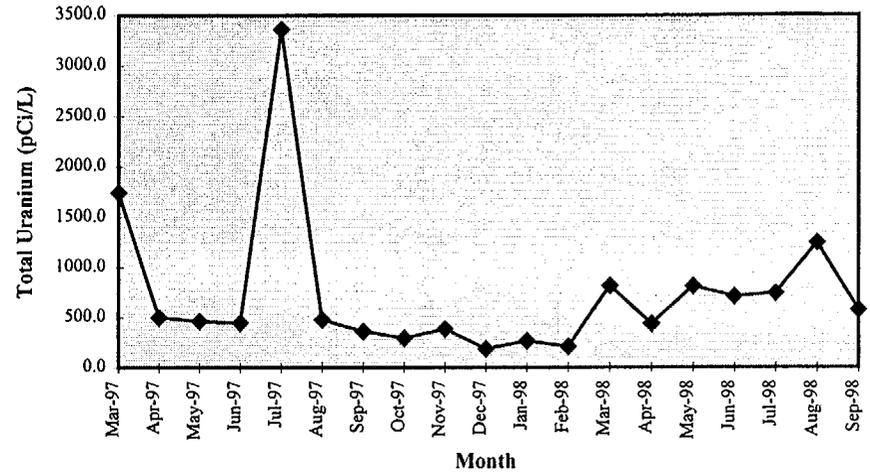
Fig.

Graphs of Total Uranium Concentrations for the Burial Ground Wells

Well 60



Well 60B



Well 95A

