

---

**UNITED STATES DEPARTMENT OF ENERGY  
SAVANNAH RIVER SITE**

**SANITARY LANDFILL GROUNDWATER  
MONITORING REPORT (U)**

**WSRC-TR-2002-00049**

**Annual 2001**

**Publication Date: February 2002**

**Authorized Derivative Classifier  
and/or Reviewing Official:**

**SIGNATURE ON FILE**

---

**UNCLASSIFIED  
Does Not Contain Unclassified  
Controlled Nuclear Information**

**Prepared By:  
Westinghouse Savannah River Company, LLC  
Savannah River Site  
Aiken, SC 29808**



---

**Prepared for the U. S. Department of Energy under Contract No. DE-AC09-96-SR18500**

**This document was prepared in conjunction with work accomplished under Contract No. DE-AC09-96SR18500 with the U.S. Department of Energy.**

#### **DISCLAIMER**

**This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.**

**This report has been reproduced directly from the best available copy.**

**Available for sale to the public, in paper, from: U.S. Department of Commerce, National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161**

**phone: (800) 553-6847**

**fax: (703) 605-6900**

**email: [orders@ntis.fedworld.gov](mailto:orders@ntis.fedworld.gov)**

**online ordering: <http://www.ntis.gov/support/index.html>**

**Available electronically at <http://www.osti.gov/bridge>**

**Available for a processing fee to U.S. Department of Energy and its contractors, in paper, from: U.S. Department of Energy, Office of Scientific and Technical Information, P.O. Box 62, Oak Ridge, TN 37831-0062**

**phone: (865)576-8401**

**fax: (865)576-5728**

**email: [reports@adonis.osti.gov](mailto:reports@adonis.osti.gov)**

## TABLE OF CONTENTS

<b><u>SECTION</u></b>	<b><u>PAGE</u></b>
<b>LIST OF FIGURES.....</b>	<b>IV</b>
<b>LIST OF TABLES .....</b>	<b>IV</b>
<b>LIST OF APPENDICES .....</b>	<b>V</b>
<b>LIST OF ACRONYMS AND ABBREVIATIONS .....</b>	<b>VI</b>
<b>EXECUTIVE SUMMARY.....</b>	<b>ES-1</b>
<b>1.0 INTRODUCTION.....</b>	<b>1</b>
1.1 MONITORING HISTORY .....	3
1.2 GROUNDWATER REPORTING .....	4
1.3 INTERIM STATUS MONITORING ELEMENTS .....	5
<b>2.0 SITE HYDROGEOLOGY.....</b>	<b>10</b>
<b>3.0 GROUNDWATER MONITORING.....</b>	<b>10</b>
3.1 DATA SUMMARY .....	10
3.1.1 <i>Quality Assurance/Quality Control</i> .....	12
3.1.2 <i>Purging and Sampling Problems</i> .....	12
3.1.3 <i>Groundwater Flow Directions and Rates</i> .....	12
3.1.4 <i>Analytical Results Exceeding the Groundwater Protection Standards or the Maximum Contaminant Level</i> .....	14
3.1.5 <i>Annual Appendix IX Analytical Results Exceeding the ssEQL</i> .....	15
3.1.6 <i>Upgradient versus Downgradient Results</i> .....	16
3.1.7 <i>Errata</i> .....	17
<b>4.0 DISCUSSION OF BIOREMEDIATION AT THE SANITARY LANDFILL .....</b>	<b>17</b>
4.1 MICROBIAL CHARACTERIZATION OF SANITARY LANDFILL GROUNDWATER .....	17
4.2 BIOSPARING OF THE SANITARY LANDFILL AREA.....	18
4.2.1 <i>Modifications to Operation</i> .....	21
4.2.2 <i>Operational Summary</i> .....	22
<b>5.0 REFERENCES.....</b>	<b>25</b>

---

## **LIST OF FIGURES**

FIGURE 1	LOCATION OF THE SANITARY LANDFILL AT THE SAVANNAH RIVER SITE .....	B-3
FIGURE 2	BOUNDARIES OF THE ORIGINAL SANITARY LANDFILL EXPANSION AND MONITORING WELLS AT THE SANITARY LANDFILL .....	B-4
FIGURE 3	CHLOROETHENE (VINYL CHLORIDE) CONCENTRATIONS AT THE SANITARY LANDFILL, FIRST QUARTER 2001 .....	B-5
FIGURE 4	CHLOROETHENE (VINYL CHLORIDE) CONCENTRATIONS AT THE SANITARY LANDFILL, THIRD QUARTER 2001 .....	B-6
FIGURE 5	TRICHLOROETHYLENE CONCENTRATIONS AT THE SANITARY LANDFILL, FIRST QUARTER 2001 .....	B-7
FIGURE 6	TRICHLOROETHYLENE CONCENTRATIONS AT THE SANITARY LANDFILL, THIRD QUARTER 2001 .....	B-8
FIGURE 7	PIEZOMETRIC SURFACE OF THE STEED POND AQUIFER (WATER TABLE) AT THE SANITARY LANDFILL, FIRST QUARTER 2001 .....	B-9
FIGURE 8	PIEZOMETRIC SURFACE OF THE STEED POND AQUIFER (WATER TABLE) AT THE SANITARY LANDFILL, THIRD QUARTER 2001 .....	B-10
FIGURE 9	REGIONAL CORRELATION OF HYDROSTRATIGRAPHIC AND LITHOSTRATIGRAPHIC SEDIMENTS AT THE SAVANNAH RIVER SITE .....	B-11
FIGURE 10	SANITARY LANDFILL HORIZONTAL REMEDIATION WELLS AND TESTING PIEZOMETERS .....	B-12

## **LIST OF TABLES**

### **In-Text Tables**

TABLE 1.	INTERIM STATUS MONITORING WELL NETWORK AND PROPOSED USES .....	6
TABLE 2.	SAMPLING AND ANALYSIS SCHEME AT SANITARY LANDFILL.....	8
TABLE 3.	LISTING OF COMPARISON CRITERIA FOR CONSTITUENTS OF CONCERN AND RADIONUCLIDE INDICATOR PARAMETERS.....	9
TABLE 4.	ANALYTES EXCEEDING GWPS OR MCL FOR POC WELLS DURING 2001 SAMPLING EVENTS.....	15
TABLE 5.	ANALYTES EXCEEDING GWPS FOR PLUME DEFINITION WELLS DURING 2001 SAMPLING EVENTS.....	15
TABLE 6.	APPENDIX IX ANALYTES NOT IDENTIFIED AS COCs THAT EXCEEDED THE SSEQL.....	16
TABLE 7.	ERRATA DATA.....	17
TABLE 8.	VOLUME OF AIR AND NUTRIENTS SPARGED INTO SLH-1 IN YEAR 2001.....	20
TABLE 9.	ESTIMATION OF INJECTED AIR VOLUME TO SLH-2 IN YEAR 2001 BASED ON PROCEDURE CALCULATIONS .....	21
TABLE 10.	SCHEDULED AIR AND NUTRIENT INJECTION DURING 2001 .....	23
TABLE 11.	AMOUNT OF NUTRIENT INJECTED PER CYCLE (LBS.) DURING 2001 .....	24

---

## LIST OF TABLES (continued)

### Tables in Appendix A

TABLE A-1. GROUNDWATER MONITORING RESULTS FOR BACKGROUND WELLS .....	A1-1
TABLE A-2. GROUNDWATER MONITORING RESULTS FOR POINT OF COMPLIANCE WELLS.....	A2-1
TABLE A-3. GROUNDWATER MONITORING RESULTS FOR PLUME DEFINITION WELLS.....	A3-1
TABLE A-4. GROUNDWATER MONITORING RESULTS FOR AUXILIARY MONITORING .....	A4-1
TABLE A-5. GROUNDWATER MONITORING RESULTS FOR QA FIELD DUPLICATE SAMPLES .....	A5-1
TABLE A-6. GROUNDWATER MONITORING RESULTS FOR SPLIT SAMPLES .....	A6-1
TABLE A-7. GROUNDWATER MONITORING RESULTS FOR DUPLICATE SAMPLES .....	A7-1

### Tables in Appendix E

TABLE E-1. CHEMICAL DATA .....	E-3
TABLE E-2. MICROBIAL DATA.....	E-9
TABLE E-3. PHYSICAL DATA .....	E-11

## LIST OF APPENDICES

APPENDIX A GROUNDWATER MONITORING RESULTS TABLES AND DATA REVIEW KEY.....	A-1
APPENDIX B FIGURES.....	B-1
APPENDIX C TIME SERIES PLOTS .....	C-1
APPENDIX D HYDROGRAPHS .....	D-1
APPENDIX E MICROBIAL CHARACTERIZATION OF SANITARY LANDFILL GROUNDWATER .....	E-1

## LIST OF ACRONYMS AND ABBREVIATIONS

ACL	Alternate Concentration Limit
AODC	Acridine Orange Direct Count
COCs	Constituents of Concern
DWP	Domestic Waste Permit
EMS	Environmental Monitoring Section
EPD	Environmental Protection Department
Fas	Fluorescent antibodies
GWPS	Groundwater Protection Standard
GWQAP	Groundwater Quality Assessment Plan
LDRR	Laboratory Data Records Review
µg/L	Micrograms Per Liter
MCL	Maximum Contaminant Level
MPN	Most probable number
msl	Mean sea level
MZ	Mixing Zone
pCi/L	PicoCuries per liter
pCi/ml	PicoCuries per milliliter
QA	Quality Assurance
QC	Quality Control
RCRA	Resource Conservation And Recovery Act
SCDHEC	South Carolina Department Of Health And Environmental Control
SCFM	standard cubic feet/minute
SLF	Sanitary Landfill
SRS	Savannah River Site
SsEQL	Sample specific estimated quantitation limit
TEP	triethyle phosphate
TCE	trichloroethylene
VC	Vinyl chloride
VOC	volatile organic compound
USDOE	United States Department Of Energy
USEPA	United States Environmental Protection Agency
WSRC	Westinghouse Savannah River Company, LLC

## **EXECUTIVE SUMMARY**

This report presents data collected during calendar year 2001 (January 2001 to December 2001) to support the groundwater monitoring program at the Sanitary Landfill (SLF). The groundwater monitoring program at the Sanitary Landfill has been conducted to satisfy the interim status monitoring requirements of the South Carolina Hazardous Waste Management Regulations R.61-79.265 Subpart F, as amended. The groundwater monitoring program for the SLF is described in the document entitled SLF Groundwater Quality Assessment Plan (GWQAP) and the amendments to that plan that have been submitted to the South Carolina Department of Health and Environmental Control (SCDHEC). In the approved Resource Conservation and Recovery Act (RCRA) Closure Plan for the SLF, the Savannah River Site (SRS) committed to continue to follow the groundwater monitoring plan and its amendments throughout the interim status closure and postclosure periods.

The analytical results for 2001 are similar to the results for 2000, but are slightly lower. Constituents of concern (COCs) and indicator parameters were analyzed on a quarterly frequency rather than on a semi-annual frequency as scheduled in the 1995 amendment to the GWQAP. With the exception of LFW 62D, no sampling problems were encountered and analyses were conducted as scheduled. Of the forty wells used for interim status monitoring, and the four auxiliary wells, only twelve wells yielded samples that had from one to three COCs or indicator parameters at concentrations above the Groundwater Protection Standard (GWPS) or Maximum Contaminant Level (MCL). During first quarter 2001, COCs or indicator parameters above the GWPS or MCL were chloroethene (vinyl chloride), dichloromethane (methylene chloride), gross alpha, lead (total recoverable), tetrachloroethylene and trichloroethylene. During second quarter

2001, COCs or indicator parameters above the GWPS or MCL were chloroethene (vinyl chloride), gross alpha and trichloroethylene. During third quarter 2001, COCs or indicator parameters above the GWPS or MCL were chloroethene (vinyl chloride) and gross alpha. During fourth quarter 2001 only chloroethene (vinyl chloride) was above the GWPS. Elevated levels of chloroethene (vinyl chloride) occurred most frequently during the 2001 monitoring period. The highest chloroethene (vinyl chloride) concentration occurred in well LFW 21 at 120 µg/L (second quarter), but had decreased to 38.7 µg/L by fourth quarter. Generally, concentrations of all COCs and indicator parameters appear to be decreasing.

Two analytes were detected during the annual Appendix IX sampling event that are not included in the list of constituents of concern and indicator parameters. The two analytes that were detected at levels above the sample-specific estimated quantitation limit were 1,1-dichloroethane and mercury (total recoverable) (Table 6). Mercury minimally exceeded the MCL. There is no MCL for 1,1-dichloroethane.

The groundwater flow direction in the Steed Pond Aquifer (Water Table) beneath the Sanitary Landfill is to the southeast (UTM coordinates) toward Upper Three Runs Creek. The flow rate in this aquifer during first quarter 2001 was estimated to be approximately 115 ft/year and during third quarter 2001, it was estimated at approximately 124 ft/year. Flow directions during 2001 were very similar to 2000 findings.

The biosparge system continued to operate during 2001. Due to the disappearance of trichloroethylene in the groundwater, horizontal well SLH-1 was reconfigured to treat vinyl chloride only (methane injection was discontinued).

No changes to the monitoring network or sampling plan are proposed at this time.



## **1.0 INTRODUCTION**

This document has been prepared to support the interim status monitoring requirements for the Sanitary Landfill (SLF), located near B Area in the northeast portion of the Savannah River Site (SRS) (Figure 1). Data provided in this report were collected during 2001 (January through December). The SLF began receiving sanitary waste in 1974. The landfill received sanitary waste from SRS administrative areas, cafeterias, and industrial activities. On June 12, 1978, the South Carolina Department of Health and Environmental Control (SCDHEC) issued Domestic Waste Permit (DWP) #087. The original landfill was filled to capacity in early 1987. The DWP-087-A was renewed July 24, 1991. As a result of Settlement Agreement 91-51-SW, effective August 24, 1991, the Sanitary Landfill became subject to RCRA requirements because wipes and rags contaminated with RCRA-listed solvents were disposed there. All operations at the SLF, including the main section, southern and northern expansions, ceased in 1995.

SRS submitted a closure plan (Rev. 0) for the Sanitary Landfill to SCDHEC on February 28, 1993. SCDHEC granted conditional approval of the Sanitary Landfill Closure Plan (Rev. 2) in December 1995. In addition, installation of the geosynthetic closure cap, as specified in the approved Closure Plan, was initiated in February 1996. A RCRA style closure was completed over the main and southern portions of the landfill in April 1997. The Sanitary Landfill was certified closed on October 26, 1997. Two horizontal remediation wells were completed on the southern and western sides of the landfill in February 1998. Bio-remediation operation activities began in August 1999. The 2000 Part B Permit Renewal Application for the Sanitary Landfill Post Closure, Vol. XXIII, Rev. 0 was submitted March 30, 2000.

Groundwater assessment reports have been provided semi-annually to the SCDHEC, beginning with 1988 data. The June 1990 Sanitary Landfill Groundwater Quality Assessment Plan (GWQAP) documented the original groundwater data collection and reporting criteria. Modifications to the monitoring and reporting strategy have been documented in subsequent amendments to the June 1990 GWQAP. The five amendments to the 1990 groundwater quality assessment plan are dated as follows:

Amendment 1	January 28, 1991
Amendment 2	April 25, 1991
Amendment 3	June 6, 1991
Amendment 4	July 23, 1993
Amendment 5	September 1995

Rather than issue a formal approval of the monitoring changes described in the September 1995 amendment (Westinghouse Savannah River Company (WSRC) 1995), SCDHEC opted for review and approval of the groundwater monitoring system as presented in the 1992 SLF RCRA Part B Permit Application (WSRC 1993). In the interim, SCDHEC advised SRS to use R.61-79.265, Subpart F to determine if adequate groundwater monitoring was being conducted (Letter, Rippy to Cook, January 5, 1996). The 2000 Renewal Application for a RCRA Part B Permit Application (WSRC 2001) is currently under regulatory review.

Assessment and characterization activities conducted at the SLF show contaminant plumes of volatile organic and their degradation by-products migrating towards the southern end of the SLF. The current monitoring plan focuses on analyzing the constituents of concern as they were originally identified in the 1992 SLF Postclosure Permit Renewal Application (WSRC 1993).

Sampling of the monitoring well network has been optimized to target the wells in the contaminant migration flow paths, while not diminishing the data needed for evaluating the plume movement and the remediation of the constituents of concern.

The monitoring wells currently used for interim status monitoring, and their designations proposed for future compliance monitoring, are identified in Table 1. The sampling and analysis scheme is described in Table 2. The 1995 amendment to the GWQAP (WSRC 1995) stated that the concentrations of each of the constituents of concern would be compared against the Groundwater Protection Standards (GWPS) listed in Table E-30 of the 1992 SLF Postclosure Permit Renewal Application (WSRC 1993).

The reports that summarize data collected during the first half of the calendar year are referred to as “data only” reports and contain data from the first and second quarter sampling periods. The annual reports contain potentiometric maps, contaminant concentration maps of first and third quarter data, time series plots, and the first, second, third and fourth quarter results are included in the data tables.

## **1.1 Monitoring History**

On February 23, 1990, the United States Department of Energy (USDOE) notified SCDHEC that solvent rags and wipes used for cleaning and radioactive decontamination were deposited in portions of the landfill. SCDHEC advised USDOE that the rags and wipes constituted hazardous waste subject to RCRA regulation. Settlement Agreement No. 91-51-SW required WSRC to submit to SCDHEC a Closure Plan by February 28, 1993, and a RCRA Postclosure Part B

Permit Application on or before March 31, 1993 for the portions of the SLF that received solvent rags and wipes.

On March 31, 1993, a RCRA Part B Permit Application along with an Alternate Concentration Limit (ACL) demonstration and Mixing Zone (MZ) request was submitted to SCDHEC as a part of the conditions of the settlement agreement. The Part B documentation included the SLF's main section (original landfill) and the southern expansion, which are subject to the groundwater monitoring program requirements described in the GWQAP (WSRC 1990) and subsequent amendments. The northern expansion (referred to as the Interim Sanitary Landfill) is upgradient of the SLF and is addressed by separate groundwater monitoring activities that are not included in this report

The review and approval process of the SLF RCRA Part B Permit Application is ongoing. The most recent version is the 2000 Part B Permit Renewal Application, Volume XXIII, SLF Postclosure, Rev. 1, submitted March 2001 (WSRC 2001). The interim status groundwater monitoring program will be modified to conform to the requirements of the RCRA Part B permit application once approval is granted by SCDHEC.

## **1.2 Groundwater Reporting**

This report of the current interim status groundwater monitoring program for the SLF's main section and southern expansion is produced to satisfy the requirement of the 1990 GWQAP, as amended, to provide an annual report to SCDHEC that, as a minimum, includes the following:

- Analytical data tables (Appendix A)
- Potentiometric maps (Appendix B)

- Contaminant concentration maps (Appendix B)
- Contaminant concentration time series plots (Appendix C)
- Hydrographs (Appendix D)

In addition this report provides:

- List of interim status monitoring wells (Table 1)
- Sampling and analysis scheme (Table 2)
- List of comparison criteria for constituents of concern (Table 3)
- A summary of analytes exceeding the GWPS (Tables 4 and 5)
- A monitoring well location map (Figure 2)

### **1.3 Interim Status Monitoring Elements**

A groundwater monitoring well network consisting of 86 monitoring wells (LFW series) was installed around the SLF beginning in 1975. Since 1984, these wells were used to establish, over time, the RCRA compliance monitoring network at the SLF. The uppermost aquifer is the water table aquifer, also called the Steed Pond Aquifer Unit. Many wells that were used during the operating period were later abandoned to allow for placement of a closure cap, as required by the approved Closure Plan. Other reductions were made to optimize the network to eliminate locations that provided redundant information. The retained sampling locations defined the contaminant migration flow paths. To date, 40 of these wells are actively monitored under interim status. For full details on the changes that have taken place to the well network over time, refer to the 2000 RCRA Part B Permit Application Renewal (WSRC 2001), Section E.1.1 and Table E.1-1 for the status information for all LFW monitoring wells.

The current interim status monitoring well network (Figure 2), as identified in the 1995 amendment to the GWQAP (WSRC 1995), is identified in Table 1 of this

report, with the addition of LFW 47C as proposed in the 2000 RCRA Part B Permit Renewal Application (WSRC 2001). Auxiliary wells identified in the 1995 GWQAP amendment (WSRC 1995) are also listed in Table 1. "Auxiliary wells" are upgradient wells installed to satisfy waste site monitoring objectives of other programs, but yield data relevant to the SLF interim status monitoring scheme.

The placing of well screens in the water table aquifer included setting screens to intercept the water table surface (designated D), placing screens approximately 25-30 feet below the water table surface (designated C) and locating screens just above the principal confining unit (designated B).

**Table 1. Interim Status Monitoring Well Network and Proposed Uses**

Well Name	Proposed Well Use	Aquifer
LFW 6R	Point of Compliance	Steed Pond Aquifer Unit
LFW 8R	Point of Compliance	Steed Pond Aquifer Unit
LFW 10A	Plume Definition	Steed Pond Aquifer Unit
LFW 18	Plume Definition	Steed Pond Aquifer Unit
LFW 21	Plume Definition	Steed Pond Aquifer Unit
LFW 23R	Point of Compliance	Steed Pond Aquifer Unit
LFW 31	Background Well	Steed Pond Aquifer Unit
LFW 36R	Point of Compliance	Steed Pond Aquifer Unit
LFW 41R	Plume Definition	Steed Pond Aquifer Unit
LFW 43B	Background Well	Steed Pond Aquifer Unit
LFW 43C	Background Well	Steed Pond Aquifer Unit
LFW 43D	Background Well	Steed Pond Aquifer Unit
LFW 45D	Plume Definition	Steed Pond Aquifer Unit
LFW 47C*	Plume Definition	Steed Pond Aquifer Unit
LFW 47D	Plume Definition	Steed Pond Aquifer Unit
LFW 56D	Plume Definition	Steed Pond Aquifer Unit
LFW 58D	Point of Compliance	Steed Pond Aquifer Unit
LFW 59D	Point of Compliance	Steed Pond Aquifer Unit
LFW 60C	Plume Definition	Steed Pond Aquifer Unit
LFW 60D	Plume Definition	Steed Pond Aquifer Unit
LFW 61D	Point of Compliance	Steed Pond Aquifer Unit

**Table 1. Interim Status Monitoring Well Network and Proposed Uses (cont.)**

Well Name	Proposed Well Use	Aquifer
LFW 62D	Point of Compliance	Steed Pond Aquifer Unit
LFW 63B	Plume Definition	Steed Pond Aquifer Unit
LFW 63C	Plume Definition	Steed Pond Aquifer Unit
LFW 63D	Plume Definition	Steed Pond Aquifer Unit
LFW 64C	Plume Definition	Steed Pond Aquifer Unit
LFW 64D	Plume Definition	Steed Pond Aquifer Unit
LFW 65B	Plume Definition	Steed Pond Aquifer Unit
LFW 65C	Plume Definition	Steed Pond Aquifer Unit
LFW 65D	Plume Definition	Steed Pond Aquifer Unit
LFW 67B	Plume Definition	Steed Pond Aquifer Unit
LFW 67C	Plume Definition	Steed Pond Aquifer Unit
LFW 67D	Plume Definition	Steed Pond Aquifer Unit
LFW 68C	Plume Definition	Steed Pond Aquifer Unit
LFW 68D	Point of Compliance	Steed Pond Aquifer Unit
LFW 69C	Plume Definition	Steed Pond Aquifer Unit
LFW 69D	Plume Definition	Steed Pond Aquifer Unit
LFW 71B	Plume Definition	Steed Pond Aquifer Unit
LFW 71C	Plume Definition	Steed Pond Aquifer Unit
LFW 71D	Plume Definition	Steed Pond Aquifer Unit
LFW 74C*	Auxiliary Monitoring Well	Steed Pond Aquifer Unit
LFW 74D*	Auxiliary Monitoring Well	Steed Pond Aquifer Unit
LFW 75C*	Auxiliary Monitoring Well	Steed Pond Aquifer Unit
LFW 75D*	Auxiliary Monitoring Well	Steed Pond Aquifer Unit

Notes: \* Plume definition well LFW 47C was proposed for deletion from the monitoring well network in the 1995 amendment to the GWQAP. However, this well was re-introduced in the 2000 Permit Renewal Application (WSRC 2001). The “auxiliary” well clusters LFW 74 and 75 were referenced in the 1995 amendment to the GWQAP; however, these wells are not intended for continued monitoring of the SLF as described in Table E.1-2 of the 2000 RCRA Part B Permit Renewal application (WSRC 2001). The LFW 74 and 75 clusters monitor the Interim Sanitary Landfill.

The September 1995 amendment to the GWQAP (WSRC 1995) also revised the sampling and analysis scheme, which was updated for the 2000 RCRA Part B

Permit Renewal Application (WSRC 2001). The sampling and analysis scheme presented in Table 2 is taken from the 1995 amendment to the GWQAP (WSRC 1995) with notations indicating modifications presented in Table E.8-4 as submitted in the 2000 RCRA Part B Permit Renewal Application (WSRC 2001). The sampling frequency was reduced from quarterly to semi-annual sampling for background and point of compliance wells, and the plume definition wells are only sampled annually. However, the monitoring wells continue to be sampled on a quarterly basis until the sampling and analysis scheme as presented in Table 2 and/or the 2000 RCRA Part B Permit Renewal Application is approved.

**Table 2. Sampling and Analysis Scheme at Sanitary Landfill**

Analyte Group	Background	Point of Compliance	Plume Definition
Groundwater Protection Standard List (Table E-30 of RCRA Part B Permit Application, WSRC 1993)	Semi-Annually	Semi-Annually	NA
Field Parameters (pH, turbidity, specific conductivity, temperature)	Semi-Annually	Semi-Annually	NA
Trichloroethylene and vinyl chloride	NA <sup>1</sup>	NA <sup>1</sup>	Annually
Appendix IX Constituents	Annually	Annually	NA <sup>2</sup>
Radionuclides (tritium, gross alpha)	Semi-Annually	Semi-Annually	NA
Water elevations	Semi-Annually	Semi-Annually	Semi-Annually

NA – Not – Applicable

1) Table E.8-4 (WSRC 2001) includes annual trichloroethylene and vinyl chloride sampling for background and POC wells; however, these analytes are already included in the semi-annual sampling for the GWPS list.

2) Table E.8-4 (WSRC 2001) includes annual Appendix IX sampling for plume definition wells, although the 1995 GWQAP does not include plume definition wells in the Annual Appendix IX sampling event.

The 1995 amendment to the GWQAP (WSRC 1995) stated that the concentrations of each of the constituents of concern (COCs) would be compared



against GWPS listed in Table E-30 of the 1992 SLF Postclosure Permit Renewal Application (WSRC 1993). The GWPS list from the 1992 permit application is reproduced in Table 3 in this groundwater monitoring report. The analytes and limits in Table 3 are also consistent with the 2000 Renewal RCRA Part B Permit Application (Table E.7-1) (WSRC 2001) except that the 2000 application added gross alpha in Table E.8-4 as a radionuclide indicator. A GWPS has not been established for gross alpha; however, the MCL (EPA 2001) for gross alpha is 15 pCi/L.

**Table 3. Listing of Comparison Criteria for Constituents of Concern and Radionuclide Indicator Parameters**

<b>Constituent of Concern*</b>	<b>GWPS (µg/L)</b>
Arsenic, total recoverable	50
Lead, total recoverable	15
1,1,1-Trichloroethane	200
1,4-Dichlorobenzene	75
Benzene	5
Chlorobenzene	100
Vinyl Chloride	2
Dichloromethane (Methylene chloride)	5
Dichlorodifluoromethane	NA*
Ethylbenzene	700
Tetrachloroethylene	5
Trans-1,2-Dichloroethylene	100
Trichloroethylene	5
Trichlorofluoromethane	NA*
Xylenes	10,000
Tritium	20,000 (pCi/L)
<b>Radionuclide Indicator Parameter</b>	<b>MCL</b>
Gross alpha	15 (pCi/L)

\*- the sample specific estimated quantitation limit (ssEQL)  
was used as a limit for these COCs.

NA – Not Applicable

## **2.0 SITE HYDROGEOLOGY**

The uppermost aquifer (Steed Pond Aquifer Unit), and the principal confining unit (Meyers Branch Confining System) beneath the SLF have been defined by a hydrogeologic investigation performed in 1991. The Crouch Branch Aquifer Unit is the first confined aquifer below the principal confining unit.

The water table aquifer (Steed Pond Aquifer Unit) is variable in thickness and consists of interbedded sands, clayey sands and silty sands. The flow direction in the water table aquifer is generally north to south. The groundwater from the Steed Pond Aquifer discharges to Upper Three Runs Creek south of the SLF.

The placing of well screens in the water table aquifer included setting screens to intercept the water table surface (designated D), placing screens approximately 25-30 feet below the water table surface (designated C) and locating screens just above the Myers Branch Confining system (designated B).

The constituents of concern are listed in Table 3. The depth of the contamination is limited to the water table aquifer.

## **3.0 GROUNDWATER MONITORING**

### **3.1 Data Summary**

Appendix A describes the process used to select the maximum result from the original sample and laboratory duplicates (if present) of the original sample, which is then reported in Tables A1-A4, and used to create the contaminant concentration maps and cross-sections that are included in the annual report. The process was designed to select the most conservative result that has the least amount of uncertainty. Further details of the selection process are provided in the

beginning of Appendix A. In addition to the results tables, Appendix A provides definitions of the abbreviations and modifiers used in the results tables as well as descriptions of holding times, data rounding, and data qualification practices.

Appendix B contains the maps of the potentiometric surface and contaminant concentrations for the first and third quarters of 2001. Potentiometric surface maps are made using data from the shallowest wells screened in the water table aquifer. In response to SCDHEC comments made during the Comprehensive Groundwater Monitoring Evaluation Inspection conducted in July 2000, WSRC agreed to incorporate water elevation data from downgradient seepline piezometers (LFP series) into the potentiometric maps. The most complete set of available data from the LFP series was collected at the end of second quarter, and was incorporated into the third quarter 2001 potentiometric surface map since the data appeared consistent with expected measurements. Concentration maps of chloroethene and trichloroethylene for first and third quarters 2001 are presented in Appendix B.

Appendix C presents time series plots for constituents that exceeded the GWPS or MCL in selected wells in the Sanitary Landfill through fourth quarter 2001.

Hydrographs showing the water elevations through time for wells at the Sanitary Landfill are provided in Appendix D.

Based on the 2001 groundwater monitoring results, aquifer conditions appear to be consistent with previous years. No changes to the monitoring network or sampling are planned at this time.

### ***3.1.1 Quality Assurance/Quality Control***

Approximately 5 percent of the sampled SLF wells are selected each sampling period to collect field quality control (QC) split and blind duplicate samples as part of the quality assurance (QA) program. As part of their quality assurance procedures, the laboratories also duplicate certain analyses.

The results of these QA/QC analyses are used for both intra-laboratory and inter-laboratory comparisons. Reports on the Savannah River Site's Groundwater Monitoring Program are produced quarterly by the Environmental Monitoring Section (EMS) of the Environmental Protection Department (EPD) of WSRC. The EMS/EPD quarterly reports provide full QC sample results and evaluations for the SRS groundwater monitoring program. The results of the original samples are provided in Tables A1-A4, while QC sample results are provided in Tables A5-A7.

Analytical results are generated using SCDHEC-certified laboratories and follow United States Environmental Protection Agency (USEPA) SW-846 Update III methodologies.

### ***3.1.2 Purging and Sampling Problems***

LFW 62D had been inadvertently left off the 2001 sampling schedule. Once the oversight was noted, LFW 62D was included in the fourth quarter 2001 Appendix IX sampling event.

### ***3.1.3 Groundwater Flow Directions and Rates***

Historically, the groundwater flow direction in the Steed Pond Aquifer (Water Table) hydrostratigraphic unit beneath the Sanitary Landfill has been to the

southeast (Universal Transverse Mercator [UTM] coordinates) toward Upper Three Runs Creek. During the first and third quarters 2001, the flow direction was to the southeast (Figures 7 and 8, Appendix B). Figure 9 presents the regional correlation of hydrostratigraphic and lithostratigraphic nomenclature.

Horizontal flow rate calculations provide estimates of the transport rate of constituents originating from the Sanitary Landfill. Flow rates are estimated using the following equation:

$$\text{Flow (ft/day)} = \frac{\text{Hydraulic Conductivity, } K_h \text{ (ft/day)}}{\text{Porosity (unitless)}} \times \frac{dh \text{ (ft)}}{dl \text{ (ft)}}$$

where the hydraulic conductivity ( $K_h$ ) constant is 10 ft/day, the effective porosity value is 20 percent, the change in head is  $dh$ , and the horizontal distance along each flow direction arrow is  $dl$ .

Flow path length is calculated to the nearest 50 ft. Flow rate per day is calculated to two significant figures, then multiplied by 365 and rounded to two significant figures for the flow rate per year. Flow rates estimated vary depending upon the vertical gradient between wells, the size of the area under consideration, the number of data points, and the length and location of the flow path. Because these are inferred or estimated parameters, flow rate estimates should be considered accurate to an order of magnitude only.

The approximate groundwater flow rate in the Steed Pond Aquifer (Water Table) during first quarter 2001 was estimated as follows (Figure 7, Appendix B):

$$\frac{10 \text{ ft/day}}{0.20} \times \frac{24 \text{ ft}}{3823 \text{ ft}} = 0.314 \text{ ft/day}$$

$$0.314 \text{ ft/day} \times 365 \text{ days} \approx 115 \text{ ft/year}$$

The approximate groundwater flow rate in the Steed Pond Aquifer (Water Table) during third quarter 2001 is estimated as follows (Figure 8, Appendix B):

$$\frac{10 \text{ ft/day}}{0.20} \times \frac{26 \text{ ft}}{3823 \text{ ft}} = 0.340 \text{ ft/day}$$

$$0.340 \text{ ft/day} \times 365 \text{ days} \approx 124 \text{ ft/year}$$

### ***3.1.4 Analytical Results Exceeding the Groundwater Protection Standards or the Maximum Contaminant Level***

This section summarizes the results of the calendar year 2001 sampling and analysis which was conducted in accordance with the schedule presented in Table 2, except that a quarterly sampling frequency was used rather than a semi-annual frequency. None of the COCs or indicator parameters presented in Table 3 exceeded the GWPS or MCL in any of the background wells during 2001. Neither of the two COCs (chloroethene (vinyl chloride) and trichloroethylene) scheduled for sampling in the upgradient auxiliary wells exceeded the GWPS in those wells. For POC wells, the exceedances of the GWPS or the MCL (EPA 2001) during 2001 are depicted in Table 4. For plume definition wells, the COCs that exceeded the GWPS during 2001 are depicted in Table 5. COC exceedances in wells LFW-6R, -23R, -58D, -59D, -65D, and -69D were not reproduced in both semi-annual sampling events. For wells in which chloroethene (vinyl chloride) was detected in all four quarters a decreasing trend was observed in LFW 21, LFW 8R and LFW 67C. An increasing trend was not observed in any of the wells. Although gross alpha exceeded the MCL in three POC wells, the results were not consistent (in at least two quarters the result was less than the MCL). For additional details refer to the data tables in Appendix A which include data from all four quarters of 2001.

**Table 4. Analytes Exceeding GWPS or MCL for POC Wells during 2001 Sampling Events**

<b>Well</b>	<b>Constituents</b>	<b>1Q01 Result</b>	<b>2Q01 Result</b>	<b>3Q01 Result</b>	<b>4Q01 Result</b>	<b>GWPS or MCL</b>	<b>Unit</b>
LFW 8R	Chloroethene (Vinyl chloride)	16				2	µg/L
LFW 36R	Chloroethene (Vinyl chloride)	12	13	14.5		2	µg/L
LFW 59D	Dichloromethane (Methylene chloride)	15		--		5	µg/L
LFW 6R	Gross alpha *	34.5		--		15	pCi/L
LFW 23R	Gross alpha*	--	47.8			15	pCi/L
LFW 36R	Gross alpha*		35.1				pCi/L
LFW 68D	Lead, total recoverable	122				15	µg/L
LFW 59D	Tetrachloroethylene	9.8		--		5	µg/L
LFW 58D	Trichloroethylene	--	5.2	5.33		5	µg/L
LFW 59D	Trichloroethylene	15		--		5	µg/L

\* Gross Alpha has not been identified as constituent of concern and no GWPS has been assigned. However, the MCL for gross alpha is 15 pCi/L.

**Table 5. Analytes Exceeding GWPS for Plume Definition Wells during 2001 Sampling Events**

<b>Well</b>	<b>Constituents</b>	<b>1Q01 Result</b>	<b>2Q01 Result</b>	<b>3Q01 Result</b>	<b>4Q01 Result</b>	<b>GWPS or MCL</b>	<b>Unit</b>
LFW 10A	Chloroethene (Vinyl chloride)	15		11.9	12	2	µg/L
LFW 21	Chloroethene (Vinyl chloride)	65	120	46	38.7	2	µg/L
LFW 67C	Chloroethene (Vinyl chloride)	34		24		2	µg/L
LFW 69D	Chloroethene (Vinyl chloride)	--		5.63		2	µg/L
LFW 65D	Trichloroethylene	6.2		--		5	µg/L

### **3.1.5 Annual Appendix IX Analytical Results Exceeding the ssEQL**

Appendix IX analyses are performed annually at background and POC wells in accordance with the sampling and analyses scheme presented in Table 2. The Appendix IX analyses are performed to identify if there are any analytes that have not been identified as COCs that may need to be considered for addition to the sampling and analysis program. Table 6 presents the Appendix IX analytes that were measured above the sample-specific estimated quantitation limit (ssEQL) in the fourth quarter of 2001.

The analyte 1,1-dichloroethane, detected in well LFW 58D, has historically been present in this well. However, concentrations have significantly decreased over

time (see time series plot in Appendix C). Mercury was not detected in well LFW 62D in the two previous sampling events. Both constituents will be evaluated further based on 2002 data.

**Table 6. Appendix IX Analytes Not Identified as COCs that Exceeded the ssEQL**

<b>Well</b>	<b>Constituents</b>	<b>Date Sampled</b>	<b>Result</b>	<b>GWPS or MCL</b>	<b>Unit</b>
LFW 58D	1,1-dichloroethane**	12-Oct-01	8.32	NA	µg/L
LFW 62D	mercury, total recoverable*	11-Oct-01	2.86	2	µg/L

\* The constituent has not been identified as constituent of concern and no GWPS has been assigned. However, the MCL for mercury, total recoverable is 2 µg/L

\*\* The constituent has not been identified as constituent of concern and no GWPS has been assigned. No MCL exists for this constituent.

### **3.1.6 Upgradient versus Downgradient Results**

Wells LFW 31, 43B, 43C, and 43D, at the northern end of the Sanitary Landfill (Appendix B, Figure 2), are designated background wells for the Steed Pond Aquifer (Water Table). None of the COCs or indicator parameters exceeded the GWPS or MCL in any of the upgradient wells.

Wells LFW 74C, 74D, 75C, 75D are also upgradient wells, which are monitored to meet the requirements of Subtitle D of the SCDHEC permit (nonhazardous solid waste) for the Interim Sanitary Landfill. These auxiliary wells are monitored for the Solid Waste Program and are not part of the Sanitary Landfill monitoring network. However, information provided by these wells is germane to the groundwater monitoring scheme for the Sanitary Landfill, since they are upgradient. According to the Table 2 sampling and analysis scheme, only chloroethene (vinyl chloride) and trichloroethylene are specified for analysis at auxiliary wells. Neither analyte exceeded the GWPS at these upgradient auxiliary wells. However, exceedances of chloroethene (vinyl chloride) and trichloroethylene were observed at wells downgradient of the SLF.



### 3.1.7 Errata

The summary of exceedances of the GWPS presented in the semi-annual 2001 report did not include the wells listed below:

**Table 7. Errata Data**

<u>Well</u>	<u>Constituents</u>	<u>1Q01 Result</u>	<u>GWPSor MCL</u>	<u>Unit</u>
LFW 10A	Chloroethene (Vinyl chloride)	15	2	µg/L
LFW 21	Chloroethene (Vinyl chloride)	65	2	µg/L
LFW 65D	Trichloroethylene	6.2	5	µg/L
LFW 67C	Chloroethene (Vinyl chloride)	34	2	µg/L

## 4.0 DISCUSSION OF BIOREMEDIATION AT THE SANITARY LANDFILL

### 4.1 Microbial Characterization of Sanitary Landfill Groundwater

Comprehensive analysis of specific microbial populations and characterization of the metabolic activity of microbial communities can be an effective tool in predicting and monitoring the bioremediation potential of a natural system. These analyses determine the activity of specific microorganisms that assist in reducing and/or removing harmful groundwater contaminants. Therefore, microbial characterization was continued in 2001. Total microbial population densities were determined by the Acridine Orange Direct Count (AODC) Method. The AODCs, which provide an indication of total number of microbes: active and inactive; and aerobic and anaerobic, increased in the fall of 2001. Fluorescent Antibodies (FAs), which are used to provide a positive indication of methanotrophs indigenous to the Sanitary Landfill also increased in the fall of 2001. The density of the methanotrophic community (those microorganisms which use methane as a sole carbon source and support co-metabilization) is determined by the Most Probable Number (MPN) technique. As expected, most

of the MPN values declined in fall 2001 in response to the termination of methane injection in January 2001.

Although FA values increased in the fall of 2001, the FA procedure was changed to provide a greater confidence level (by removing background fluorescence) and thus should not be directly compared to previous FA results (determined with the previous FA procedure).

During 2001, overall microbial activity, density, and diversity remained strong, which suggests that microbial degradation is continuing. Planned future sampling and analyses will monitor these values for any operational effects on microbial populations. The microbiological, physical, and chemical data collected are presented in Tables E-1 to E-3 in Appendix E.

## **4.2 Biosparging of the Sanitary Landfill Area**

A biosparging system was constructed in 1997-98 to address trichloroethylene (TCE) and vinyl chloride (VC) contamination in shallow groundwater at the SLF. The biosparging system stimulates the degradation of contaminants by providing nutrients and energy sources to indigenous microbes with the use of two horizontal injection wells. The system began operation in October of 1999, and has been operating on two-week injection cycles since that time.

An evaluation of biosparging system performance indicates that the system is effective in treating both the TCE and VC plumes. In fact, TCE concentrations diminished to the point where the injection of methane was terminated in SLH-1 (January 2001) and that system has been utilized for treating VC. During 2001, TCE was detected above the MCL (5 µg/L) in one POC well (LFW 59D) upgradient from horizontal treatment well SLH-1. TCE was also detected

downgradient from the horizontal treatment systems in plume definition well LFW 65D. Both detections occurred in the first quarter only.

The VC plume exists beneath a portion of the main section and the southern expansion of the SLF (upgradient from the horizontal treatment wells SLH-1 and SLH-2). Also, VC was detected above the MCL (2 µg/L) in one well downgradient from SLH-1 (LFW 67C during four quarters). During 2001, the VC concentrations showed a decreasing trend in that well. As concentrations upgradient from the treatment wells continue to decrease, the need to continue operation of these treatment wells should be evaluated. Methane injection was discontinued in January 2001. The permit limits for Nitrous Oxide is 0.048%, and for TEP is 0.005%.

Table 8 contains the volume of sparged air and percentage by volume of nutrients injected down well SLH-1 (Figure 10). The volume of triethyl phosphate (TEP) is in ml while everything else is in standard cubic feet/minute (SCFM).

Table 9 contains the volume of air sparged into SLH-2 (Figure 10) in SCFM. No nutrients are injected into SLH-2.

**Table 8. Volume of Air and Nutrients Sparged into SLH-1 in Year 2001**

Date	Air (SCF)	Air ( %)	Nitrous Oxide (SCF)	Nitrous Oxide (%)	TEP (ml)	TEP (%)	Total (SCF)
1/8/01	648000	99.29	90	0.014	32.4	0.0014	652636.8
1/22/01	676200	99.28	100	0.015	36	0.0015	681087
2/5/01	633600	99.98	82.5	0.013	29.7	0.0013	633712.2
2/19/01	633600	99.98	82	0.013	29.52	0.0013	633711.5
3/5/01	574200	99.98	90	0.016	32.4	0.0016	574322.4
3/19/01	607200	99.98	92.5	0.015	33.3	0.0015	607325.8
4/2/01	668250	99.39	79	0.012	28.44	0.0012	672320.1
4/16/01	669300	99.28	82.5	0.012	29.7	0.0012	674163.2
4/30/01	611160	99.98	81	0.013	29.16	0.0013	611270.2
5/14/01	610500	99.98	82	0.013	29.52	0.0014	610611.5
5/28/01	616440	99.98	80	0.013	28.8	0.0013	616548.8
6/11/01	650100	99.98	82.5	0.013	29.7	0.0013	650212.2
6/28/01	594000	99.98	79	0.013	28.44	0.0013	594107.4
7/9/01	662850	99.36	83	0.012	29.88	0.0013	667126.2
7/23/01	655500	99.26	85	0.013	30.6	0.0013	660366.6
8/6/01	645480	99.98	100	0.015	36	0.0016	645616
8/20/01	630960	99.98	83	0.013	29.88	0.0013	631072.9
9/10/01	715440	99.99	60	0.008	21.6	0.0008	715521.6
9/24/01	630300	99.98	83	0.013	29.88	0.0013	630412.9
10/8/01	638550	99.98	82	0.013	29.52	0.0013	638661.5
10/22/01	658950	99.98	83	0.013	29.88	0.0013	659062.9
11/5/01	641520	99.98	83	0.013	29.88	0.0013	641632.9
11/19/01	699600	99.98	86	0.012	30.96	0.0012	699717
12/3/01	661320	99.98	92	0.014	33.12	0.0014	661445.1
12/17/01	637560	99.98	90	0.014	32.4	0.0014	637682.4

**Table 9. Estimation of Injected Air Volume to SLH-2 in Year 2001  
Based on Procedure Calculations**

<b>Date</b>	<b>Volume of Air (SCF)</b>
1/8/01	718500.0
1/22/01	735000.0
2/5/01	718500.0
2/20/02	720000.0
3/5/02	666000.0
3/19/01	690000.0
4/2/01	741000.0
4/16/01	727500.0
4/30/01	693000.0
5/14/01	694500.0
5/29/01	697500.0
6/11/01	741000.0
6/25/01	732000.0
7/9/01	736500.0
7/23/01	711000.0
8/6/01	726000.0
8/20/01	694500.0
9/12/01	721500.0
9/24/01	712500.0
10/8/01	711000.0
10/22/01	715500.0
11/5/01	727500.0
11/19/01	793500.0
12/3/01	751500.0
12/17/01	729000.0
<b>2001 Total</b>	<b>18004500.0</b>

#### **4.2.1 *Modifications to Operation***

No significant maintenance was performed during the first, second, third or fourth quarter 2001 period. Methane injection was curtailed during January 2001. Results from a model of the underground plumes indicate methane is no longer required. During the 8/6/01 run the Nitrous Oxide cylinder had to be changed due

to low pressure. The cylinder was changed when pressure went down to 550 psi and the replacement cylinder had the starting pressure of 1000 psi.

Unusual Occurrences:

- During the 9/10/01 run, as a result of the terrorist attack in New York and Washington on 9/11/01, the facility was shut down. On 9/12/01 it was restarted and the process was completed. Data against the 9/10/01 date shows the totals for both runs.
- On 6/25/01 lightning struck the transformer that feeds the compressor. There was no damage to equipment and the injection of air was continued.

#### **4.2.2 *Operational Summary***

January 1, 2001 through December 31, 2001: The facility was scheduled to operate 48 hours every two weeks with an eight-hour injection of nutrients during that 48 hours of operation. Table 10 below lists when the air and nutrient injections were scheduled. Information includes the actual duration of each run along with a comments block which lists any unusual occurrences experienced during that cycle. Six cycles were run during the fourth quarter period and all six cycles were run (100%). Nutrients were injected during all six runs. The nutrients were injected for approximately 8 hours during each cycle. Table 11 contains the amount of each nutrient injected per cycle in pounds.

**Table 10. Scheduled Air and Nutrient Injection During 2001**

<b>Date</b>	<b>Air Injected (Hrs.)</b>	<b>Nutrients Injected (Hrs.)</b>	<b>Comments</b>
1/8/01	48	9	None
1/22/01	49	10	None
2/5/01	48	8.25	None
2/19/01	48	8.2	None
3/5/01	43.5	9	None
3/19/01	46	9	None
4/2/01	49.5	7.9	None
4/16/01	48.5	8.25	None
4/30/01	46.3	8.1	None
5/14/01	46.25	8.2	None
5/28/01	46.7	8	None
6/11/01	49.25	8.25	None
6/28/01	46	7.9	None
7/9/01	49.1	8.3	None
7/23/01	47.5	8.5	None
8/6/01	48.9	10	None
8/20/01	47.8	8.3	None
9/10/01	54.2	6	None
9/24/01	47.75	8.3	None
10/8/01	47.3	8.2	None
10/22/01	47.75	8.3	None
11/5/01	48.6	8.3	None
11/19/01	53	8.6	None
12/3/01	50.1	9.2	None
12/17/01	48.3	9	None

**Table 11. Amount of Nutrient Injected per Cycle (lbs.) During 2001**

<b>Date</b>	<b>Methane (lbs)</b>	<b>Nitrous Oxide (lbs)</b>	<b>TEP (lbs)</b>
1/8/01	202.77	12.33	4.59
1/22/01	225.30	13.70	5.10
2/5/01	0.00	11.30	4.21
2/19/01	0.00	11.23	4.18
3/5/01	0.00	12.33	4.59
3/19/01	0.00	12.67	4.72
4/2/01	0.00	10.82	4.03
4/16/01	0.00	11.3	4.21
4/30/01	0.00	11.1	4.13
5/14/01	0.00	11.23	4.18
5/28/01	0.00	10.96	4.08
6/11/01	0.00	11.3	4.21
6/28/01	0.00	10.82	4.03
7/9/01	0.00	11.37	4.23
7/23/01	0.00	11.65	4.34
8/6/01	0.00	13.70	5.10
8/20/01	0.00	11.37	4.23
9/10/01	0.00	8.22	3.06
9/24/01	0.00	11.37	4.23
10/8/01	0.00	11.23	4.18
10/22/01	0.00	11.37	4.23
11/5/01	0.00	11.37	4.23
11/19/01	0.00	11.78	4.39
12/3/01	0.00	12.60	4.69
12/17/01	0.00	12.33	4.59



## 5.0 REFERENCES

EPA (U.S. Environmental Protection Agency, Office of Water), 2001. *National Primary Drinking Water Regulations – EPA's Drinking Water Standards*; <http://www.epa.gov/safewater/mcl.html>. This web page was updated Thursday, May 31, 2001. For copies of the complete regulations regarding these contaminants, follow the links to the National Primary Drinking Water Regulations.

Letter, C. D. Rippey (SCDHEC) to J. W. Cook (EPD/WSRC). *RE: Sanitary Landfill*, January 5, 1996

WSRC, 1990. *Sanitary Landfill Groundwater Quality Assessment Plan – Amendment (U)*, (WSRC-TR-90-167), Rev. 0, June 1990. Westinghouse Savannah River Company, Aiken, SC

WSRC, 1993. *1992 RCRA Part B Permit Renewal Application (U)*, (WSRC-IM-91-53) Savannah River Site, Volume XXIII, Book 1 of 4, Sanitary Landfill Postclosure, Rev. 1, March 1993. Westinghouse Savannah River Company, Aiken, SC

WSRC, 1995. *Sanitary Landfill Groundwater Quality Assessment Plan – Amendment (U)*, (WSRC-RP-95-1538), Rev. 5, September 1995. Westinghouse Savannah River Company, Aiken, SC

WSRC, 1997. *RCRA Closure Plan – Sanitary Landfill (U)*, (Q-CLP-G-00002), Rev. 2, October 1995. Westinghouse Savannah River Company, Aiken, SC

WSRC, 2001. *2000 Renewal Application for a RCRA Part B Permit (U)*, (WSRC-IM-98-30), Rev. 1, March 2001. Westinghouse Savannah River Company, Aiken, SC

---

## **APPENDIX A**

### **Groundwater Monitoring Results Tables and Data Review Key**

---

THIS PAGE LEFT BLANK INTENTIONALLY.

## Key to Reading the Tables

The following abbreviations may appear in the data tables:

### Constituents

Sp. Conductance      specific conductance

### Laboratories

CN	Clemson Technical Center, Inc.
EM	Environmental Protection Department/Environmental Monitoring Section (EPD/EMS) Laboratory
GE and GP	General Engineering Laboratories, Inc.
SC	Savannah River Technology Center
SP	Spencer Testing Services, Inc.
TM	Thermo NUtech
WA and WS	Recra LabNet Philadelphia.

### Sampling Codes

B	blank sample was collected
C	well was pumping continuously
D	well was dry
E	equipment blank was collected
I	well went dry during sampling; insufficient water to collect all samples
L	well went dry before sampling began; only depth to water can be determined
N	well was not stabilized before sampling began
P	inaccessibility or mechanical failure prevented sample collection and field analysis of the water
S	no water in standpipe; for water level events only
T	samples were collected, but some samples were not sent to the laboratory due to high turbidity
W	unable to sample well because of stabilization or sampling equipment failure; water-level measurements were obtained
X	well went dry during purging; samples collected after well recovered

### Sampling Methods – (“Pump” column)

B	sample collected using an open-bucket bailer
O	sample collected by method other than bailer or pump
P	sample collected using a bladder pump
S	sample collected using a single-speed centrifugal downhole pump
V	sample collected using a variable-speed pump

### Units

deg. C	degrees Celsius
Deg N	Degrees North
Deg W	Degrees West
E	East
ft	feet
mg/L	milligrams per liter
mV	millivolts
msl	mean sea level
N	North
nM	nanomoles
NTU	Nephelometric turbidity unit
pCi/L	picocuries per liter
pCi/mL	picocuries per milliliter
pH	pH unit
µg/L	micrograms per liter
µS/cm	microsiemens per centimeter

### Other

CLP	EPA Functional Guideline Codes
CS	carbon steel
DF	dilution factor column in data tables
E	exponential notation (e.g., 1.1E-09 = 1.1 x 10 <sup>-9</sup> = 0.0000000011)
STORET	EPA STORET result qualifiers
Filt.	Data results after application of the Data Usability filter
GWPS	groundwater protection standard
MCS	monitoring constituents standard
MDL	Method detection limit
NDD	“not decision data”
PDWS	primary drinking water standard
PVC	polyvinyl chloride
ST	exceeded the GWPS or MCS column in data tables
TOC	top of casing
<EQL	less than the sample-specific estimated quantitation limit

### Results Below Detection

For radiological analyses, the analytical result field contains the result recorded on the analytical instrument and reported by the laboratory, even if it is negative. For nonradiological analyses, if the analyte is not detected, the sample-specific estimated quantitation limit (EQL) is entered into the result field and is reported with a less than [<] sign. The EQL is defined as the lowest concentration that can be achieved reliably within

specified limits of precision and accuracy during routine laboratory operating conditions. The sample-specific EQL is modified for sample concentration or dilution or unusual aliquot size that affects analytical sensitivity.

### Uncertainty and Data Usability

In April 1998, SCDHEC accepted guidance proposed by SRS to apply a method for minimizing uncertainty in compliance decisions potentially affecting long-term monitoring or remediation (SCDHEC, 1998). The method is applied by processing or “filtering” the data, using the USEPA Functional Guideline Codes (EPA 1994; EPA 1999) applied by the laboratories to qualify the analytical results. By removing all data with a result qualifier of “L”, “R”, “U”, and “J” from consideration, groundwater data users can ensure that only quantified numerical results are applied to the decision process. The output of the filtering process populates the “Filt.” column as follows:

1) “Null” or “blank” – Data not remarked. The analytical result is acceptable for use as reported, and the result is not greater than an associated concentration limit for the analyte. If a concentration limit exists for the analyte, and the result is greater than the concentration limit, then the “Filt.” column will contain the applicable limit, and the “greater than” [ $>$ ] symbol. For example, in the case of trichloroethylene, “ $>5$ ” would indicate the result exceeded a concentration limit of 5  $\mu\text{g/L}$ .

**Rationale:** The best result would be one without qualifiers, so the preferred choice would be the maximum result that did not have any qualifiers.

2) “J”, “L”, “N”, “NJ”, or “JL” – “J” identifies that the analyte was positively identified; the associated numerical value is an estimated concentration of the analyte in the sample. “L” Indicates the sample result is off scale high. “JL” Indicates an estimated quantity of a sample that is off scale high. “N” is used for all TIC (tentatively identified compounds) and indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification. “NJ” means the presence of an analyte that has been tentatively identified and the associated numerical value represents its approximate concentration.

**Rationale:** an estimate can still provide useful information. Although there may be a range of uncertainty around the actual value, the value itself may still grossly exceed a regulatory standard. However, a estimated value is less certain than an unqualified result. Therefore, this would be labeled as “NDD” (not decision data).

3) “U” - material analyzed for, but not detected. The analyte concentration is less than the ssEQL and labeled “ $<\text{EQL}$ ”.

**Rationale:** a result above the detection limit would be chosen before a result below detection so that the process is not biased toward false negatives.

4) “UJ” - result is not above the reported sample quantitation limit, but the reported quantitation limit itself is approximate, and may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

**Rationale:** the additional qualifiers make this result less reliable for use than the “U” without qualifiers. These results would be labeled “<EQL”.

5) “Rejected” – The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

**Rationale:** the only value in providing this result in the report is to indicate that the lab attempted to analyze the sample. If there are any other results available, the result with the “R” qualifier should not be reported. If it is reported, it is definitely “NDD” (not decision data).

## Holding Times

Standard analytical methods include a limit, called holding time, on the maximum elapsed time between sample collection and extraction or analysis by the laboratory. In the data tables, the result qualifier Q in the “EPA” column indicates that holding time was exceeded. Analyses performed beyond holding times may not yield valid results.

The South Carolina Department of Health and Environmental Control (SCDHEC) allows only 15 minutes to elapse between sampling and analysis for pH. Thus, only field pH measurements can meet the holding time criterion; laboratory pH analyses always will exceed it.

The laboratory procedure used for the determination of specific conductance allows one day to elapse between sampling and analysis. Thus, laboratory specific conductance measurements may exceed the holding time criterion.

## Data Qualification

The contract laboratories submit sample- or batch-specific quality assurance/quality control information either at the same time as analytical results or in a quarterly summary. Properly defined and used, data qualifiers can be a key component in assessing data usability. The EPA Functional Guideline Codes (EPA 1994; EPA 1999) used by the analytical laboratories are shown in the CLP result qualifier column are



---

defined below. These modifiers appear in the data tables under the column *CLP*. EPA STORET codes appear in the data tables under the column labeled *EPA*.

**“CLP” Qualifiers - EPA Functional Guidelines Codes (EPA 1994 and 1999)**

(Blank)	Data not remarked. The analytical result is acceptable for use as reported.
J	The analyte was positively identified; the associated numerical value is an estimated concentration of the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification. Used for all TIC results.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified. Assignment of R requires approval by the appropriate WSRC data validation coordinator.
U	Material analyzed for but not detected. Analytical result reported is less than the sample quantitation limit.
NJ	The analysis indicates the presence of an analyte that has been tentatively identified and the associated numerical value represents its approximate concentration.
UJ	The analyte was not detected above the reported sample quantitation limit. The reported quantitation limit is approximate, and may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

---

Note: These are only some of the qualifiers present in the database. All modifiers associated with the data are published in the result tables of EPD/EMS' quarterly groundwater monitoring reports, the official repository of the data.

#### “EPA” Qualifiers – EPA STORET Codes

(Blank)	Data not remarked
C	The result is calculated.
I	The result is less than the ssEQL, but equal to or greater than the MDL. Always reported with an associated EPA Functional Guideline Code qualifier of U.
K	The actual concentration is known to be less than the reported result.
L	The actual concentration is known to be greater than the reported result.
O	Sample received by laboratory, but the analysis was lost or not performed.
Q	Sample was held beyond normal holding time prior to analysis.
V	The analyte was detected in both the method blank and the sample.
Y	The result is from an unpreserved or incorrectly preserved sample; the data may not be accurate.

---

Note: These are only some of the qualifiers present in the database. All modifiers associated with the data are published in the result tables of EPD/EMS’ quarterly groundwater monitoring reports, the official repository of the data.

#### REFERENCES

EPA, 1994. *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review*, 9240.1-05-01, PB 94-963502, EPA540/R-94/013, February 1994; U.S. Environmental Protection Agency, Washington, DC.

EPA, 1999. *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review*, OSWER 9240.1-05A-P, PB99-963506, EPA540/R-99/008, October 1999; U.S. Environmental Protection Agency, Washington, DC.

SCDHEC, 1998. *RE: Groundwater Data Reporting Change at SRS*, Letter, G. K. Taylor (SCDHEC) to J. W. Cook (EPD/WSRC); April 21, 1998.

**Table A-1. Groundwater Monitoring Results for Background Wells**

**WELL LFW 31**

<u>SRS Coord.</u>	<u>Lat/Longitude</u>	<u>Screen Zone Elevation</u>		<u>Top of Casing</u>	<u>Casing</u>	<u>Pump</u>	<u>Screen Zone</u>				
N 86262.2 E 44869	33.28976 Deg N -81.7162 Deg W	166 - 145	ft msl	229.3 ft msl	4 " PVC	S	SP Upper				
<b>SAMPLE DATE</b>		01/11/01		04/19/01	08/06/01	10/17/01					
<b>FIELD DATA</b>											
<u>Parameter</u>	<u>1Q01</u>	<u>2Q01</u>	<u>3Q01</u>	<u>4Q01</u>	<u>Unit</u>						
Water Elevation	161.52	161.86	147.88	161.16	ft msl						
pH	5.3	5.2	5.1	5.3	pH						
Sp. Conductance	15	13	23	20	uS/cm						
Water temperature	18.8	21.1	25.8	20.4	deg. C						
Alkalinity as CaCO3	0	0	2	0	mg/L						
Turbidity	1	.4	1.4	.7	NTU						
Volumes purged	2.54	2.49		2.69	well volume						
Sampling code											
<b>ANALYTICAL DATA</b>											
<b>I. Constituents of Concern</b>											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
<b>RCRA</b>											
	arsenic, total recoverable	<10	U	<40	U	<8	U	<42	U Y	50	ug/L
	lead, total recoverable	2.83	J IL	<47	U	8.25		5.3	J IY	15	ug/L
	1,1,1-trichloroethane	<5	U	<5	U	.194	J I	<5	U Y	200	ug/L
	1,4-dichlorobenzene	<5	U	<5	U	<1	U	<20	U Y	75	ug/L
	benzene	<5	U	<5	U	<1	U	<5	U Y	5	ug/L
	chlorobenzene	<5	U	<5	U	<1	U	<5	U Y	100	ug/L
	chloroethene (vinyl chloride)	<5	U	<10	U	<1	U	<10	U Y	2	ug/L
	dichloromethane (methylene chloride)	<10	U	<5	U	<5	U	<5	U Y	5	ug/L
	dichlorodifluoromethane	<5	U	<10	U	<1	U	<10	U Y	5	ug/L
	ethylbenzene	<5	U	<5	U	<1	U	<5	U Y	700	ug/L
	tetrachloroethylene	<5	U	<5	U	<1	U	<5	U Y	5	ug/L
	trans-1,2-dichloroethylene	<5	U			<1	U	<5	U Y	100	ug/L
	trichloroethylene	<5	U	<5	U	<1	U	<5	U Y	5	ug/L
	trichlorofluoromethane	<5	U	<5	U	3.95		<5	U Y	5	ug/L
	xylene	<10	U	<5	U	<3	U	<5	U Y	10000	ug/L
<b>Non-RCRA</b>											
	tritium	1.25	J I	1.38	J I	1.27	J I	.734	Y	20	pCi/ml
<b>II. Laboratory Indicator Parameters</b>											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
<b>Non-RCRA Radionuclide</b>											
	gross alpha	6.18	U	3.65	U	11.9	U V	1.97	U Y	15	pCi/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).

**Table A-1. Groundwater Monitoring Results for Background Wells (Cont.)**

**WELL LFW 43B**

<u>SRS Coord.</u>	<u>Lat/Longitude</u>	<u>Screen Zone Elevation</u>	<u>Top of Casing</u>	<u>Casing</u>	<u>Pump</u>	<u>Screen Zone</u>					
N 86459.2 E 45240.5	33.29080 Deg N -81.7156 Deg W	100.4 - 90.4 ft msl	203 ft msl	4 " PVC	S	SP Lower					
<b>SAMPLE DATE</b>		01/05/01	04/17/01	08/08/01	10/11/01						
<b>FIELD DATA</b>											
<u>Parameter</u>	<u>1Q01</u>	<u>2Q01</u>	<u>3Q01</u>	<u>4Q01</u>	<u>Unit</u>						
Water Elevation	162.3	162.81	162.29	161.58	ft msl						
pH	5.1	5.2	5.1	5.2	pH						
Sp. Conductance	17	19	18	18	uS/cm						
Water temperature	13.1	20	20.1	19.5	deg. C						
Alkalinity as CaCO3	0	0	1	0	mg/L						
Turbidity	.6	.1	.2	1	NTU						
Volumes purged	2.13	2.34	2.91	2.26	well volume						
Sampling code											
<b>ANALYTICAL DATA</b>											
<b>I. Constituents of Concern</b>											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
<b>RCRA</b>											
	arsenic, total recoverable	<10	U	<23	U	<8	U	<42	U	50	ug/L
	lead, total recoverable	<10	U	<26	U	<8	U	<24	U	15	ug/L
	1,1,1-trichloroethane	<5	U	<5	U	<1	UJ L	<5	U	200	ug/L
	1,4-dichlorobenzene	<5	U	<5	U	<1	UJ L	<5	U	75	ug/L
	benzene	<5	U	<5	U	<1	UJ L	<5	U	5	ug/L
	chlorobenzene	<5	U	<5	U	<1	UJ L	<5	U	100	ug/L
	chloroethene (vinyl chloride)	<5	U	<10	U	<1	UJ L	<10	U	2	ug/L
	dichloromethane (methylene chloride)	<10	U	<5	U	<.734	UJ L	<5	U	5	ug/L
	dichlorodifluoromethane	<5	U	<10	U	<1	UJ L	<10	U	5	ug/L
	ethylbenzene	<5	U	<5	U	<1	UJ L	<5	U	700	ug/L
	tetrachloroethylene	<5	U	<5	U	<1	UJ L	<5	U	5	ug/L
	trans-1,2-dichloroethylene	<5	U			<1	UJ L	<5	U	100	ug/L
	trichloroethylene	<5	U	<5	U	<1	UJ L	<5	U	5	ug/L
	trichlorofluoromethane	<5	U	<5	U	<1	UJ L	<5	U	5	ug/L
	xylenes	<10	U	<5	U	<3	UJ L	<5	U	10000	ug/L
<b>Non-RCRA</b>											
	tritium	.523	U	1.13	J I	.958	J I	.365	J I	20	pCi/ml
<b>II. Laboratory Indicator Parameters</b>											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
<b>Non-RCRA Radionuclide</b>											
	gross alpha	21.6	J I	14.9	J I	1.96	U	1.95	U	15	pCi/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).

**Table A-1. Groundwater Monitoring Results for Background Wells (Cont.)**  
**WELL LFW 43C**

<u>SRS Coord.</u>	<u>Lat/Longitude</u>	<u>Screen Zone Elevation</u>	<u>Top of Casing</u>	<u>Casing</u>	<u>Pump</u>	<u>Screen Zone</u>					
N 86480.6 E 45234.9	33.29084 Deg N -81.7157 Deg W	138.5 - 128.5 ft msl	202.6 ft msl	4 " PVC	S	SP Middle					
<b>SAMPLE DATE</b>		01/05/01	04/17/01	08/08/01	10/11/01						
<b>FIELD DATA</b>											
<u>Parameter</u>	<u>1Q01</u>	<u>2Q01</u>	<u>3Q01</u>	<u>4Q01</u>	<u>Unit</u>						
Water Elevation	133.75	162.76	162.31	161.64	ft msl						
pH	5.2	5.3	5.1	5.4	pH						
Sp. Conductance	14	15	16	18	uS/cm						
Water temperature	15.1	19.2	19.7	19	deg. C						
Alkalinity as CaCO3	3	0	1	0	mg/L						
Turbidity	.8	.3	.3	.3	NTU						
Volumes purged	2.11	2.91	3.76	3.42	well volume						
Sampling code											
<b>ANALYTICAL DATA</b>											
<b>I. Constituents of Concern</b>											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
<b>RCRA</b>											
	arsenic, total recoverable	<3.76	JU	<23	U	<8	U	<42	U	50	ug/L
	lead, total recoverable	2.55	J I	<26	U	.861	J I	<24	U	15	ug/L
	1,1,1-trichloroethane	<5	U	<5	U	<1	UJ LQ	<5	UJ Q	200	ug/L
	1,4-dichlorobenzene	<5	U	<5	U	<1	UJ LQ	<10.4	UJ Q	75	ug/L
	benzene	<5	U	<5	U	<1	UJ LQ	<5	UJ Q	5	ug/L
	chlorobenzene	<5	U	<5	U	<1	UJ LQ	<5	UJ Q	100	ug/L
	chloroethene (vinyl chloride)	<5	U	<10	U	<1	UJ LQ	<10	UJ Q	2	ug/L
	dichloromethane (methylene chloride)	<10	U	<5	U	<3.11	UJ LQ	<5	UJ Q	5	ug/L
	dichlorodifluoromethane	<5	U	<10	U	<1	UJ LQ	<10	UJ Q	5	ug/L
	ethylbenzene	<5	U	<5	U	<1	UJ LQ	<5	UJ Q	700	ug/L
	tetrachloroethylene	<5	U	<5	U	<1	UJ LQ	<5	UJ Q	5	ug/L
	trans-1,2-dichloroethylene	<5	U			<1	UJ LQ	<5	UJ Q	100	ug/L
	trichloroethylene	<5	U	<5	U	<1	UJ LQ	<5	UJ Q	5	ug/L
	trichlorofluoromethane	<5	U	<5	U	<1	UJ LQ	<5	UJ Q	5	ug/L
	xylenes	<10	U	<5	U	<3	UJ LQ	<5	UJ Q	10000	ug/L
<b>Non-RCRA</b>											
	tritium	1.29	J I	1.4		1.16	J I	.818		20	pCi/ml
<b>II. Laboratory Indicator Parameters</b>											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
<b>Non-RCRA Radionuclide</b>											
	gross alpha	9.37	U	10.9	U	-.509	UJ L	1.57	U	15	pCi/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).

**Table A-1. Groundwater Monitoring Results for Background Wells (Cont.)**  
**WELL LFW 43D**

<u>SRS Coord.</u>	<u>Lat/Longitude</u>	<u>Screen Zone Elevation</u>	<u>Top of Casing</u>	<u>Casing</u>	<u>Pump</u>	<u>Screen Zone</u>					
N 86443.2 E 45244.5	33.29077 Deg N -81.7156 Deg W	170.9 - 150.9 ft msl	202.9 ft msl	4 " PVC	S	SP Upper					
SAMPLE DATE		01/05/01	04/17/01	08/08/01	10/11/01						
FIELD DATA											
<u>Parameter</u>	<u>1Q01</u>	<u>2Q01</u>	<u>3Q01</u>	<u>4Q01</u>	<u>Unit</u>						
Water Elevation	153.1	162.76	162.55	161.99	ft msl						
pH	5.3	5.3	5.2	5.2	pH						
Sp. Conductance	11	12	11	11	uS/cm						
Water temperature	18.1	18.6	19.4	19	deg. C						
Alkalinity as CaCO3	29	0	1	0	mg/L						
Turbidity	1.5	.4	.9	.2	NTU						
Volumes purged	3.05	4.71	5.59	3.36	well volume						
Sampling code											
ANALYTICAL DATA											
I. Constituents of Concern											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
RCRA											
	arsenic, total recoverable	<10	JU	<23	U	<8	U	<42	U	50	ug/L
	lead, total recoverable	<1.54	JU	<26	U	.759	J I	<24	U	15	ug/L
	1,1,1-trichloroethane	<5	U	<5	U	<1	UJ LQ	<5	UJ Q	200	ug/L
	1,4-dichlorobenzene	<5	U	<5	U	<1	UJ LQ	<10.6	UJ Q	75	ug/L
	benzene	<5	U	<5	U	<1	UJ LQ	<5	UJ Q	5	ug/L
	chlorobenzene	<5	U	<5	U	<1	UJ LQ	<5	UJ Q	100	ug/L
	chloroethene (vinyl chloride)	<5	U	<10	U	<1	UJ LQ	<10	UJ Q	2	ug/L
	dichloromethane (methylene chloride)	<10	U	<5	U	<1.64	UJ LQ	<5	UJ Q	5	ug/L
	dichlorodifluoromethane	<5	U	<10	U	<1	UJ LQ	<10	UJ Q	5	ug/L
	ethylbenzene	<5	U	<5	U	<1	UJ LQ	<5	UJ Q	700	ug/L
	tetrachloroethylene	<5	U	<5	U	<1	UJ LQ	<5	UJ Q	5	ug/L
	trans-1,2-dichloroethylene	<5	U			<1	UJ LQ	<5	UJ Q	100	ug/L
	trichloroethylene	<5	U	<5	U	<1	UJ LQ	<5	UJ Q	5	ug/L
	trichlorofluoromethane	<5	U	<5	U	<1	UJ LQ	<5	UJ Q	5	ug/L
	xylenes	<10	U	<5	U	<3	UJ LQ	<5	UJ Q	10000	ug/L
Non-RCRA											
	tritium	.871	J I	.627	J I	.643	J I	.433	J I	20	pCi/ml
II. Laboratory Indicator Parameters											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
Non-RCRA Radionuclide											
	gross alpha	7.48	U	3.08	U	10.2	UJ L	.351	U	15	pCi/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).

**Table A-2. Groundwater Monitoring Results for Point-of-Compliance Wells****WELL LFW 6R**

<u>SRS Coord.</u>	<u>Lat/Longitude</u>	<u>Screen Zone Elevation</u>	<u>Top of Casing</u>	<u>Casing</u>	<u>Pump</u>	<u>Screen Zone</u>					
N 84413.9 E 45194	33.28620 Deg N -81.7118 Deg W	154.53 - 134.6 ft msl	170.7 ft msl	2 " PVC	V	SP Upper					
SAMPLE DATE		01/04/01	04/17/01	08/08/01	10/10/01						
FIELD DATA											
<u>Parameter</u>	<u>1Q01</u>	<u>2Q01</u>	<u>3Q01</u>	<u>4Q01</u>	<u>Unit</u>						
Water Elevation	151.21	152.41	151.73	151.25	ft msl						
pH	4.6	5	4.5	5.1	pH						
Sp. Conductance	45	53	49	54	uS/cm						
Water temperature	12	17.2	19.8	20.7	deg. C						
Alkalinity as CaCO3	3	0	0	0	mg/L						
Turbidity	1	.2	.3	.3	NTU						
Volumes purged	1.84	5.16	4.29	6.25	well volume						
Sampling code											
ANALYTICAL DATA											
I. Constituents of Concern											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
RCRA											
	arsenic, total recoverable	<10	U	<23	U	<8	U	<42	U Y	50	ug/L
	lead, total recoverable	<10	U	<26	U	<8	U	<24	U Y	15	ug/L
	1,1,1-trichloroethane	<5	U	<5	U	1.87	J LQ	2.28	J IQY	200	ug/L
	1,4-dichlorobenzene	4.5	J I	7.11		2.48	J LQ	2.42	J IQY	75	ug/L
	benzene	<5	U	<5	U	.327	J ILQ	<5	UJ QY	5	ug/L
	chlorobenzene	<5	U	2.38	J IK	1.45	J LQ	<5	UJ QY	100	ug/L
	chloroethene (vinyl chloride)	<5	U	<10	U	3.39	J LQ	<10	UJ QY	2	ug/L
	dichloromethane (methylene chloride)	<3.4	U V	<5	U	<5.48	UJ LQ	<5.11	UJ QVY	5	ug/L
	dichlorodifluoromethane	<5	U	<10	U	<1	UJ LQ	<10	UJ QY	5	ug/L
	ethylbenzene	<5	U	<5	U	<1	UJ LQ	<5	UJ QY	700	ug/L
	tetrachloroethylene	<5	U	<5	U	<1	UJ LQ	<5	UJ QY	5	ug/L
	trans-1,2-dichloroethylene	<5	U			<1	UJ LQ	24.9	J QY	100	ug/L
	trichloroethylene	<5	U	<5	U	1.11	J LQ	1.3	J IQY	5	ug/L
	trichlorofluoromethane	39		19.2	J K	37.6	J LQ	50.3	J QY	5	ug/L
	xylene	<10	U	<5	U	<3	UJ LQ	<5	UJ QY	10000	ug/L
Non-RCRA											
	tritium	1.52		1.35		1.29	J I	.652	Y	20	pCi/ml
II. Laboratory Indicator Parameters											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
Non-RCRA Radionuclide											
+	gross alpha	34.5		19.2	J I	9.72	UJ L	1.39	U Y	15	pCi/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.

+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).

**Table A-2. Groundwater Monitoring Results for Point-of-Compliance Wells (Cont.)**

**WELL LFW 8R**

<u>SRS Coord.</u>	<u>Lat/Longitude</u>	<u>Screen Zone Elevation</u>	<u>Top of Casing</u>	<u>Casing</u>	<u>Pump</u>	<u>Screen Zone</u>					
N 83948.9 E 45414.6	33.28553 Deg N -81.7103 Deg W	155.07 - 135.1 ft msl	171.2 ft msl	2 " PVC	V	SP Upper					
SAMPLE DATE		01/11/01	06/11/01	08/02/01	10/10/01						
FIELD DATA											
<u>Parameter</u>	<u>1Q01</u>	<u>2Q01</u>	<u>3Q01</u>	<u>4Q01</u>	<u>Unit</u>						
Water Elevation	148.33	148.69	148.32	147.92	ft msl						
pH	6.4	6.2	5.9	6.1	pH						
Sp. Conductance	275	172	231	202	uS/cm						
Water temperature	20.6	19.6	20.7	21.9	deg. C						
Alkalinity as CaCO3	131	63	85	77	mg/L						
Turbidity	.5	2.3	.8	1.7	NTU						
Volumes purged	4.57	4.89		7.07	well volume						
Sampling code											
ANALYTICAL DATA											
I. Constituents of Concern											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
RCRA											
	arsenic, total recoverable	20.5		10.8	J I	17		9.8	J IY	50	ug/L
	lead, total recoverable	<10	JU L	<47	U	<8	U	<24	U Y	15	ug/L
	1,1,1-trichloroethane	<5	U	<5	JU L	<1	UJ Q	<5	UJ QY	200	ug/L
	1,4-dichlorobenzene	8.8		<5	JU L	<1.92	U V	1.97	J IY	75	ug/L
	benzene	<5	U	<5	JU L	<1	UJ Q	<5	UJ QY	5	ug/L
	chlorobenzene	5.7		<5	JU L	.814	J I	<5	UJ QY	100	ug/L
+	chloroethene (vinyl chloride)	<b>16</b>		2.86	J IL	<b>2.39</b>		4.31	J IQY	2	ug/L
	dichloromethane (methylene chloride)	1.5	J I	<5	JU L	<5	UJ Q	<5	UJ QY	5	ug/L
	dichlorodifluoromethane	<5	U	<10	JU L	<1	UJ Q	<10	UJ QY	5	ug/L
	ethylbenzene	<5	U	<5	JU L	<1	UJ Q	<5	UJ QY	700	ug/L
	tetrachloroethylene	<5	U	<5	JU L	<1	UJ Q	<5	UJ QY	5	ug/L
	trans-1,2-dichloroethylene	<5	U	<5	JU L	<1	UJ Q	6.55	J QY	100	ug/L
	trichloroethylene	<5	U	<5	JU L	<1	UJ Q	<5	UJ QY	5	ug/L
	trichlorofluoromethane	<5	U	<5	JU L	<1	UJ Q	<5	UJ QY	5	ug/L
	xylene	<10	U	<5	JU L	<3	UJ Q	<5	UJ QY	10000	ug/L
Non-RCRA											
	tritium	1.32	J I	1.02	J I	1.09		.478	J IY	20	pCi/ml
II. Laboratory Indicator Parameters											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
Non-RCRA Radionuclide											
	gross alpha	27.3	J I	14.6	J I	18	U V	3.41	J IY	15	pCi/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.

+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).



**Table A-2. Groundwater Monitoring Results for Point-of-Compliance Wells (Cont.)**

**WELL LFW 23R**

<u>SRS Coord.</u>	<u>Lat/Longitude</u>	<u>Screen Zone Elevation</u>	<u>Top of Casing</u>	<u>Casing</u>	<u>Pump</u>	<u>Screen Zone</u>					
N 84206 E 46512.9	33.28790 Deg N -81.7079 Deg W	138.41 - 118.4 ft msl	170.86 ft msl	2 " PVC	V	SP Upper					
<b>SAMPLE DATE</b>		01/05/01	04/20/01	08/09/01	10/10/01						
<b>FIELD DATA</b>											
<u>Parameter</u>	<u>1Q01</u>	<u>2Q01</u>	<u>3Q01</u>	<u>4Q01</u>	<u>Unit</u>						
Water Elevation	147.49	150.11	148.96	148.07	ft msl						
pH	5	4.9	5	5	pH						
Sp. Conductance	30	34	31	32	uS/cm						
Water temperature	13	17.3	20.4	20.2	deg. C						
Alkalinity as CaCO3	0	0	0	0	mg/L						
Turbidity	1.4	.3	.7	1	NTU						
Volumes purged	1.89	2.88	3.79	3.08	well volume						
Sampling code											
<b>ANALYTICAL DATA</b>											
<b>I. Constituents of Concern</b>											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
<b>RCRA</b>											
	arsenic, total recoverable	<10	U	<40	U	<8	U	<42	U Y	50	ug/L
	lead, total recoverable	<10	U	<47	U	<8	U	<24	U Y	15	ug/L
	1,1,1-trichloroethane	<5	U	<5	U	<1	U	<5	UJ QY	200	ug/L
	1,4-dichlorobenzene	<5	U	2.18	J I	<.151	U V	<10.1	U Y	75	ug/L
	benzene	<5	U	<5	U	<1	U	<5	UJ QY	5	ug/L
	chlorobenzene	<5	U	<5	U	<1	U	<5	UJ QY	100	ug/L
	chloroethene (vinyl chloride)	<5	U	<10	U	<1	U	<10	UJ QY	2	ug/L
	dichloromethane (methylene chloride)	<10	U	<5	U	.91	J I	<4.88	UJ QY	5	ug/L
	dichlorodifluoromethane	<5	U	<10	U	<1	U	<10	UJ QY	5	ug/L
	ethylbenzene	<5	U	<5	U	<1	U	<5	UJ QY	700	ug/L
	tetrachloroethylene	<5	U	<5	U	<1	U	<5	UJ QY	5	ug/L
	trans-1,2-dichloroethylene	<5	U			<1	U	<5	UJ QY	100	ug/L
	trichloroethylene	<5	U	<5	U	<1	U	<5	UJ QY	5	ug/L
	trichlorofluoromethane	<5	U	<5	U	<1	U	<5	UJ QY	5	ug/L
	xylenes	<10	U	<5	U	<3	U	<5	UJ QY	10000	ug/L
<b>Non-RCRA</b>											
	tritium	1.12	J I	1.4		1.23	J I	.546	J IY	20	pCi/ml
<b>II. Laboratory Indicator Parameters</b>											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
<b>Non-RCRA Radionuclide</b>											
+	gross alpha	14.4	U	47.8		30.9	J IL	2.98	J IY	15	pCi/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).

**Table A-2. Groundwater Monitoring Results for Point-of-Compliance Wells (Cont.)**

**WELL LFW 36R**

<u>SRS Coord.</u>	<u>Lat/Longitude</u>	<u>Screen Zone Elevation</u>		<u>Top of Casing</u>	<u>Casing</u>	<u>Pump</u>	<u>Screen Zone</u>				
N 83537.2 E 45519	33.28479 Deg N -81.7092 Deg W	142.03 - 122	ft msl	168.9 ft msl	2 " PVC	V	SP Upper				
<b>SAMPLE DATE</b>		01/11/01		04/17/01	07/31/01		10/10/01				
<b>FIELD DATA</b>											
<u>Parameter</u>	<u>1Q01</u>	<u>2Q01</u>	<u>3Q01</u>	<u>4Q01</u>	<u>Unit</u>						
Water Elevation	145.07	146.75	144.3	144.54	ft msl						
pH	6.3	6.4	6.7	6	pH						
Sp. Conductance	139	149	161	166	uS/cm						
Water temperature	19.8	19.2	21.2	21.2	deg. C						
Alkalinity as CaCO3	55	51	62	60	mg/L						
Turbidity	1.5	1.8	1	.6	NTU						
Volumes purged	4.47	3.92	4.35	2.96	well volume						
Sampling code											
<b>ANALYTICAL DATA</b>											
<b>I. Constituents of Concern</b>											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
<b>RCRA</b>											
	arsenic, total recoverable	<10	U	<23	U	3.1	J I	<42	U Y	50	ug/L
	lead, total recoverable	2.36	J IL	<26	U	.436	J I	<24	U Y	15	ug/L
	1,1,1-trichloroethane	<5	U	<5	U	<1	U	<5	UJ QY	200	ug/L
	1,4-dichlorobenzene	17		9.47		14.8		11.1	Y	75	ug/L
	benzene	<5	U	<5	U	.939	J I	<5	UJ QY	5	ug/L
	chlorobenzene	11		7.67		8.18		<5	UJ QY	100	ug/L
+	chloroethene (vinyl chloride)	<b>12</b>		<b>13</b>		<b>14.5</b>		12.3	J QY	2	ug/L
	dichloromethane (methylene chloride)	<10	U	<5	U	<.921	U V	<2.34	UJ QY	5	ug/L
	dichlorodifluoromethane	<5	U	<10	U	<1	U	<10	UJ QY	5	ug/L
	ethylbenzene	<5	U	<5	U	<1	U	<5	UJ QY	700	ug/L
	tetrachloroethylene	<5	U	<5	U	<1	U	<5	UJ QY	5	ug/L
	trans-1,2-dichloroethylene	<5	U			<1	U	<5	UJ QY	100	ug/L
	trichloroethylene	<5	U	<5	U	.384	J I	<5	UJ QY	5	ug/L
	trichlorofluoromethane	<5	U	<5	U	<1	U	<5	UJ QY	5	ug/L
	xylenes	<10	U	<5	U	<3	U	<5	UJ QY	10000	ug/L
<b>Non-RCRA</b>											
	tritium	2.06		2.02		2.24		2.12	Y	20	pCi/ml
<b>II. Laboratory Indicator Parameters</b>											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
<b>Non-RCRA Radionuclide</b>											
+	gross alpha	11	U	<b>35.1</b>		11.4	UJ L	1.05	U Y	15	pCi/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.

+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).

**Table A-2. Groundwater Monitoring Results for Point-of-Compliance Wells (Cont.)**  
**WELL LFW 58D**

<u>SRS Coord.</u>	<u>Lat/Longitude</u>	<u>Screen Zone Elevation</u>	<u>Top of Casing</u>	<u>Casing</u>	<u>Pump</u>	<u>Screen Zone</u>					
N 82940.6 E 45700.2	33.28377 Deg N -81.7076 Deg W	147.6 - 127.5 ft msl	167.6 ft msl	4 " PVC	S	SP Upper					
<b>SAMPLE DATE</b>		01/11/01	04/17/01	08/15/01	10/12/01						
<b>FIELD DATA</b>											
<u>Parameter</u>	<u>1Q01</u>	<u>2Q01</u>	<u>3Q01</u>	<u>4Q01</u>	<u>Unit</u>						
Water Elevation	140.63	142.72	140.69	140.24	ft msl						
pH	6.5	6.3	6.2	6.1	pH						
Sp. Conductance	124	131	126	130	uS/cm						
Water temperature	22.4	22	22.4	21.5	deg. C						
Alkalinity as CaCO3	13	39	8	13	mg/L						
Turbidity	1.2	2.8	1.1	1.9	NTU						
Volumes purged	4.95	3.96	3.05	24.3	well volume						
Sampling code											
<b>ANALYTICAL DATA</b>											
<b>I. Constituents of Concern</b>											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
<b>RCRA</b>											
	arsenic, total recoverable	<10	U	<3.4	JU I	<8	U	7.6	J I	50	ug/L
	lead, total recoverable	<10	JU L	<26	U	<8	U	<24	U	15	ug/L
	1,1,1-trichloroethane	<5	U	<5	U	<1	UJ L	<5	U	200	ug/L
	1,4-dichlorobenzene	<5	U	<5	U	<1	UJ L	<30.6	U	75	ug/L
	benzene	<5	U	<5	U	<1	UJ L	<5	U	5	ug/L
	chlorobenzene	<5	U	<5	U	<1	UJ L	<5	U	100	ug/L
	chloroethene (vinyl chloride)	<5	U	<10	U	<1	UJ L	<10	U	2	ug/L
	dichloromethane (methylene chloride)	1.6	J I	<5	U	<2.36	UJ LV	<5	U	5	ug/L
	dichlorodifluoromethane	<5	U	<10	U	<1	UJ L	<10	U	5	ug/L
	ethylbenzene	<5	U	<5	U	<1	UJ L	<5	U	700	ug/L
	tetrachloroethylene	<5	U	<5	U	<1	UJ L	<5	U	5	ug/L
	trans-1,2-dichloroethylene	<5	U			<1	UJ L	5.33		100	ug/L
+	trichloroethylene	1.9	J I	<b>5.2</b>		1.91	J L	<5	U	5	ug/L
	trichlorofluoromethane	<5	U	<5	U	<1	UJ L	<5	U	5	ug/L
	xylene	<10	U	<5	U	<3	UJ L	<5	U	10000	ug/L
<b>Non-RCRA</b>											
	tritium	4.49		5.56		6.29		4.89		20	pCi/ml
<b>II. Laboratory Indicator Parameters</b>											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
<b>Non-RCRA Radionuclide</b>											
	gross alpha	4.59	U	7.12	U	1.74	U	.022	U	15	pCi/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).

**Table A-2. Groundwater Monitoring Results for Point-of-Compliance Wells (Cont.)**  
**WELL LFW 59D**

<u>SRS Coord.</u>	<u>Lat/Longitude</u>	<u>Screen Zone Elevation</u>	<u>Top of Casing</u>	<u>Casing</u>	<u>Pump</u>	<u>Screen Zone</u>					
N 83000 E 46056.1	33.28448 Deg N -81.7068 Deg W	149.3 - 129.3 ft msl	167.6 ft msl	4 " PVC	S	SP Upper					
SAMPLE DATE		01/15/01	04/17/01	07/31/01	10/11/01						
FIELD DATA											
<u>Parameter</u>	<u>1Q01</u>	<u>2Q01</u>	<u>3Q01</u>	<u>4Q01</u>	<u>Unit</u>						
Water Elevation	141.73	145.07	141.95	141.15	ft msl						
pH	5.4	5.2	5.3	4.4	pH						
Sp. Conductance	42	37	31	37	uS/cm						
Water temperature	22.7	21.3	21.6	22.4	deg. C						
Alkalinity as CaCO3	0	1	0	2	mg/L						
Turbidity	1.9	2.2	.9	1	NTU						
Volumes purged	5.19	6.03	6.68	2.85	well volume						
Sampling code											
ANALYTICAL DATA											
I. Constituents of Concern											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
RCRA											
	arsenic, total recoverable	<10	U	<23	U	<8	U	<42	U	50	ug/L
	lead, total recoverable	<10	U	<26	U	.843	J I	<24	U	15	ug/L
	1,1,1-trichloroethane	5.9		<5	U	.207	J I	7.68	J Q	200	ug/L
	1,4-dichlorobenzene	<5	U	<5	U	<.281	U V	<10.2	UJ Q	75	ug/L
	benzene	<5	U	<5	U	<1	U	<5	UJ Q	5	ug/L
	chlorobenzene	<5	U	<5	U	<1	U	<5	UJ Q	100	ug/L
	chloroethene (vinyl chloride)	<5	U	<10	U	<1	U	<10	UJ Q	2	ug/L
+	dichloromethane (methylene chloride)	15		<5	U	<.77	U V	3.89	J IQ	5	ug/L
	dichlorodifluoromethane	<5	U	<10	U	<1	U	2.19	J IQ	5	ug/L
	ethylbenzene	<5	U	<5	U	<1	U	<5	UJ Q	700	ug/L
+	tetrachloroethylene	9.8		<5	U	.4	J I	9.98	J Q	5	ug/L
	trans-1,2-dichloroethylene	<5	U			<1	U	1.34	J IQ	100	ug/L
+	trichloroethylene	15		<5	U	.693	J I	8.15	J Q	5	ug/L
	trichlorofluoromethane	<5	U	<5	U	<1	U	2.53	J IQ	5	ug/L
	xylenes	<10	U	<5	U	<3	U	<5	UJ Q	10000	ug/L
Non-RCRA											
	tritium	3.25		.301	U	.635	J I	.414	J I	20	pCi/ml
II. Laboratory Indicator Parameters											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
Non-RCRA Radionuclide											
	gross alpha	22.9	J I	11.2	U	3.42	UJ L	1.55	U	15	pCi/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).

**Table A-2. Groundwater Monitoring Results for Point-of-Compliance Wells (Cont.)****WELL LFW 61D**

<u>SRS Coord.</u>	<u>Lat/Longitude</u>	<u>Screen Zone Elevation</u>	<u>Top of Casing</u>	<u>Casing</u>	<u>Pump</u>	<u>Screen Zone</u>					
N 83089.1 E 46471.1	33.28536 Deg N -81.7058 Deg W	150.4 - 130.3 ft msl	168.3 ft msl	4 " PVC	S	SP Upper					
SAMPLE DATE		01/15/01	04/19/01	08/09/01	10/11/01						
FIELD DATA											
<u>Parameter</u>	<u>1Q01</u>	<u>2Q01</u>	<u>3Q01</u>	<u>4Q01</u>	<u>Unit</u>						
Water Elevation	142.37	145.55	142.84	141.52	ft msl						
pH	6.2	5.7	5.9	6.5	pH						
Sp. Conductance	127	44	43	77	uS/cm						
Water temperature	24.1	24.5	28.6	22.4	deg. C						
Alkalinity as CaCO3	54	8	10	31	mg/L						
Turbidity	1.3	8.1	7.8	6.2	NTU						
Volumes purged	6.62	2.41	4.04	10.0	well volume						
Sampling code											
ANALYTICAL DATA											
I. Constituents of Concern											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
RCRA											
	arsenic, total recoverable	<10	U	<40	U	<8	U	<42	U	50	ug/L
	lead, total recoverable	<10	U	4.8	J I	.582	J I	<24	U	15	ug/L
	1,1,1-trichloroethane	<5	U	<5	U	.655	J I	<5	UJ Q	200	ug/L
	1,4-dichlorobenzene	1.3	J I	<5	U	<1	U	<10.2	UJ Q	75	ug/L
	benzene	<5	U	<5	U	<1	U	<5	UJ Q	5	ug/L
	chlorobenzene	<5	U	<5	U	<1	U	<5	UJ Q	100	ug/L
	chloroethene (vinyl chloride)	<5	U	<10	U	<1	U	<10	UJ Q	2	ug/L
	dichloromethane (methylene chloride)	<10	U	<5	U	.929	J I	<5	UJ Q	5	ug/L
	dichlorodifluoromethane	<5	U	<10	U	<1	U	<10	UJ Q	5	ug/L
	ethylbenzene	4.2	J I	<5	U	<1	U	<5	UJ Q	700	ug/L
	tetrachloroethylene	<5	U	<5	U	<1	U	1.06	J IQ	5	ug/L
	trans-1,2-dichloroethylene	<5	U			<1	U	<5	UJ Q	100	ug/L
	trichloroethylene	1.3	J I	<5	U	.475	J I	2.07	J IQ	5	ug/L
	trichlorofluoromethane	<5	U	<5	U	<1	U	1.85	J IQ	5	ug/L
	xylene	15		<5	U	<3	U	<5	UJ Q	10000	ug/L
Non-RCRA											
	tritium	1.81		.724	J I	.954	J I	.597		20	pCi/ml
II. Laboratory Indicator Parameters											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
Non-RCRA Radionuclide											
	gross alpha	15.4	J I	3.79	U	8.36	UJ L	.659	U	15	pCi/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.

+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).

**Table A-2. Groundwater Monitoring Results for Point-of-Compliance Wells (Cont.)**

**WELL LFW 62D**

<u>SRS Coord.</u>	<u>Lat/Longitude</u>	<u>Screen Zone Elevation</u>	<u>Top of Casing</u>	<u>Casing</u>	<u>Pump</u>	<u>Screen Zone</u>
N 82991.5 E 45922.9	33.28425 Deg N -81.7071 Deg W	147.6 - 127.6 ft msl	164.8 ft msl	4 " PVC	S	SP Upper

**SAMPLE DATE**

10/11/01

**FIELD DATA**

<u>Parameter</u>	<u>1Q01</u>	<u>2Q01</u>	<u>3Q01</u>	<u>4Q01</u>	<u>Unit</u>
Water Elevation	<i>Not Applicable</i>	<i>Not Applicable</i>	<i>Not Applicable</i>	141.45	ft msl
pH				5	pH
Sp. Conductance				139	uS/cm
Water temperature				23.4	deg. C
Alkalinity as CaCO3				17	mg/L
Turbidity				8.6	NTU
Volumes purged				2.23	well volume
Sampling code					

**ANALYTICAL DATA**

**I. Constituents of Concern**

<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
<b>RCRA</b>											
	arsenic, total recoverable							<42	U	50	ug/L
	lead, total recoverable							<24	U	15	ug/L
	1,1,1-trichloroethane							<5	UJ Q	200	ug/L
	1,4-dichlorobenzene							33.8	J Q	75	ug/L
	benzene							11.8	J Q	5	ug/L
	chlorobenzene							10.4	J Q	100	ug/L
	chloroethene (vinyl chloride)							7.01	J IQ	2	ug/L
	dichloromethane (methylene chloride)							1.84	J IQ	5	ug/L
	dichlorodifluoromethane							8.38	J IQ	10	ug/L
	ethylbenzene							<5	UJ Q	700	ug/L
	tetrachloroethylene							4.27	J IQ	5	ug/L
	trans-1,2-dichloroethylene							43	J Q	100	ug/L
	trichloroethylene							11.8	J Q	5	ug/L
	trichlorofluoromethane							13.5	J Q	5	ug/L
	xylene							1.67	J IQ	10000	ug/L
<b>Non-RCRA</b>											
	tritium							7.35		20	pCi/ml

**II. Laboratory Indicator Parameters**

<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
<b>Non-RCRA Radionuclide</b>											
	gross alpha							- .225	U	15	pCi/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).

**Table A-2. Groundwater Monitoring Results for Point-of-Compliance Wells (Cont.)**  
**WELL LFW 68D**

<u>SRS Coord.</u>	<u>Lat/Longitude</u>	<u>Screen Zone Elevation</u>	<u>Top of Casing</u>	<u>Casing</u>	<u>Pump</u>	<u>Screen Zone</u>					
N 83031.6 E 46868	33.28588 Deg N -81.7047 Deg W	144.6 - 124.6 ft msl	161.4 ft msl	2 " PVC	V	SP Upper					
SAMPLE DATE		01/08/01	04/19/01	08/08/01	10/12/01						
FIELD DATA											
<u>Parameter</u>	<u>1Q01</u>	<u>2Q01</u>	<u>3Q01</u>	<u>4Q01</u>	<u>Unit</u>						
Water Elevation	140.62	143.48	141.18	139.99	ft msl						
pH	4.9	4.8	4.8	4.1	pH						
Sp. Conductance	47	65	65	60	uS/cm						
Water temperature	20.1	18.7	23.2	22.2	deg. C						
Alkalinity as CaCO3	0	0	0	0	mg/L						
Turbidity	.5	.1	.2	.2	NTU						
Volumes purged	1.95	4.95	3.01	2.85	well volume						
Sampling code											
ANALYTICAL DATA											
I. Constituents of Concern											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
RCRA											
	arsenic, total recoverable	<10	U	<40	U	<8	U	<42	U	50	ug/L
+	lead, total recoverable	122		5	J I	5.63	J I	<24	U	15	ug/L
	1,1,1-trichloroethane	<5	U	<5	U	<1	U	<5	U	200	ug/L
	1,4-dichlorobenzene	<5	U	<5	U	<1	U	<10.4	U	75	ug/L
	benzene	<5	U	<5	U	<1	U	<5	U	5	ug/L
	chlorobenzene	<5	U	<5	U	<1	U	<5	U	100	ug/L
	chloroethene (vinyl chloride)	<5	U	<10	U	<1	U	<10	U	2	ug/L
	dichloromethane (methylene chloride)	<10	U	<5	U	<5	U	<5	U	5	ug/L
	dichlorodifluoromethane	<5	U	<10	U	<1	U	<10	U	5	ug/L
	ethylbenzene	<5	U	<5	U	<1	U	<5	U	700	ug/L
	tetrachloroethylene	<5	U	<5	U	<1	U	<5	U	5	ug/L
	trans-1,2-dichloroethylene	<5	U			<1	U	<5	U	100	ug/L
	trichloroethylene	<5	U	<5	U	<1	U	<5	U	5	ug/L
	trichlorofluoromethane	<5	U	<5	U	<1	U	<5	U	5	ug/L
	xylenes	<10	U	<5	U	<3	U	<5	U	10000	ug/L
Non-RCRA											
	tritium	1.95		1.54		1.43		.733		20	pCi/ml
II. Laboratory Indicator Parameters											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
Non-RCRA Radionuclide											
	gross alpha	1.34	U	4.13	U	9.22	UJ L	-1.03	U	15	pCi/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).

**THIS PAGE LEFT BLANK INTENTIONALLY.**



**Table A-3. Groundwater Monitoring Results for Plume Definition Wells**

**WELL LFW 10A**

<u>SRS Coord.</u>	<u>Lat/Longitude</u>	<u>Screen Zone Elevation</u>		<u>Top of Casing</u>	<u>Casing</u>	<u>Pump</u>	<u>Screen Zone</u>								
N 84369.6 E 45935.6	33.28732 Deg N -81.7097 Deg W	164.44 - 134.4 ft msl		180.74 ft msl	4 " PVC	S	SP Upper								
<b>SAMPLE DATE</b>		01/10/01		04/19/01		07/30/01	10/11/01								
<b>FIELD DATA</b>															
<u>Parameter</u>	<u>1Q01</u>	<u>2Q01</u>	<u>3Q01</u>	<u>4Q01</u>	<u>Unit</u>										
Water Elevation	149.94	151	150.48	149.91	ft msl										
pH	6.6	6.5	6.7	6.4	pH										
Sp. Conductance	290	297	247	231	uS/cm										
Water temperature	21.4	21.1	21.5	21.6	deg. C										
Alkalinity as CaCO3	93	98	99	82	mg/L										
Turbidity	1.2	2.1	1	.9	NTU										
Volumes purged	2.76	3.37	4.51	2.34	well volume										
Sampling code															
<b>ANALYTICAL DATA</b>															
<b>I. Constituents of Concern</b>															
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP</u>	<u>EPA</u>	<u>2Q01</u>	<u>CLP</u>	<u>EPA</u>	<u>3Q01</u>	<u>CLP</u>	<u>EPA</u>	<u>4Q01</u>	<u>CLP</u>	<u>EPA</u>	<u>Limit</u>	<u>Unit</u>
<b>RCRA</b>															
+	chloroethene (vinyl chloride)	<b>15</b>			21.1	J	K	11.9	J	L	<b>12</b>			2	ug/L
	trichloroethylene	<5	U		<5	U		<1	UJ	L	<5	U		5	ug/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).

**Table A-3. Groundwater Monitoring Results for Plume Definition Wells (Cont.)**

**WELL LFW 18**

<u>SRS Coord.</u>	<u>Lat/Longitude</u>	<u>Screen Zone Elevation</u>	<u>Top of Casing</u>	<u>Casing</u>	<u>Pump</u>	<u>Screen Zone</u>					
N 84577.3 E 45459.4	33.28700 Deg N -81.7114 Deg W	167.65 - 137.7 ft msl	182.55 ft msl	4 " PVC	S	SP Upper					
<b>SAMPLE DATE</b>		01/10/01	04/19/01	07/30/01	10/11/01						
<b>FIELD DATA</b>											
<u>Parameter</u>	<u>1Q01</u>	<u>2Q01</u>	<u>3Q01</u>	<u>4Q01</u>	<u>Unit</u>						
Water Elevation	152.3	162.99	151.85	152.07	ft msl						
pH	6.5	6.3	6.3	6	pH						
Sp. Conductance	136	120	127	123	uS/cm						
Water temperature	19.4	20.3	21.4	20.3	deg. C						
Alkalinity as CaCO3	79	43	41	48	mg/L						
Turbidity	.3	.6	.5	.2	NTU						
Volumes purged	2.82	2.64	3.16	2.63	well volume						
Sampling code											
<b>ANALYTICAL DATA</b>											
<b>I. Constituents of Concern</b>											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
<b>RCRA</b>											
	chloroethene (vinyl chloride)	<5	U	<10	U	1.77	J L	2.22	J I	2	ug/L
	trichloroethylene	<5	U	<5	U	<1	UJ L	<5	U	5	ug/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).

**Table A-3. Groundwater Monitoring Results for Plume Definition Wells (Cont.)**

**WELL LFW 21**

<u>SRS Coord.</u>	<u>Lat/Longitude</u>	<u>Screen Zone Elevation</u>		<u>Top of Casing</u>	<u>Casing</u>	<u>Pump</u>	<u>Screen Zone</u>				
N 84178.3 E 46149.4	33.28724 Deg N -81.7088 Deg W	167.91 - 137.9 ft msl		184.61 ft msl	4 " PVC	S	SP Upper				
<b>SAMPLE DATE</b>		01/10/01		04/19/01	07/30/01	10/11/01					
<b>FIELD DATA</b>											
<u>Parameter</u>	<u>1Q01</u>	<u>2Q01</u>	<u>3Q01</u>	<u>4Q01</u>	<u>Unit</u>						
Water Elevation	148.49	149.58	148.25	148.26	ft msl						
pH	6.7	6.6	6.8	6.3	pH						
Sp. Conductance	230	246	191	180	uS/cm						
Water temperature	21	21.3	20.9	21.9	deg. C						
Alkalinity as CaCO3	72	89	74	76	mg/L						
Turbidity	1	1.6	.7	.6	NTU						
Volumes purged	4.03	2.65	6.52	3.65	well volume						
Sampling code											
<b>ANALYTICAL DATA</b>											
<b>I. Constituents of Concern</b>											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
<b>RCRA</b>											
+	chloroethene (vinyl chloride)	<b>65</b>		<b>120</b>		<b>46</b>		<b>38.7</b>		2	ug/L
	trichloroethylene	<5	U	<5	U	<1	U	<5	U	5	ug/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).

**Table A-3. Groundwater Monitoring Results for Plume Definition Wells (Cont.)**

**WELL LFW 41R**

<u>SRS Coord.</u>	<u>Lat/Longitude</u>	<u>Screen Zone Elevation</u>	<u>Top of Casing</u>	<u>Casing</u>	<u>Pump</u>	<u>Screen Zone</u>					
N 83238.2 E 46635.2	33.28596 Deg N -81.7057 Deg W	140.23 - 120.2 ft msl	170.1 ft msl	2 " PVC	V	SP Upper					
<b>SAMPLE DATE</b>		01/05/01	04/20/01	08/09/01	10/11/01						
<b>FIELD DATA</b>											
<u>Parameter</u>	<u>1Q01</u>	<u>2Q01</u>	<u>3Q01</u>	<u>4Q01</u>	<u>Unit</u>						
Water Elevation	149.06	142.4	140.41	139.78	ft msl						
pH	5	5	4.8	5.2	pH						
Sp. Conductance	31	37	36	34	uS/cm						
Water temperature	13.7	18.7	20.1	20.7	deg. C						
Alkalinity as CaCO3	0	0	0	0	mg/L						
Turbidity	.7	.1	.4	.4	NTU						
Volumes purged	1.90	4.66	5.72	3.11	well volume						
Sampling code											
<b>ANALYTICAL DATA</b>											
<b>I. Constituents of Concern</b>											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
<b>RCRA</b>											
	chloroethene (vinyl chloride)	<5	U	<10	U	<1	U	<10	U	2	ug/L
	trichloroethylene	1.8	J I	3.59	J IK	2.02		2.2	J I	5	ug/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).

**Table A-3. Groundwater Monitoring Results for Plume Definition Wells (Cont.)**

**WELL LFW 45D**

<u>SRS Coord.</u>	<u>Lat/Longitude</u>	<u>Screen Zone Elevation</u>	<u>Top of Casing</u>	<u>Casing</u>	<u>Pump</u>	<u>Screen Zone</u>					
N 84217.8 E 45142	33.28568 Deg N -81.7115 Deg W	154.7 - 134.7 ft msl	166.3 ft msl	4 " PVC	S	SP Upper					
<b>SAMPLE DATE</b>		01/09/01	04/17/01	08/08/01	10/11/01						
<b>FIELD DATA</b>											
<u>Parameter</u>	<u>1Q01</u>	<u>2Q01</u>	<u>3Q01</u>	<u>4Q01</u>	<u>Unit</u>						
Water Elevation	150.45	151.06	150.39	149.93	ft msl						
pH	3.8	5.1	4.8	4.7	pH						
Sp. Conductance	41	45	53	49	uS/cm						
Water temperature	19.2	18.1	22	20.6	deg. C						
Alkalinity as CaCO3	0	0	0	0	mg/L						
Turbidity	.8	.6	.6	.4	NTU						
Volumes purged	2.94	3.49	3.54	4.56	well volume						
Sampling code											
<b>ANALYTICAL DATA</b>											
<b>I. Constituents of Concern</b>											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
<b>RCRA</b>											
	chloroethene (vinyl chloride)	<5	U	<10	U	<1	UJ LQ	<10	U	2	ug/L
	trichloroethylene	1.2	J I	<5	U	<1	UJ LQ	<5	U	5	ug/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).

**Table A-3. Groundwater Monitoring Results for Plume Definition Wells (Cont.)**  
**WELL LFW 47C**

<u>SRS Coord.</u>	<u>Lat/Longitude</u>	<u>Screen Zone Elevation</u>	<u>Top of Casing</u>	<u>Casing</u>	<u>Pump</u>	<u>Screen Zone</u>					
N 83823.3 E 45161.6	33.28484 Deg N -81.7107 Deg W	115.8 - 105.7 ft msl	161.4 ft msl	4 " PVC	S	SP Middle					
<b>SAMPLE DATE</b>		01/04/01	04/17/01	08/13/01	10/11/01						
<b>FIELD DATA</b>											
<u>Parameter</u>	<u>1Q01</u>	<u>2Q01</u>	<u>3Q01</u>	<u>4Q01</u>	<u>Unit</u>						
Water Elevation	147.15	147.99	146.86	146.69	ft msl						
pH	4.5	5	4.9	4.9	pH						
Sp. Conductance	30	31	37	36	uS/cm						
Water temperature	14	19.8	20.6	20.2	deg. C						
Alkalinity as CaCO3	4	0	0	0	mg/L						
Turbidity	.8	1.3	.3	.4	NTU						
Volumes purged	2.10	3.07		3.58	well volume						
Sampling code											
<b>ANALYTICAL DATA</b>											
<b>I. Constituents of Concern</b>											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
<b>RCRA</b>											
	chloroethene (vinyl chloride)	<5	U	<10	U	<1	U	<10	U	2	ug/L
	trichloroethylene	1.2	J I	1.67	J I	.489	J I	<5	U	5	ug/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).

**Table A-3. Groundwater Monitoring Results for Plume Definition Wells (Cont.)**

**WELL LFW 47D**

<u>SRS Coord.</u>	<u>Lat/Longitude</u>	<u>Screen Zone Elevation</u>	<u>Top of Casing</u>	<u>Casing</u>	<u>Pump</u>	<u>Screen Zone</u>					
N 83838.6 E 45150.8	33.28486 Deg N -81.7108 Deg W	154.7 - 134.9 ft msl	161.7 ft msl	4 " PVC	S	SP Upper					
<b>SAMPLE DATE</b>		01/04/01	04/17/01	08/07/01	10/11/01						
<b>FIELD DATA</b>											
<u>Parameter</u>	<u>1Q01</u>	<u>2Q01</u>	<u>3Q01</u>	<u>4Q01</u>	<u>Unit</u>						
Water Elevation	147.87	148.51	147.89	147.4	ft msl						
pH	4.7	5.5	5.3	5.2	pH						
Sp. Conductance	40	39	38	40	uS/cm						
Water temperature	14	17	22.5	21.7	deg. C						
Alkalinity as CaCO3	4	0	0	0	mg/L						
Turbidity	1.1	.2	.2	.4	NTU						
Volumes purged	1.91	3.86	2.98	5.08	well volume						
Sampling code											
<b>ANALYTICAL DATA</b>											
<b>I. Constituents of Concern</b>											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
<b>RCRA</b>											
	chloroethene (vinyl chloride)	<5	U	<10	U	<1	UJ L	<10	U	2	ug/L
	trichloroethylene	<5	U	<5	U	<1	UJ L	<5	U	5	ug/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).

**Table A-3. Groundwater Monitoring Results for Plume Definition Wells (Cont.)**

**WELL LFW 56D**

<u>SRS Coord.</u>	<u>Lat/Longitude</u>	<u>Screen Zone Elevation</u>	<u>Top of Casing</u>	<u>Casing</u>	<u>Pump</u>	<u>Screen Zone</u>					
N 83398 E 45306.6	33.28414 Deg N -81.7095 Deg W	151.4 - 131.3 ft msl	158.1 ft msl	4 " PVC	S	SP Upper					
<b>SAMPLE DATE</b>		01/04/01	04/20/01	08/09/01	10/11/01						
<b>FIELD DATA</b>											
<u>Parameter</u>	<u>1Q01</u>	<u>2Q01</u>	<u>3Q01</u>	<u>4Q01</u>	<u>Unit</u>						
Water Elevation	144.39	144.83	144.27	144.02	ft msl						
pH	4.7	5.3	4.8	5.1	pH						
Sp. Conductance	23	24	26	25	uS/cm						
Water temperature	14	18.2	21.2	21	deg. C						
Alkalinity as CaCO3	0	0	0	0	mg/L						
Turbidity	1.1	.8	.5	.8	NTU						
Volumes purged	0	2.86		3.29	well volume						
Sampling code											
<b>ANALYTICAL DATA</b>											
<b>I. Constituents of Concern</b>											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
<b>RCRA</b>											
	chloroethene (vinyl chloride)	<5	U	<10	U	<1	U	<10	U	2	ug/L
	trichloroethylene	<5	U	<5	U	<1	U	<5	U	5	ug/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).



**Table A-3. Groundwater Monitoring Results for Plume Definition Wells (Cont.)**  
**WELL LFW 60C**

<u>SRS Coord.</u>	<u>Lat/Longitude</u>	<u>Screen Zone Elevation</u>		<u>Top of Casing</u>	<u>Casing</u>	<u>Pump</u>	<u>Screen Zone</u>				
N 82529.6 E 45711.9	33.28288 Deg N -81.7067 Deg W	108.3 - 98.3	ft msl	157.2 ft msl	2 " PVC	V	SP Middle				
<b>SAMPLE DATE</b>		01/15/01		04/17/01	08/08/01	10/11/01					
<b>FIELD DATA</b>											
<u>Parameter</u>	<u>1Q01</u>	<u>2Q01</u>	<u>3Q01</u>	<u>4Q01</u>	<u>Unit</u>						
Water Elevation	137.45	138.44	137.1	136.89	ft msl						
pH	6.2	6	5.3	5.7	pH						
Sp. Conductance	103	48	38	59	uS/cm						
Water temperature	19.4	22.2	23.1	21.6	deg. C						
Alkalinity as CaCO3	11	5	0	0	mg/L						
Turbidity	2.6	7.4	11.4	4.5	NTU						
Volumes purged	2.51	3.98	3.17	2.87	well volume						
Sampling code											
<b>ANALYTICAL DATA</b>											
<b>I. Constituents of Concern</b>											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
<b>RCRA</b>											
	chloroethene (vinyl chloride)	<5	U	<10	U	<1	UJ L	<10	U	2	ug/L
	trichloroethylene	<5	U	<5	U	<1	UJ L	<5	U	5	ug/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).

**Table A-3. Groundwater Monitoring Results for Plume Definition Wells (Cont.)**

**WELL LFW 60D**

<u>SRS Coord.</u>	<u>Lat/Longitude</u>	<u>Screen Zone Elevation</u>	<u>Top of Casing</u>	<u>Casing</u>	<u>Pump</u>	<u>Screen Zone</u>					
N 82531.5 E 45722.3	33.28290 Deg N -81.7067 Deg W	143.8 - 123.8 ft msl	157.1 ft msl	4 " PVC	S	SP Upper					
<b>SAMPLE DATE</b>		01/15/01	04/17/01	08/08/01	10/11/01						
<b>FIELD DATA</b>											
<u>Parameter</u>	<u>1Q01</u>	<u>2Q01</u>	<u>3Q01</u>	<u>4Q01</u>	<u>Unit</u>						
Water Elevation	137.49	138.66	137.59	137.13	ft msl						
pH	4.9	5.1	4.9	5.3	pH						
Sp. Conductance	54	36	41	46	uS/cm						
Water temperature	20.3	19.4	21.4	20.8	deg. C						
Alkalinity as CaCO3	0	0	0	0	mg/L						
Turbidity	.2	.9	.6	.4	NTU						
Volumes purged	2.58	2.79	2.45	2.77	well volume						
Sampling code											
<b>ANALYTICAL DATA</b>											
<b>I. Constituents of Concern</b>											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
<b>RCRA</b>											
	chloroethene (vinyl chloride)	<5	U	<10	U	<1	UJ L	<10	U	2	ug/L
	trichloroethylene	4.4	J I	2.86	J K	2.42	J L	2.2	J I	5	ug/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).

**Table A-3. Groundwater Monitoring Results for Plume Definition Wells (Cont.)**

**WELL LFW 63B**

<u>SRS Coord.</u>	<u>Lat/Longitude</u>	<u>Screen Zone Elevation</u>		<u>Top of Casing</u>	<u>Casing</u>	<u>Pump</u>	<u>Screen Zone</u>				
N 82740.8 E 45550.7	33.28309 Deg N -81.7076 Deg W	76.1 - 66.1	ft msl	167.8 ft msl	2 " PVC	V	SP Lower				
<b>SAMPLE DATE</b>		01/04/01		04/18/01	08/08/01	10/11/01					
<b>FIELD DATA</b>											
<u>Parameter</u>	<u>1Q01</u>	<u>2Q01</u>	<u>3Q01</u>	<u>4Q01</u>	<u>Unit</u>						
Water Elevation	139.45	139.53	139.41	139.01	ft msl						
pH	3.9	4.1	4.6	5.1	pH						
Sp. Conductance	56	55	59	56	uS/cm						
Water temperature	14.6	19.7	21.3	20.4	deg. C						
Alkalinity as CaCO3	0	0	0	0	mg/L						
Turbidity	.6	.1	.3	.2	NTU						
Volumes purged	2.01	2.92	2.51	2.35	well volume						
Sampling code											
<b>ANALYTICAL DATA</b>											
<b>I. Constituents of Concern</b>											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
<b>RCRA</b>											
	chloroethene (vinyl chloride)	<5	U	<10	U	<1	U	<10	U	2	ug/L
	trichloroethylene	<5	U	<5	U	<1	U	<5	U	5	ug/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).

**Table A-3. Groundwater Monitoring Results for Plume Definition Wells (Cont.)**  
**WELL LFW 63C**

<u>SRS Coord.</u>	<u>Lat/Longitude</u>	<u>Screen Zone Elevation</u>	<u>Top of Casing</u>	<u>Casing</u>	<u>Pump</u>	<u>Screen Zone</u>					
N 82746.1 E 45559.2	33.28311 Deg N -81.7076 Deg W	106.2 - 96.2 ft msl	168.1 ft msl	2 " PVC	V	SP Middle					
<b>SAMPLE DATE</b>		01/09/01	04/18/01	08/08/01	10/11/01						
<b>FIELD DATA</b>											
<u>Parameter</u>	<u>1Q01</u>	<u>2Q01</u>	<u>3Q01</u>	<u>4Q01</u>	<u>Unit</u>						
Water Elevation	140.16	139.86	138.69	139.11	ft msl						
pH	4.8	4.8	4.7	5.3	pH						
Sp. Conductance	31	28	30	27	uS/cm						
Water temperature	18.2	20.2	20.3	20.4	deg. C						
Alkalinity as CaCO3	0	0	0	0	mg/L						
Turbidity	.2	.1	.3	.2	NTU						
Volumes purged	2.10	3.66	3.19	3.01	well volume						
Sampling code											
<b>ANALYTICAL DATA</b>											
<b>I. Constituents of Concern</b>											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
<b>RCRA</b>											
	chloroethene (vinyl chloride)	<5	U	<10	U	<1	U	<10	U	2	ug/L
	trichloroethylene	<5	U	<5	U	<1	U	<5	U	5	ug/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).

**Table A-3. Groundwater Monitoring Results for Plume Definition Wells (Cont.)**  
**WELL LFW 63D**

<u>SRS Coord.</u>	<u>Lat/Longitude</u>	<u>Screen Zone Elevation</u>	<u>Top of Casing</u>	<u>Casing</u>	<u>Pump</u>	<u>Screen Zone</u>					
N 82751.8 E 45569.1	33.28314 Deg N -81.7076 Deg W	146.4 - 126.4 ft msl	168.3 ft msl	2 " PVC	V	SP Upper					
<b>SAMPLE DATE</b>		01/15/01	04/18/01	08/08/01	10/11/01						
<b>FIELD DATA</b>											
<u>Parameter</u>	<u>1Q01</u>	<u>2Q01</u>	<u>3Q01</u>	<u>4Q01</u>	<u>Unit</u>						
Water Elevation	139.69	140.43	139.97	139.2	ft msl						
pH	5.4	5.4	5.3	5.4	pH						
Sp. Conductance	57	27	31	45	uS/cm						
Water temperature	21.2	17.9	20.5	19.8	deg. C						
Alkalinity as CaCO3	1	1	0	4	mg/L						
Turbidity	.4	2.3	.3	.6	NTU						
Volumes purged	3.76	3.55	4.14	21.5	well volume						
Sampling code											
<b>ANALYTICAL DATA</b>											
<b>I. Constituents of Concern</b>											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
<b>RCRA</b>											
	chloroethene (vinyl chloride)	<5	U	<10	U	<1	U	<10	U	2	ug/L
	trichloroethylene	<5	U	<5	U	<1	U	<5	U	5	ug/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).

**Table A-3. Groundwater Monitoring Results for Plume Definition Wells (Cont.)**  
**WELL LFW 64C**

<u>SRS Coord.</u>	<u>Lat/Longitude</u>	<u>Screen Zone Elevation</u>		<u>Top of Casing</u>	<u>Casing</u>	<u>Pump</u>	<u>Screen Zone</u>				
N 82744.8 E 45271.3	33.28264 Deg N -81.7083 Deg W	93 - 83	ft msl	152.2 ft msl	2 " PVC	V	SP Middle				
<b>SAMPLE DATE</b>		01/08/01		04/19/01		08/08/01	10/11/01				
<b>FIELD DATA</b>											
<u>Parameter</u>	<u>1Q01</u>	<u>2Q01</u>	<u>3Q01</u>	<u>4Q01</u>	<u>Unit</u>						
Water Elevation	139.79	139.7	139.34	139.19	ft msl						
pH	4.2	3.9	4.1	4.5	pH						
Sp. Conductance	82	82	84	86	uS/cm						
Water temperature	18.4	19	20.4	18.8	deg. C						
Alkalinity as CaCO3	0	0	0	0	mg/L						
Turbidity	.3	.2	.4	.2	NTU						
Volumes purged	2.05	3.68	3.05	2.07	well volume						
Sampling code											
<b>ANALYTICAL DATA</b>											
<b>I. Constituents of Concern</b>											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
<b>RCRA</b>											
	chloroethene (vinyl chloride)	<5	U	<10	U	<1	U	<10	U	2	ug/L
	trichloroethylene	<5	U	<5	U	<1	U	<5	U	5	ug/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).

**Table A-3. Groundwater Monitoring Results for Plume Definition Wells (Cont.)**  
**WELL LFW 64D**

<u>SRS Coord.</u>	<u>Lat/Longitude</u>	<u>Screen Zone Elevation</u>	<u>Top of Casing</u>	<u>Casing</u>	<u>Pump</u>	<u>Screen Zone</u>									
N 82737.8 E 45280.7	33.28264 Deg N -81.7083 Deg W	135.2 - 115.2 ft msl	152.2 ft msl	2 " PVC	V	SP Upper									
<b>SAMPLE DATE</b>		01/16/01	04/18/01	08/01/01	10/10/01										
<b>FIELD DATA</b>															
<u>Parameter</u>	<u>1Q01</u>	<u>2Q01</u>	<u>3Q01</u>	<u>4Q01</u>	<u>Unit</u>										
Water Elevation	139.76	140.07	139.7	139.51	ft msl										
pH	5.5	5.5	5.2	5	pH										
Sp. Conductance	43	39	42	41	uS/cm										
Water temperature	18.3	19.7	19.8	19.7	deg. C										
Alkalinity as CaCO3	1	5	4	7	mg/L										
Turbidity	.6	2.1	.7	.2	NTU										
Volumes purged	3.29	3.50		2.56	well volume										
Sampling code															
<b>ANALYTICAL DATA</b>															
<b>I. Constituents of Concern</b>															
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP</u>	<u>EPA</u>	<u>2Q01</u>	<u>CLP</u>	<u>EPA</u>	<u>3Q01</u>	<u>CLP</u>	<u>EPA</u>	<u>4Q01</u>	<u>CLP</u>	<u>EPA</u>	<u>Limit</u>	<u>Unit</u>
<b>RCRA</b>															
+	chloroethene (vinyl chloride)	<b>5.4</b>			4.67	J	I	<b>5.78</b>			4.64	J	IY	2	ug/L
	trichloroethylene	<5	U		<5	U		<1	U		<5	U	Y	5	ug/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).

**Table A-3. Groundwater Monitoring Results for Plume Definition Wells (Cont.)**  
**WELL LFW 65B**

<u>SRS Coord.</u>	<u>Lat/Longitude</u>	<u>Screen Zone Elevation</u>		<u>Top of Casing</u>	<u>Casing</u>	<u>Pump</u>	<u>Screen Zone</u>				
N 82589.2 E 46061.8	33.28358 Deg N -81.7059 Deg W	63.5 - 53.5	ft msl	148.2 ft msl	2 " PVC	V	SP Lower				
<b>SAMPLE DATE</b>		01/08/01		04/19/01	08/09/01	10/11/01					
<b>FIELD DATA</b>											
<u>Parameter</u>	<u>1Q01</u>	<u>2Q01</u>	<u>3Q01</u>	<u>4Q01</u>	<u>Unit</u>						
Water Elevation	137.89	137.56	136.81	136.85	ft msl						
pH	3.9	4.3	4.3	4.1	pH						
Sp. Conductance	48	48	49	48	uS/cm						
Water temperature	19	19.3	20.7	19.7	deg. C						
Alkalinity as CaCO3	0	0	0	0	mg/L						
Turbidity	.2	.2	.5	.1	NTU						
Volumes purged	2.03	2.84	2.42	2.42	well volume						
Sampling code											
<b>ANALYTICAL DATA</b>											
<b>I. Constituents of Concern</b>											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
<b>RCRA</b>											
	chloroethene (vinyl chloride)	<5	U	<10	U	<1	U	<10	U	2	ug/L
	trichloroethylene	<5	U	<5	U	<1	U	<5	U	5	ug/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).



**Table A-3. Groundwater Monitoring Results for Plume Definition Wells (Cont.)**  
**WELL LFW 65C**

<u>SRS Coord.</u>	<u>Lat/Longitude</u>	<u>Screen Zone Elevation</u>		<u>Top of Casing</u>	<u>Casing</u>	<u>Pump</u>	<u>Screen Zone</u>				
N 82592.9 E 46064.4	33.28360 Deg N -81.7059 Deg W	96.1 - 86.1	ft msl	148.2 ft msl	2 " PVC	V	SP Middle				
<b>SAMPLE DATE</b>		01/08/01		04/19/01	08/08/01	10/11/01					
<b>FIELD DATA</b>											
<u>Parameter</u>	<u>1Q01</u>	<u>2Q01</u>	<u>3Q01</u>	<u>4Q01</u>	<u>Unit</u>						
Water Elevation	138.4	137.46	136.48	136.59	ft msl						
pH	4	4.8	4.9	4.5	pH						
Sp. Conductance	30	30	30	29	uS/cm						
Water temperature	19.1	19.2	22.4	19.4	deg. C						
Alkalinity as CaCO3	0	0	0	0	mg/L						
Turbidity	.2	.2	.3	.1	NTU						
Volumes purged	1.99	3.94	2.31	2.43	well volume						
Sampling code											
<b>ANALYTICAL DATA</b>											
<b>I. Constituents of Concern</b>											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
<b>RCRA</b>											
	chloroethene (vinyl chloride)	<5	U	<10	U	<1	U	<10	U	2	ug/L
	trichloroethylene	<5	U	<5	U	<1	U	<5	U	5	ug/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).

**Table A-3. Groundwater Monitoring Results for Plume Definition Wells (Cont.)**  
**WELL LFW 65D**

<u>SRS Coord.</u>	<u>Lat/Longitude</u>	<u>Screen Zone Elevation</u>	<u>Top of Casing</u>	<u>Casing</u>	<u>Pump</u>	<u>Screen Zone</u>					
N 82598.4 E 46071.8	33.28362 Deg N -81.7059 Deg W	131.5 - 111.5 ft msl	148.4 ft msl	2 " PVC	V	SP Upper					
<b>SAMPLE DATE</b>		01/16/01	06/11/01	07/31/01	10/10/01						
<b>FIELD DATA</b>											
<u>Parameter</u>	<u>1Q01</u>	<u>2Q01</u>	<u>3Q01</u>	<u>4Q01</u>	<u>Unit</u>						
Water Elevation	137.4	137.8	136.6	135.55	ft msl						
pH	4.7	5.2	6	4.6	pH						
Sp. Conductance	33	34	32	35	uS/cm						
Water temperature	18.2	19.2	19.7	20.3	deg. C						
Alkalinity as CaCO3	0	0	0	0	mg/L						
Turbidity	.4	.9	.3	.4	NTU						
Volumes purged	5.00	2.11	3.44	2.57	well volume						
Sampling code											
<b>ANALYTICAL DATA</b>											
<b>I. Constituents of Concern</b>											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
<b>RCRA</b>											
	chloroethene (vinyl chloride)	<5	U	<10	U	<1	U	<10	U Y	2	ug/L
+	trichloroethylene	<b>6.2</b>		3.88	J I	4.26		2.55	J IY	5	ug/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).

**Table A-3. Groundwater Monitoring Results for Plume Definition Wells (Cont.)**  
**WELL LFW 67B**

<u>SRS Coord.</u>	<u>Lat/Longitude</u>	<u>Screen Zone Elevation</u>		<u>Top of Casing</u>	<u>Casing</u>	<u>Pump</u>	<u>Screen Zone</u>				
N 82847.1 E 46517.1	33.28490 Deg N -81.7052 Deg W	65.6 - 55.6	ft msl	157.7 ft msl	2 " PVC	V	SP Lower				
<b>SAMPLE DATE</b>		01/08/01		04/20/01	08/08/01	10/11/01					
<b>FIELD DATA</b>											
<u>Parameter</u>	<u>1Q01</u>	<u>2Q01</u>	<u>3Q01</u>	<u>4Q01</u>	<u>Unit</u>						
Water Elevation	139.14	138.7	137.98	137.49	ft msl						
pH	4.5	4.5	4.4	5.3	pH						
Sp. Conductance	55	53	54	52	uS/cm						
Water temperature	18.8	20	21.2	20.1	deg. C						
Alkalinity as CaCO3	0	0	0	0	mg/L						
Turbidity	.3	.1	.3	.1	NTU						
Volumes purged	2.05	4.42	.817	2.09	well volume						
Sampling code											
<b>ANALYTICAL DATA</b>											
<b>I. Constituents of Concern</b>											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
<b>RCRA</b>											
	chloroethene (vinyl chloride)	<5	U	<10	U	<1	U	<10	U	2	ug/L
	trichloroethylene	<5	U	<5	U	<1	U	<5	U	5	ug/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).

**Table A-3. Groundwater Monitoring Results for Plume Definition Wells (Cont.)**  
**WELL LFW 67C**

<u>SRS Coord.</u>	<u>Lat/Longitude</u>	<u>Screen Zone Elevation</u>	<u>Top of Casing</u>	<u>Casing</u>	<u>Pump</u>	<u>Screen Zone</u>					
N 82844.2 E 46527.5	33.28491 Deg N -81.7052 Deg W	96.1 - 86.1 ft msl	157.1 ft msl	2 " PVC	V	SP Middle					
<b>SAMPLE DATE</b>		01/16/01	04/18/01	07/31/01	10/10/01						
<b>FIELD DATA</b>											
<u>Parameter</u>	<u>1Q01</u>	<u>2Q01</u>	<u>3Q01</u>	<u>4Q01</u>	<u>Unit</u>						
Water Elevation	139.44	137.87	137.99	135.94	ft msl						
pH	6.6	6.7	6.7	6.3	pH						
Sp. Conductance	232	234	228	215	uS/cm						
Water temperature	19.6	19.5	22.4	20.2	deg. C						
Alkalinity as CaCO3	89	90	81	83	mg/L						
Turbidity	.8	2.1	.6	.5	NTU						
Volumes purged	2.53	2.84	5.20	1.97	well volume						
Sampling code											
<b>ANALYTICAL DATA</b>											
<b>I. Constituents of Concern</b>											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP</u> <u>EPA</u>	<u>2Q01</u>	<u>CLP</u> <u>EPA</u>	<u>3Q01</u>	<u>CLP</u> <u>EPA</u>	<u>4Q01</u>	<u>CLP</u> <u>EPA</u>	<u>Limit</u>	<u>Unit</u>
<b>RCRA</b>											
+	chloroethene (vinyl chloride)	<b>34</b>		27	J K	<b>24</b>		21.9	J Y	2	ug/L
	trichloroethylene	<5	U	<5	U	.375	J I	<5	U Y	5	ug/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).

**Table A-3. Groundwater Monitoring Results for Plume Definition Wells (Cont.)**  
**WELL LFW 67D**

<u>SRS Coord.</u>	<u>Lat/Longitude</u>	<u>Screen Zone Elevation</u>	<u>Top of Casing</u>	<u>Casing</u>	<u>Pump</u>	<u>Screen Zone</u>					
N 82854.9 E 46529.9	33.28494 Deg N -81.7052 Deg W	140.6 - 120.6 ft msl	157.7 ft msl	2 " PVC	V	SP Upper					
<b>SAMPLE DATE</b>		01/16/01	04/18/01	08/08/01	10/11/01						
<b>FIELD DATA</b>											
<u>Parameter</u>	<u>1Q01</u>	<u>2Q01</u>	<u>3Q01</u>	<u>4Q01</u>	<u>Unit</u>						
Water Elevation	140.14	142.78	140.29	138.2	ft msl						
pH	5.1	5.3	5	5.9	pH						
Sp. Conductance	32	27	29	28	uS/cm						
Water temperature	20.2	17.1	20.1	20.5	deg. C						
Alkalinity as CaCO3	0	0	0	0	mg/L						
Turbidity	1	3.8	1.5	.5	NTU						
Volumes purged	11.5	2.80	6.01	8.51	well volume						
Sampling code											
<b>ANALYTICAL DATA</b>											
<b>I. Constituents of Concern</b>											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
<b>RCRA</b>											
	chloroethene (vinyl chloride)	<5	U	<10	U	<1	U	<10	U	2	ug/L
	trichloroethylene	3.7	J I	2.42	J IK	1.42		1.53	J I	5	ug/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).

**Table A-3. Groundwater Monitoring Results for Plume Definition Wells (Cont.)**  
**WELL LFW 68C**

<u>SRS Coord.</u>	<u>Lat/Longitude</u>	<u>Screen Zone Elevation</u>		<u>Top of Casing</u>	<u>Casing</u>	<u>Pump</u>	<u>Screen Zone</u>				
N 83027.5 E 46876.2	33.28588 Deg N -81.7046 Deg W	98.3 - 88.3	ft msl	161.1 ft msl	2 " PVC	V	SP Middle				
<b>SAMPLE DATE</b>		01/08/01		04/19/01	08/08/01	10/11/01					
<b>FIELD DATA</b>											
<u>Parameter</u>	<u>1Q01</u>	<u>2Q01</u>	<u>3Q01</u>	<u>4Q01</u>	<u>Unit</u>						
Water Elevation	140.65	138.63	137.48	136.83	ft msl						
pH	5.1	5	5.3	5.1	pH						
Sp. Conductance	21	21	20	20	uS/cm						
Water temperature	19.2	20	22.6	20.8	deg. C						
Alkalinity as CaCO3	0	0	0	0	mg/L						
Turbidity	1	.2	.2	.2	NTU						
Volumes purged	2.11	3.66	2.37	3.16	well volume						
Sampling code											
<b>ANALYTICAL DATA</b>											
<b>I. Constituents of Concern</b>											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
<b>RCRA</b>											
	chloroethene (vinyl chloride)	<5	U	<10	U	<1	U	<10	U	2	ug/L
	trichloroethylene	<5	U	<5	U	<1	U	<5	U	5	ug/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).

**Table A-3. Groundwater Monitoring Results for Plume Definition Wells (Cont.)**  
**WELL LFW 69C**

<u>SRS Coord.</u>	<u>Lat/Longitude</u>	<u>Screen Zone Elevation</u>		<u>Top of Casing</u>	<u>Casing</u>	<u>Pump</u>	<u>Screen Zone</u>				
N 82458.6 E 45494.5	33.28237 Deg N -81.7072 Deg W	89.1 - 79.1	ft msl	146 ft msl	2 " PVC	V	SP Middle				
<b>SAMPLE DATE</b>		01/08/01		04/20/01	08/08/01	10/11/01					
<b>FIELD DATA</b>											
<u>Parameter</u>	<u>1Q01</u>	<u>2Q01</u>	<u>3Q01</u>	<u>4Q01</u>	<u>Unit</u>						
Water Elevation	137.7	137.62	137.24	136.92	ft msl						
pH	4.2	4.4	4.4	4.8	pH						
Sp. Conductance	52	53	50	53	uS/cm						
Water temperature	18.9	18.5	22.4	20	deg. C						
Alkalinity as CaCO3	0	0	0	0	mg/L						
Turbidity	.2	.2	.3	.1	NTU						
Volumes purged	2.20	4.62	2.32	3.08	well volume						
Sampling code											
<b>ANALYTICAL DATA</b>											
<b>I. Constituents of Concern</b>											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
<b>RCRA</b>											
	chloroethene (vinyl chloride)	<5	U	<10	U	<1	U	<10	U	2	ug/L
	trichloroethylene	<5	U	<5	U	<1	U	<5	U	5	ug/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).

**Table A-3. Groundwater Monitoring Results for Plume Definition Wells (Cont.)**  
**WELL LFW 69D**

<u>SRS Coord.</u>	<u>Lat/Longitude</u>	<u>Screen Zone Elevation</u>		<u>Top of Casing</u>	<u>Casing</u>	<u>Pump</u>	<u>Screen Zone</u>				
N 82452 E 45501	33.28237 Deg N -81.7071 Deg W	139 - 119	ft msl	146.1 ft msl	2 " PVC	V	SP Upper				
<b>SAMPLE DATE</b>		01/16/01		06/11/01	08/01/01		10/11/01				
<b>FIELD DATA</b>											
<u>Parameter</u>		<u>1Q01</u>		<u>2Q01</u>		<u>3Q01</u>		<u>4Q01</u>	<u>Unit</u>		
Water Elevation		137.44		136.55		137.38		137.05	ft msl		
pH		5.5		5.1		5.1		5.2	pH		
Sp. Conductance		35		35		38		54	uS/cm		
Water temperature		17.1		19.1		21.1		23.2	deg. C		
Alkalinity as CaCO3		0		0		3		17	mg/L		
Turbidity		.6		.9		.7		2.1	NTU		
Volumes purged		4.03		2.47				3.09	well volume		
Sampling code											
<b>ANALYTICAL DATA</b>											
<b>I. Constituents of Concern</b>											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP</u> <u>EPA</u>	<u>2Q01</u>	<u>CLP</u> <u>EPA</u>	<u>3Q01</u>	<u>CLP</u> <u>EPA</u>	<u>4Q01</u>	<u>CLP</u> <u>EPA</u>	<u>Limit</u>	<u>Unit</u>
<b>RCRA</b>											
+	chloroethene (vinyl chloride)	4.1	J I	5.37	J I	<b>5.63</b>		4.96	J I	2	ug/L
	trichloroethylene	<5	U	<5	U	<1	U	<5	U	5	ug/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).



**Table A-3. Groundwater Monitoring Results for Plume Definition Wells (Cont.)**  
**WELL LFW 71B**

<u>SRS Coord.</u>	<u>Lat/Longitude</u>	<u>Screen Zone Elevation</u>		<u>Top of Casing</u>	<u>Casing</u>	<u>Pump</u>	<u>Screen Zone</u>				
N 82616.6 E 46340.4	33.28410 Deg N -81.7053 Deg W	67 - 57	ft msl	147 ft msl	2 " PVC	V	SP Lower				
<b>SAMPLE DATE</b>		01/09/01		04/20/01	08/09/01	10/11/01					
<b>FIELD DATA</b>											
<u>Parameter</u>	<u>1Q01</u>	<u>2Q01</u>	<u>3Q01</u>	<u>4Q01</u>	<u>Unit</u>						
Water Elevation	137.75	137.38	136.61	136.49	ft msl						
pH	4.3	4.4	4.3	4.5	pH						
Sp. Conductance	48	46	47	48	uS/cm						
Water temperature	16.9	18.1	20.8	19.7	deg. C						
Alkalinity as CaCO3	0	0	0	0	mg/L						
Turbidity	.2	.3	.3	.3	NTU						
Volumes purged	2.12	2.44	2.23	1.92	well volume						
Sampling code											
<b>ANALYTICAL DATA</b>											
<b>I. Constituents of Concern</b>											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
<b>RCRA</b>											
	chloroethene (vinyl chloride)	<5	U	<10	U	<1	U	<10	U	2	ug/L
	trichloroethylene	<5	U	<5	U	<1	U	<5	U	5	ug/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).

**Table A-3. Groundwater Monitoring Results for Plume Definition Wells (Cont.)**  
**WELL LFW 71C**

<u>SRS Coord.</u>	<u>Lat/Longitude</u>	<u>Screen Zone Elevation</u>	<u>Top of Casing</u>	<u>Casing</u>	<u>Pump</u>	<u>Screen Zone</u>					
N 82615.8 E 46329.8	33.28408 Deg N -81.7053 Deg W	90.4 - 80.4    ft msl	147.2 ft msl	2 " PVC	V	SP Middle					
<b>SAMPLE DATE</b>		01/09/01	04/20/01	08/09/01	10/11/01						
<b>FIELD DATA</b>											
<u>Parameter</u>	<u>1Q01</u>	<u>2Q01</u>	<u>3Q01</u>	<u>4Q01</u>	<u>Unit</u>						
Water Elevation	137.8	137.39	136.67	136.62	ft msl						
pH	4.6	4.4	4.7	4.8	pH						
Sp. Conductance	37	36	37	36	uS/cm						
Water temperature	18.4	18.1	20.5	20.3	deg. C						
Alkalinity as CaCO3	0	0	0	0	mg/L						
Turbidity	.3	.2	.2	.4	NTU						
Volumes purged	2.03	2.69	2.29	5.79	well volume						
Sampling code											
<b>ANALYTICAL DATA</b>											
<b>I. Constituents of Concern</b>											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
<b>RCRA</b>											
	chloroethene (vinyl chloride)	<5	U	<10	U	<1	U	<10	U	2	ug/L
	trichloroethylene	<5	U	<5	U	<1	U	<5	U	5	ug/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).

**Table A-3. Groundwater Monitoring Results for Plume Definition Wells (Cont.)**

**WELL LFW 71D**

<u>SRS Coord.</u>	<u>Lat/Longitude</u>	<u>Screen Zone Elevation</u>	<u>Top of Casing</u>	<u>Casing</u>	<u>Pump</u>	<u>Screen Zone</u>					
N 82615.1 E 46319.8	33.28406 Deg N -81.7053 Deg W	135.5 - 115.5 ft msl	147.4 ft msl	2 " PVC	V	SP Upper					
<b>SAMPLE DATE</b>		01/09/01	04/20/01	08/09/01	10/11/01						
<b>FIELD DATA</b>											
<u>Parameter</u>	<u>1Q01</u>	<u>2Q01</u>	<u>3Q01</u>	<u>4Q01</u>	<u>Unit</u>						
Water Elevation	137.49	137.09	135.8	135.5	ft msl						
pH	4.9	5.1	5	5.1	pH						
Sp. Conductance	28	22	22	22	uS/cm						
Water temperature	17.8	16.1	19.9	19.7	deg. C						
Alkalinity as CaCO3	0	0	0	0	mg/L						
Turbidity	.7	.3	.6	.4	NTU						
Volumes purged	1.98	6.62	2.45	12.4	well volume						
Sampling code											
<b>ANALYTICAL DATA</b>											
<b>I. Constituents of Concern</b>											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
<b>RCRA</b>											
	chloroethene (vinyl chloride)	<5	U	<10	U	<1	U	<10	U	2	ug/L
	trichloroethylene	<5	U	<5	U	<1	U	<5	U	5	ug/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).

**THIS PAGE LEFT BLANK INTENTIONALLY.**

**Table A-4. Groundwater Monitoring Results for Auxiliary Monitoring Wells**

**WELL LFW 74C**

<u>SRS Coord.</u>	<u>Lat/Longitude</u>	<u>Screen Zone Elevation</u>		<u>Top of Casing</u>	<u>Casing</u>	<u>Pump</u>	<u>Screen Zone</u>				
N 85813.8 E 45097.8	33.28914 Deg N -81.7147 Deg W	116 - 101	ft msl	213.6 ft msl	4 " PVC	S	SP Middle				
SAMPLE DATE		03/07/01		08/06/01		10/11/01					
FIELD DATA											
<u>Parameter</u>	<u>1Q01</u>	<u>2Q01</u>	<u>3Q01</u>	<u>4Q01</u>	<u>Unit</u>						
Water Elevation	159.75	Not Applicable	159.8	159.13	ft msl						
pH	5.2		5.1	5.1	pH						
Sp. Conductance	32		33	34	uS/cm						
Water temperature	18.8		22.1	21.5	deg. C						
Alkalinity as CaCO3	0		1	0	mg/L						
Turbidity	.6		1.7	.4	NTU						
Volumes purged	3.02			2.45	well volume						
Sampling code											
ANALYTICAL DATA											
I. Constituents of Concern											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
RCRA											
	chloroethene (vinyl chloride)	<10	U			<10	U	<10	U	2	ug/L
	trichloroethylene	<5	U			<5	U	<5	U	5	ug/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).

**Table A-4. Groundwater Monitoring Results for Auxiliary Monitoring Wells (Cont.)**  
**WELL LFW 74D**

<u>SRS Coord.</u>	<u>Lat/Longitude</u>	<u>Screen Zone Elevation</u>	<u>Top of Casing</u>	<u>Casing</u>	<u>Pump</u>	<u>Screen Zone</u>					
N 85828 E 45098	33.28917 Deg N -81.7148 Deg W	167.7 - 152.7 ft msl	213.9 ft msl	4 " PVC	S	SP Upper					
<b>SAMPLE DATE</b>		03/07/01		08/06/01		10/11/01					
<b>FIELD DATA</b>											
<u>Parameter</u>	<u>1Q01</u>	<u>2Q01</u>	<u>3Q01</u>	<u>4Q01</u>	<u>Unit</u>						
Water Elevation	159.69	<i>Not Applicable</i>	159.82	159.28	ft msl						
pH	5.3		5.3	4.9	pH						
Sp. Conductance	21		29	32	uS/cm						
Water temperature	18.6		22.6	24	deg. C						
Alkalinity as CaCO3	0		3	0	mg/L						
Turbidity	1.1		2.3	3.8	NTU						
Volumes purged	9.43			5.26	well volume						
Sampling code											
<b>ANALYTICAL DATA</b>											
<b>I. Constituents of Concern</b>											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
<b>RCRA</b>											
	chloroethene (vinyl chloride)	<10	U			<10	U	<10	U	2	ug/L
	trichloroethylene	<5	U			<5	U	<5	U	5	ug/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).

**Table A-4. Groundwater Monitoring Results for Auxiliary Monitoring Wells (Cont.)**  
**WELL LFW 75C**

<u>SRS Coord.</u>	<u>Lat/Longitude</u>	<u>Screen Zone Elevation</u>	<u>Top of Casing</u>	<u>Casing</u>	<u>Pump</u>	<u>Screen Zone</u>					
N 85856.8 E 45357	33.28966 Deg N -81.7141 Deg W	115.6 - 100.6 ft msl	197.8 ft msl	4 " PVC	S	SP Middle					
SAMPLE DATE		03/07/01		08/06/01		10/11/01					
FIELD DATA											
<u>Parameter</u>	<u>1Q01</u>	<u>2Q01</u>	<u>3Q01</u>	<u>4Q01</u>	<u>Unit</u>						
Water Elevation	159.7	Not Applicable	139.6	158.99	ft msl						
pH	5.2		5.1	5.1	pH						
Sp. Conductance	29		29	30	uS/cm						
Water temperature	19.5		21.6	21.3	deg. C						
Alkalinity as CaCO3	0		0	0	mg/L						
Turbidity	.2		.3	.6	NTU						
Volumes purged	2.28			2.23	well volume						
Sampling code											
ANALYTICAL DATA											
I. Constituents of Concern											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
RCRA											
	chloroethene (vinyl chloride)	<10	U			<10	U	<10	UJ	2	ug/L
	trichloroethylene	<5	U			<5	U	<5	UJ	5	ug/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).

**Table A-4. Groundwater Monitoring Results for Auxiliary Monitoring Wells (Cont.)**  
**WELL LFW 75D**

<u>SRS Coord.</u>	<u>Lat/Longitude</u>	<u>Screen Zone Elevation</u>		<u>Top of Casing</u>	<u>Casing</u>	<u>Pump</u>	<u>Screen Zone</u>				
N 85868 E 45355.6	33.28968 Deg N -81.7142 Deg W	166 - 151	ft msl	198.2 ft msl	4 " PVC	S	SP Upper				
<b>SAMPLE DATE</b>		03/07/01		08/06/01		10/11/01					
<b>FIELD DATA</b>											
<u>Parameter</u>	<u>1Q01</u>	<u>2Q01</u>		<u>3Q01</u>	<u>4Q01</u>	<u>Unit</u>					
Water Elevation	159.79	Not Applicable		159.99	158.4	ft msl					
pH	5.6			3.1	5	pH					
Sp. Conductance	25			30	36	uS/cm					
Water temperature	20.3			22.8	21.1	deg. C					
Alkalinity as CaCO3	2			1	1	mg/L					
Turbidity	.1			.3	.5	NTU					
Volumes purged	8.07				4.39	well volume					
Sampling code											
<b>ANALYTICAL DATA</b>											
<b>I. Constituents of Concern</b>											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
<b>RCRA</b>											
	chloroethene (vinyl chloride)	<10	U			<10	U	<10	U	2	ug/L
	trichloroethylene	<5	U			<5	U	<5	U	5	ug/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).



**Table A-5. Groundwater Monitoring Results for QA Field Duplicate Samples**

**WELL LFW 43B**

<u>SRS Coord.</u>	<u>Lat/Longitude</u>	<u>Screen Zone Elevation</u>	<u>Top of Casing</u>	<u>Casing</u>	<u>Pump</u>	<u>Screen Zone</u>					
N 86459.2 E 45240.5	33.29080 Deg N -81.7156 Deg W	100.4 - 90.4 ft msl	203 ft msl	4 " PVC	S	SP Lower					
SAMPLE DATE			04/17/01	08/08/01	10/11/01						
FIELD DATA											
<u>Parameter</u>	<u>1Q01</u>	<u>2Q01</u>	<u>3Q01</u>	<u>4Q01</u>	<u>Unit</u>						
Water Elevation	Not Applicable	162.81	162.29	161.58	ft msl						
pH		5.2	5.1	5.2	pH						
Sp. Conductance		19	18	18	uS/cm						
Water temperature		20	20.1	19.5	deg. C						
Alkalinity as CaCO3		0	1	0	mg/L						
Turbidity		.1	.2	1	NTU						
Volumes purged		2.34	2.91	2.26	well volume						
Sampling code											
ANALYTICAL DATA											
I. Constituents of Concern											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
RCRA											
	arsenic, total recoverable			4.1	J I	<8	U	<42	U	50	ug/L
	lead, total recoverable			<26	U	<8	U	<24	U	15	ug/L
	1,1,1-trichloroethane			<5	U	<1	U	<5	U	200	ug/L
	1,4-dichlorobenzene			<5	U	<1	U	<5	U	75	ug/L
	benzene			<5	U	<1	U	<5	U	5	ug/L
	chlorobenzene			<5	U	<1	U	<5	U	100	ug/L
	chloroethene (vinyl chloride)			<10	U	<1	U	<10	U	2	ug/L
	dichloromethane (methylene chloride)			<5	U	<5	U	<5	U	5	ug/L
	dichlorodifluoromethane			<10	U	<1	U	<10	U	10	ug/L
	ethylbenzene			<5	U	<1	U	<5	U	700	ug/L
	tetrachloroethylene			<5	U	<1	U	<5	U	5	ug/L
	trans-1,2-dichloroethylene					<1	U	<5	U	100	ug/L
	trichloroethylene			<5	U	<1	U	<5	U	5	ug/L
	trichlorofluoromethane			<5	U	<1	U	<5	U	5	ug/L
	xylenes			<5	U	<3	U	<5	U	10000	ug/L
Non-RCRA											
	tritium			.887	J I	.97	J I	2.36		20	pCi/ml
II. Laboratory Indicator Parameters											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
Non-RCRA Radionuclide											
	gross alpha			5.09	U	3.16	UJ L	.369	U	15	pCi/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).

**Table A-5. Groundwater Monitoring Results for QA Field Duplicate Samples (Cont.)**  
**WELL LFW 45D**

<u>SRS Coord.</u>	<u>Lat/Longitude</u>	<u>Screen Zone Elevation</u>	<u>Top of Casing</u>	<u>Casing</u>	<u>Pump</u>	<u>Screen Zone</u>					
N 84217.8 E 45142	33.28568 Deg N -81.7115 Deg W	154.7 - 134.7 ft msl	166.3 ft msl	4 " PVC	S	SP Upper					
SAMPLE DATE		01/09/01		08/08/01		10/11/01					
FIELD DATA											
<u>Parameter</u>	<u>1Q01</u>	<u>2Q01</u>	<u>3Q01</u>	<u>4Q01</u>	<u>Unit</u>						
Water Elevation	150.45	Not Applicable	150.39	149.93	ft msl						
pH	3.8		4.8	4.7	pH						
Sp. Conductance	41		53	49	uS/cm						
Water temperature	19.2		22	20.6	deg. C						
Alkalinity as CaCO3	0		0	0	mg/L						
Turbidity	.8		.6	.4	NTU						
Volumes purged	2.94		3.54	4.56	well volume						
Sampling code											
ANALYTICAL DATA											
I. Constituents of Concern											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
RCRA											
	chloroethene (vinyl chloride)	<5	U			<1	U	<10	U	2	ug/L
	trichloroethylene	<5	U			<1	U	<5	U	5	ug/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).

**Table A-5. Groundwater Monitoring Results for QA Field Duplicate Samples (Cont.)**  
**WELL LFW 56D**

<u>SRS Coord.</u>	<u>Lat/Longitude</u>	<u>Screen Zone Elevation</u>	<u>Top of Casing</u>	<u>Casing</u>	<u>Pump</u>	<u>Screen Zone</u>
N 83398 E 45306.6	33.28414 Deg N -81.7095 Deg W	151.4 - 131.3 ft msl	158.1 ft msl	4 " PVC	S	SP Upper

**SAMPLE DATE** 08/09/01

**FIELD DATA**

<u>Parameter</u>	<u>1Q01</u>	<u>2Q01</u>	<u>3Q01</u>	<u>4Q01</u>	<u>Unit</u>
Water Elevation	<i>Not Applicable</i>	<i>Not Applicable</i>	144.27	<i>Not Applicable</i>	ft msl
pH			4.8		pH
Sp. Conductance			26		uS/cm
Water temperature			21.2		deg. C
Alkalinity as CaCO3			0		mg/L
Turbidity			.5		NTU
Volumes purged					well volume
Sampling code					

**ANALYTICAL DATA**

**I. Constituents of Concern**

<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
RCRA											
	chloroethene (vinyl chloride)					<1	U			2	ug/L
	trichloroethylene					<1	U			5	ug/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).

**Table A-5. Groundwater Monitoring Results for QA Field Duplicate Samples (Cont.)**  
**WELL LFW 58D**

<u>SRS Coord.</u>	<u>Lat/Longitude</u>	<u>Screen Zone Elevation</u>	<u>Top of Casing</u>	<u>Casing</u>	<u>Pump</u>	<u>Screen Zone</u>					
N 82940.6 E 45700.2	33.28377 Deg N -81.7076 Deg W	147.6 - 127.5 ft msl	167.6 ft msl	4 " PVC	S	SP Upper					
SAMPLE DATE		01/11/01	04/17/01								
FIELD DATA											
<u>Parameter</u>	<u>1Q01</u>	<u>2Q01</u>	<u>3Q01</u>	<u>4Q01</u>	<u>Unit</u>						
Water Elevation	140.63	142.72	Not Applicable	Not Applicable	ft msl						
pH	6.5	6.3			pH						
Sp. Conductance	124	131			uS/cm						
Water temperature	22.4	22			deg. C						
Alkalinity as CaCO3	13	39			mg/L						
Turbidity	1.2	2.8			NTU						
Volumes purged	4.95	3.96			well volume						
Sampling code											
ANALYTICAL DATA											
I. Constituents of Concern											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
RCRA											
	arsenic, total recoverable	<10	U	<4	JU I					50	ug/L
	lead, total recoverable	<10	JU L	<26	U					15	ug/L
	1,1,1-trichloroethane	<5	U	<5	U					200	ug/L
	1,4-dichlorobenzene	<5	U	<5	U					75	ug/L
	benzene	<5	U	<5	U					5	ug/L
	chlorobenzene	<5	U	<5	U					100	ug/L
	chloroethene (vinyl chloride)	<5	U	<10	U					2	ug/L
	dichloromethane (methylene chloride)	1.4	J I	<5	U					5	ug/L
	dichlorodifluoromethane	<5	U	<10	U					5	ug/L
	ethylbenzene	<5	U	<5	U					700	ug/L
	tetrachloroethylene	<5	U	<5	U					5	ug/L
	trans-1,2-dichloroethylene	<5	U							100	ug/L
	trichloroethylene	1.9	J I	5.38	J K					5	ug/L
	trichlorofluoromethane	<5	U	<5	U					5	ug/L
	xylenes	<10	U	<5	U					10000	ug/L
Non-RCRA											
	tritium	4.55		5.33						20	pCi/ml
II. Laboratory Indicator Parameters											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
Non-RCRA Radionuclide											
	gross alpha	4.69	U	5.5	U					15	pCi/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).

**Table A-5. Groundwater Monitoring Results for QA Field Duplicate Samples (Cont.)**  
**WELL LFW 60D**

<u>SRS Coord.</u>	<u>Lat/Longitude</u>	<u>Screen Zone Elevation</u>	<u>Top of Casing</u>	<u>Casing</u>	<u>Pump</u>	<u>Screen Zone</u>					
N 82531.5 E 45722.3	33.28290 Deg N -81.7067 Deg W	143.8 - 123.8 ft msl	157.1 ft msl	4 " PVC	S	SP Upper					
SAMPLE DATE				08/08/01							
FIELD DATA											
<u>Parameter</u>	<u>1Q01</u>	<u>2Q01</u>	<u>3Q01</u>	<u>4Q01</u>	<u>Unit</u>						
Water Elevation	<i>Not Applicable</i>	<i>Not Applicable</i>	137.59	<i>Not Applicable</i>	ft msl						
pH			4.9		pH						
Sp. Conductance			41		uS/cm						
Water temperature			21.4		deg. C						
Alkalinity as CaCO3			0		mg/L						
Turbidity			.6		NTU						
Volumes purged			2.45		well volume						
Sampling code											
ANALYTICAL DATA											
I. Constituents of Concern											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
RCRA											
	chloroethene (vinyl chloride)					<1	U			2	ug/L
	trichloroethylene					2.14				5	ug/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).

**Table A-5. Groundwater Monitoring Results for QA Field Duplicate Samples (Cont.)**  
**WELL LFW 74C**

<u>SRS Coord.</u>	<u>Lat/Longitude</u>	<u>Screen Zone Elevation</u>		<u>Top of Casing</u>	<u>Casing</u>	<u>Pump</u>	<u>Screen Zone</u>				
N 85813.8 E 45097.8	33.28914 Deg N -81.7147 Deg W	116 - 101	ft msl	213.6 ft msl	4 " PVC	S	SP Middle				
SAMPLE DATE						10/11/01					
FIELD DATA											
<u>Parameter</u>	<u>1Q01</u>	<u>2Q01</u>	<u>3Q01</u>	<u>4Q01</u>	<u>Unit</u>						
Water Elevation	Not Applicable	Not Applicable	Not Applicable	159.13	ft msl						
pH				5.1	pH						
Sp. Conductance				34	uS/cm						
Water temperature				21.5	deg. C						
Alkalinity as CaCO3				0	mg/L						
Turbidity				.4	NTU						
Volumes purged				2.45	well volume						
Sampling code											
ANALYTICAL DATA											
I. Constituents of Concern											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
RCRA											
	chloroethene (vinyl chloride)							<10	U	2	ug/L
	trichloroethylene							<5	U	5	ug/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).

**Table A-6. Groundwater Monitoring Results for Split Samples**

**WELL LFW 43B**

<u>SRS Coord.</u>	<u>Lat/Longitude</u>	<u>Screen Zone Elevation</u>	<u>Top of Casing</u>	<u>Casing</u>	<u>Pump</u>	<u>Screen Zone</u>					
N 86459.2 E 45240.5	33.29080 Deg N -81.7156 Deg W	100.4 - 90.4 ft msl	203 ft msl	4 " PVC	S	SP Lower					
SAMPLE DATE			04/17/01		10/11/01						
FIELD DATA											
<u>Parameter</u>	<u>1Q01</u>	<u>2Q01</u>	<u>3Q01</u>	<u>4Q01</u>	<u>Unit</u>						
Water Elevation	Not Applicable	162.81	Not Applicable	161.58	ft msl						
pH		5.2		5.2	pH						
Sp. Conductance		19		18	uS/cm						
Water temperature		20		19.5	deg. C						
Alkalinity as CaCO3		0		0	mg/L						
Turbidity		.1		1	NTU						
Volumes purged		2.34		2.26	well volume						
Sampling code											
ANALYTICAL DATA											
I. Constituents of Concern											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
RCRA											
	arsenic, total recoverable			<5	U			<5	U	50	ug/L
	lead, total recoverable			<5	U			<5	U	15	ug/L
	1,1,1-trichloroethane							<1	U	200	ug/L
	1,4-dichlorobenzene							<10	U	75	ug/L
	benzene							<1	U	5	ug/L
	chlorobenzene							<1	U	100	ug/L
	chloroethene (vinyl chloride)							<1	U	2	ug/L
	dichloromethane (methylene chloride)							<5	U	5	ug/L
	dichlorodifluoromethane							<1	U	1	ug/L
	ethylbenzene							<1	U	700	ug/L
	tetrachloroethylene							<1	U	5	ug/L
	trans-1,2-dichloroethylene							<1	U	100	ug/L
	trichloroethylene							<1	U	5	ug/L
	trichlorofluoromethane							<1	U	1	ug/L
	xylenes							<3	U	10000	ug/L
Non-RCRA											
	tritium							.745		20	pCi/ml
II. Laboratory Indicator Parameters											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
Non-RCRA Radionuclide											
	gross alpha							3.89		15	pCi/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).

**Table A-6. Groundwater Monitoring Results for Split Samples (Cont.)**  
**WELL LFW 45D**

<u>SRS Coord.</u>	<u>Lat/Longitude</u>	<u>Screen Zone Elevation</u>	<u>Top of Casing</u>	<u>Casing</u>	<u>Pump</u>	<u>Screen Zone</u>					
N 84217.8 E 45142	33.28568 Deg N -81.7115 Deg W	154.7 - 134.7 ft msl	166.3 ft msl	4 " PVC	S	SP Upper					
SAMPLE DATE		01/09/01			10/11/01						
FIELD DATA											
<u>Parameter</u>	<u>1Q01</u>	<u>2Q01</u>	<u>3Q01</u>	<u>4Q01</u>	<u>Unit</u>						
Water Elevation	150.45	Not Applicable	Not Applicable	149.93	ft msl						
pH	3.8			4.7	pH						
Sp. Conductance	41			49	uS/cm						
Water temperature	19.2			20.6	deg. C						
Alkalinity as CaCO3	0			0	mg/L						
Turbidity	.8			.4	NTU						
Volumes purged	2.94			4.56	well volume						
Sampling code											
ANALYTICAL DATA											
I. Constituents of Concern											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
RCRA											
	chloroethene (vinyl chloride)	<10	U					<1	U	2	ug/L
	trichloroethylene	<5	U					<1	U	5	ug/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).



**Table A-6. Groundwater Monitoring Results for Split Samples (Cont.)**  
**WELL LFW 58D**

<u>SRS Coord.</u>	<u>Lat/Longitude</u>	<u>Screen Zone Elevation</u>	<u>Top of Casing</u>	<u>Casing</u>	<u>Pump</u>	<u>Screen Zone</u>					
N 82940.6 E 45700.2	33.28377 Deg N -81.7076 Deg W	147.6 - 127.5 ft msl	167.6 ft msl	4 " PVC	S	SP Upper					
SAMPLE DATE		01/11/01	04/17/01								
FIELD DATA											
<u>Parameter</u>	<u>1Q01</u>	<u>2Q01</u>	<u>3Q01</u>	<u>4Q01</u>	<u>Unit</u>						
Water Elevation	140.63	142.72	Not Applicable	Not Applicable	ft msl						
pH	6.5	6.3			pH						
Sp. Conductance	124	131			uS/cm						
Water temperature	22.4	22			deg. C						
Alkalinity as CaCO3	13	39			mg/L						
Turbidity	1.2	2.8			NTU						
Volumes purged	4.95	3.96			well volume						
Sampling code											
ANALYTICAL DATA											
I. Constituents of Concern											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
RCRA											
	arsenic, total recoverable	<40	U	<5	U					50	ug/L
	lead, total recoverable	<47	U	<5	U					15	ug/L
	1,1,1-trichloroethane	<5	U							200	ug/L
	1,4-dichlorobenzene	<5	U							75	ug/L
	benzene	<5	U							5	ug/L
	chlorobenzene	<5	U							100	ug/L
	chloroethene (vinyl chloride)	<10	U							2	ug/L
	dichloromethane (methylene chloride)	<12.1	U V							5	ug/L
	dichlorodifluoromethane	<10	U							10	ug/L
	ethylbenzene	<5	U							700	ug/L
	tetrachloroethylene	<5	U							5	ug/L
	trans-1,2-dichloroethylene	<5	U							100	ug/L
	trichloroethylene	1.39	J I							5	ug/L
	trichlorofluoromethane	<5	U							5	ug/L
	xylenes	<5	U							10000	ug/L
Non-RCRA											
	tritium	4.31								20000	pCi/ml
II. Laboratory Indicator Parameters											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
Non-RCRA Radionuclide											
	gross alpha	1.82	J I							15	pCi/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J" "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).

**Table A-6. Groundwater Monitoring Results for Split Samples (Cont.)**  
**WELL LFW 74C**

<u>SRS Coord.</u>	<u>Lat/Longitude</u>	<u>Screen Zone Elevation</u>	<u>Top of Casing</u>	<u>Casing</u>	<u>Pump</u>	<u>Screen Zone</u>
N 85813.8 E 45097.8	33.28914 Deg N -81.7147 Deg W	116 - 101 ft msl	213.6 ft msl	4 " PVC	S	SP Middle

**SAMPLE DATE** 10/11/01

**FIELD DATA**

<u>Parameter</u>	<u>1Q01</u>	<u>2Q01</u>	<u>3Q01</u>	<u>4Q01</u>	<u>Unit</u>
Water Elevation	<i>Not Applicable</i>	<i>Not Applicable</i>	<i>Not Applicable</i>	159.13	ft msl
pH				5.1	pH
Sp. Conductance				34	uS/cm
Water temperature				21.5	deg. C
Alkalinity as CaCO3				0	mg/L
Turbidity				.4	NTU
Volumes purged				2.45	well volume
Sampling code					

**ANALYTICAL DATA**

**I. Constituents of Concern**

<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
RCRA	chloroethene (vinyl chloride)							<1	U	2	ug/L
	trichloroethylene							<1	U	5	ug/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).

**Table A-7. Groundwater Monitoring Results for Duplicate Samples**  
**WELL LFW 6R**

SAMPLE DATE		04/17/01				08/08/01					
ANALYTICAL DATA											
I. Constituents of Concern											
ST	Parameter	1Q01	CLP EPA	2Q01	CLP EPA	3Q01	CLP EPA	4Q01	CLP EPA	Limit	Unit
RCRA											
	arsenic, total recoverable			<23	U					50	ug/L
	lead, total recoverable			<26	U					15	ug/L
	1,1,1-trichloroethane			<5	U					200	ug/L
	1,4-dichlorobenzene			7.62	J K					75	ug/L
	benzene			<5	U					5	ug/L
	chlorobenzene			2.38	J IK					100	ug/L
	chloroethene (vinyl chloride)			<10	U					2	ug/L
	dichloromethane (methylene chloride)			<5	U					5	ug/L
	dichlorodifluoromethane			<10	U					10	ug/L
	ethylbenzene			<5	U					700	ug/L
	tetrachloroethylene			<5	U					5	ug/L
	trichloroethylene			<5	U					5	ug/L
	trichlorofluoromethane			19.2	J K					5	ug/L
	xylenes			<5	U					10000	ug/L
Non-RCRA											
	tritium					.752	J I			20	pCi/ml
II. Laboratory Indicator Parameters											
ST	Parameter	1Q01	CLP EPA	2Q01	CLP EPA	3Q01	CLP EPA	4Q01	CLP EPA	Limit	Unit
Non-RCRA Radionuclide											
	gross alpha					16.2	J IL			15	pCi/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).

**Table A-7. Groundwater Monitoring Results for Duplicate Samples (Cont.)**  
**WELL LFW 8R**

SAMPLE DATE						08/02/01		10/10/01			
ANALYTICAL DATA											
I. Constituents of Concern											
ST	Parameter	1Q01	CLP EPA	2Q01	CLP EPA	3Q01	CLP EPA	4Q01	CLP EPA	Limit	Unit
RCRA											
	1,4-dichlorobenzene							1.97	J IY	75	ug/L
Non-RCRA											
	tritium					1.02				20	pCi/ml
II. Laboratory Indicator Parameters											
ST	Parameter	1Q01	CLP EPA	2Q01	CLP EPA	3Q01	CLP EPA	4Q01	CLP EPA	Limit	Unit
Non-RCRA Radionuclide											
	gross alpha					4.12				15	pCi/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).

**Table A-7. Groundwater Monitoring Results for Duplicate Samples (Cont.)**  
**WELL LFW 10A**

SAMPLE DATE		01/10/01	04/19/01								
ANALYTICAL DATA											
I. Constituents of Concern											
ST	Parameter	1Q01	CLP EPA	2Q01	CLP EPA	3Q01	CLP EPA	4Q01	CLP EPA	Limit	Unit
RCRA											
	arsenic, total recoverable			11.8	J I					50	ug/L
	lead, total recoverable			<47	U					15	ug/L
	1,1,1-trichloroethane			<5	U					200	ug/L
	1,4-dichlorobenzene			29.2	J K					75	ug/L
	benzene			3.61	J IK					5	ug/L
	chlorobenzene			2.14	J IK					100	ug/L
	chloroethene (vinyl chloride)			14.3	J K					2	ug/L
	dichloromethane (methylene chloride)			<5	U					5	ug/L
	dichlorodifluoromethane			.953	J IK					10	ug/L
	ethylbenzene			3.41	J IK					700	ug/L
	tetrachloroethylene			<5	U					5	ug/L
	trichloroethylene			<5	U					5	ug/L
	trichlorofluoromethane			<5	U					5	ug/L
	xylene			5.67	J K					10000	ug/L
Non-RCRA											
+	tritium	48.4								20	pCi/ml

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).

**Table A-7. Groundwater Monitoring Results for Duplicate Samples (Cont.)**  
**WELL LFW 21**

SAMPLE DATE 07/30/01

ANALYTICAL DATA

I. Constituents of Concern

<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
Non-RCRA											
	tritium					9.02				20	pCi/ml

II. Laboratory Indicator Parameters

<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
Non-RCRA Radionuclide											
	gross alpha					9.83	UJ L			15	pCi/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).

**Table A-7. Groundwater Monitoring Results for Duplicate Samples (Cont.)**  
**WELL LFW 23R**

SAMPLE DATE		04/20/01				08/09/01		10/10/01			
ANALYTICAL DATA											
I. Constituents of Concern											
ST	Parameter	1Q01	CLP EPA	2Q01	CLP EPA	3Q01	CLP EPA	4Q01	CLP EPA	Limit	Unit
RCRA											
	arsenic, total recoverable							<42	U Y	50	ug/L
	lead, total recoverable							<24	U Y	15	ug/L
Non-RCRA											
	tritium					1.23	J I			20	pCi/ml
II. Laboratory Indicator Parameters											
ST	Parameter	1Q01	CLP EPA	2Q01	CLP EPA	3Q01	CLP EPA	4Q01	CLP EPA	Limit	Unit
Non-RCRA Radionuclide											
	gross alpha			29.6	J I	13.4	UJ L			15	pCi/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).

**Table A-7. Groundwater Monitoring Results for Duplicate Samples (Cont.)**  
**WELL LFW 31**

SAMPLE DATE		01/11/01				08/06/01		10/17/01			
ANALYTICAL DATA											
I. Constituents of Concern											
ST	Parameter	1Q01	CLP EPA	2Q01	CLP EPA	3Q01	CLP EPA	4Q01	CLP EPA	Limit	Unit
RCRA											
	arsenic, total recoverable							<42	U Y	50	ug/L
	lead, total recoverable							4.7	J IY	15	ug/L
	1,4-dichlorobenzene							<20	U Y	75	ug/L
Non-RCRA											
	tritium	.977	J I			1.27	J I			20	pCi/ml
II. Laboratory Indicator Parameters											
ST	Parameter	1Q01	CLP EPA	2Q01	CLP EPA	3Q01	CLP EPA	4Q01	CLP EPA	Limit	Unit
Non-RCRA Radionuclide											
	gross alpha					11.9	U V			15	pCi/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).



**Table A-7. Groundwater Monitoring Results for Duplicate Samples (Cont.)**  
**WELL LFW 36R**

SAMPLE DATE 04/17/01

ANALYTICAL DATA

I. Constituents of Concern

<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
Non-RCRA											
	tritium			2.02						20	pCi/ml

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).

**Table A-7. Groundwater Monitoring Results for Duplicate Samples (Cont.)**  
**WELL LFW 43B**

SAMPLE DATE		04/17/01						10/11/01			
ANALYTICAL DATA											
I. Constituents of Concern											
ST	Parameter	1Q01	CLP EPA	2Q01	CLP EPA	3Q01	CLP EPA	4Q01	CLP EPA	Limit	Unit
RCRA											
	1,1,1-trichloroethane							<5	U	200	ug/L
	1,4-dichlorobenzene							<5	U	75	ug/L
	benzene							<5	U	5	ug/L
	chlorobenzene							<5	U	100	ug/L
	chloroethene (vinyl chloride)							<10	U	2	ug/L
	dichloromethane (methylene chloride)							<5	U	5	ug/L
	dichlorodifluoromethane							<10	U	10	ug/L
	ethylbenzene							<5	U	700	ug/L
	tetrachloroethylene							<5	U	5	ug/L
	trans-1,2-dichloroethylene							<5	U	100	ug/L
	trichloroethylene							<5	U	5	ug/L
	trichlorofluoromethane							<5	U	5	ug/L
	xylene							<5	U	10000	ug/L
Non-RCRA											
	tritium			1.02	J I			.673		20	pCi/ml
II. Laboratory Indicator Parameters											
ST	Parameter	1Q01	CLP EPA	2Q01	CLP EPA	3Q01	CLP EPA	4Q01	CLP EPA	Limit	Unit
Non-RCRA Radionuclide											
	gross alpha							1.14	U	15	pCi/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).

**Table A-7. Groundwater Monitoring Results for Duplicate Samples (Cont.)**  
**WELL LFW 45D**

SAMPLE DATE		01/09/01									
ANALYTICAL DATA											
I. Constituents of Concern											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
Non-RCRA											
	tritium	1.35	J I							20	pCi/ml
II. Laboratory Indicator Parameters											
<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
Non-RCRA Radionuclide											
	gross alpha	8.58								15	pCi/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).

**Table A-7. Groundwater Monitoring Results for Duplicate Samples (Cont.)**  
**WELL LFW 47C**

SAMPLE DATE

10/11/01

ANALYTICAL DATA

I. Constituents of Concern

<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
RCRA											
	chloroethene (vinyl chloride)							<10	U	2	ug/L
	tetrachloroethylene							<5	U	5	ug/L
	trichloroethylene							<5	U	5	ug/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.

+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).

**Table A-7. Groundwater Monitoring Results for Duplicate Samples (Cont.)**  
**WELL LFW 58D**

SAMPLE DATE 08/15/01

ANALYTICAL DATA

I. Constituents of Concern

<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
Non-RCRA											
	tritium					5.78				20	pCi/ml

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).

**Table A-7. Groundwater Monitoring Results for Duplicate Samples (Cont.)**  
**WELL LFW 59D**

SAMPLE DATE		01/15/01				07/31/01					
ANALYTICAL DATA											
I. Constituents of Concern											
ST	Parameter	1Q01	CLP EPA	2Q01	CLP EPA	3Q01	CLP EPA	4Q01	CLP EPA	Limit	Unit
Non-RCRA											
	tritium	3.25				.333	U			20	pCi/ml
II. Laboratory Indicator Parameters											
ST	Parameter	1Q01	CLP EPA	2Q01	CLP EPA	3Q01	CLP EPA	4Q01	CLP EPA	Limit	Unit
Non-RCRA Radionuclide											
	gross alpha	8.65	U							15	pCi/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).

**Table A-7. Groundwater Monitoring Results for Duplicate Samples (Cont.)**  
**WELL LFW 61D**

SAMPLE DATE 04/19/01

ANALYTICAL DATA

I. Constituents of Concern

<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
Non-RCRA											
	tritium			.607	J I					20	pCi/ml

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).

**Table A-7. Groundwater Monitoring Results for Duplicate Samples (Cont.)**  
**WELL LFW 63B**

SAMPLE DATE

10/11/01

ANALYTICAL DATA

I. Constituents of Concern

<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
RCRA											
	chloroethene (vinyl chloride)							<10	U	2	ug/L
	tetrachloroethylene							<5	U	5	ug/L
	trichloroethylene							<5	U	5	ug/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).



**Table A-7. Groundwater Monitoring Results for Duplicate Samples (Cont.)**  
**WELL LFW 63D**

SAMPLE DATE 04/18/01

ANALYTICAL DATA

II. Laboratory Indicator Parameters

<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
Non-RCRA Radionuclide											
	gross alpha			5.72	U					15	pCi/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).

**Table A-7. Groundwater Monitoring Results for Duplicate Samples (Cont.)**  
**WELL LFW 64D**

SAMPLE DATE		01/16/01					10/10/01				
ANALYTICAL DATA											
I. Constituents of Concern											
ST	Parameter	1Q01	CLP EPA	2Q01	CLP EPA	3Q01	CLP EPA	4Q01	CLP EPA	Limit	Unit
RCRA											
	chloroethene (vinyl chloride)							4.64	J IY	2	ug/L
	tetrachloroethylene							<5	U Y	5	ug/L
	trichloroethylene							<5	U Y	5	ug/L
Non-RCRA											
	tritium	3.61								20	pCi/ml

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).

**Table A-7. Groundwater Monitoring Results for Duplicate Samples (Cont.)**  
**WELL LFW 65D**

SAMPLE DATE

10/10/01

ANALYTICAL DATA

I. Constituents of Concern

<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
<b>RCRA</b>											
	chloroethene (vinyl chloride)							<10	U Y	2	ug/L
	tetrachloroethylene							<5	U Y	5	ug/L
	trichloroethylene							<2.84	U Y	5	ug/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).

**Table A-7. Groundwater Monitoring Results for Duplicate Samples (Cont.)**  
**WELL LFW 67C**

SAMPLE DATE

10/10/01

ANALYTICAL DATA

I. Constituents of Concern

<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
RCRA											
	chloroethene (vinyl chloride)							21.9	J Y	2	ug/L
	tetrachloroethylene							<5	U Y	5	ug/L
	trichloroethylene							<5	U Y	5	ug/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).

**Table A-7. Groundwater Monitoring Results for Duplicate Samples (Cont.)**  
**WELL LFW 68C**

SAMPLE DATE 08/08/01

ANALYTICAL DATA

II. Laboratory Indicator Parameters

<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
Non-RCRA Radionuclide											
	gross alpha					2.78	U			15	pCi/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).

**Table A-7. Groundwater Monitoring Results for Duplicate Samples (Cont.)**  
**WELL LFW 69D**

SAMPLE DATE 01/16/01

ANALYTICAL DATA

II. Laboratory Indicator Parameters

<u>ST</u>	<u>Parameter</u>	<u>1Q01</u>	<u>CLP EPA</u>	<u>2Q01</u>	<u>CLP EPA</u>	<u>3Q01</u>	<u>CLP EPA</u>	<u>4Q01</u>	<u>CLP EPA</u>	<u>Limit</u>	<u>Unit</u>
Non-RCRA Radionuclide											
	gross alpha	10.4	U							15	pCi/L

Notes: Concentrations in bold italics exceed the standards listed in Table 3 of the text. Bold italics were not assigned if the result was qualified with a "J", "R", "L", or "U" qualifier.  
+ Indicates a result(s) exceeded the Table 3 Standards (all Quarters).

---

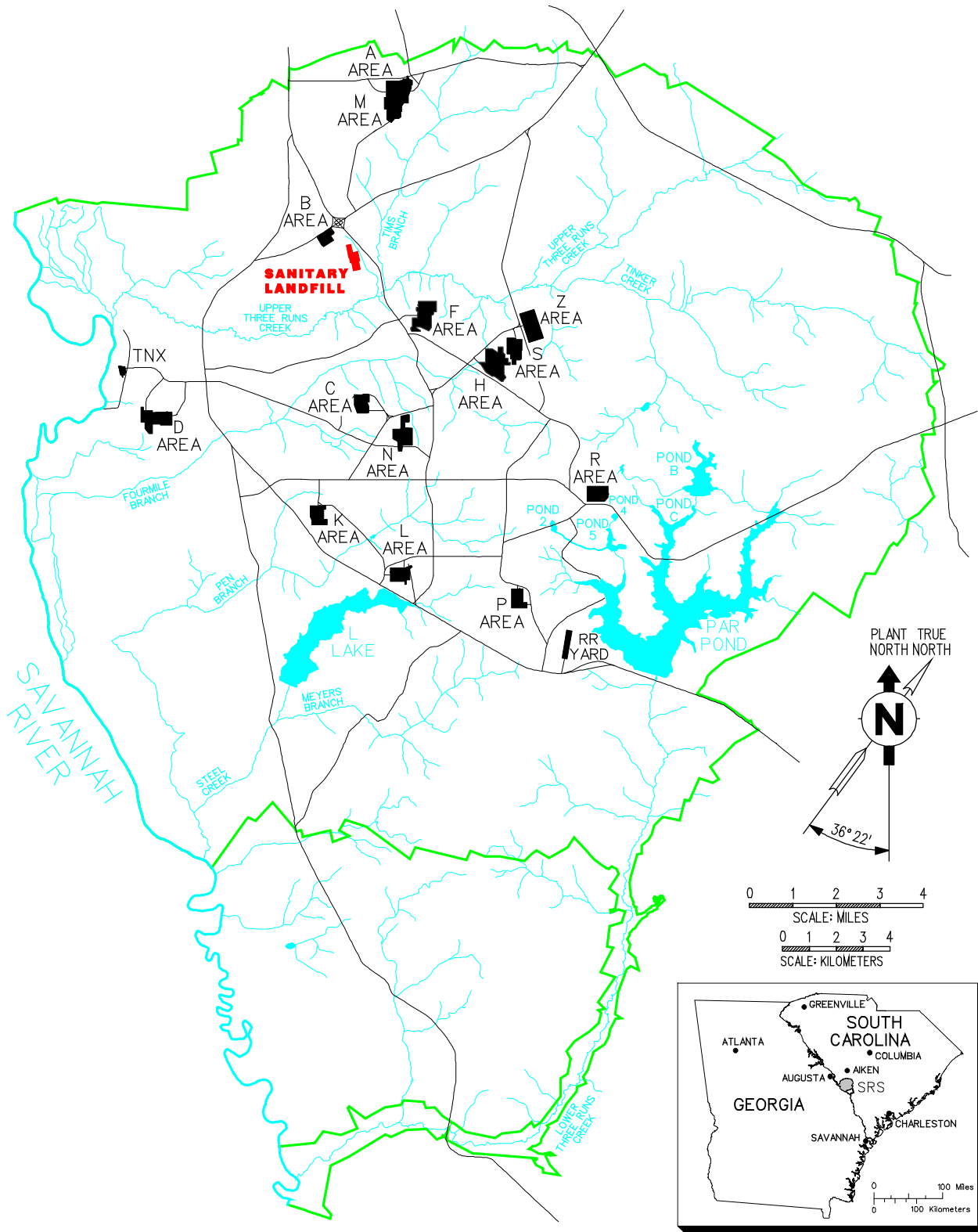
## Appendix B

### Figures

---

**THIS PAGE LEFT BLANK INTENTIONALLY.**





MLG6164r1

Figure 1. Location of the Sanitary Landfill at the Savannah River Site

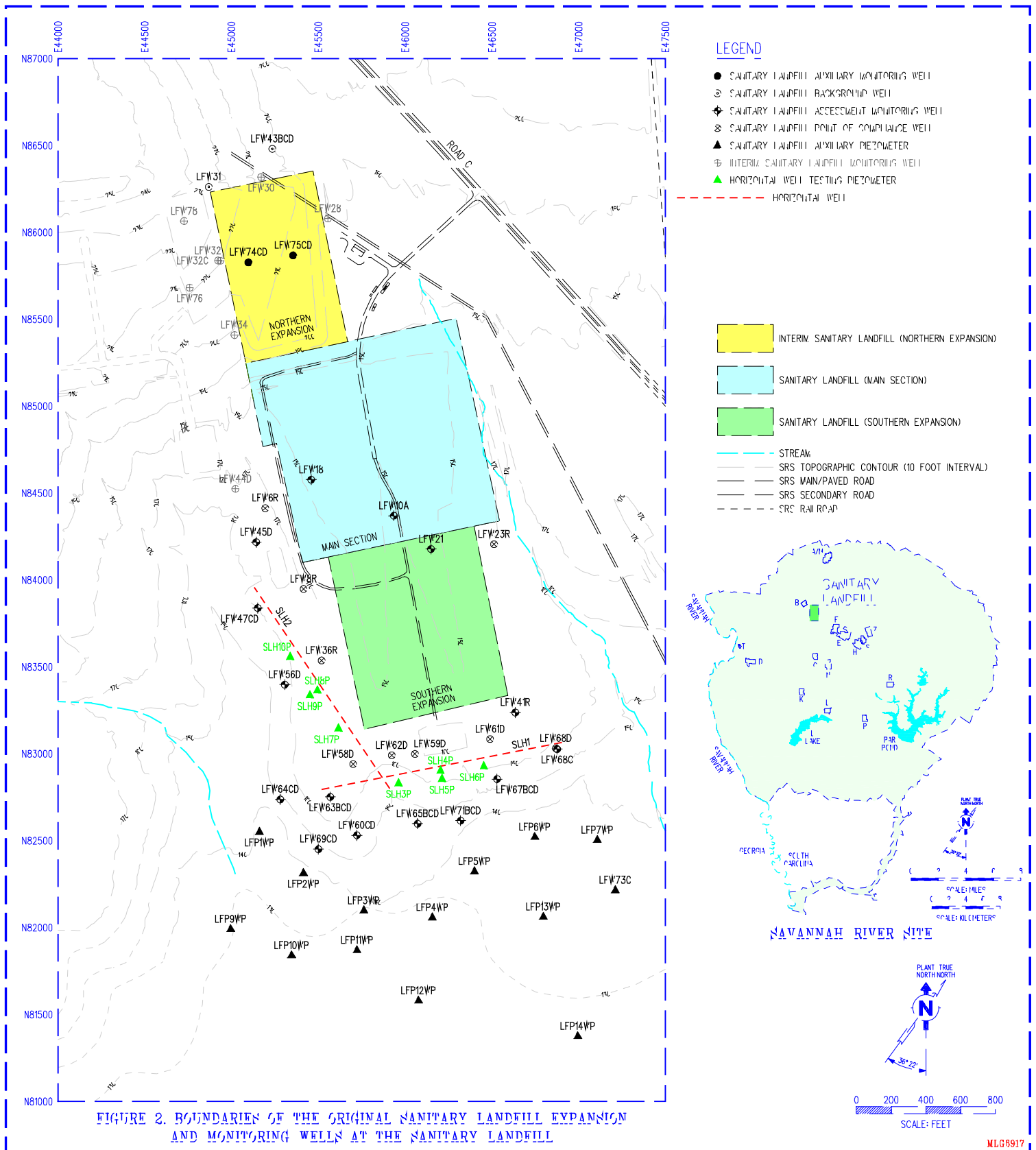
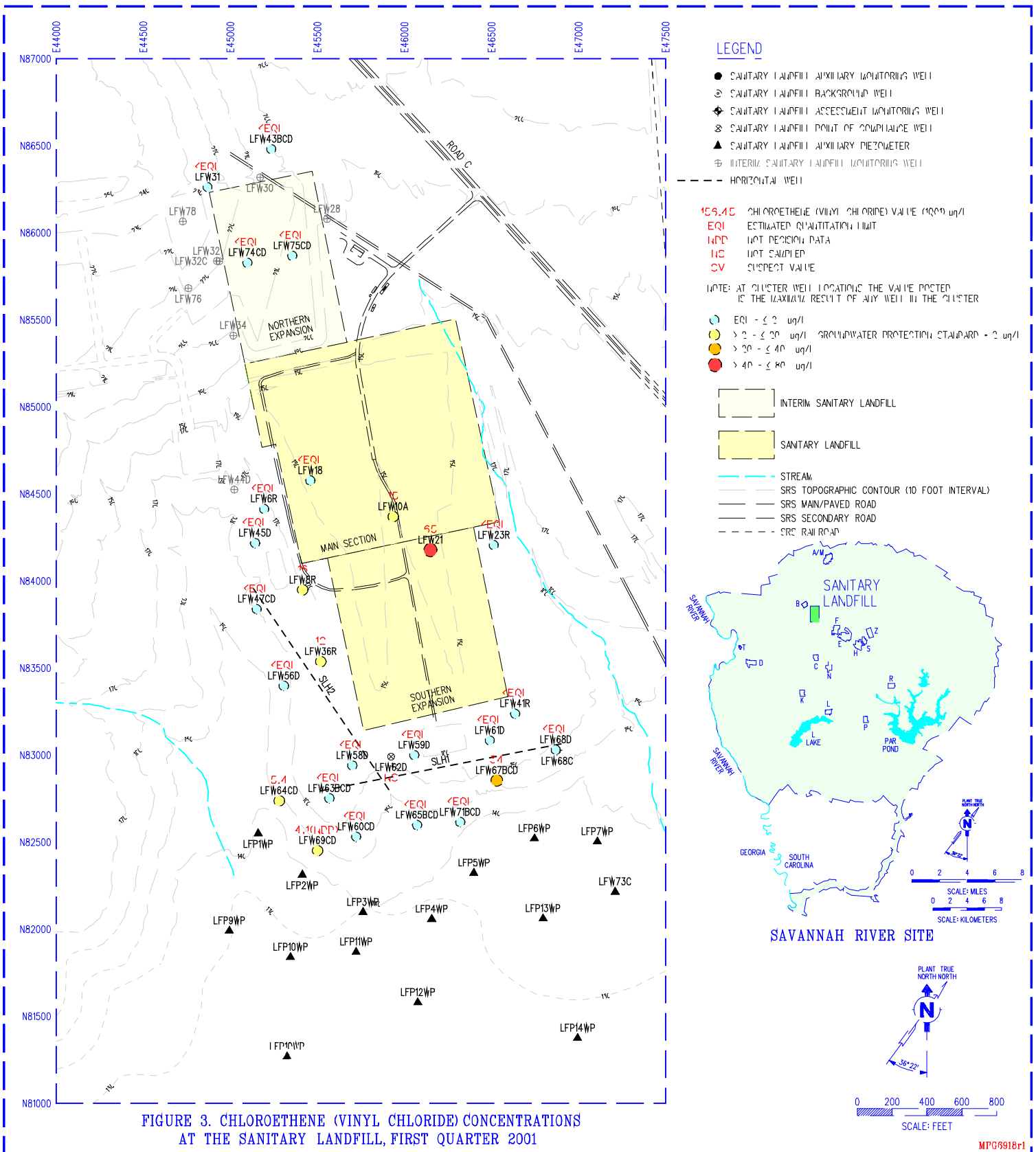
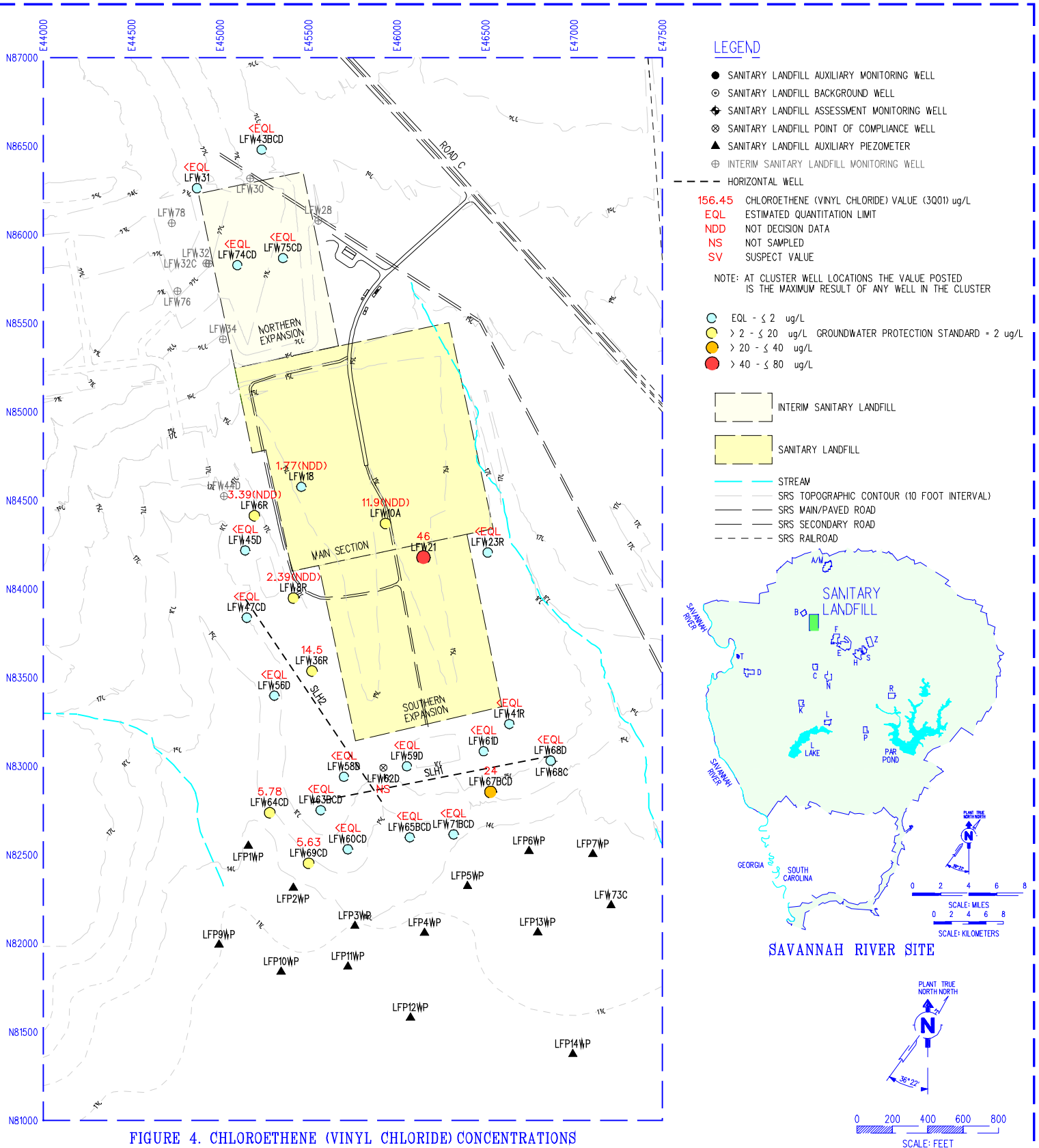
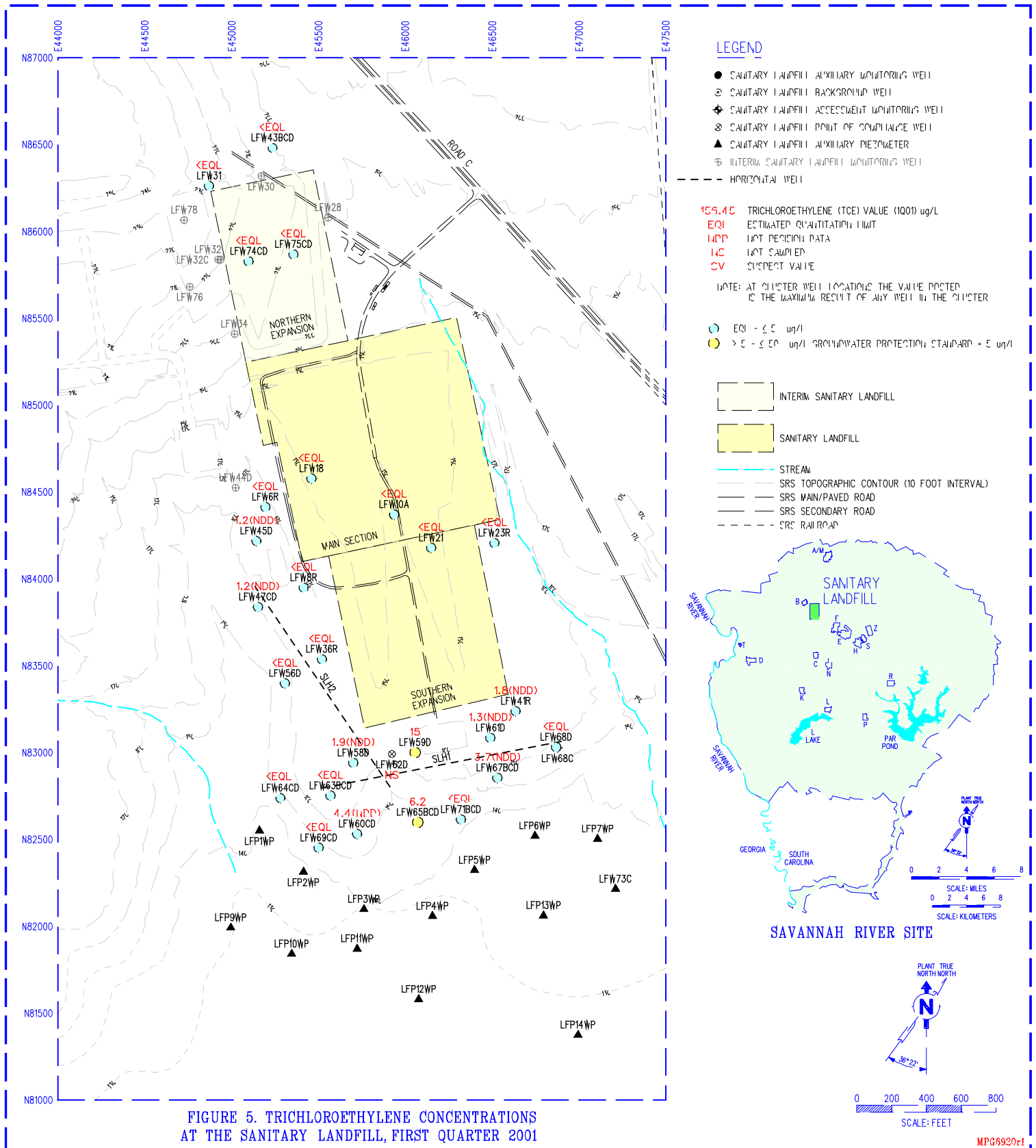


FIGURE 2. BOUNDARIES OF THE ORIGINAL SANITARY LANDFILL EXPANSION AND MONITORING WELLS AT THE SANITARY LANDFILL









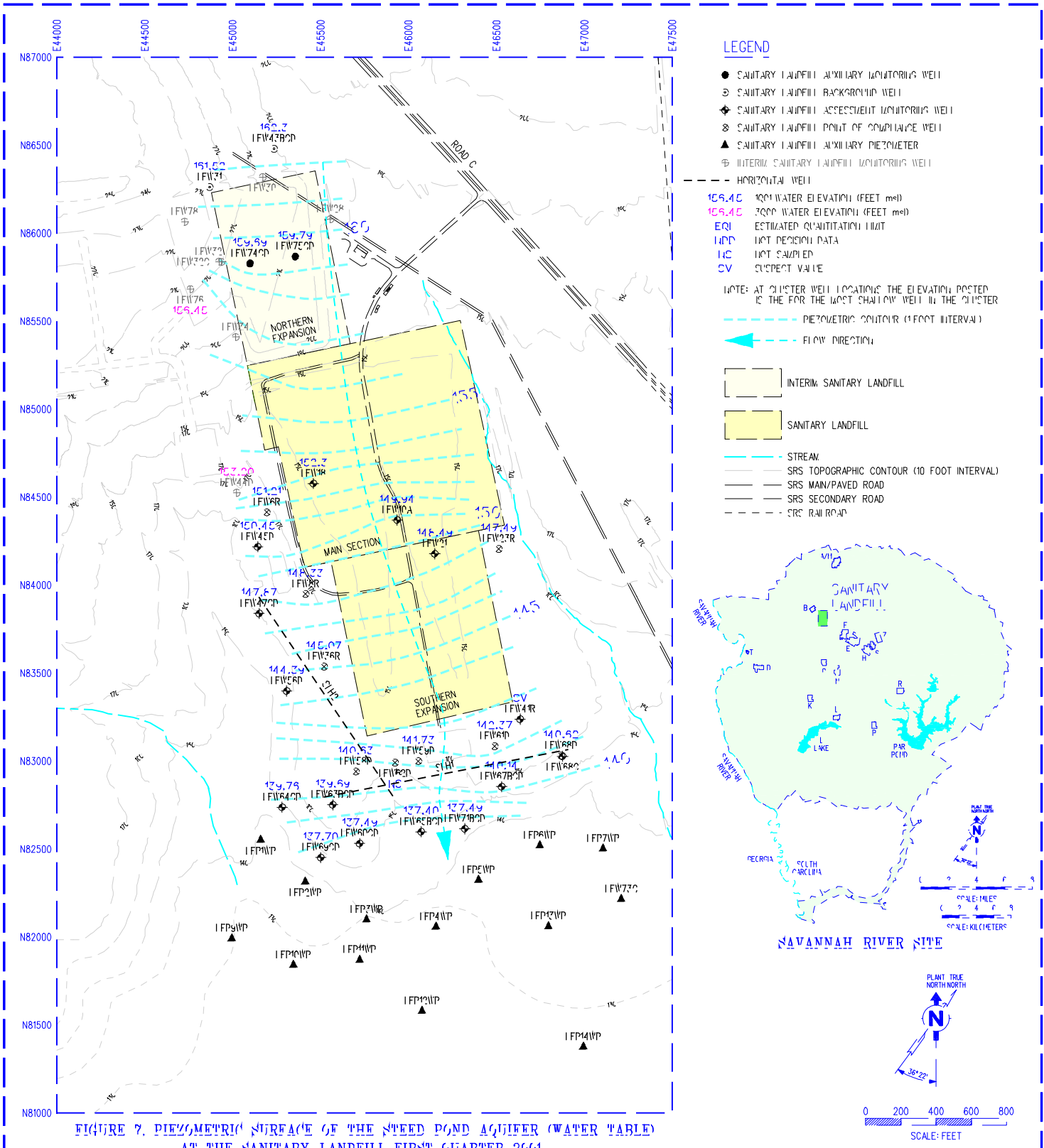
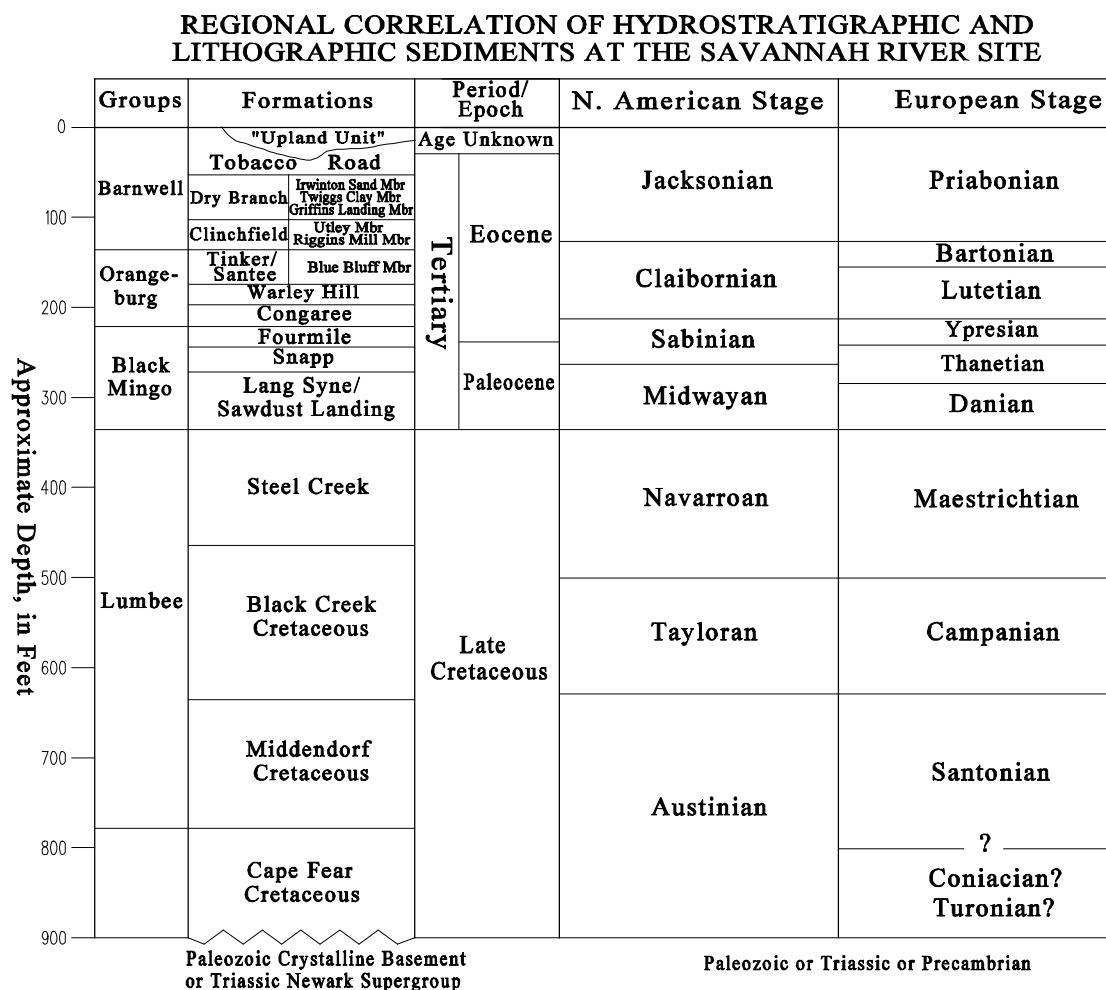


FIGURE 7. PIEZOMETRIC SURFACE OF THE STEED POND AQUIFER (WATER TABLE)  
AT THE SANITARY LANDFILL, FIRST QUARTER 2001



MWG6923r1





**Figure 9 Regional Correlation of Hydrostratigraphic and Lithographic Sediments at the Savannah River Site**

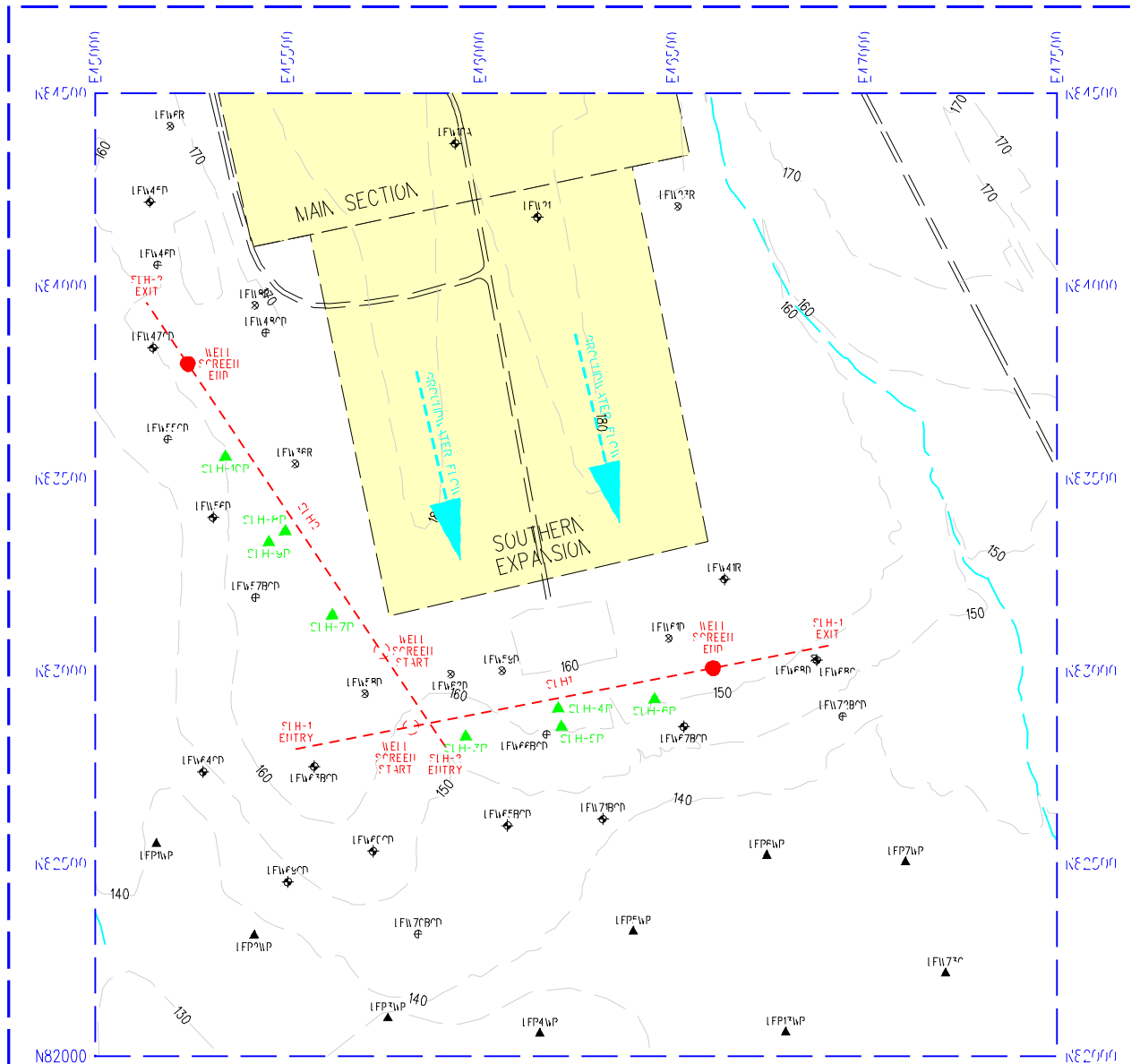


FIGURE 10.  
SANITARY LANDFILL HORIZONTAL REMEDIATION WELLS AND TESTING PIEZOMETERS

### LEGEND

- SANITARY LANDFILL AUXILIARY MONITORING WELL
  - SANITARY LANDFILL BACKGROUND WELL
  - ⊕ SANITARY LANDFILL ASSESSMENT MONITORING WELL
  - ⊗ SANITARY LANDFILL POINT OF COMPLIANCE WELL
  - ▲ SANITARY LANDFILL AUXILIARY PIEZOMETER
  - ⊕ SANITARY LANDFILL MONITORING WELL
  - ▲ HORIZONTAL WELL TESTING PIEZOMETER
  - HORIZONTAL REMEDIATION WELL
  - SANITARY LANDFILL
  - STREAM
  - SRS TOPOGRAPHIC CONTOUR (10 FOOT INTERVAL)
  - SRS MAIN/PAVED ROAD
  - SRS SECONDARY ROAD
  - CRC RAIL ROAD
- 0 150 300 450 600  
SCALE: FEET
- PLANT TRUE NORTH  
36° 22'

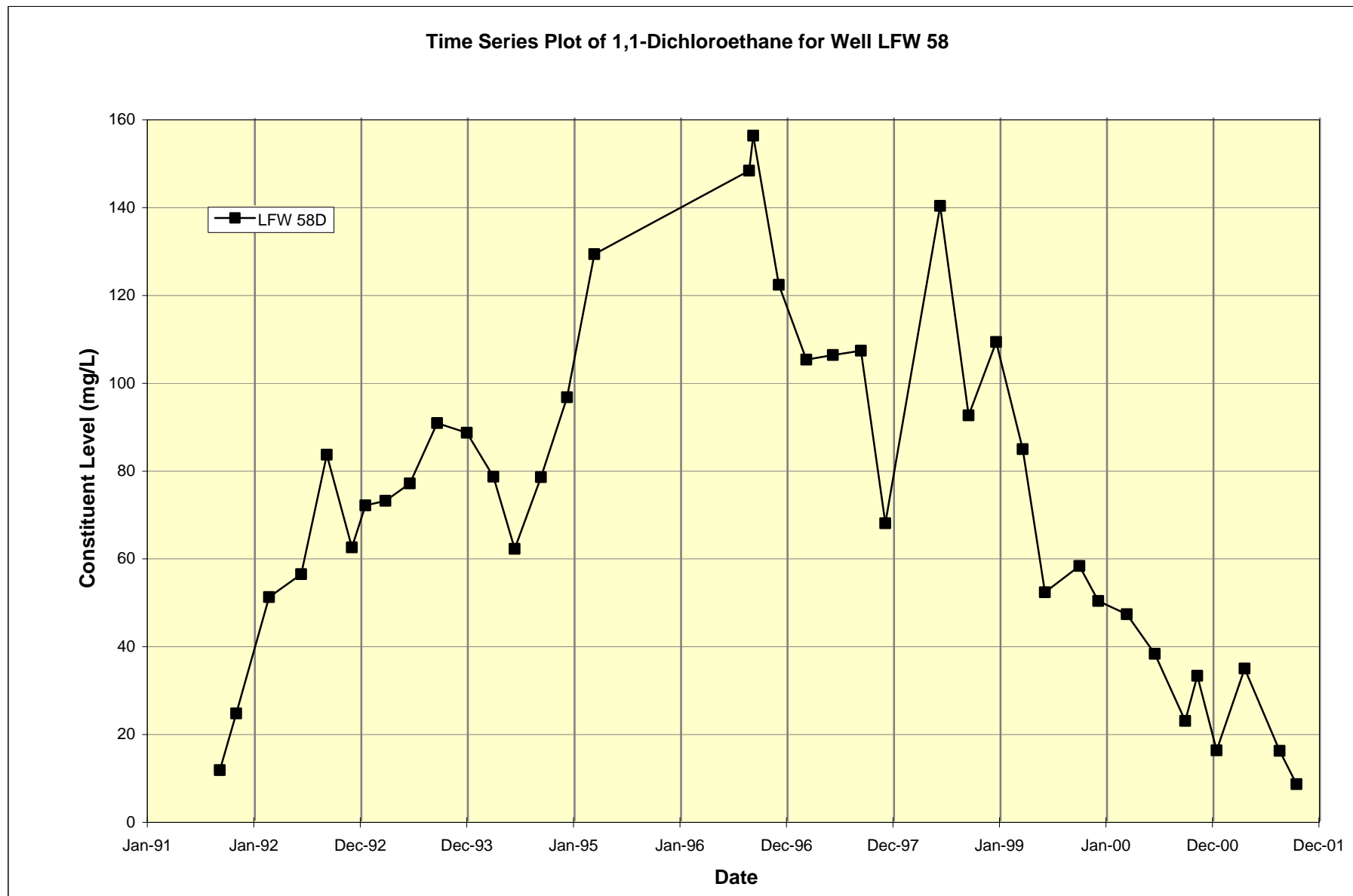
---

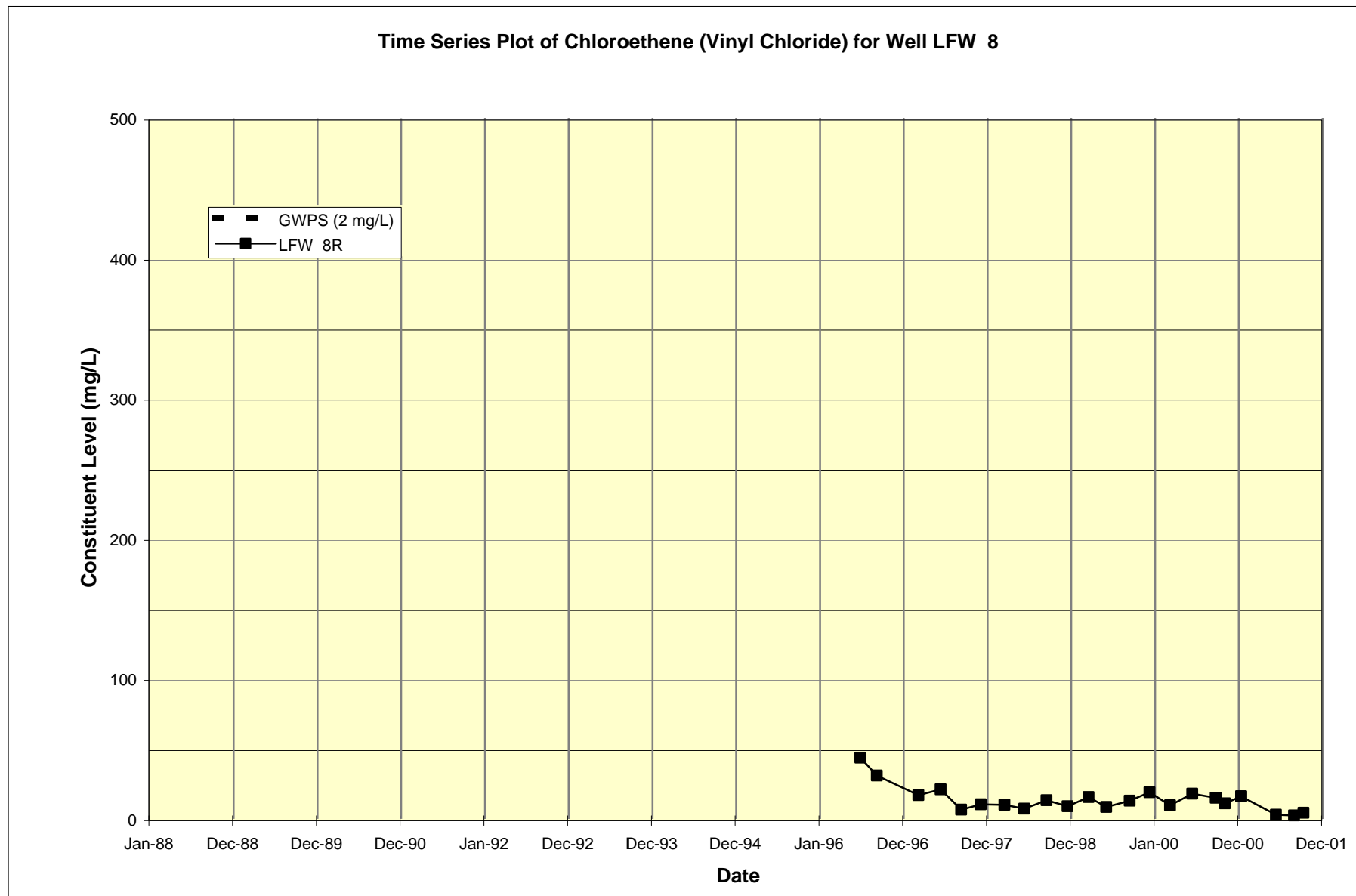
## Appendix C

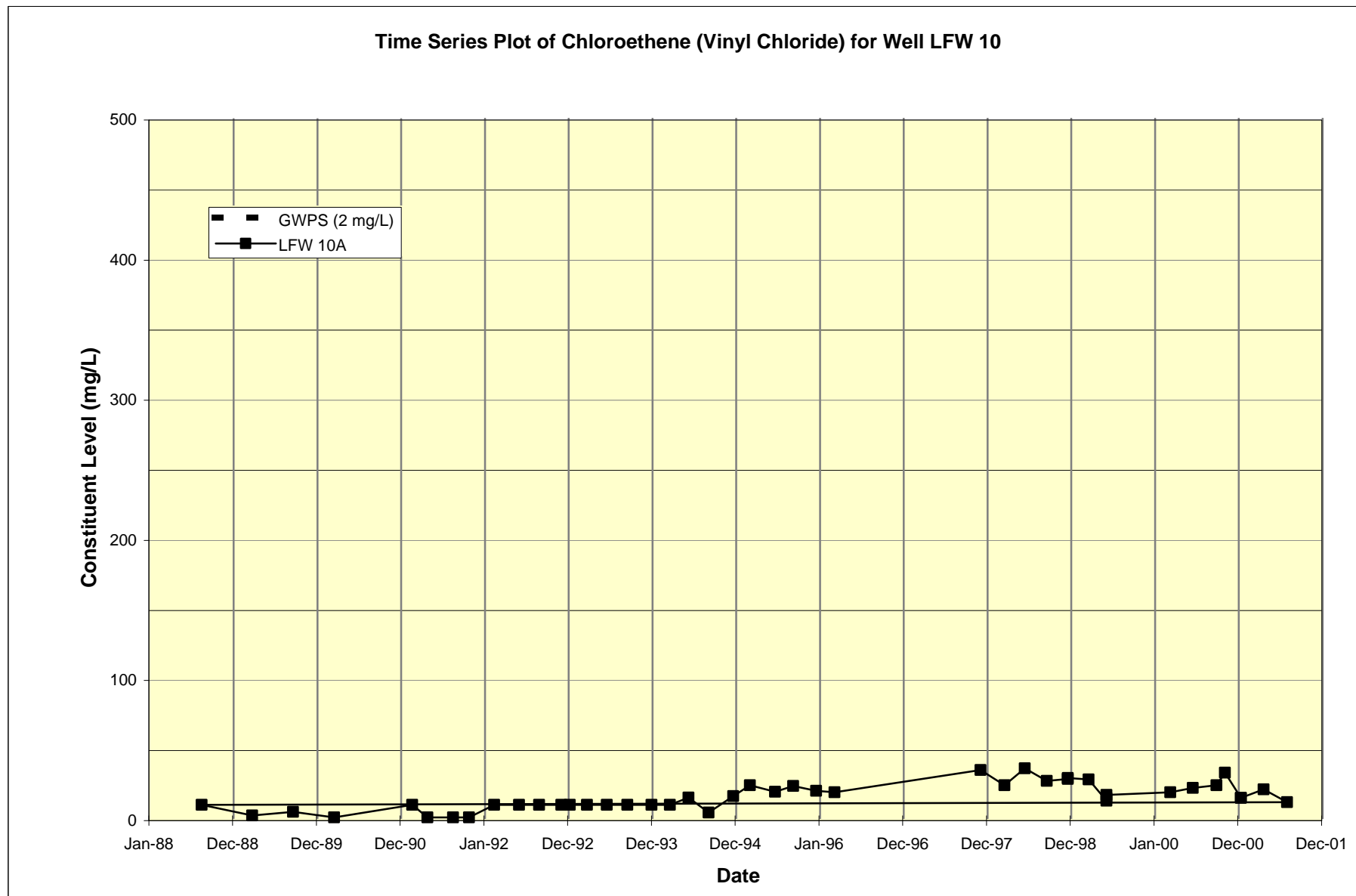
### Time-Series Plots

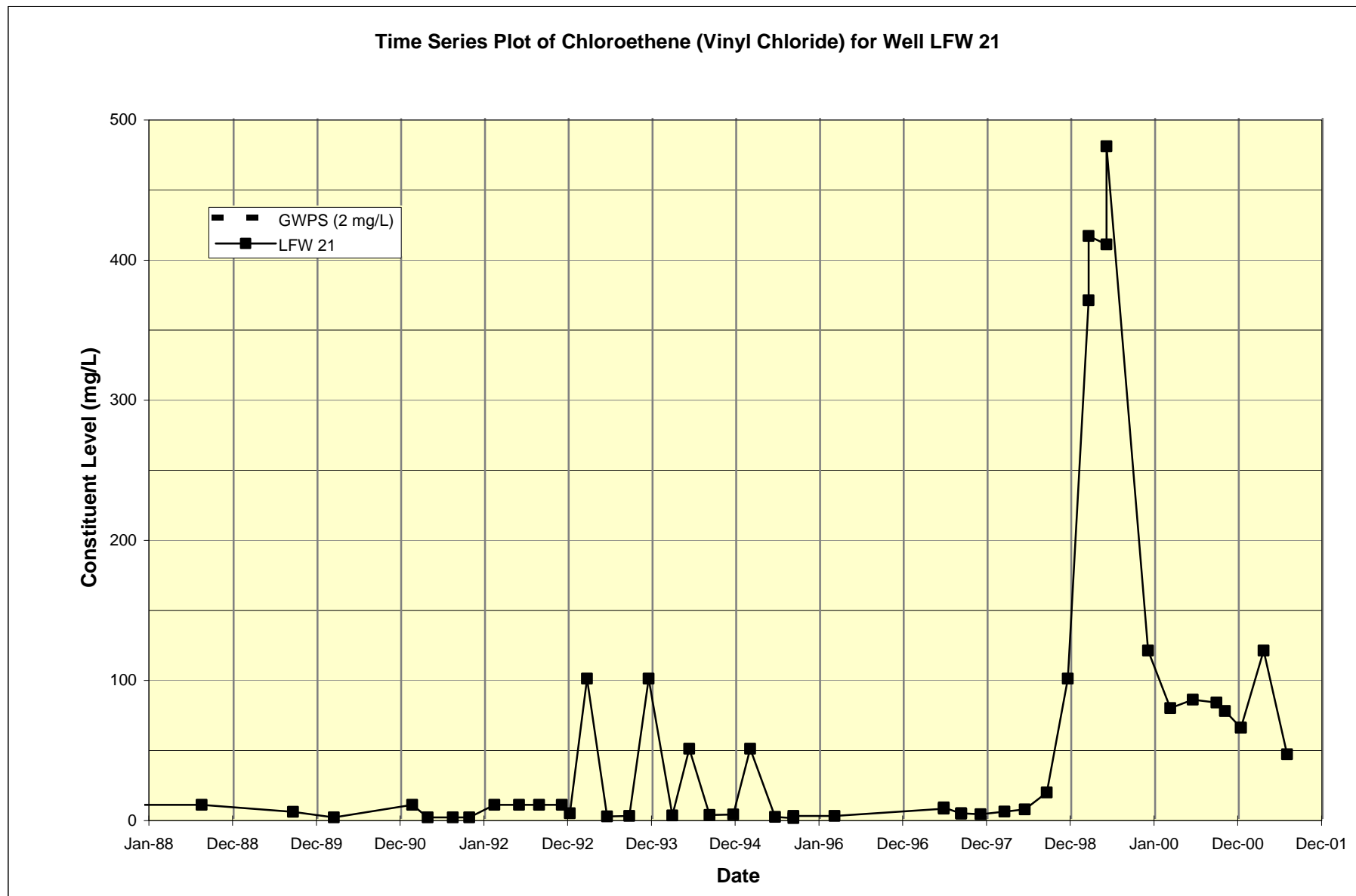
---

**THIS PAGE LEFT BLANK INTENTIONALLY.**

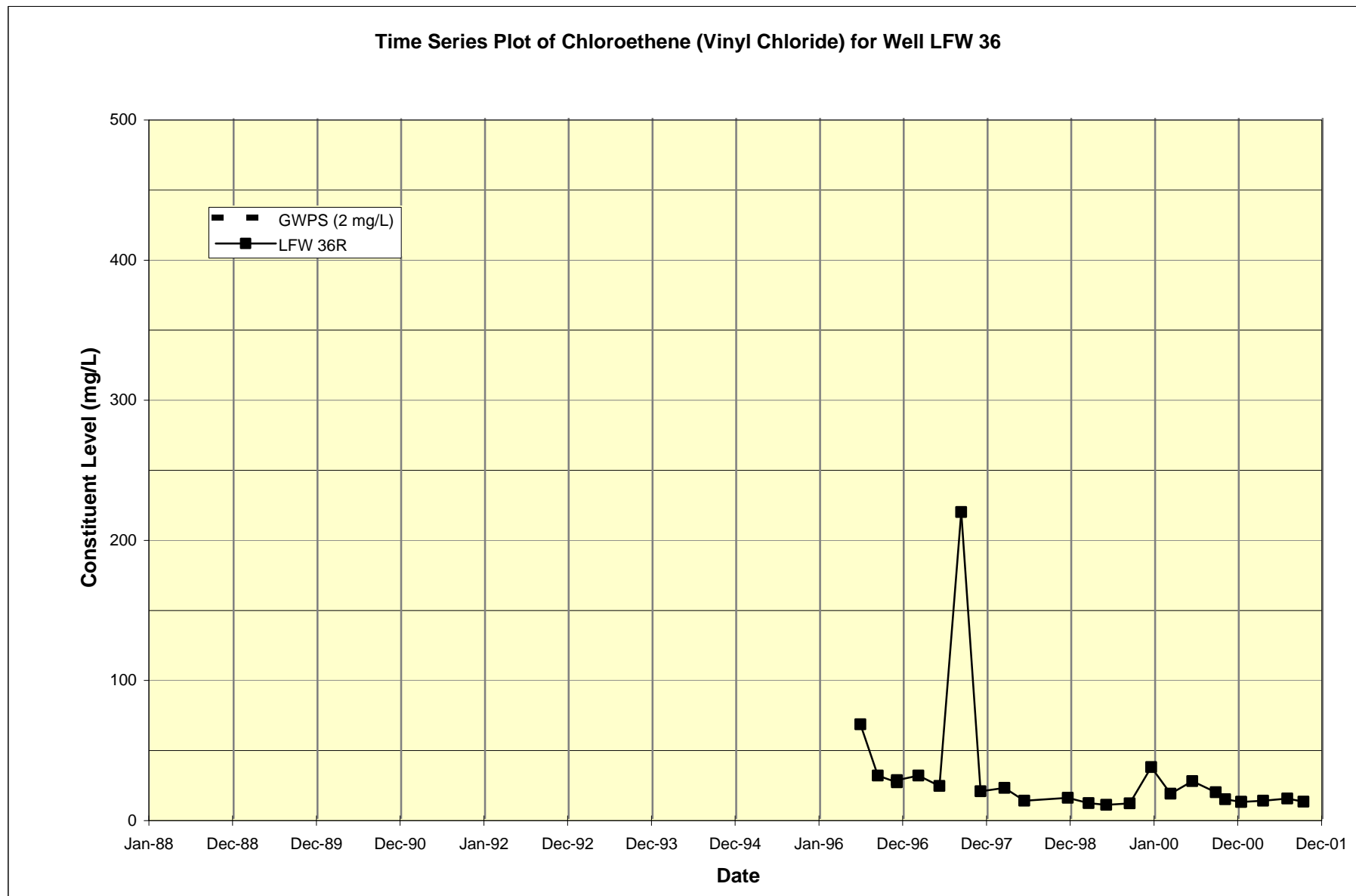


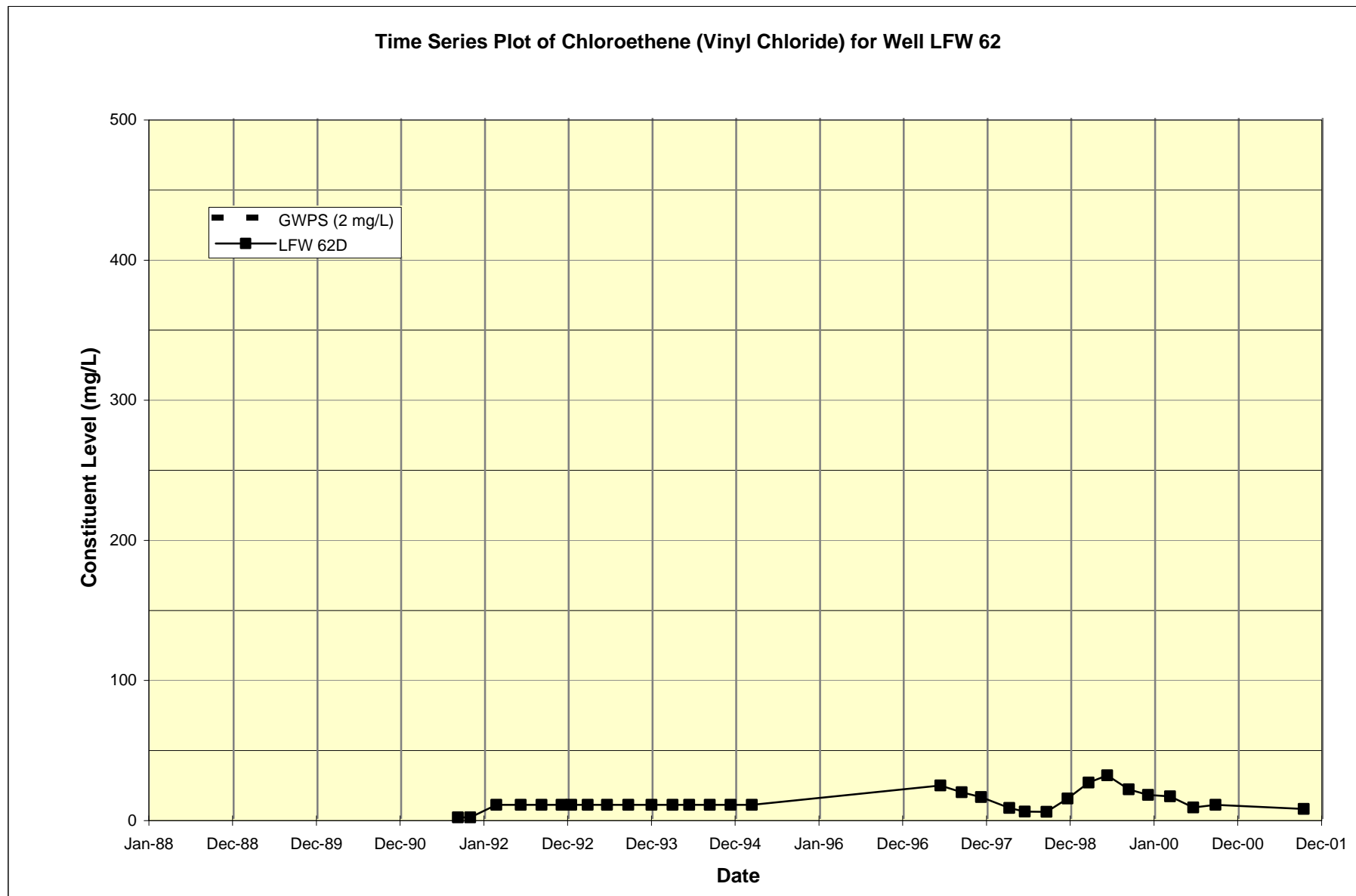


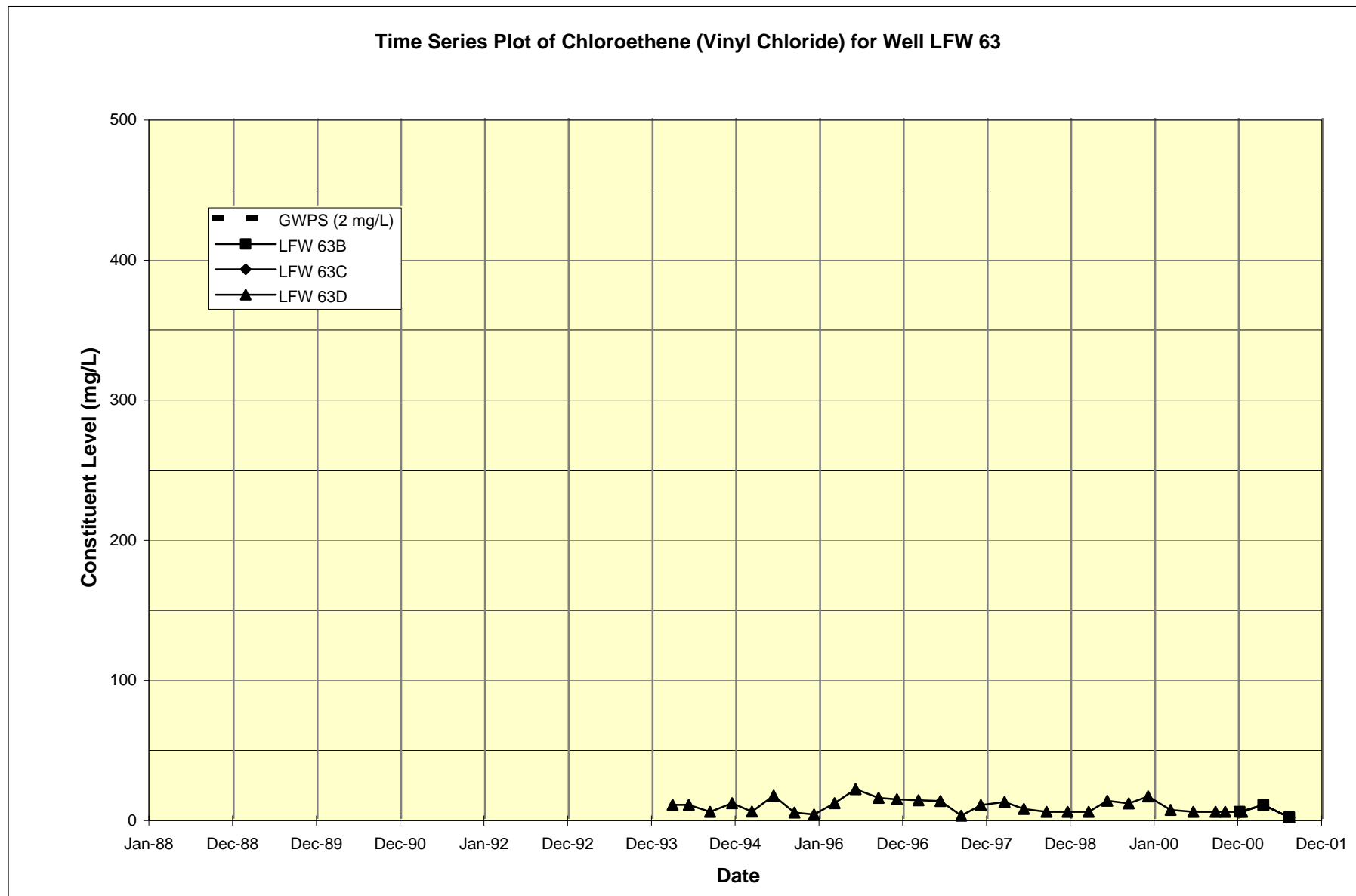


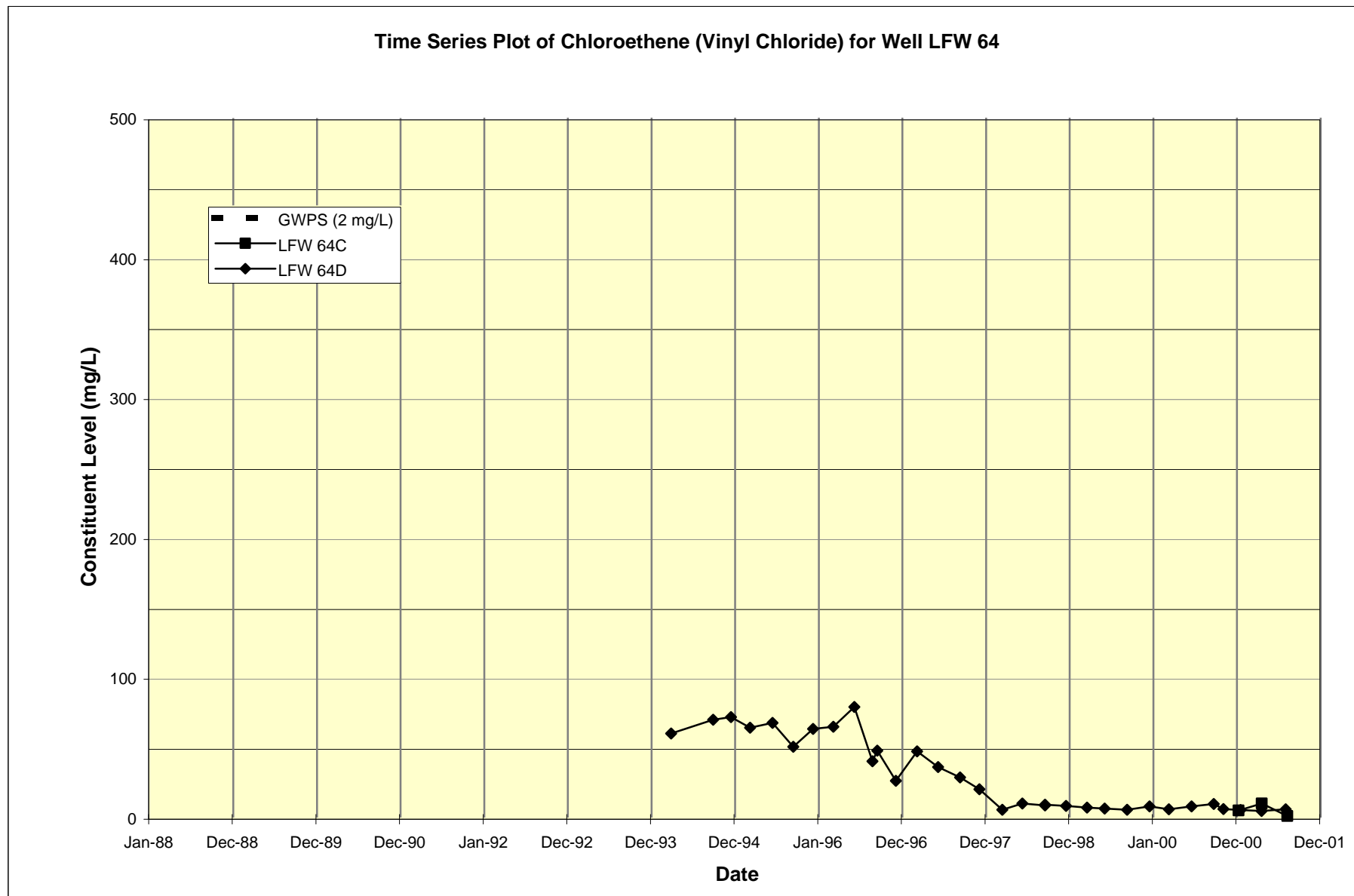


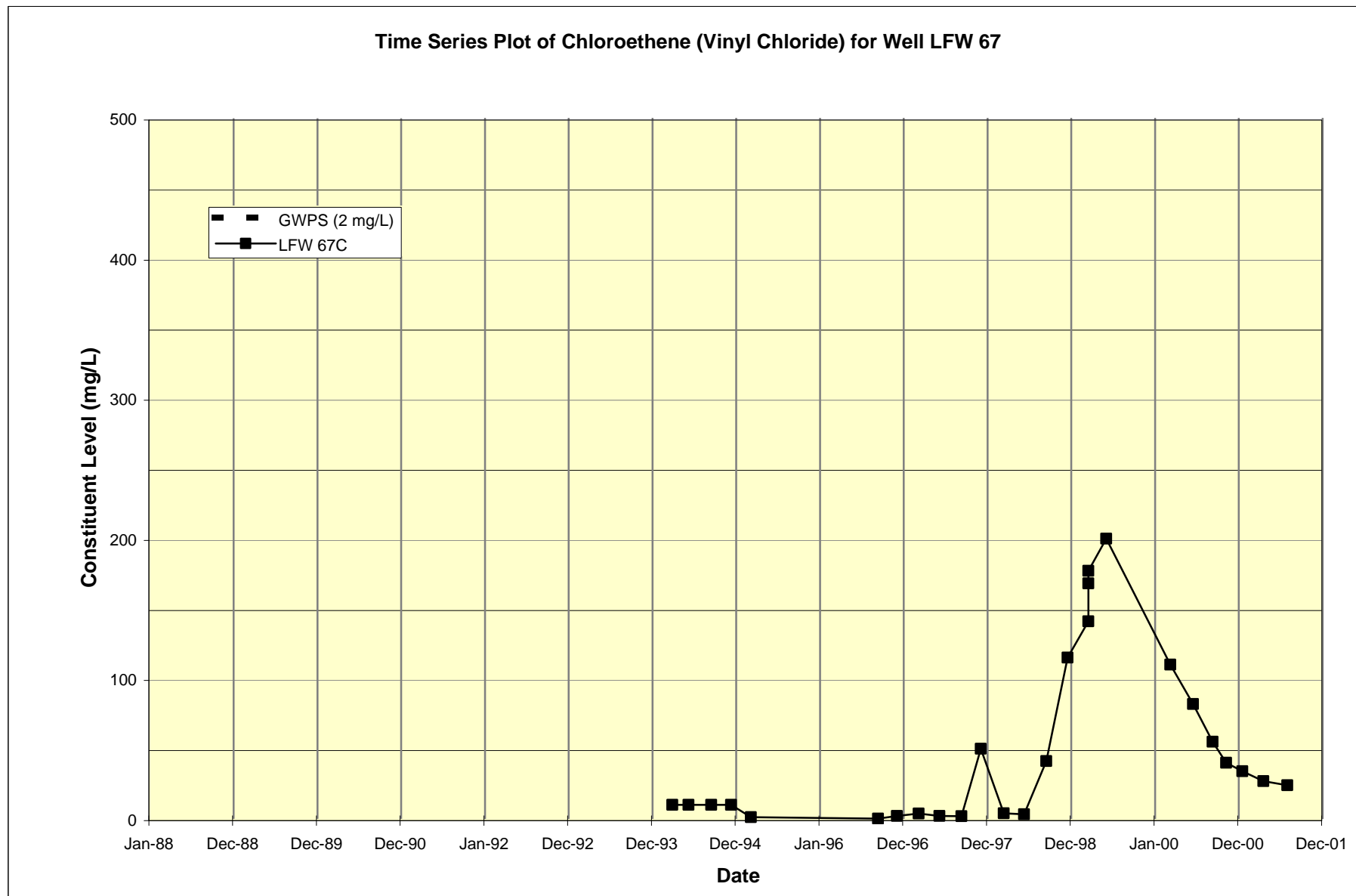


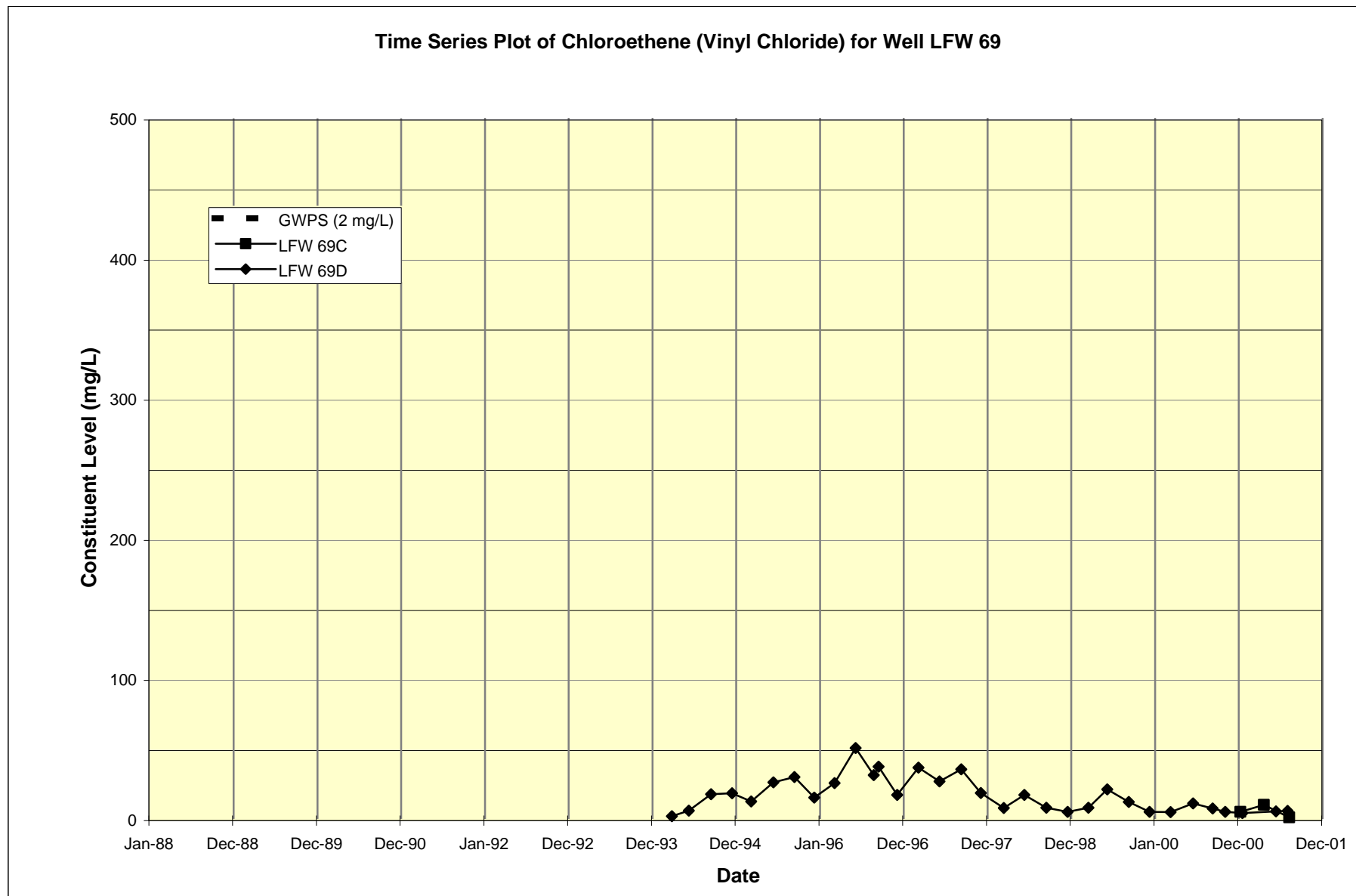


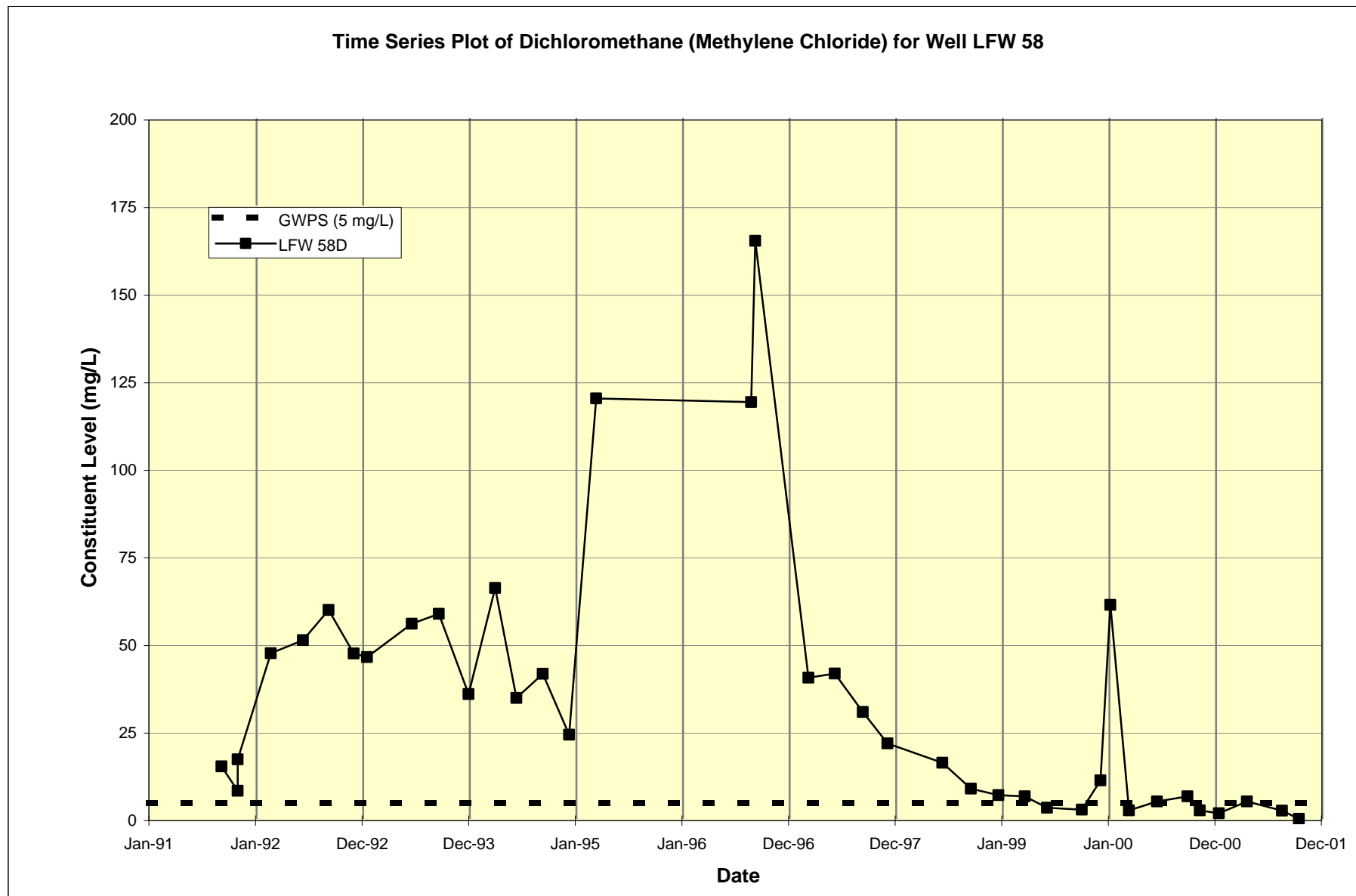


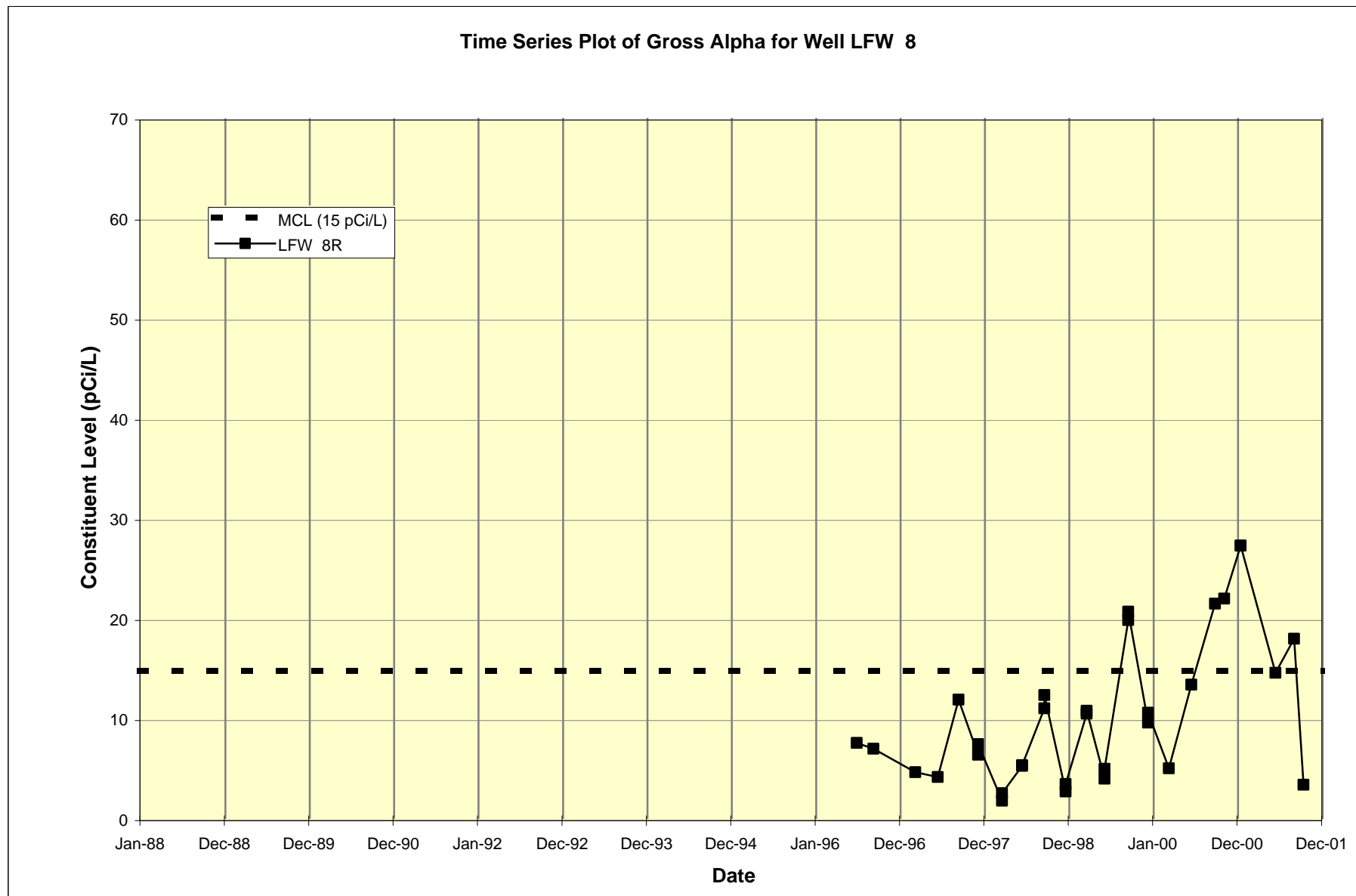




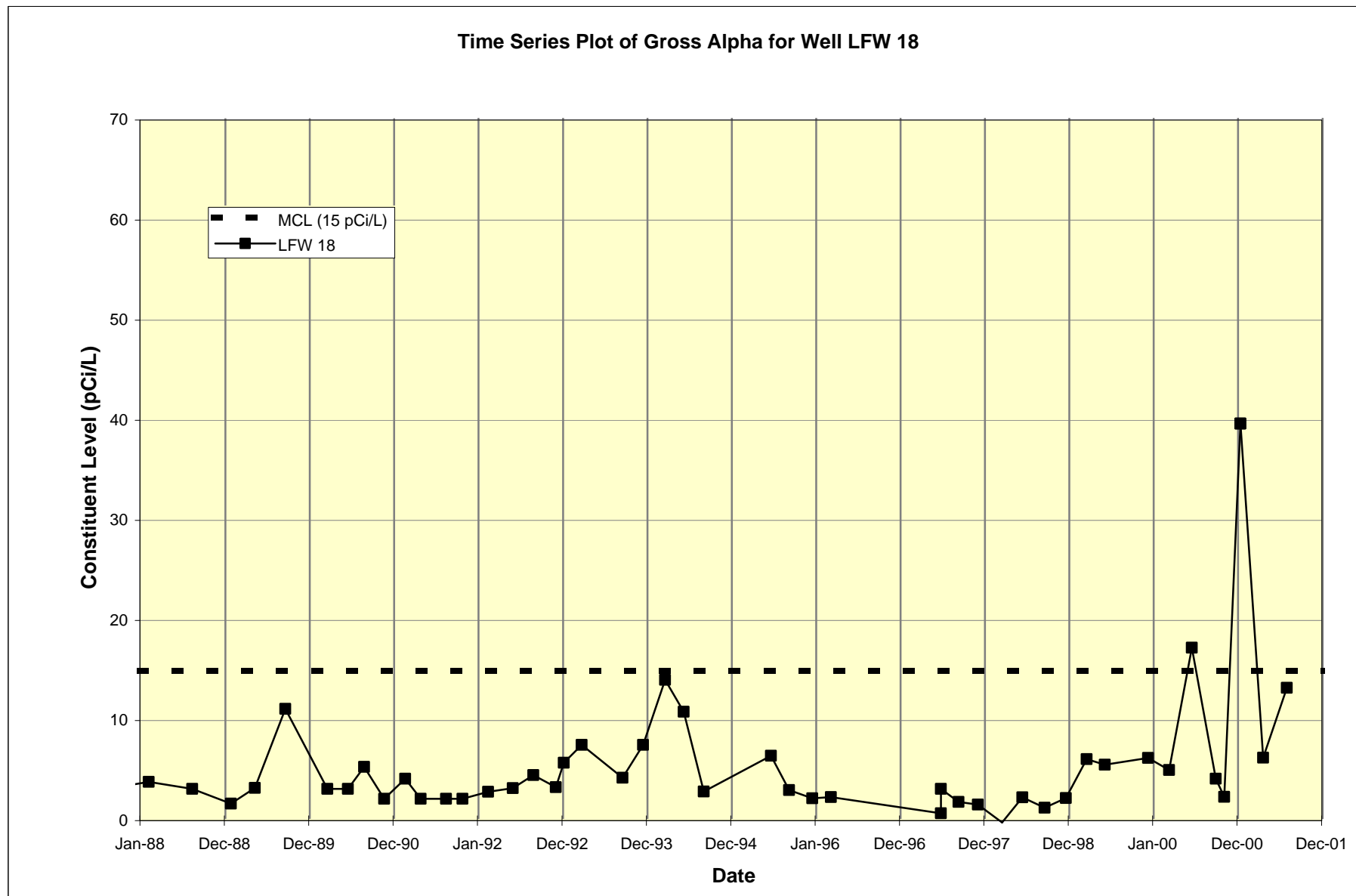


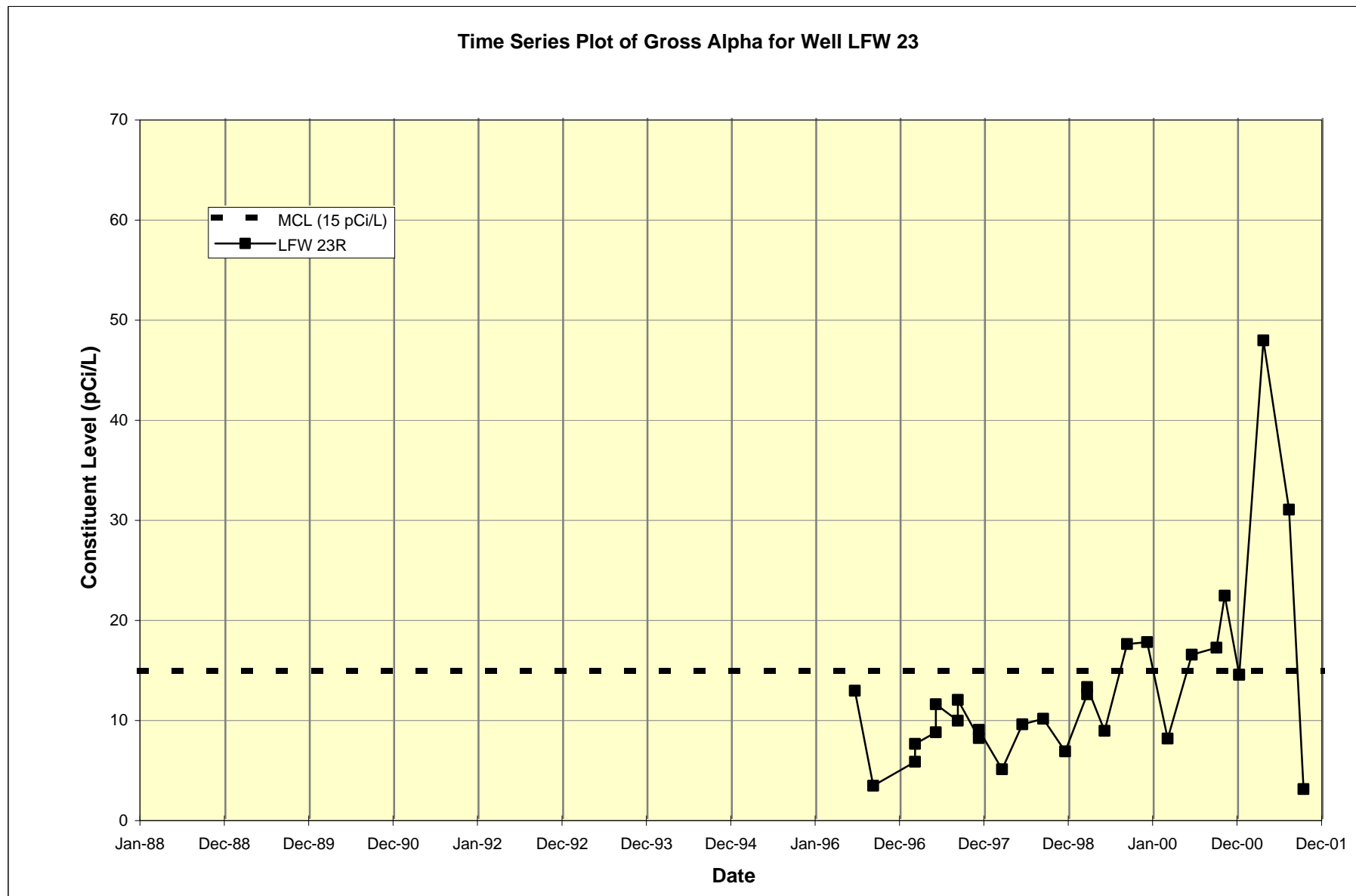


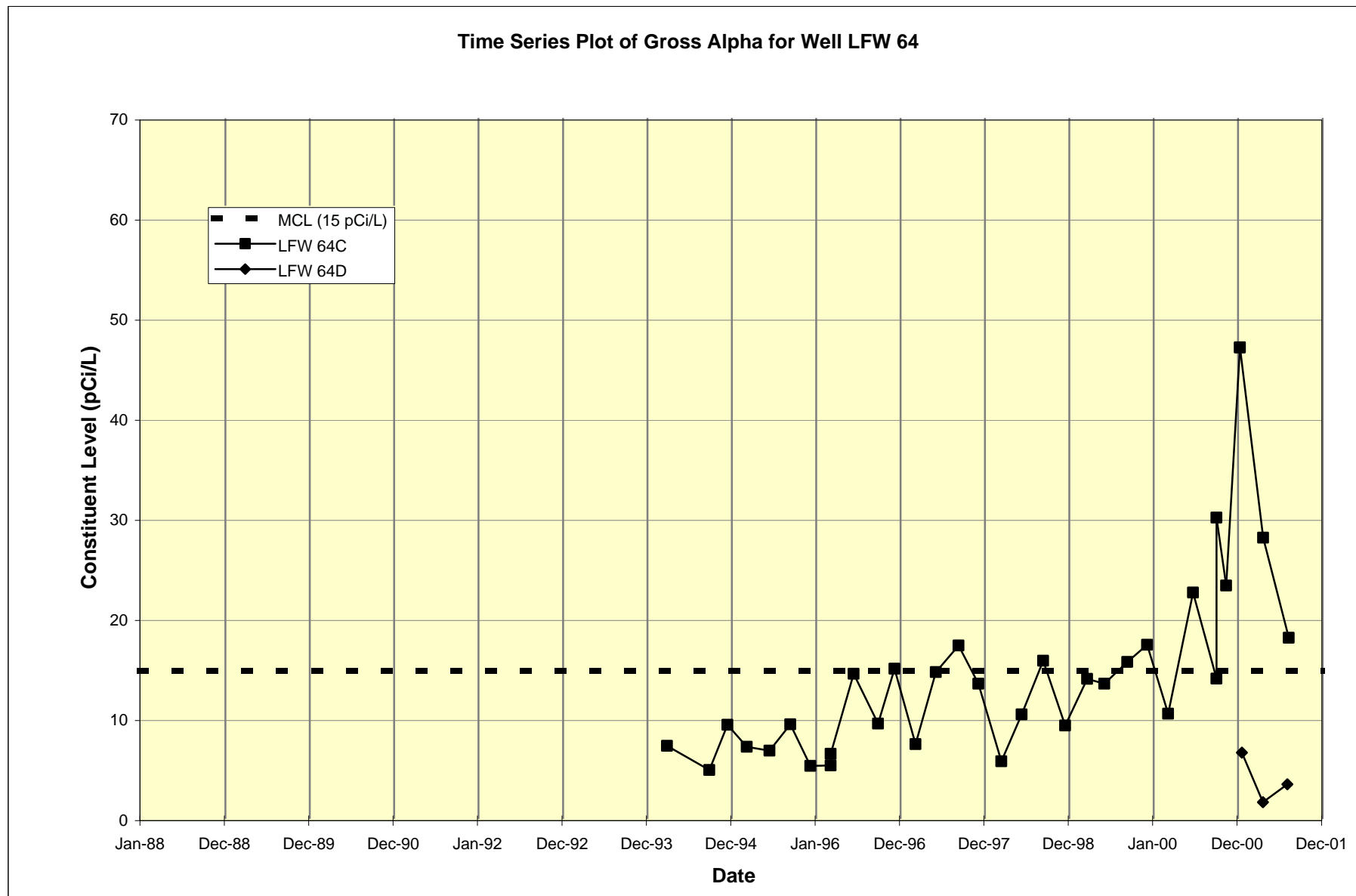


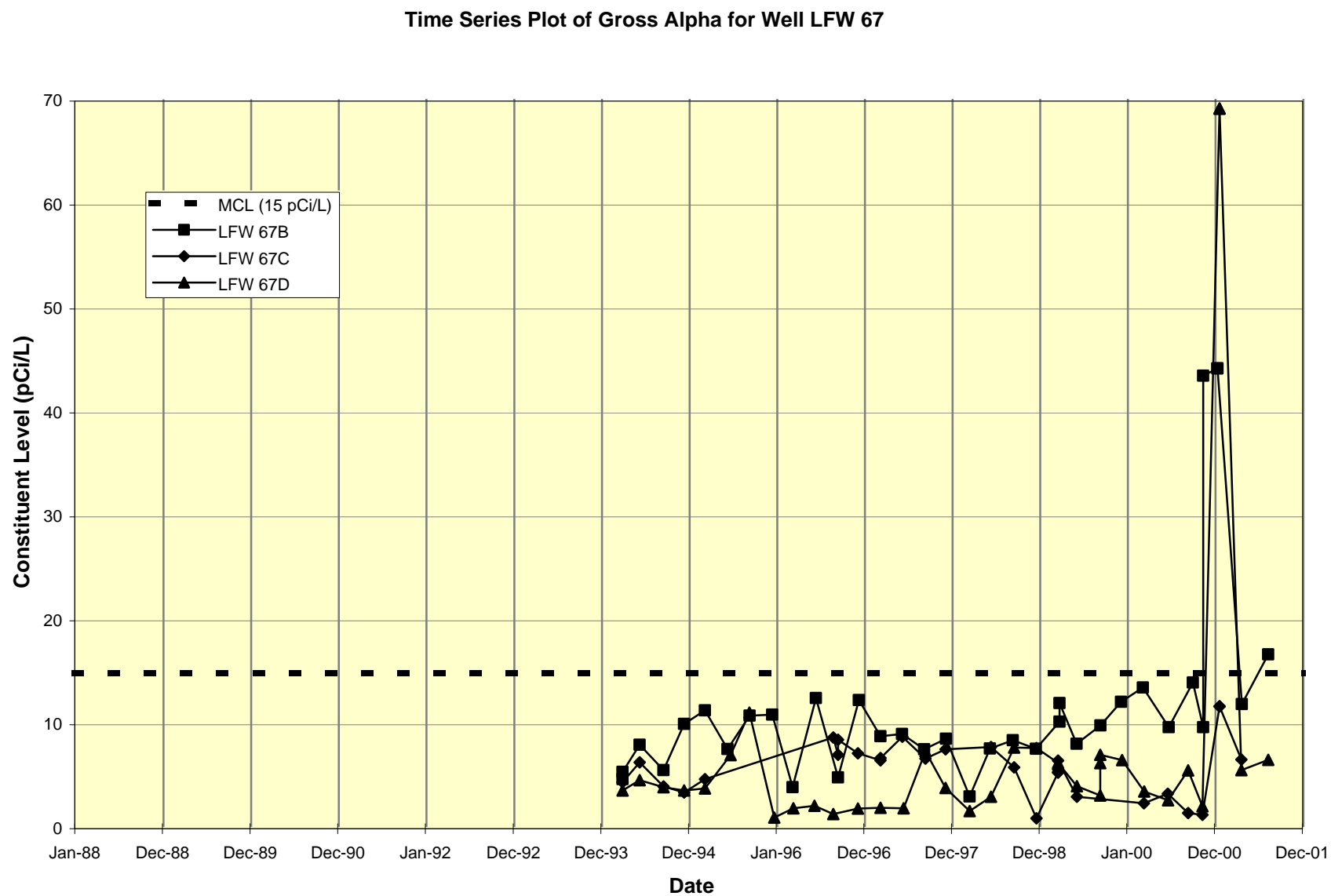


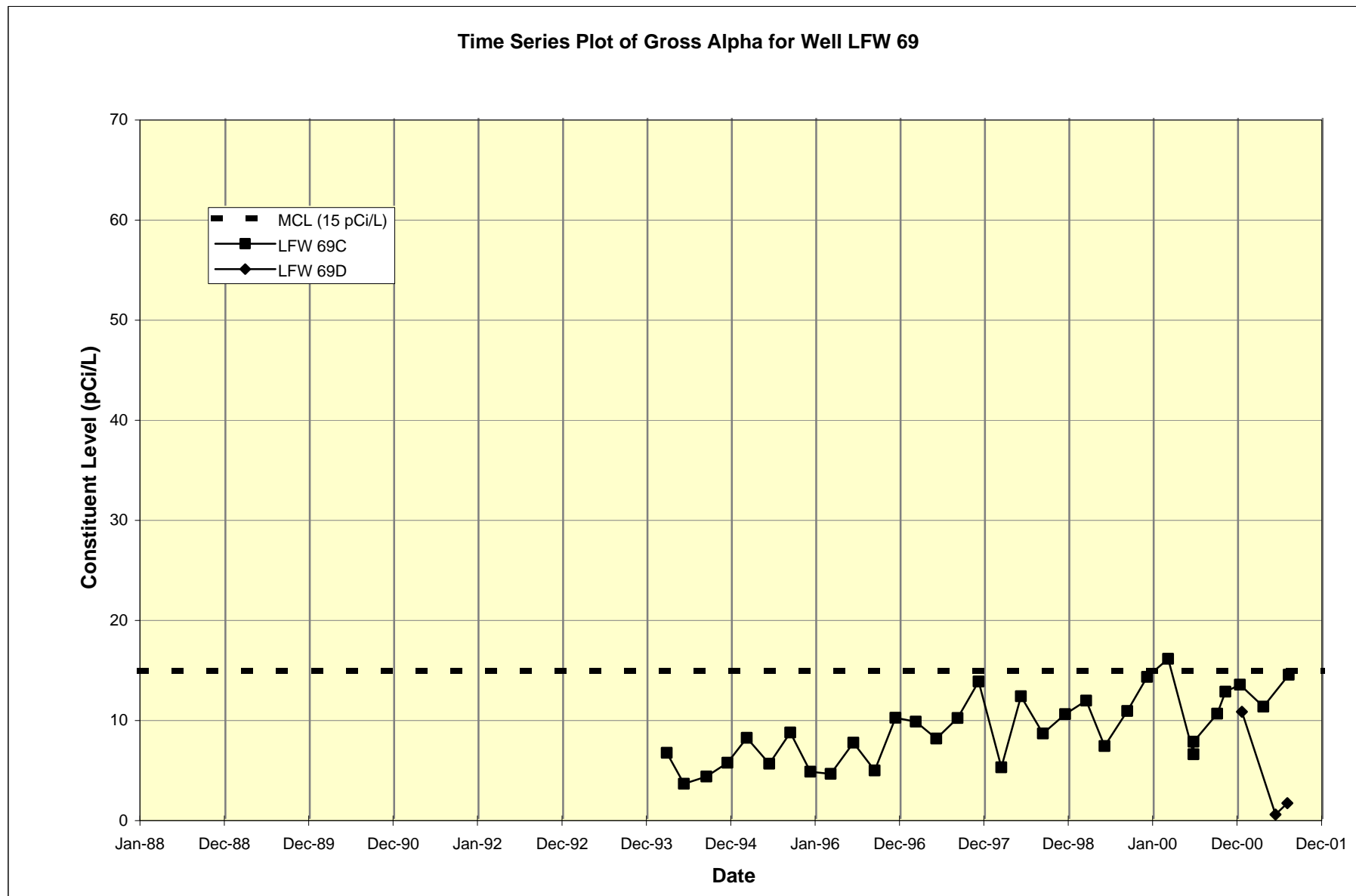


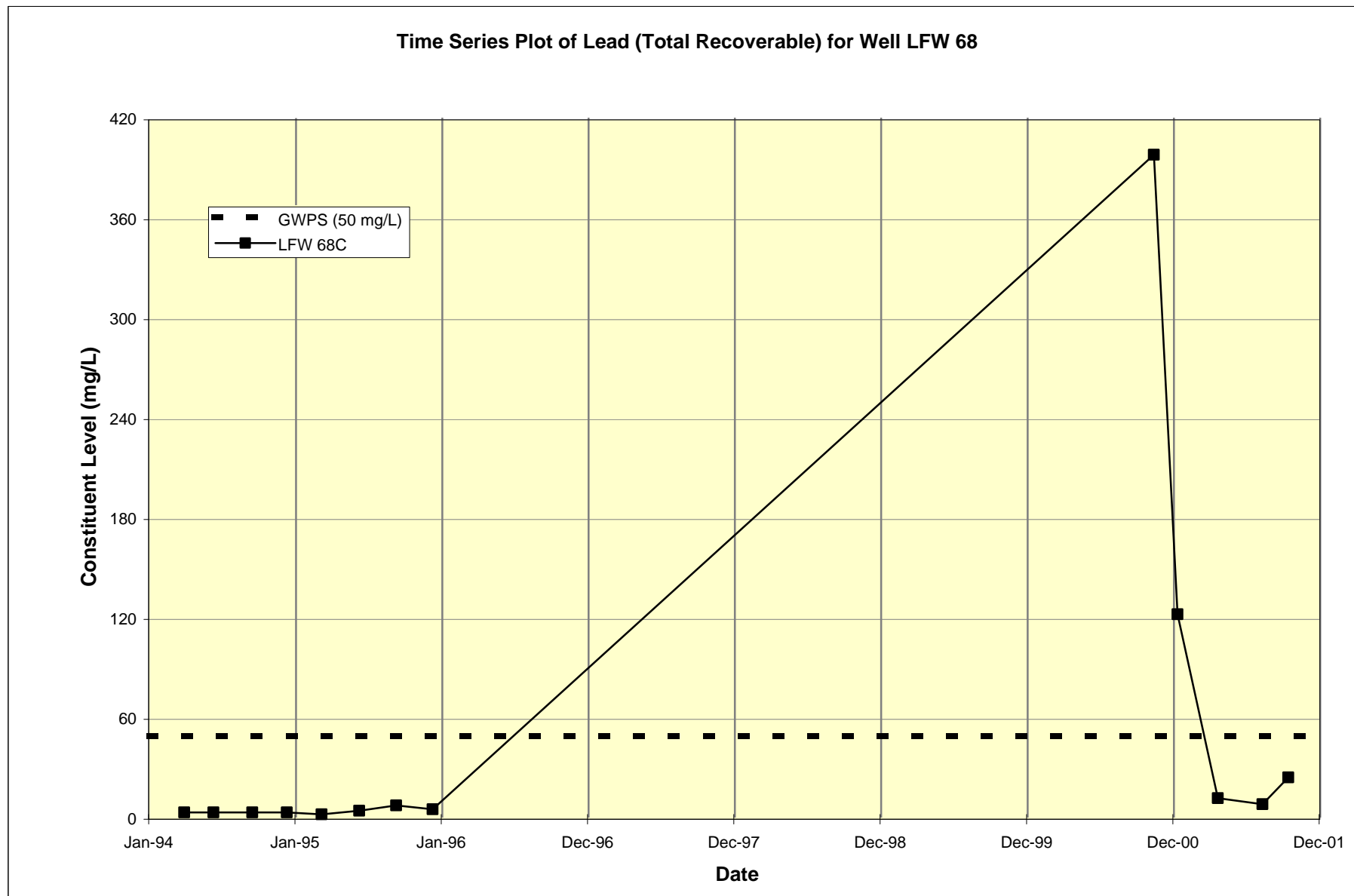


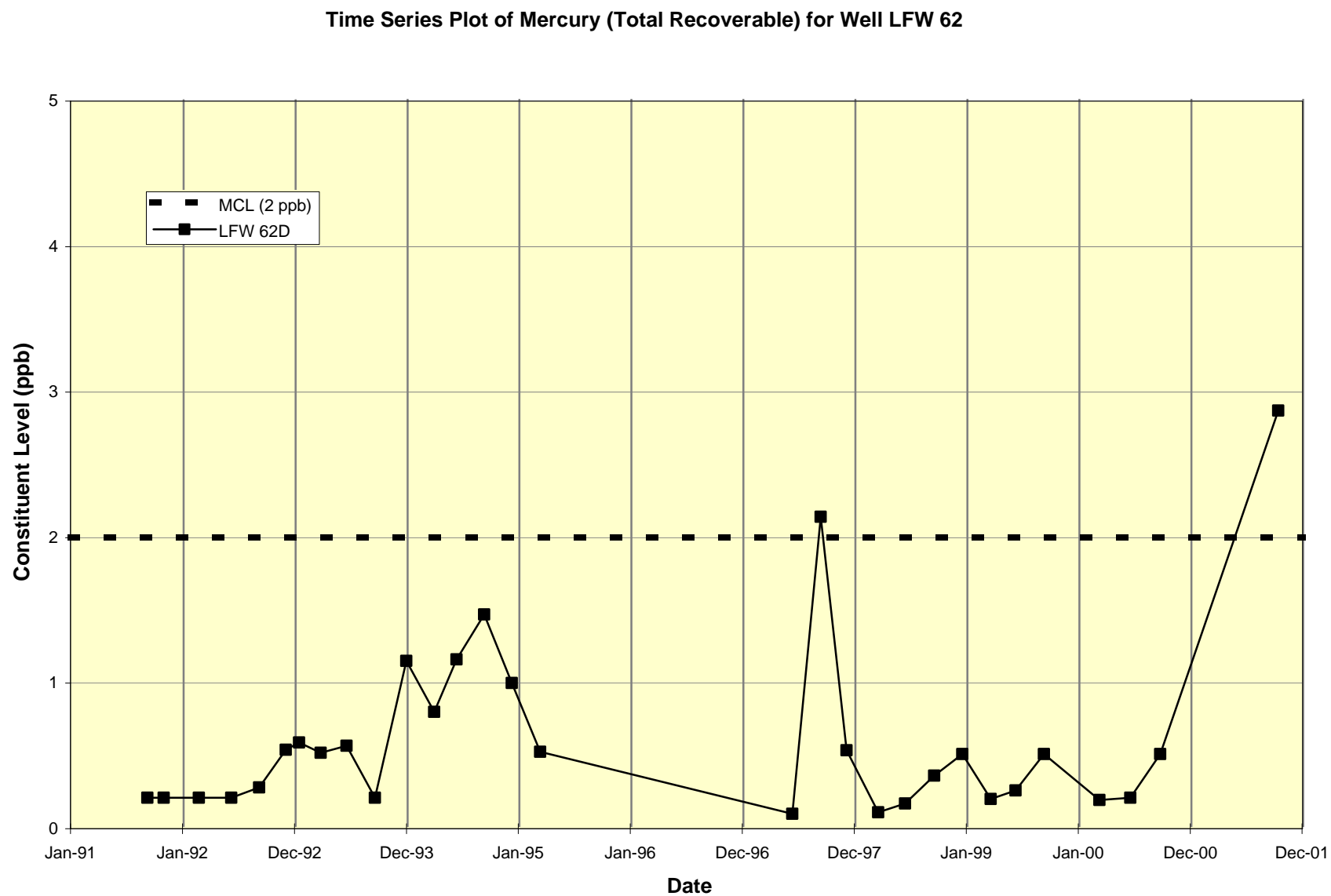


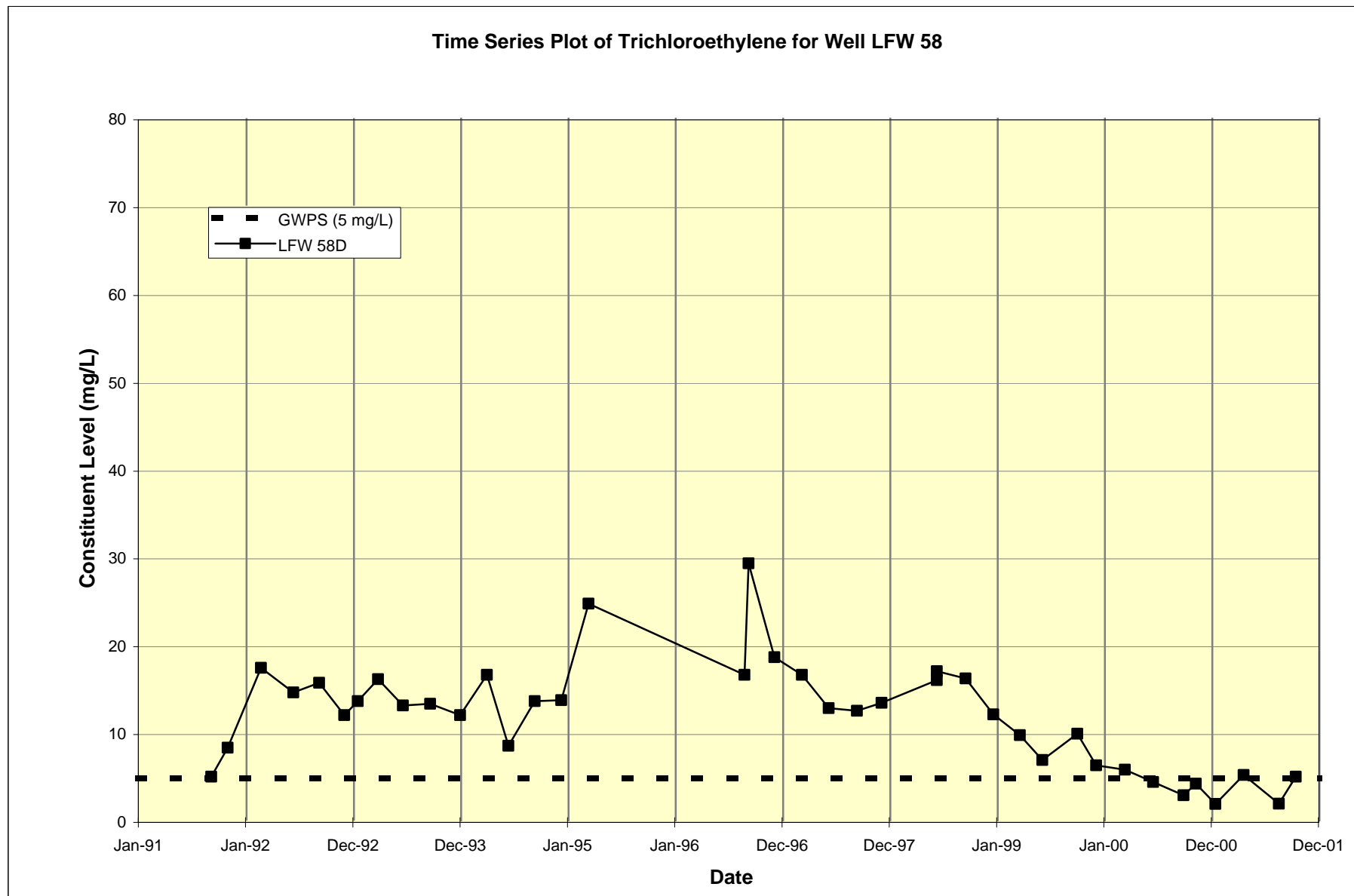




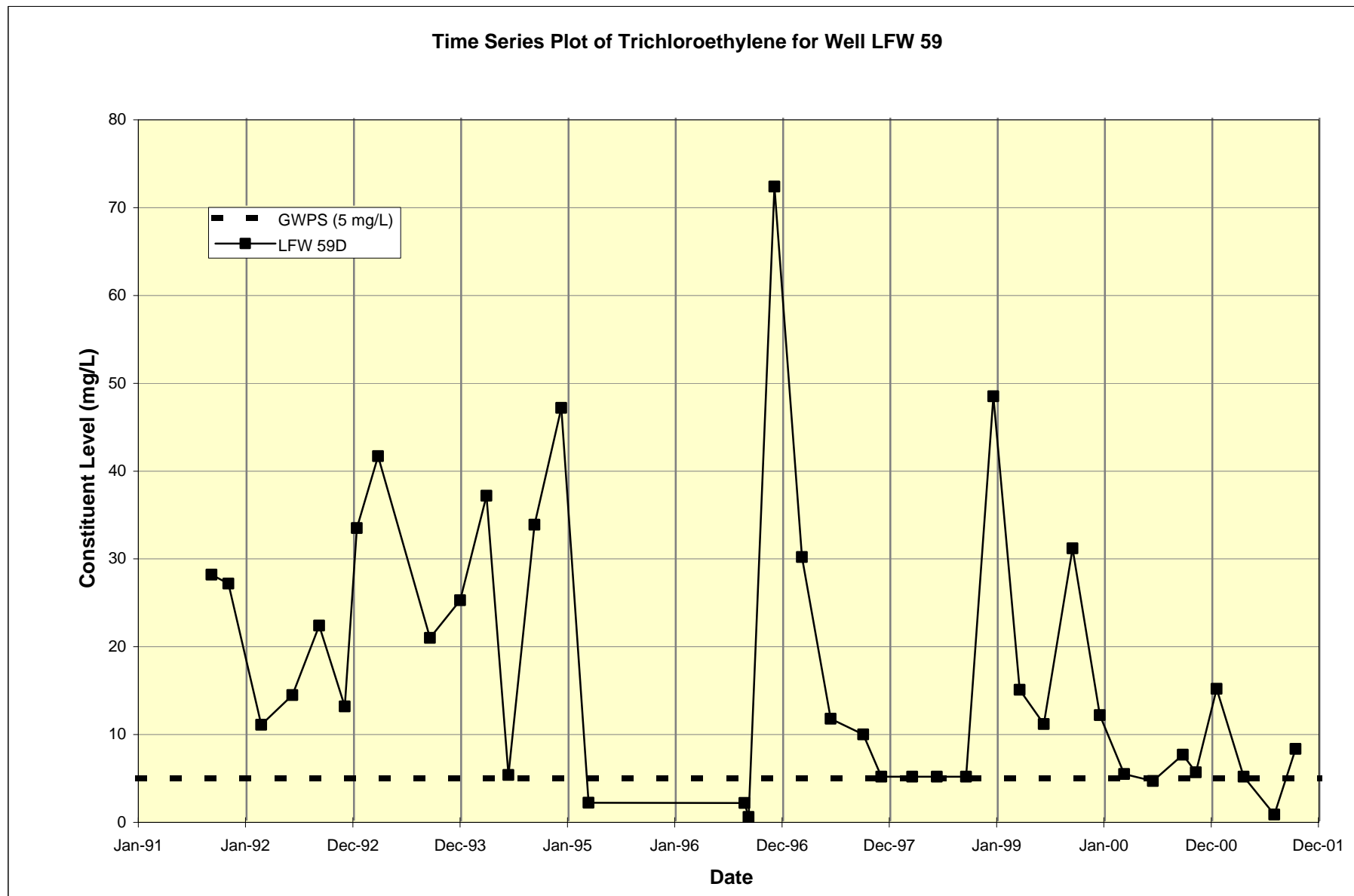




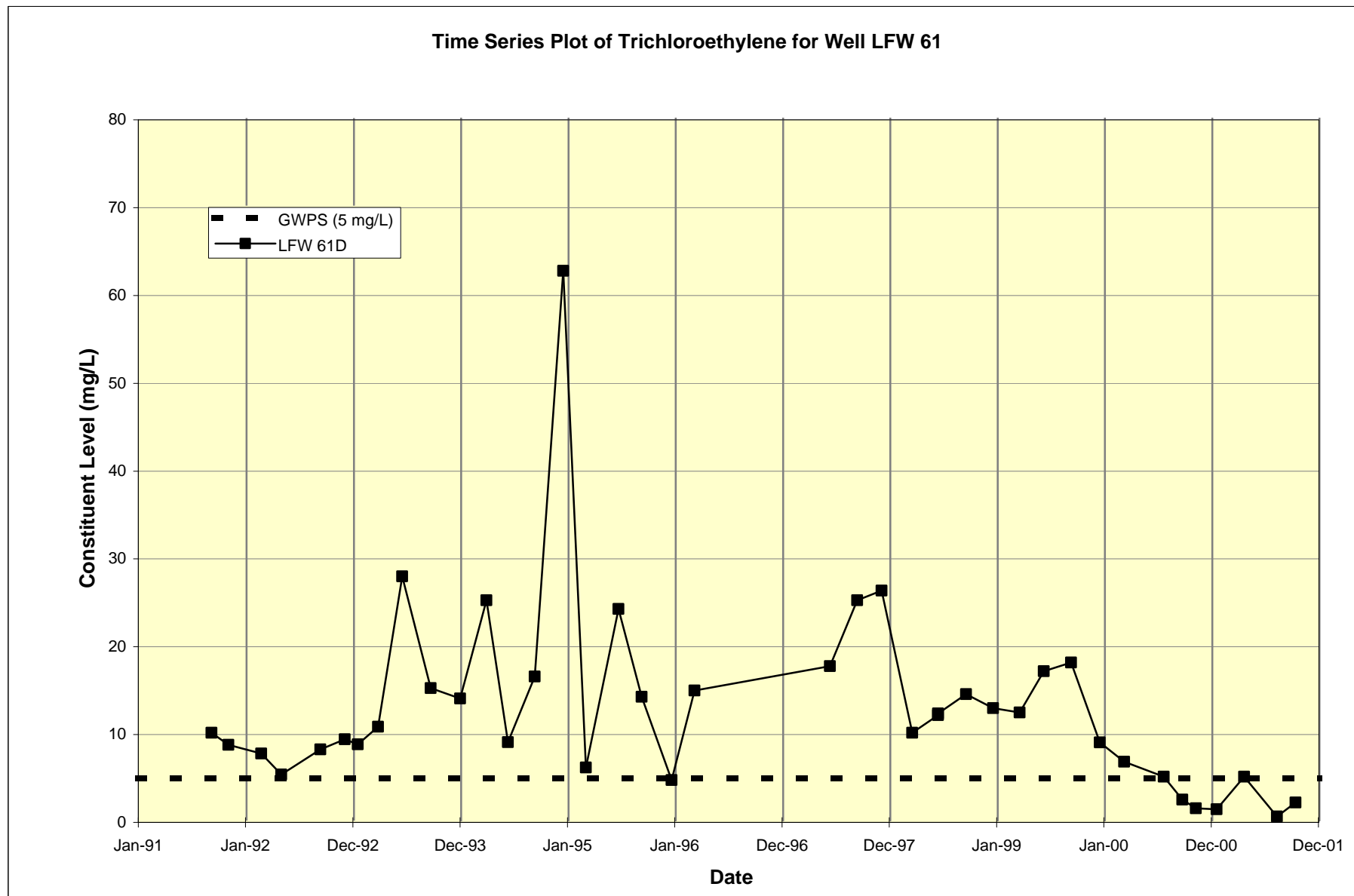


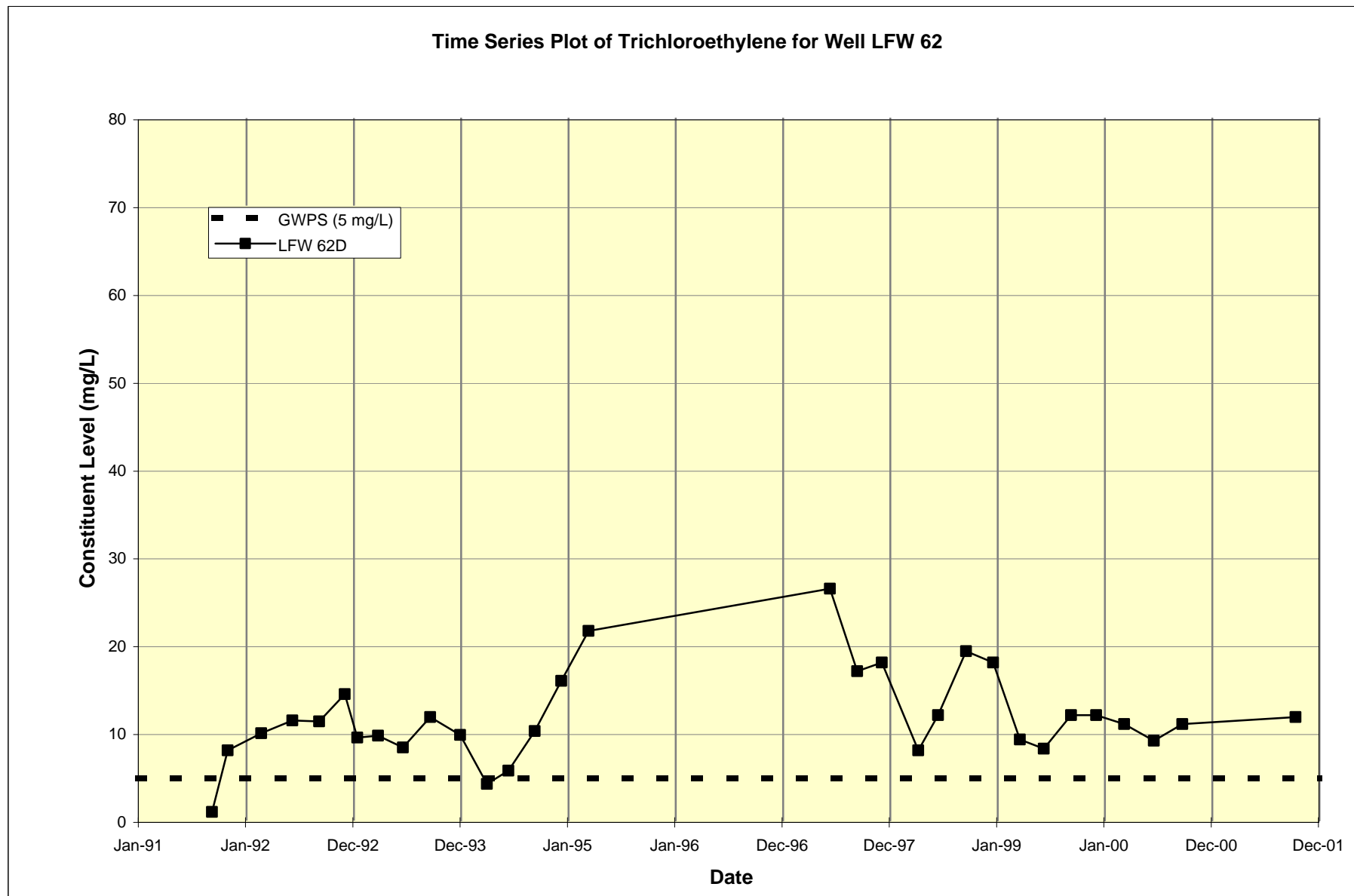




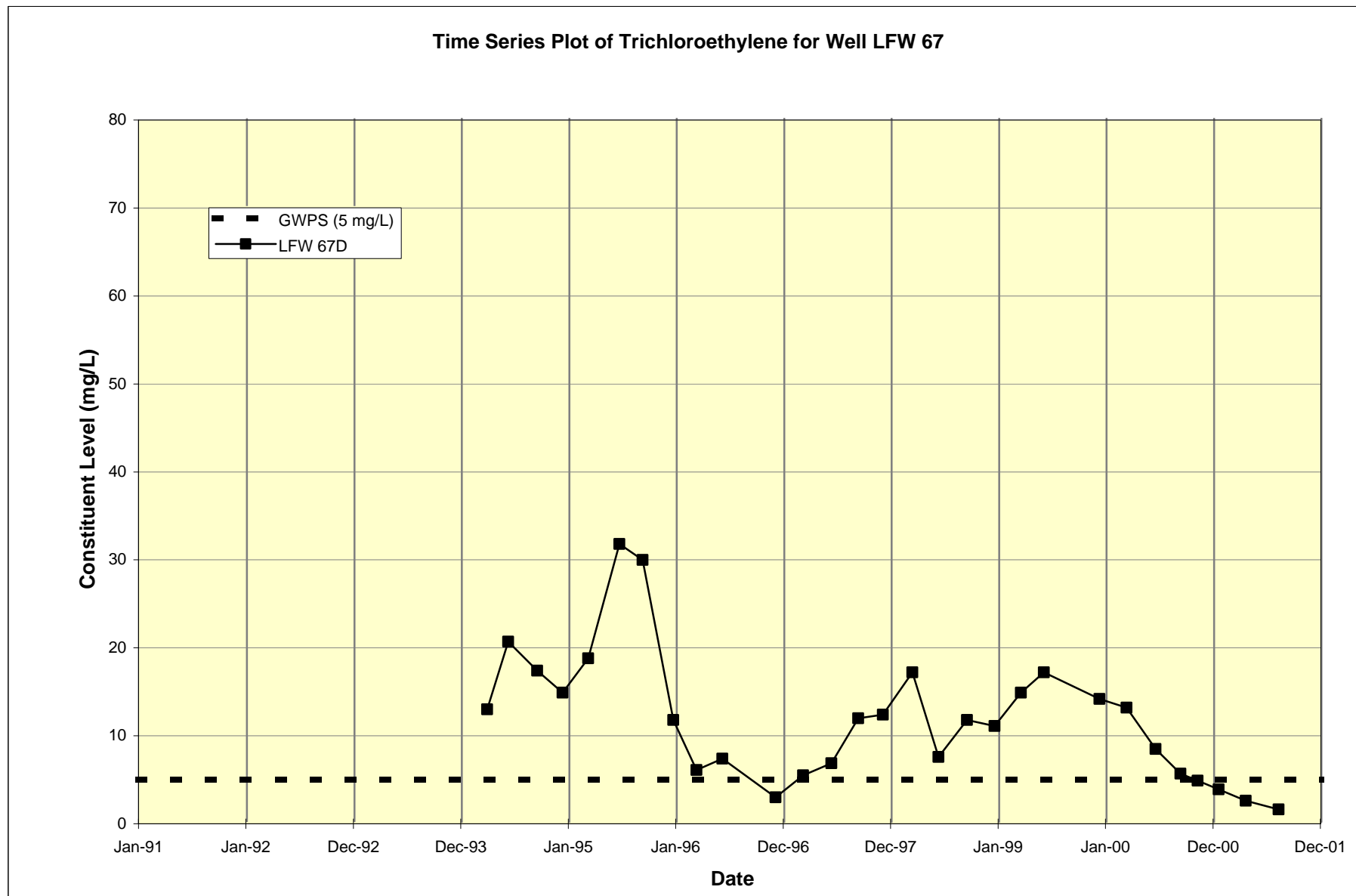


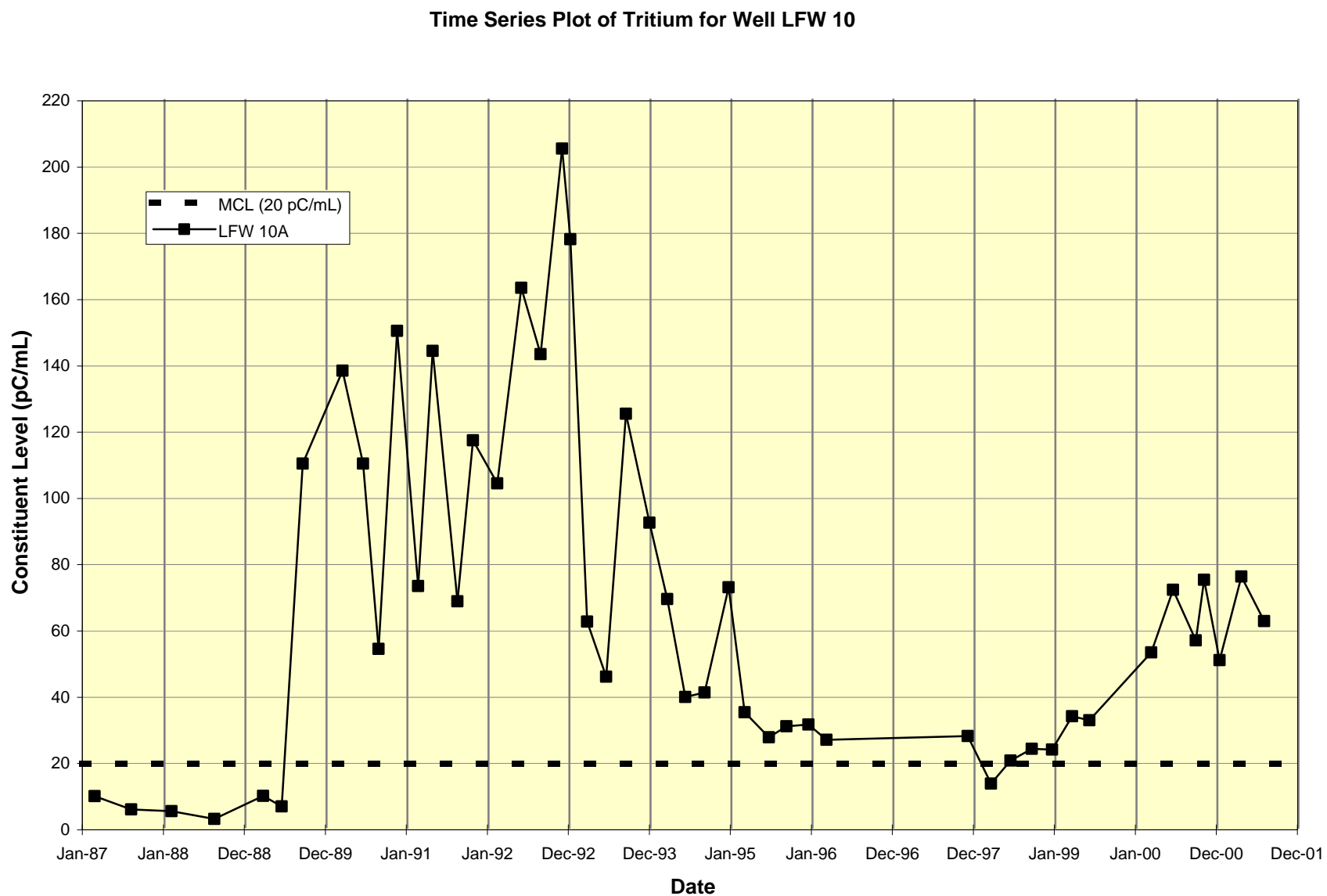












**This Page Left Intentionally Blank**



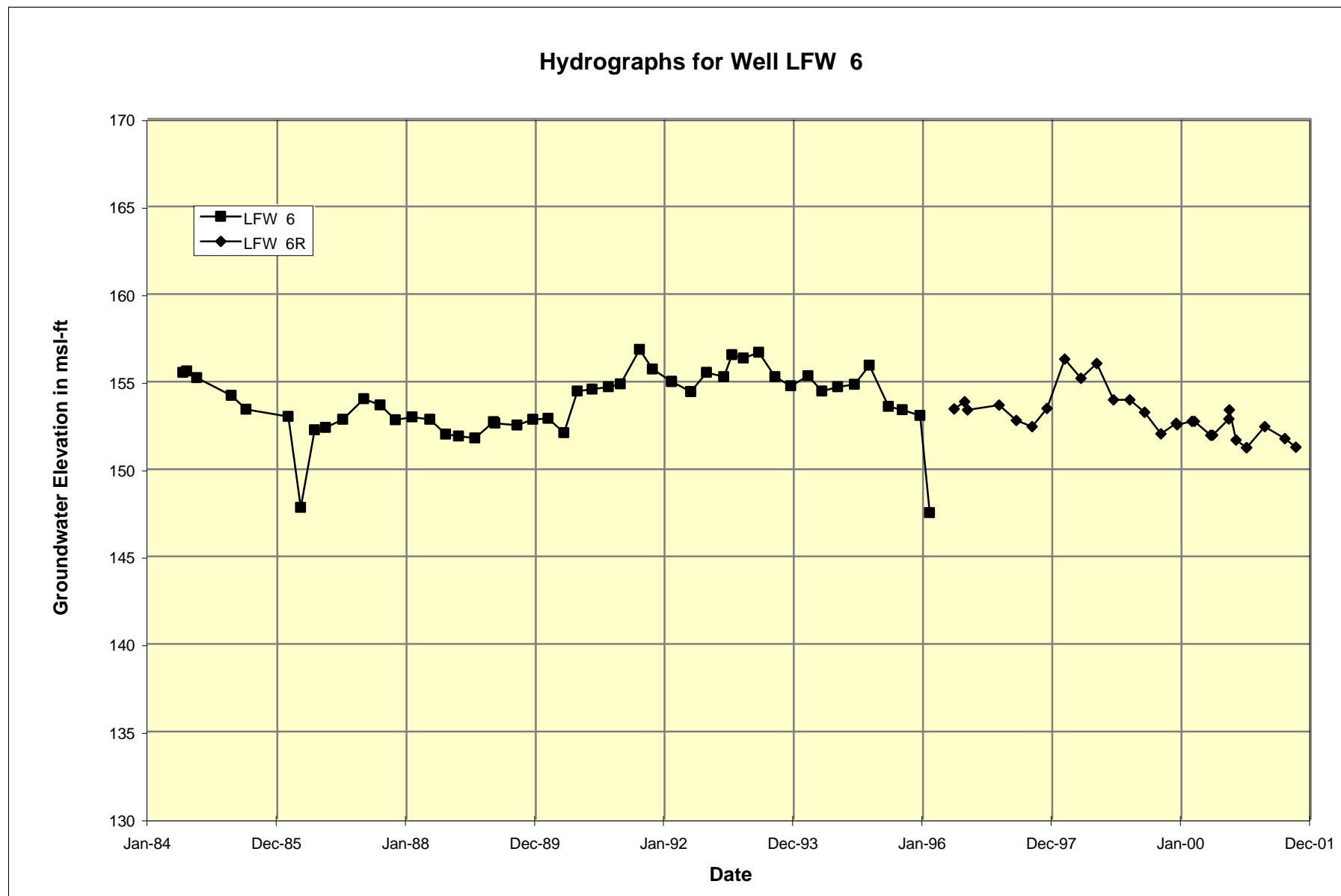
---

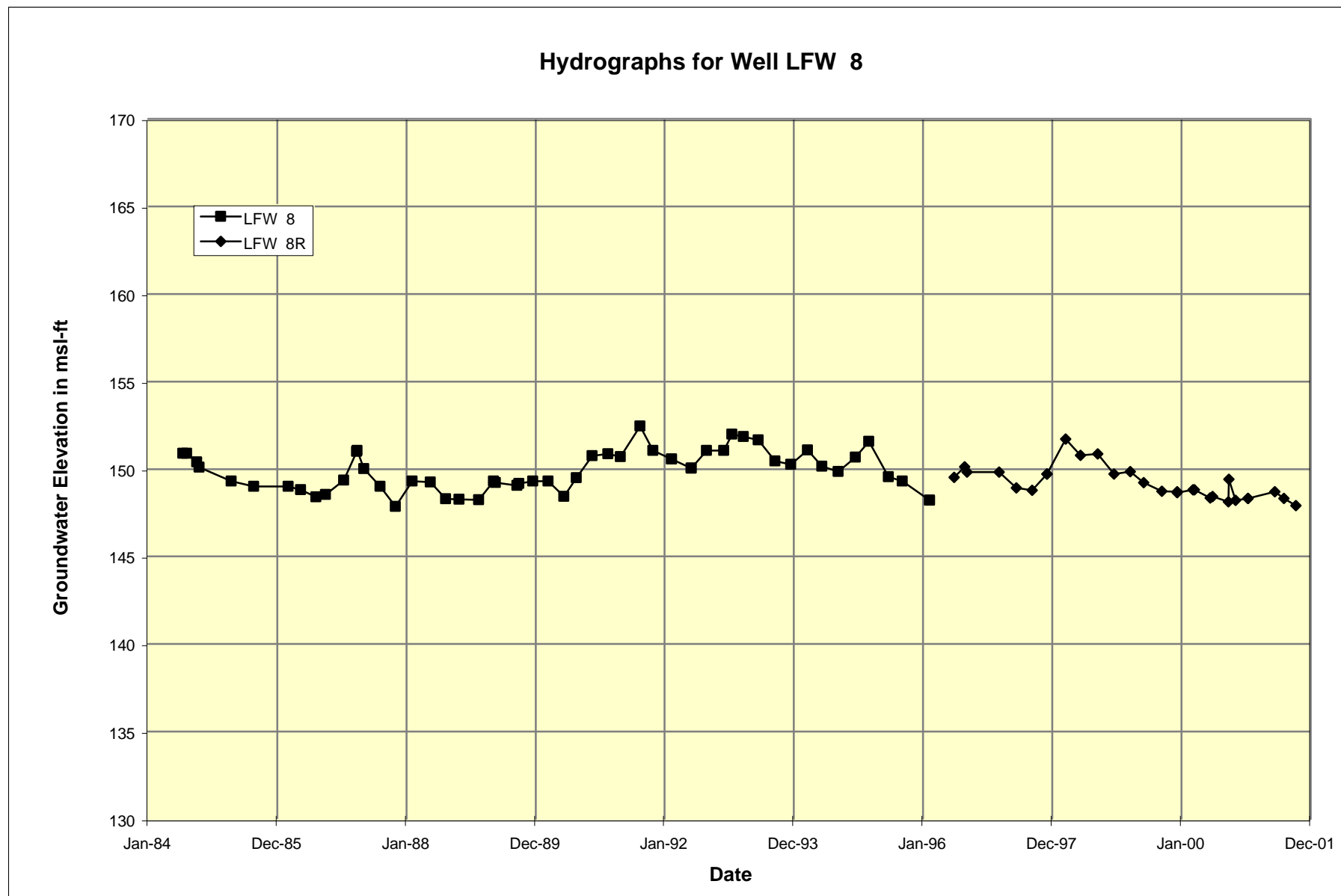
## Appendix D

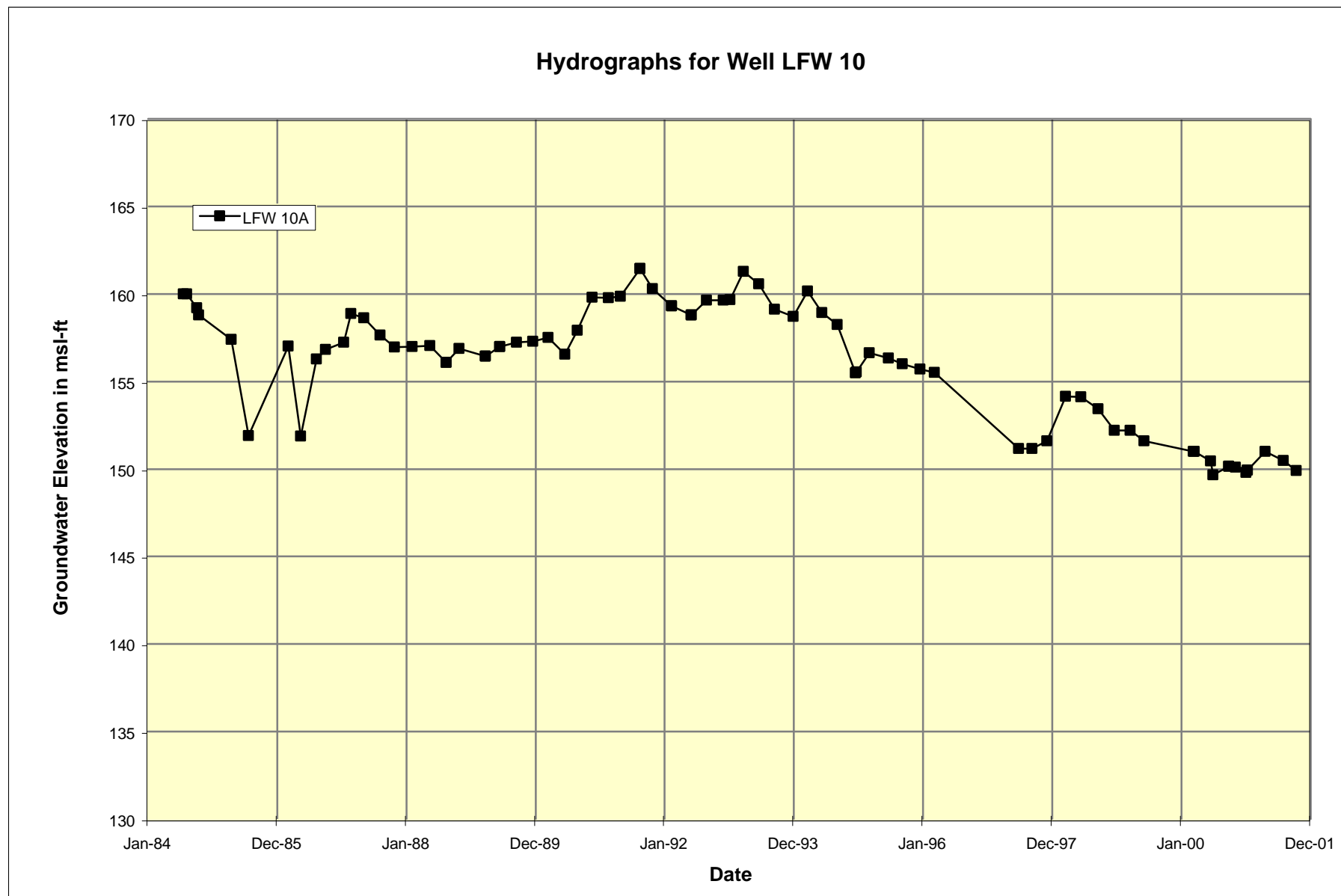
### Hydrographs

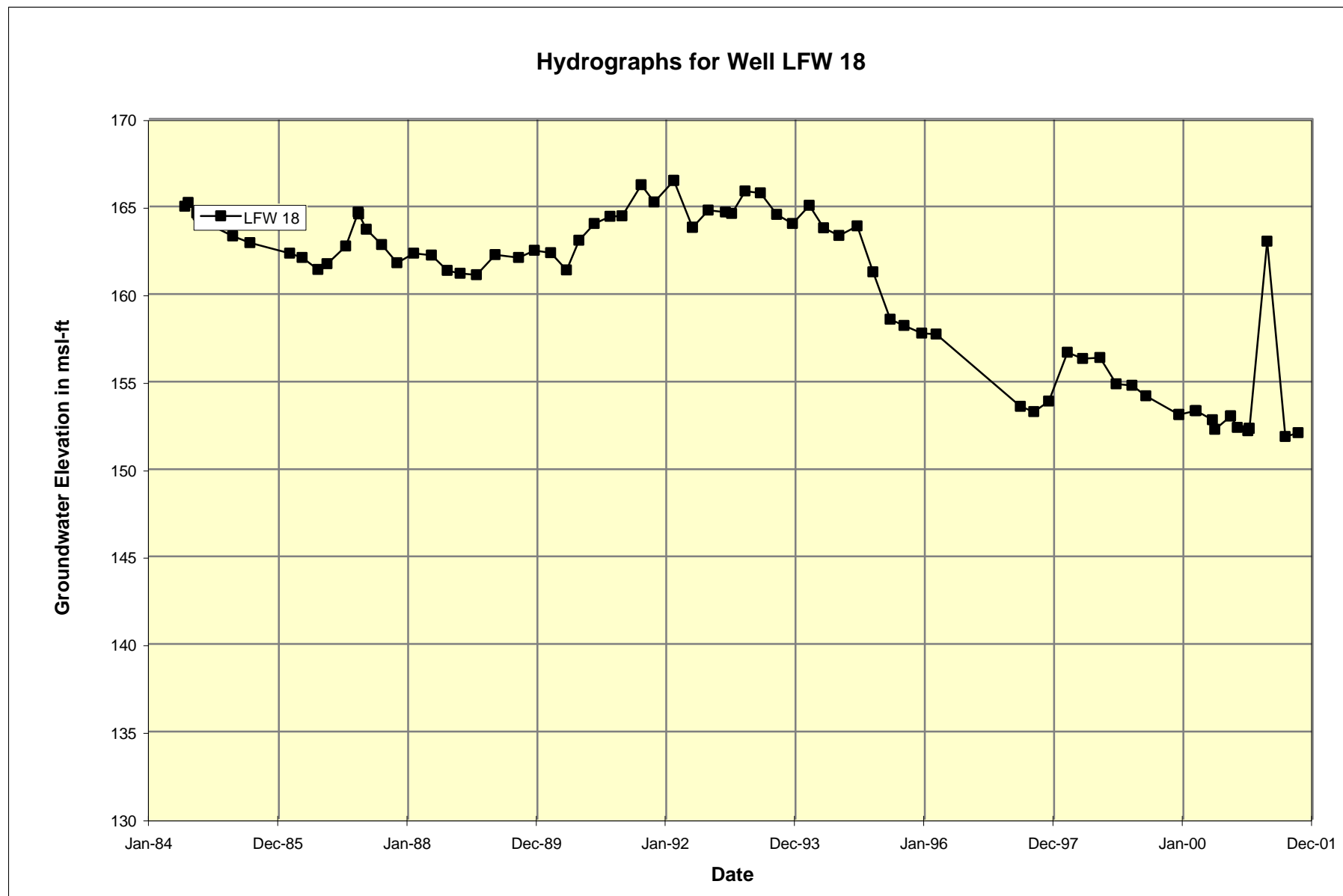
---

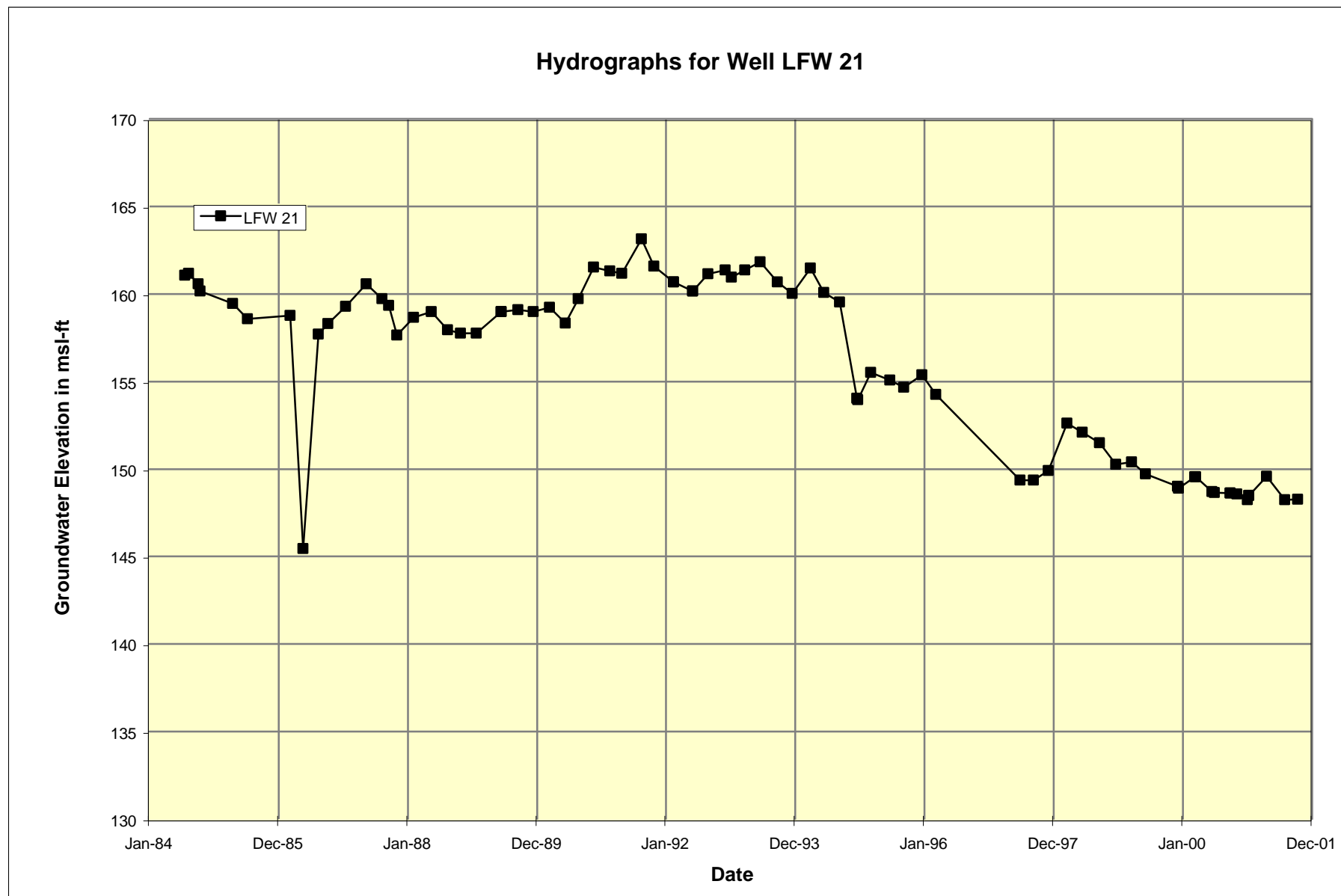
**THIS PAGE LEFT BLANK INTENTIONALLY.**

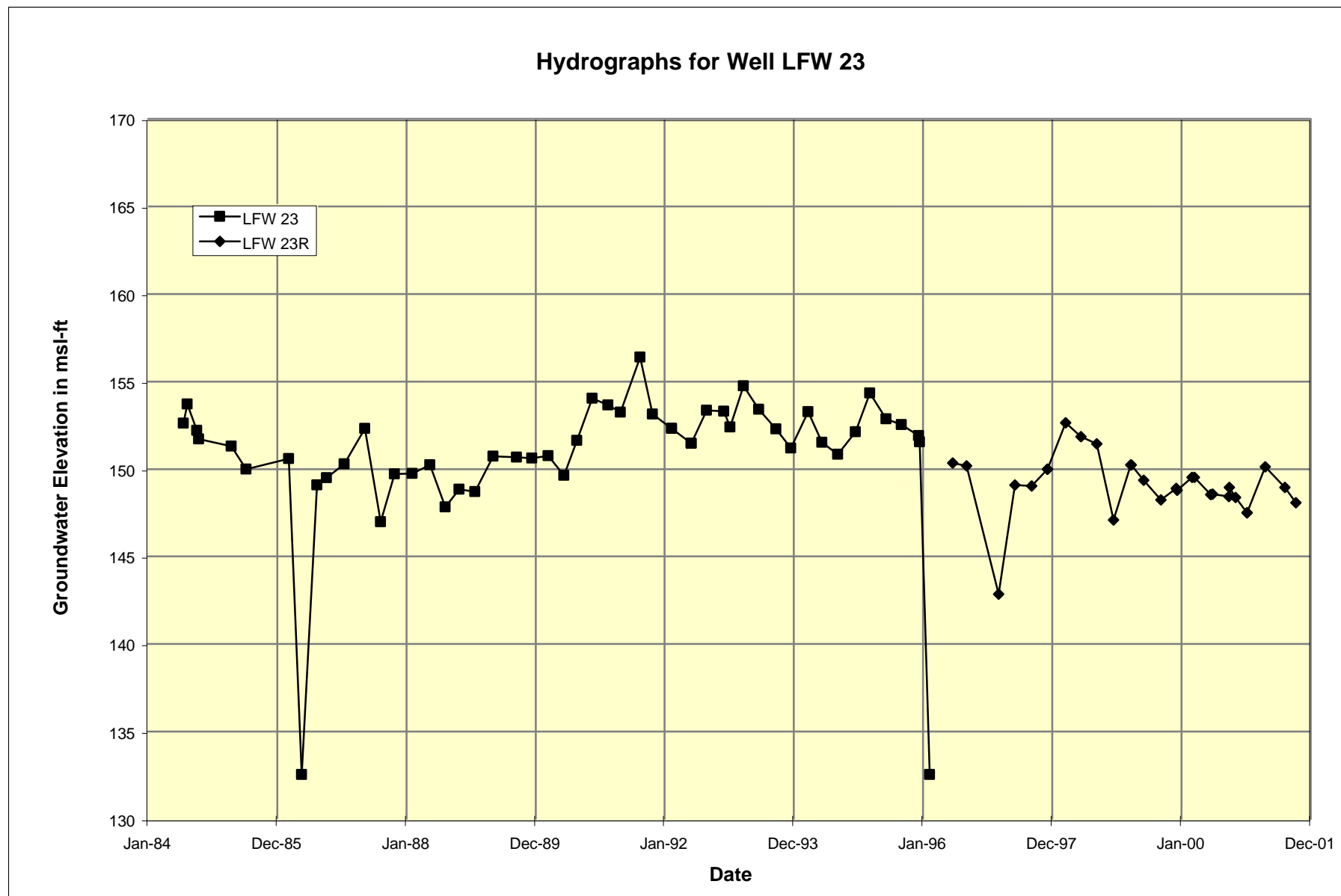






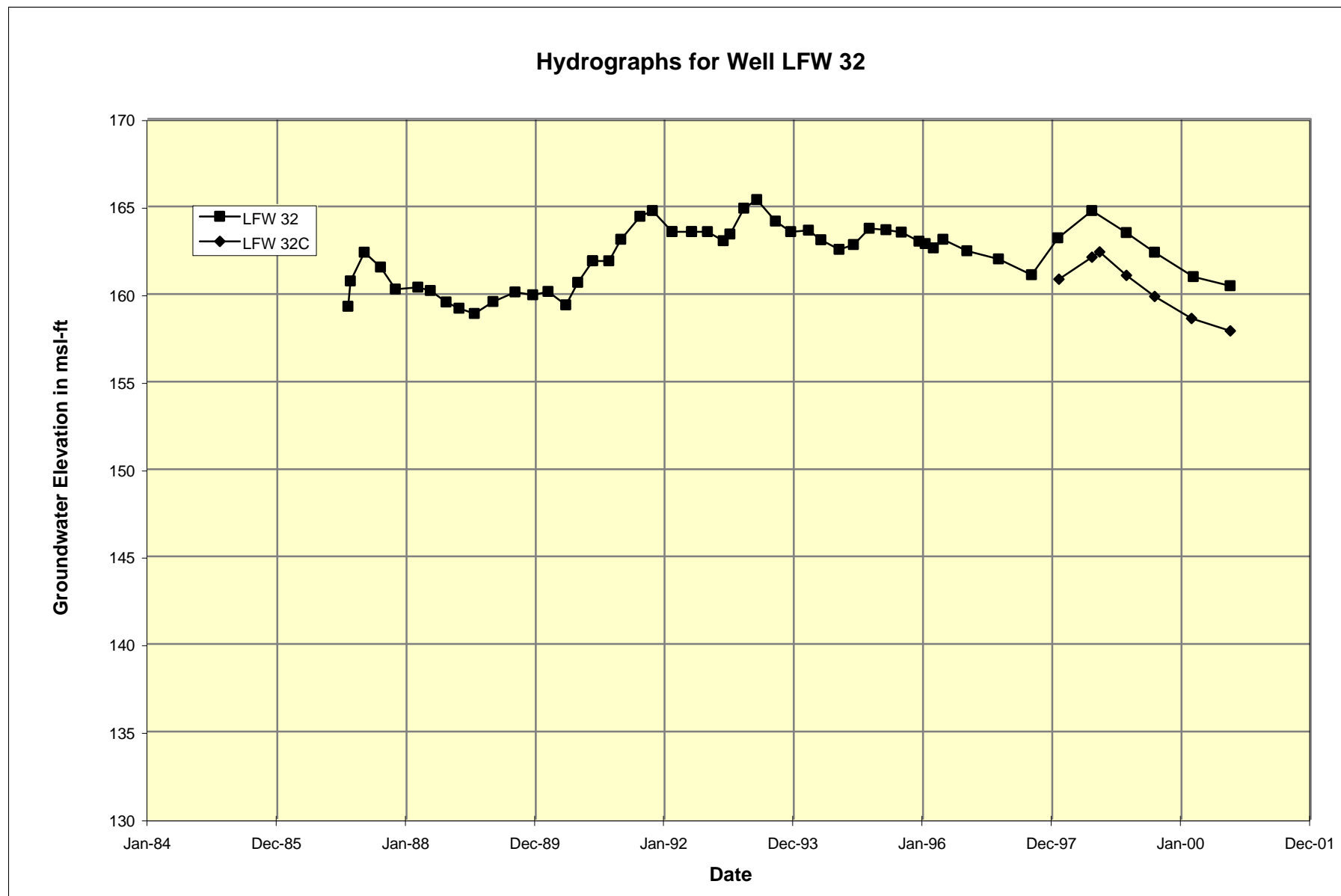


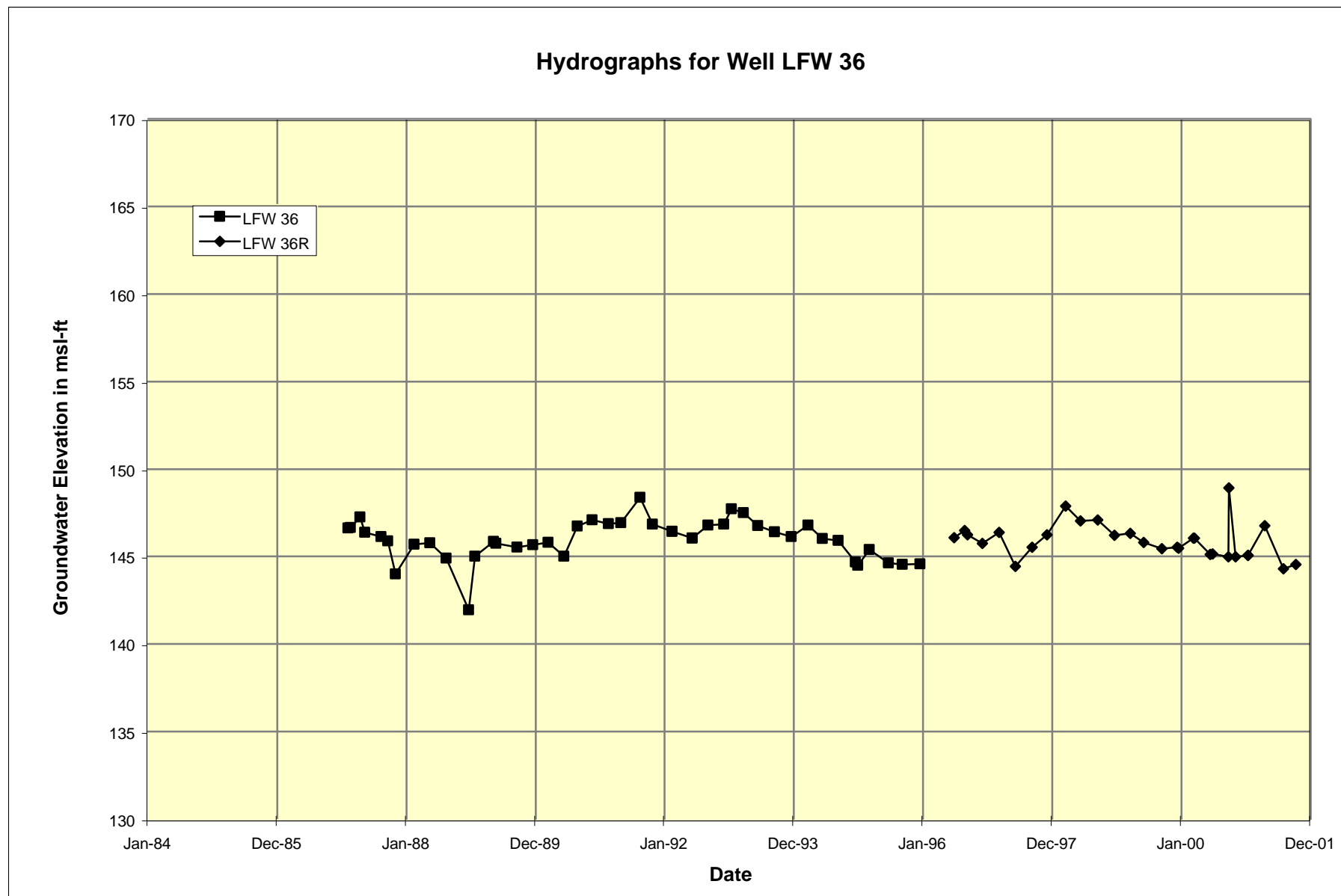


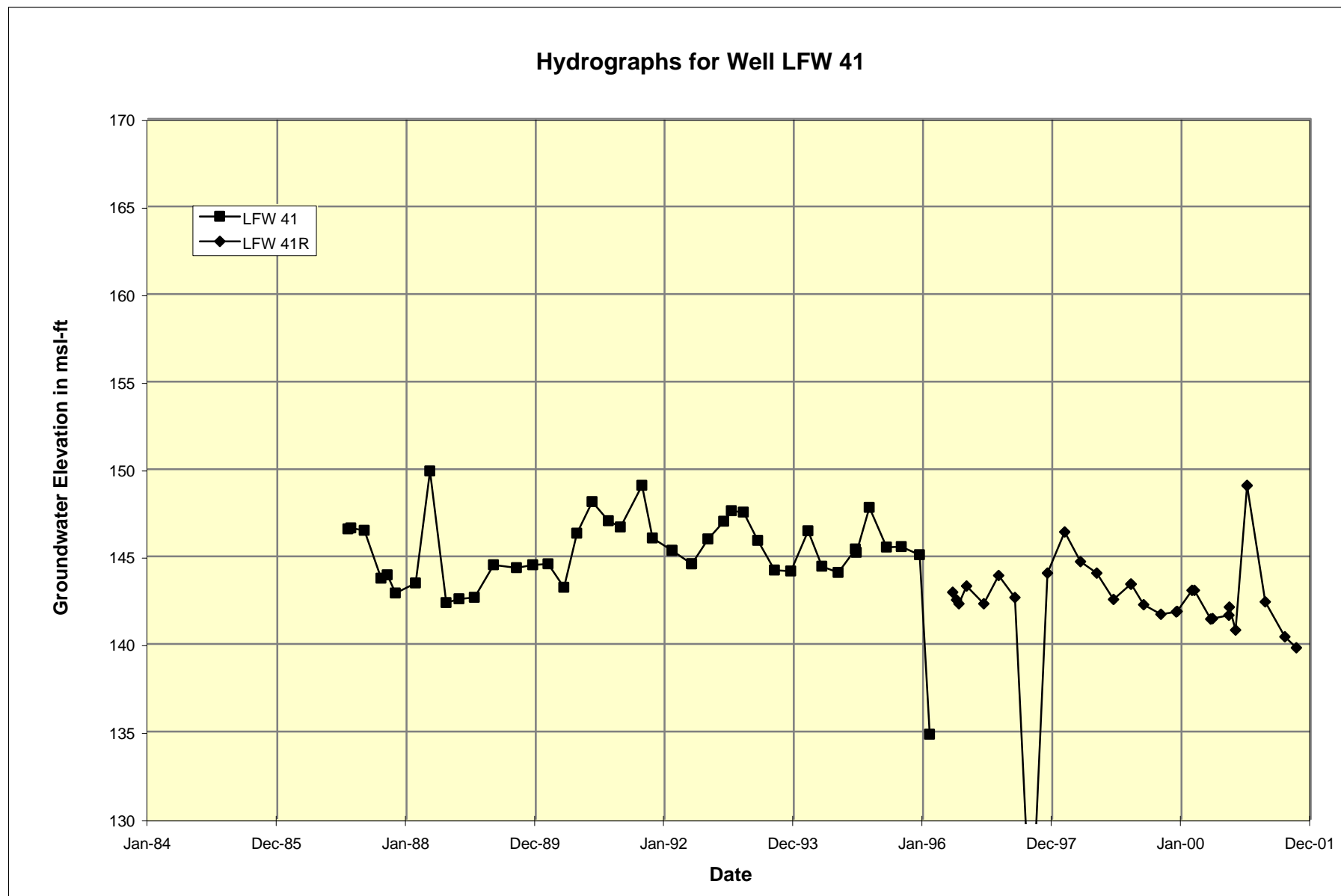


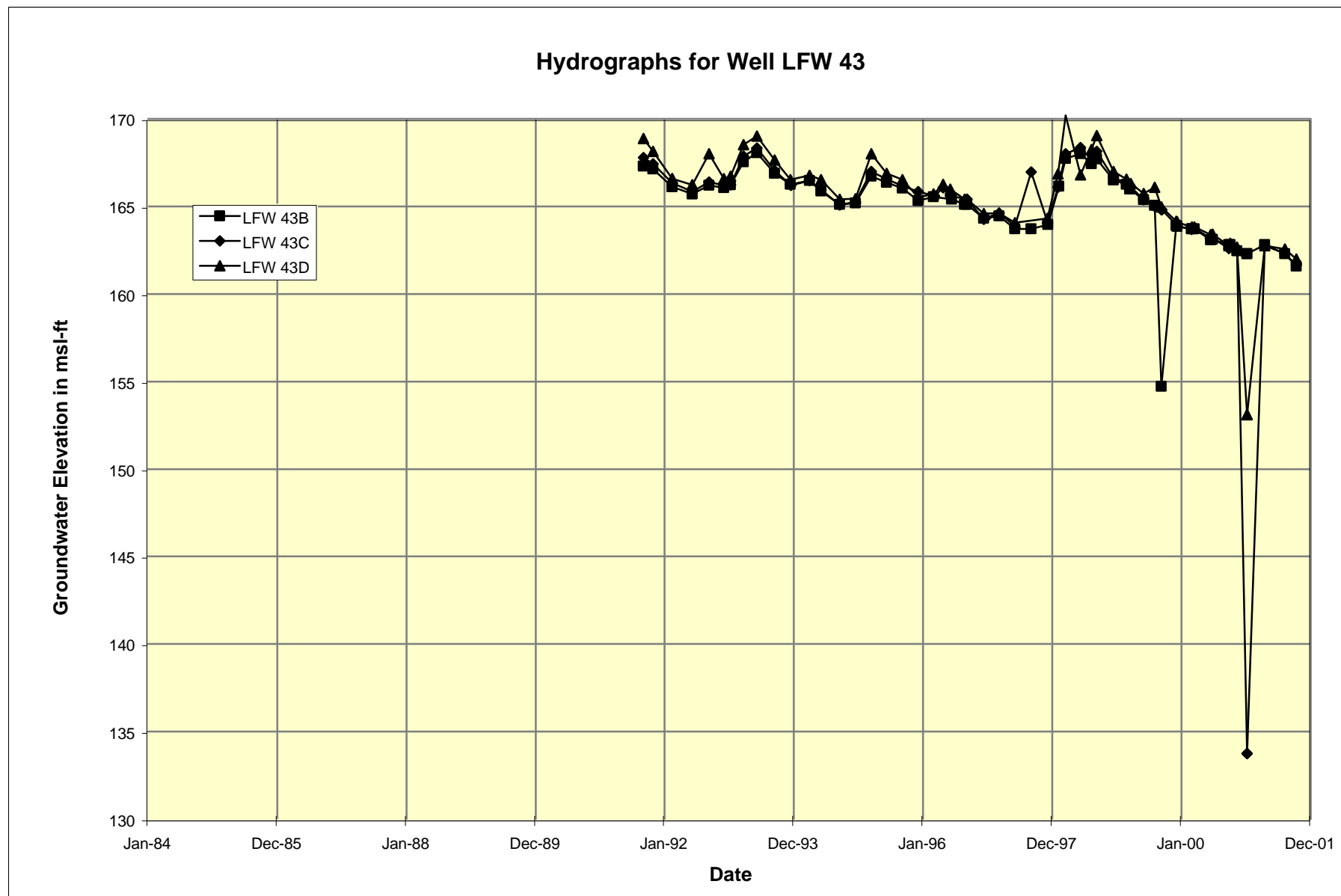


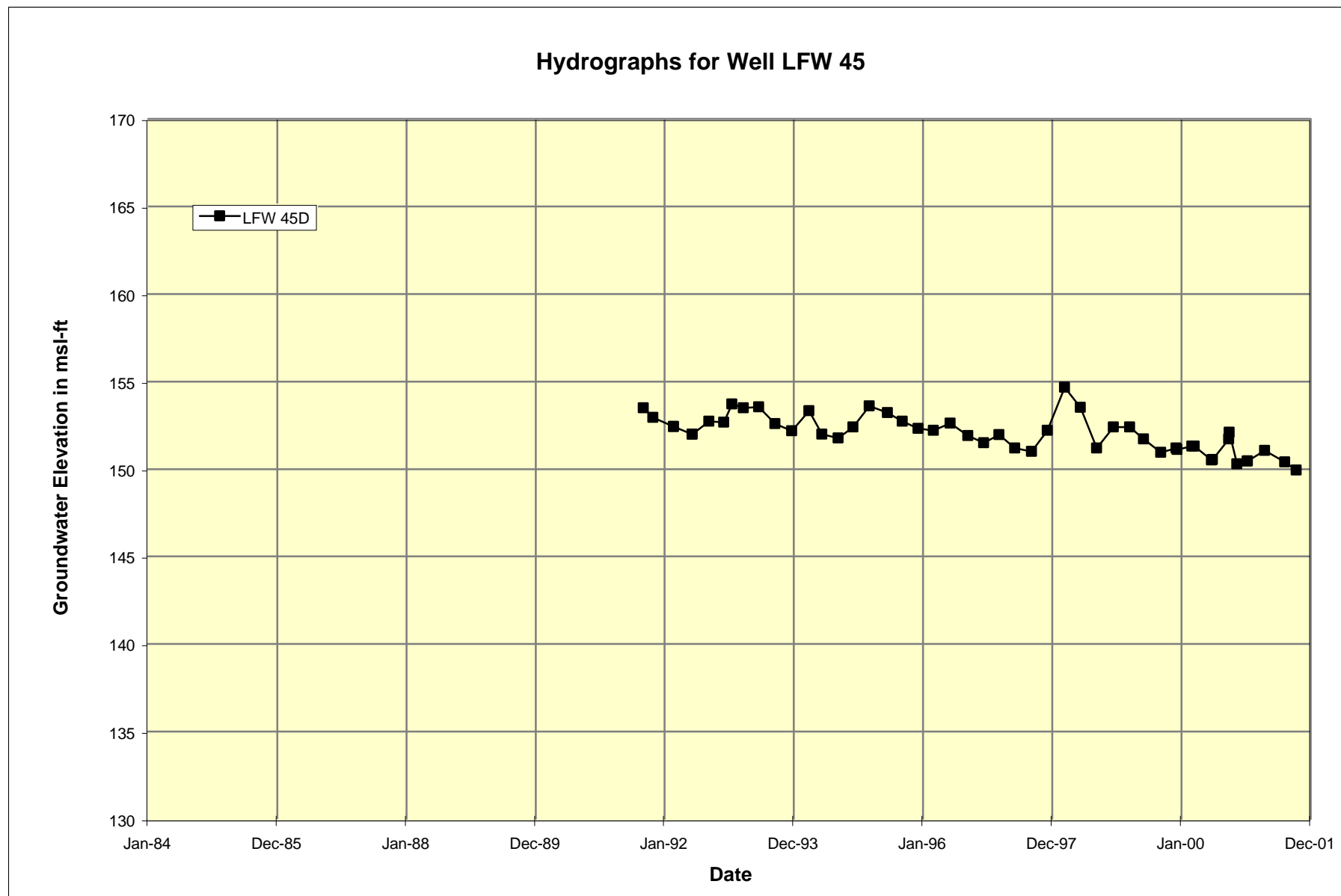


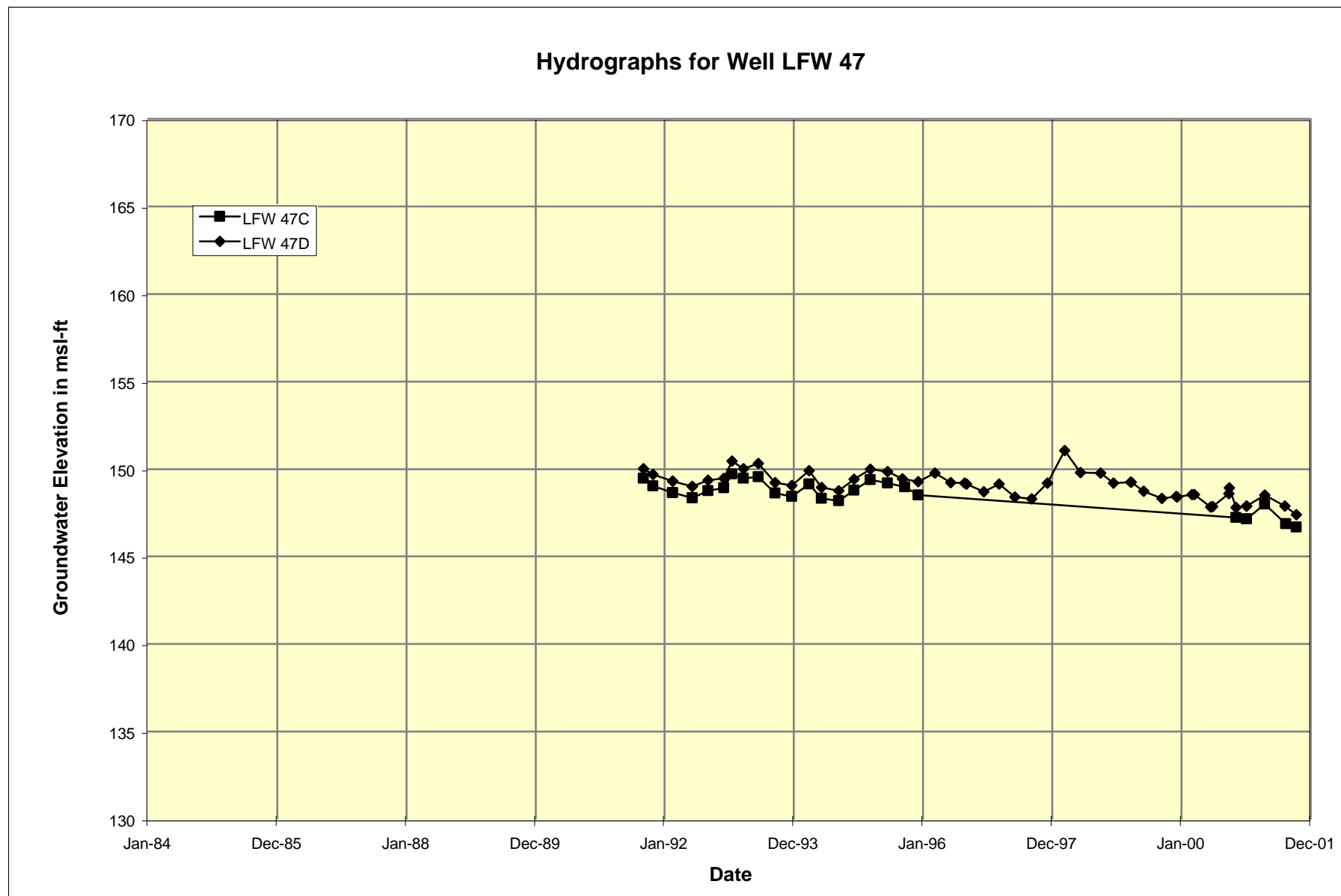


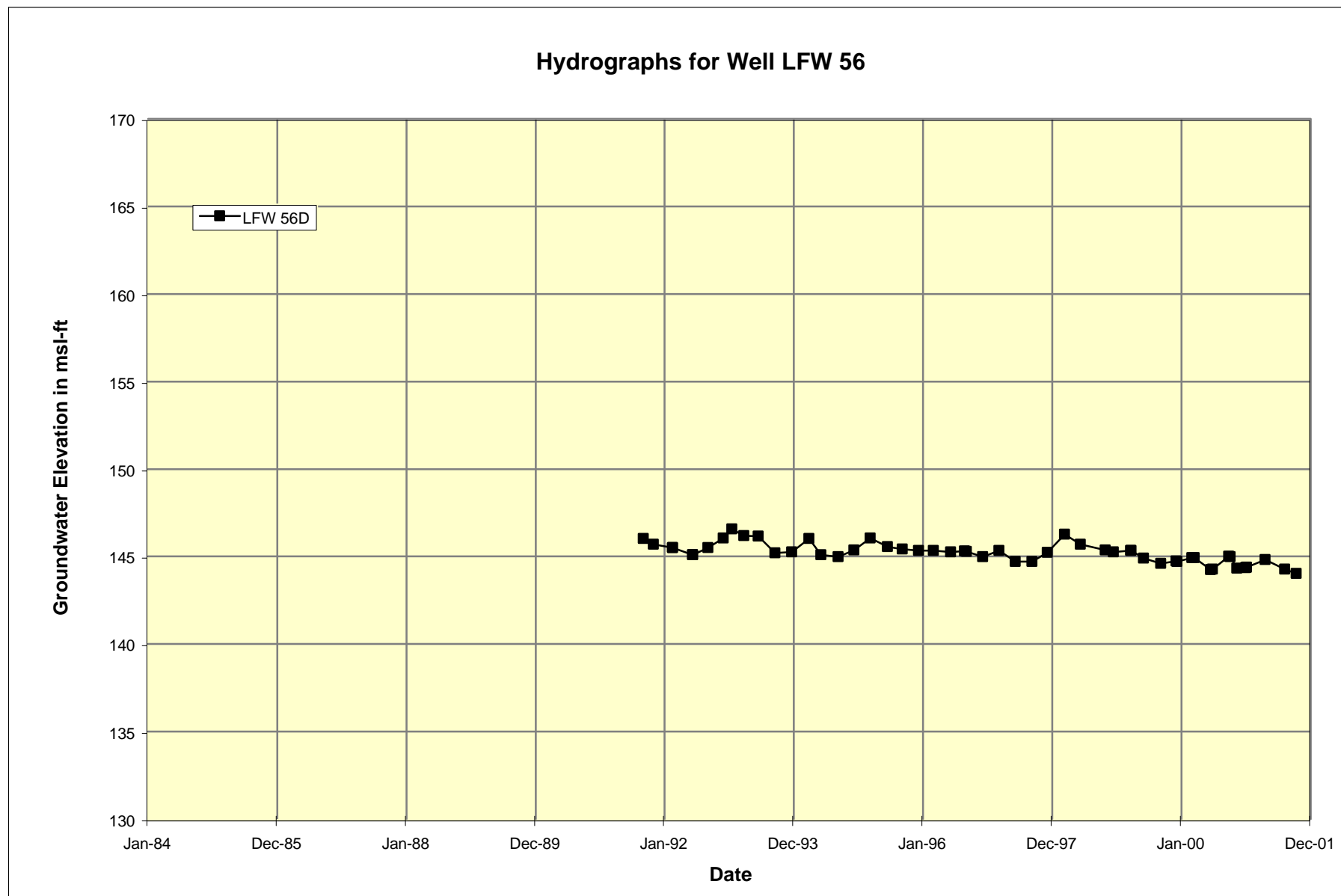




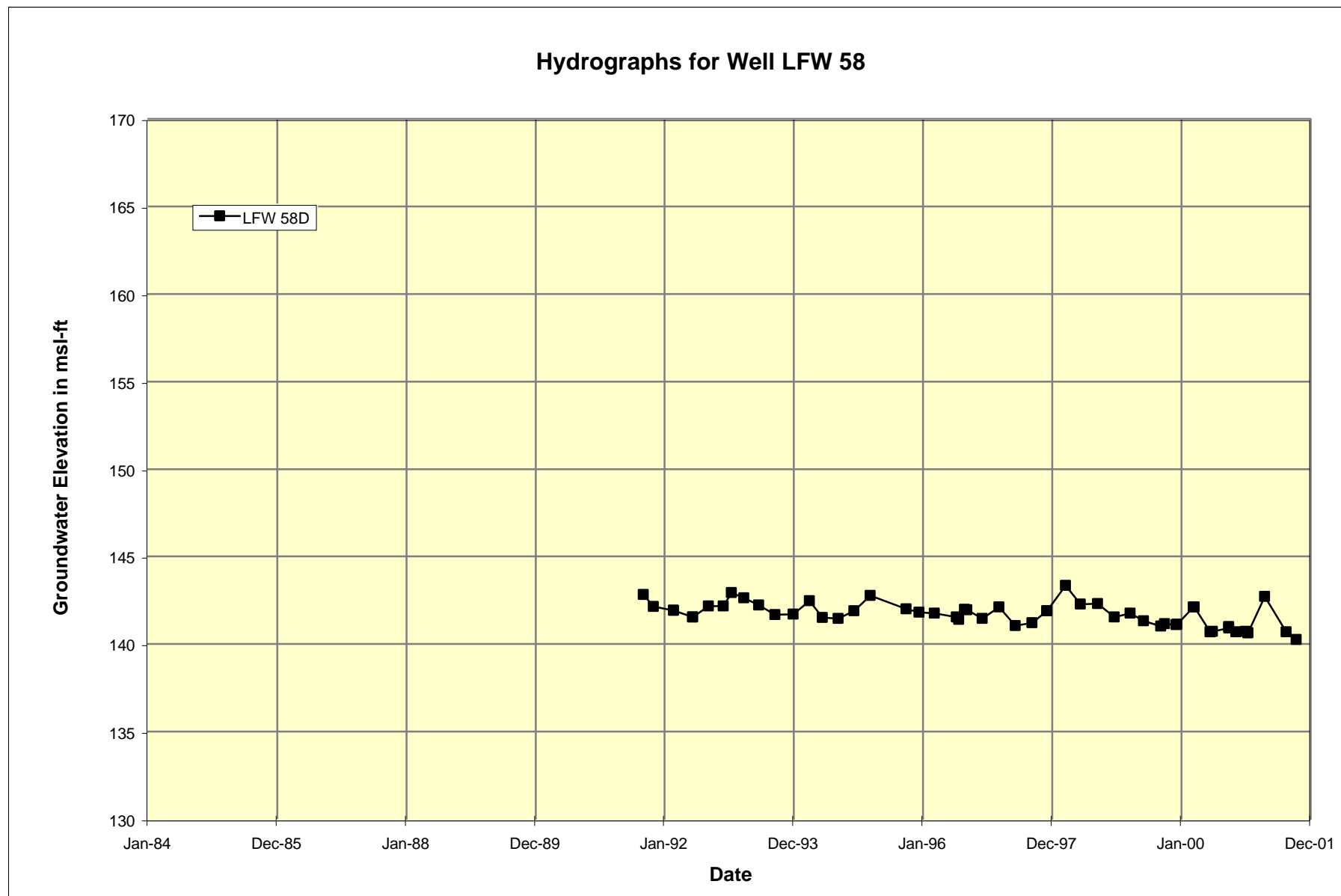


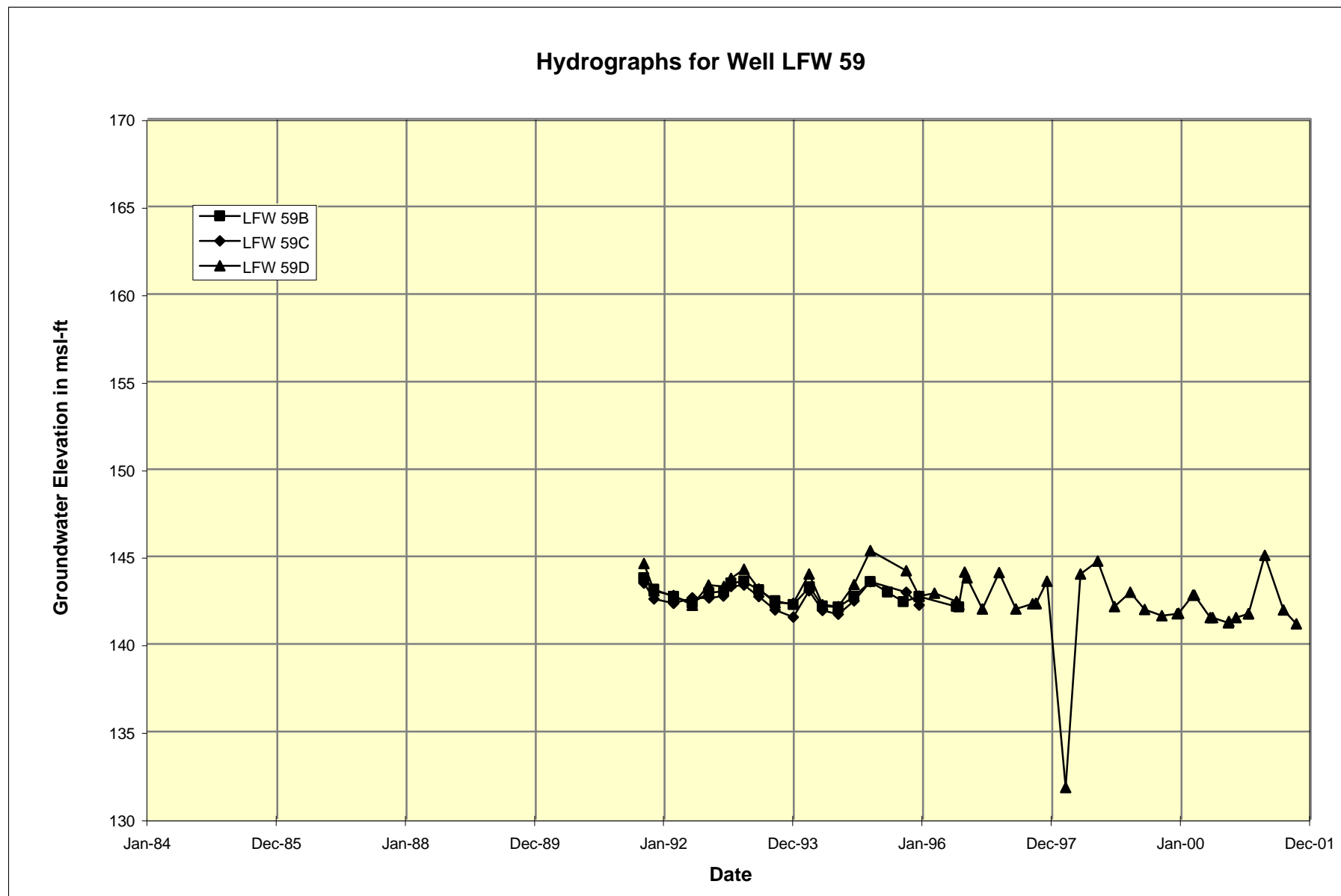


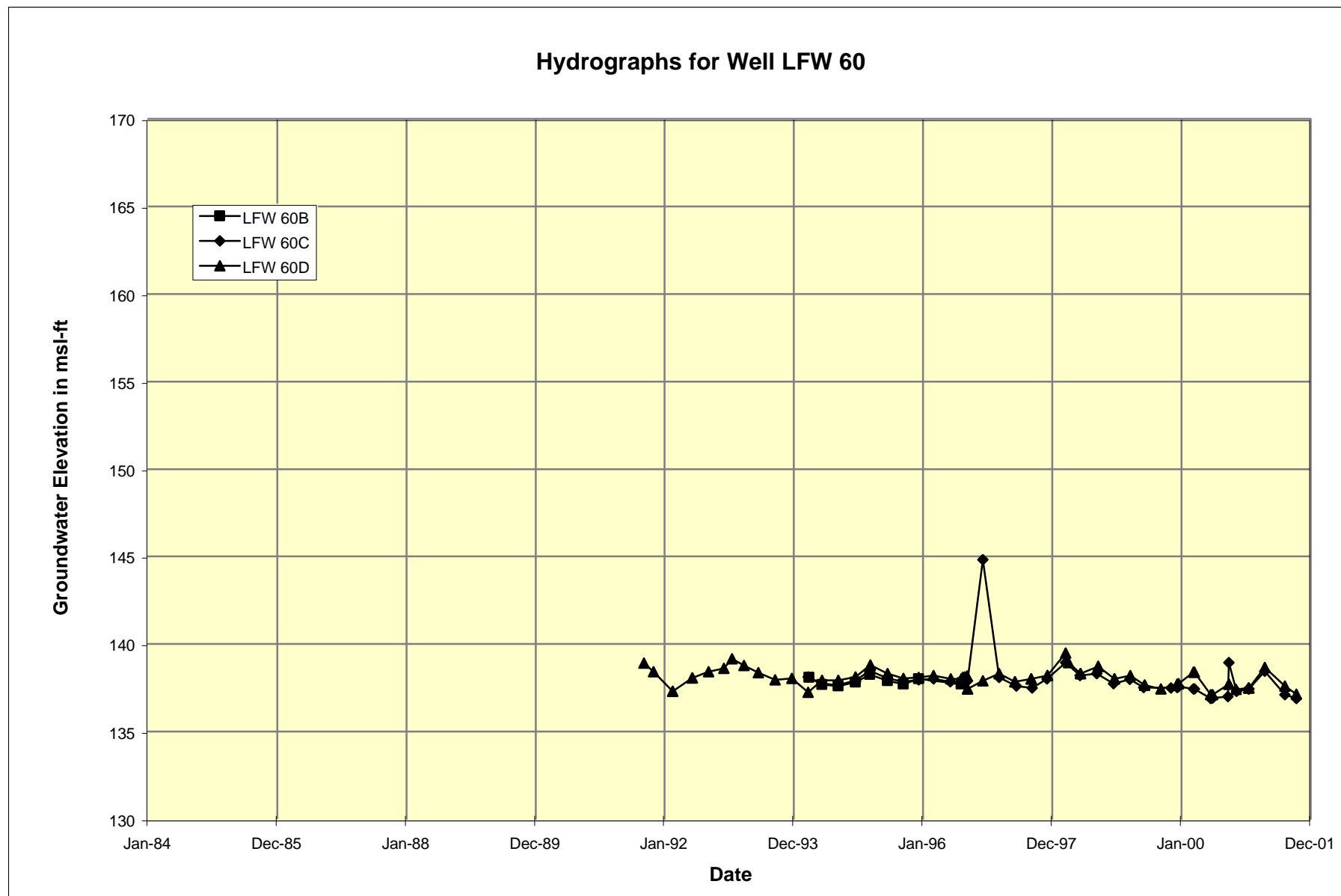


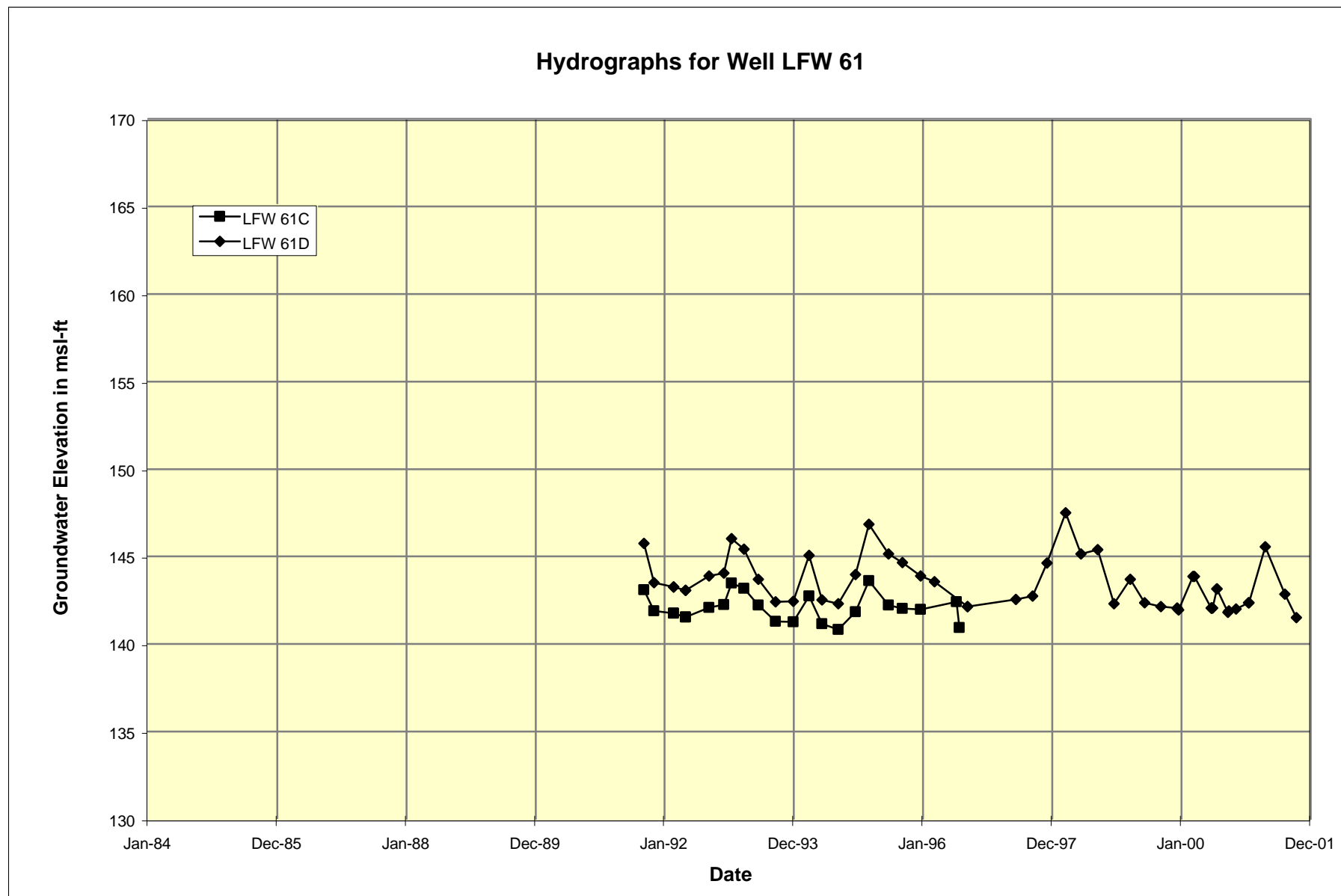


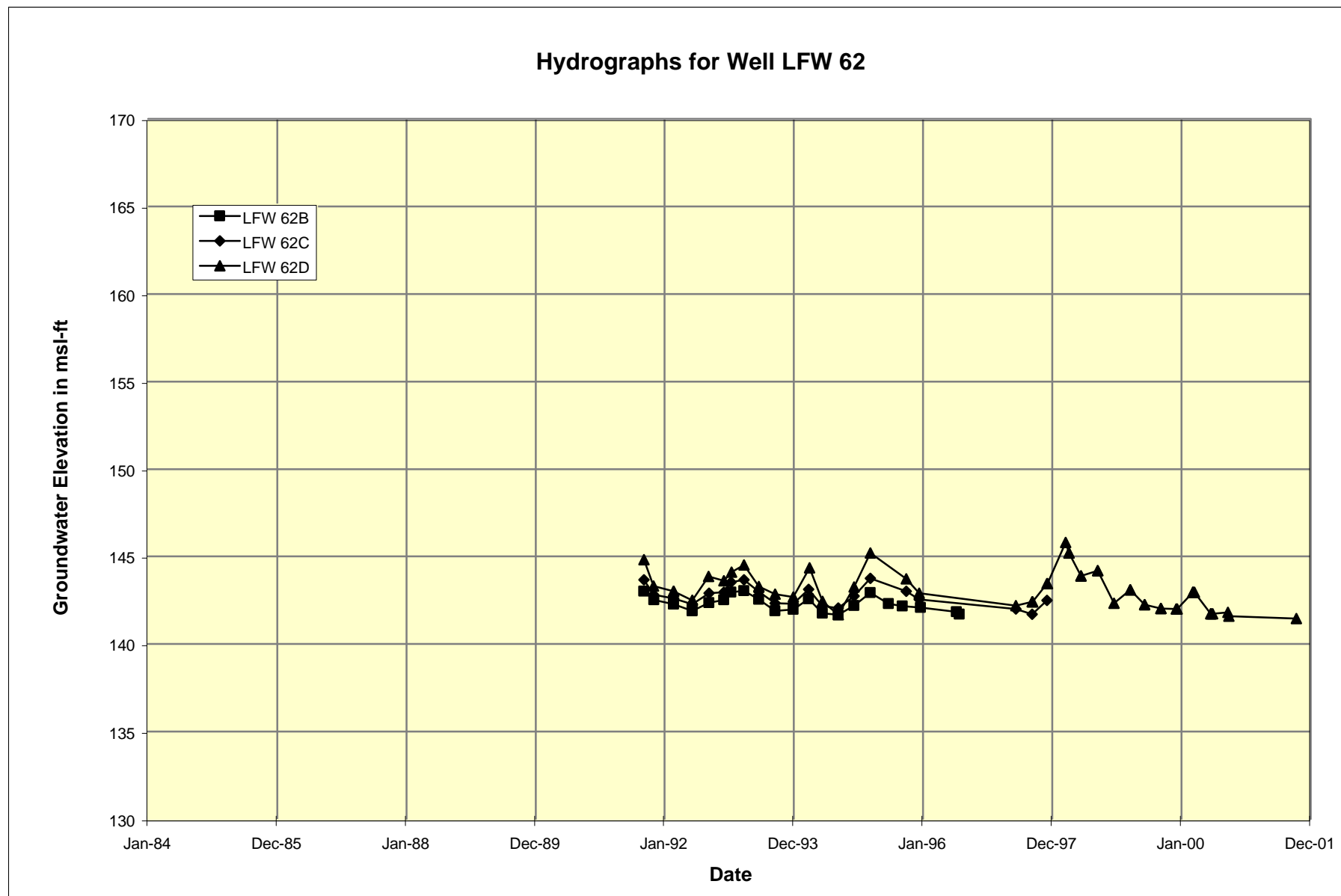


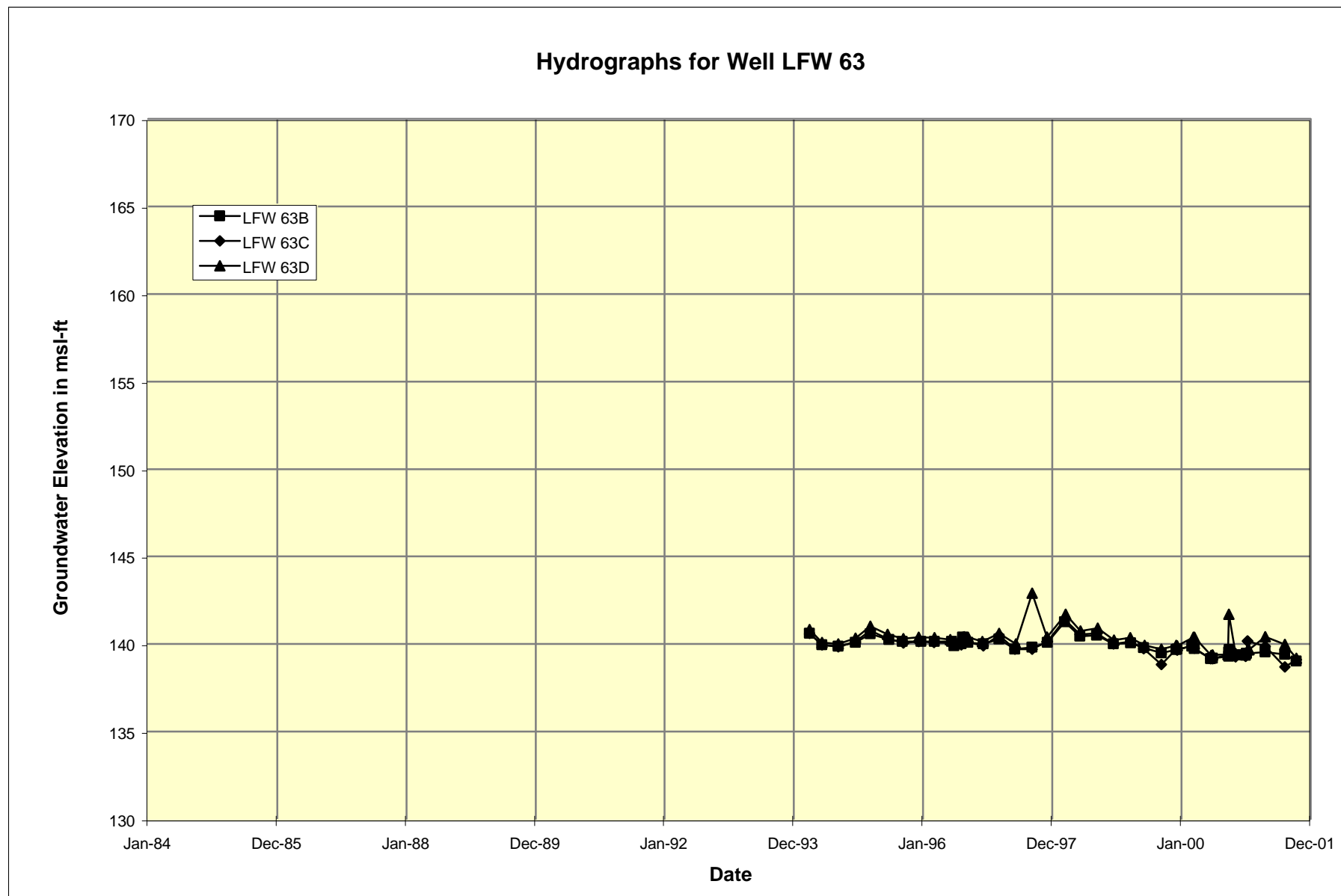


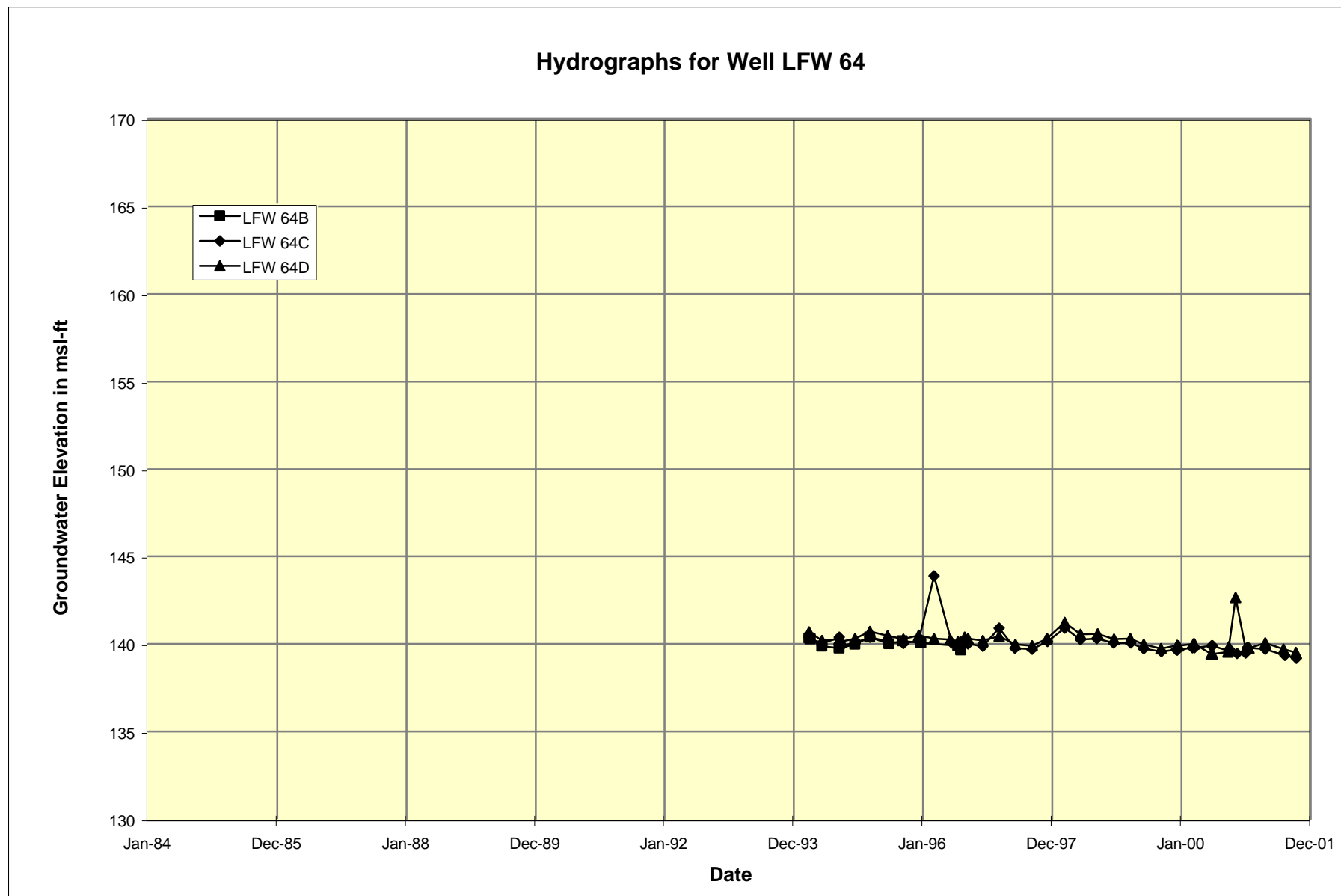


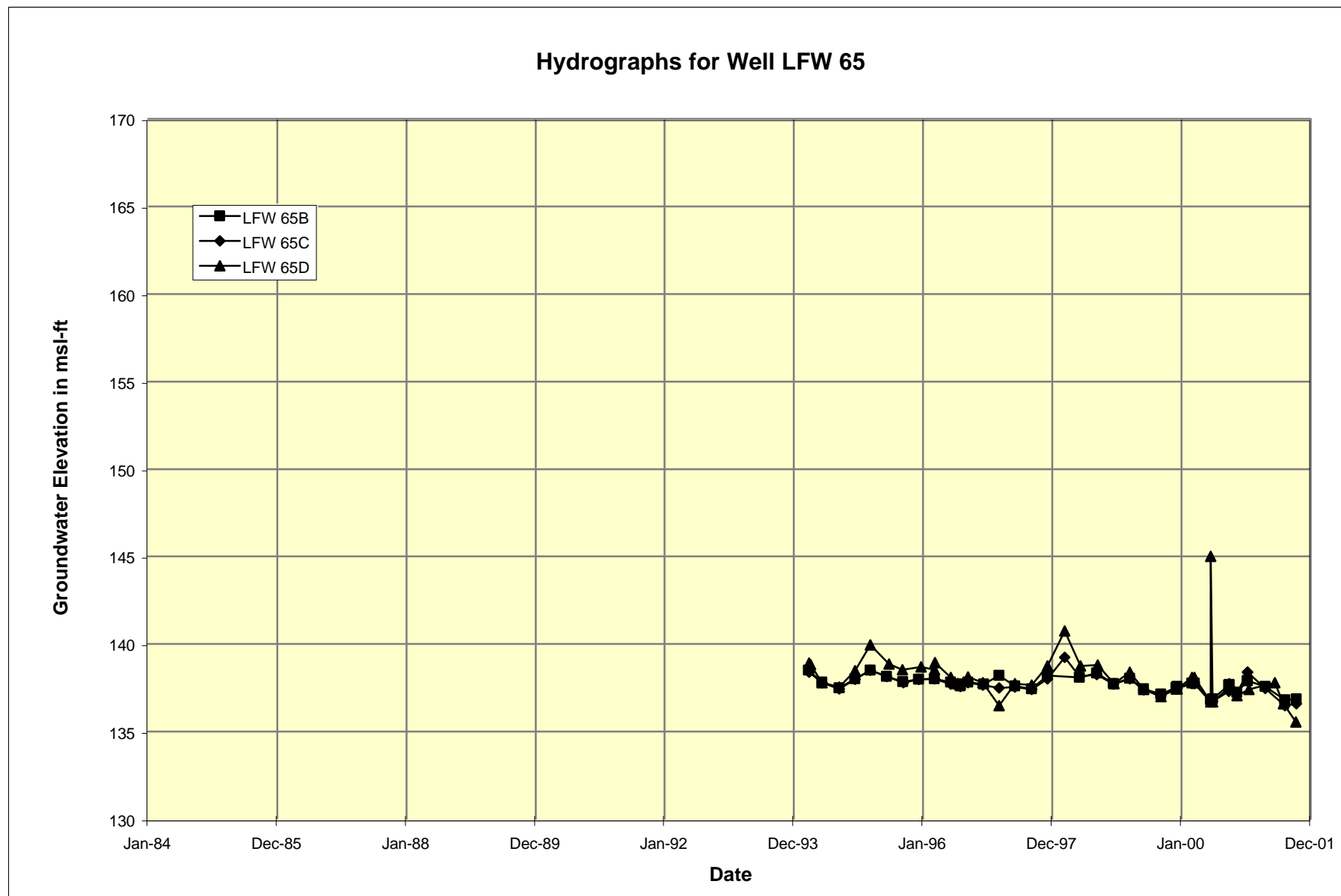




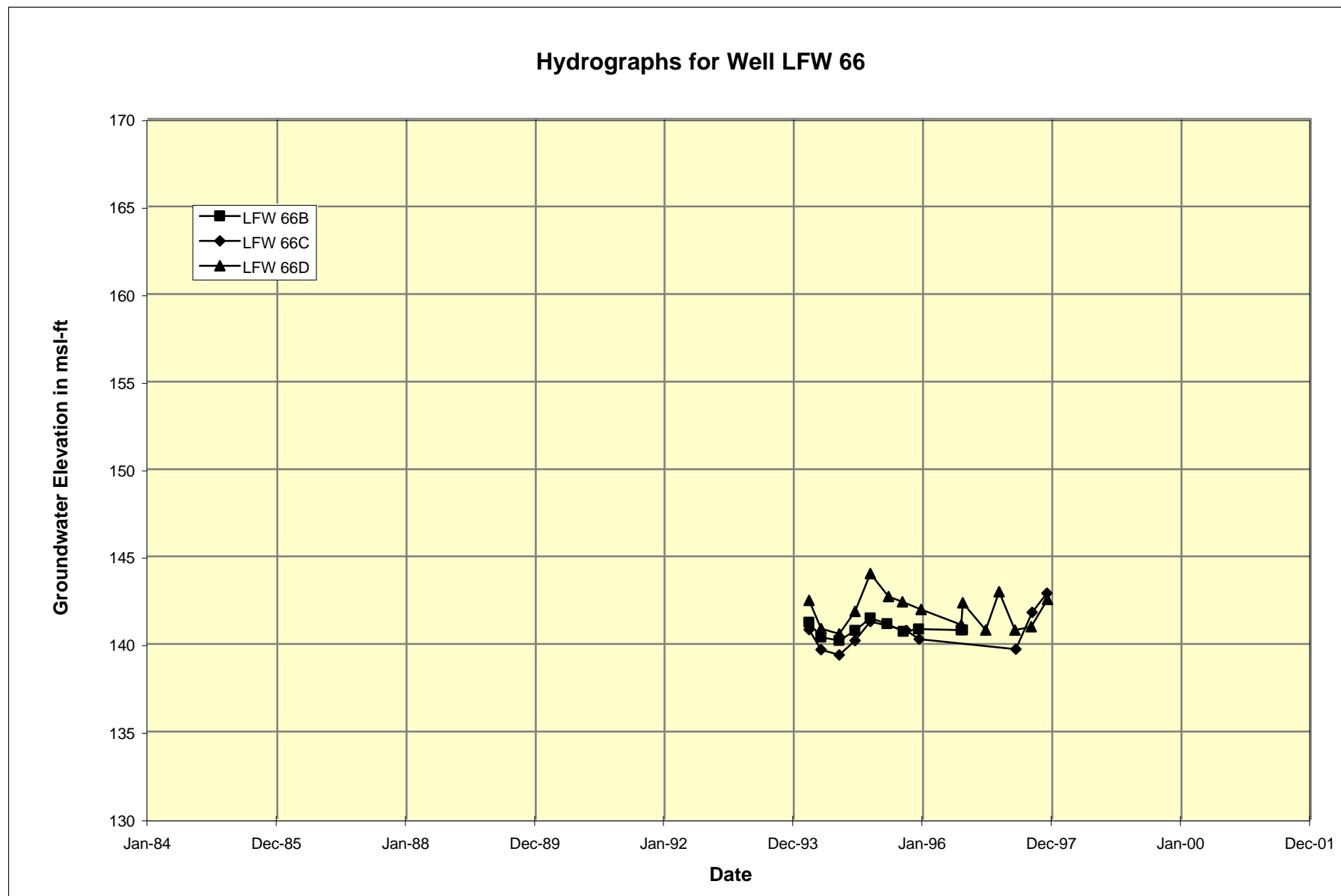


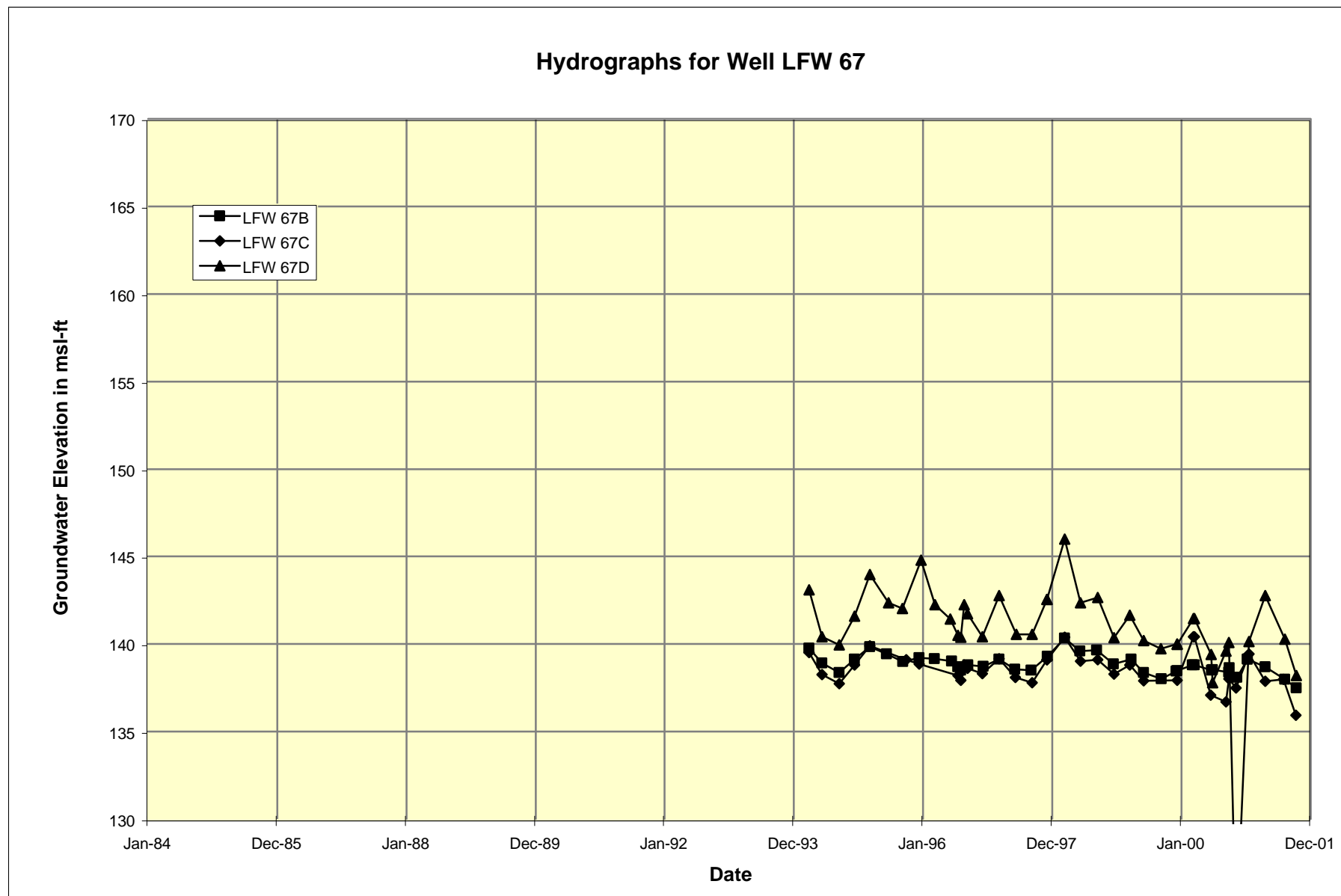


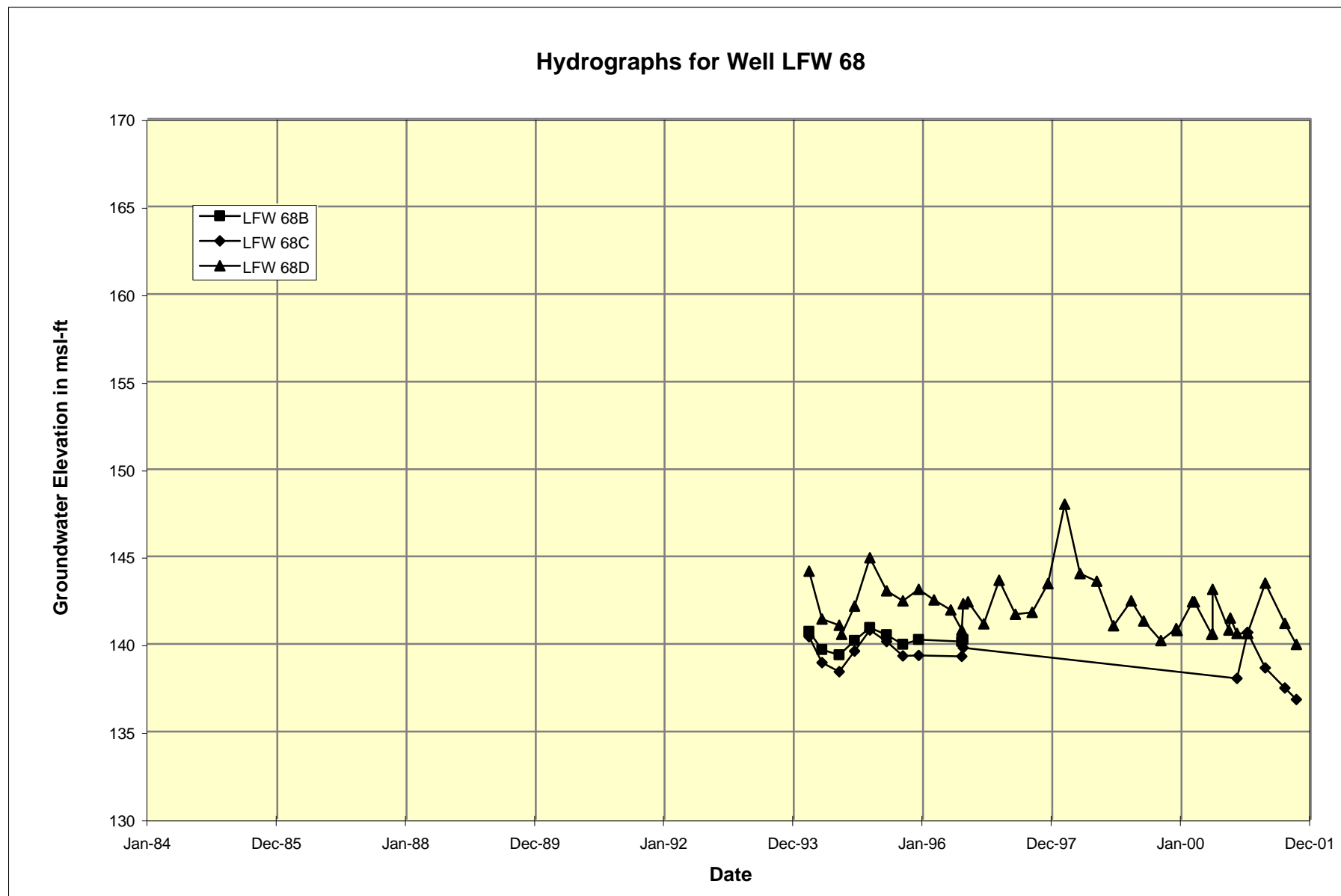


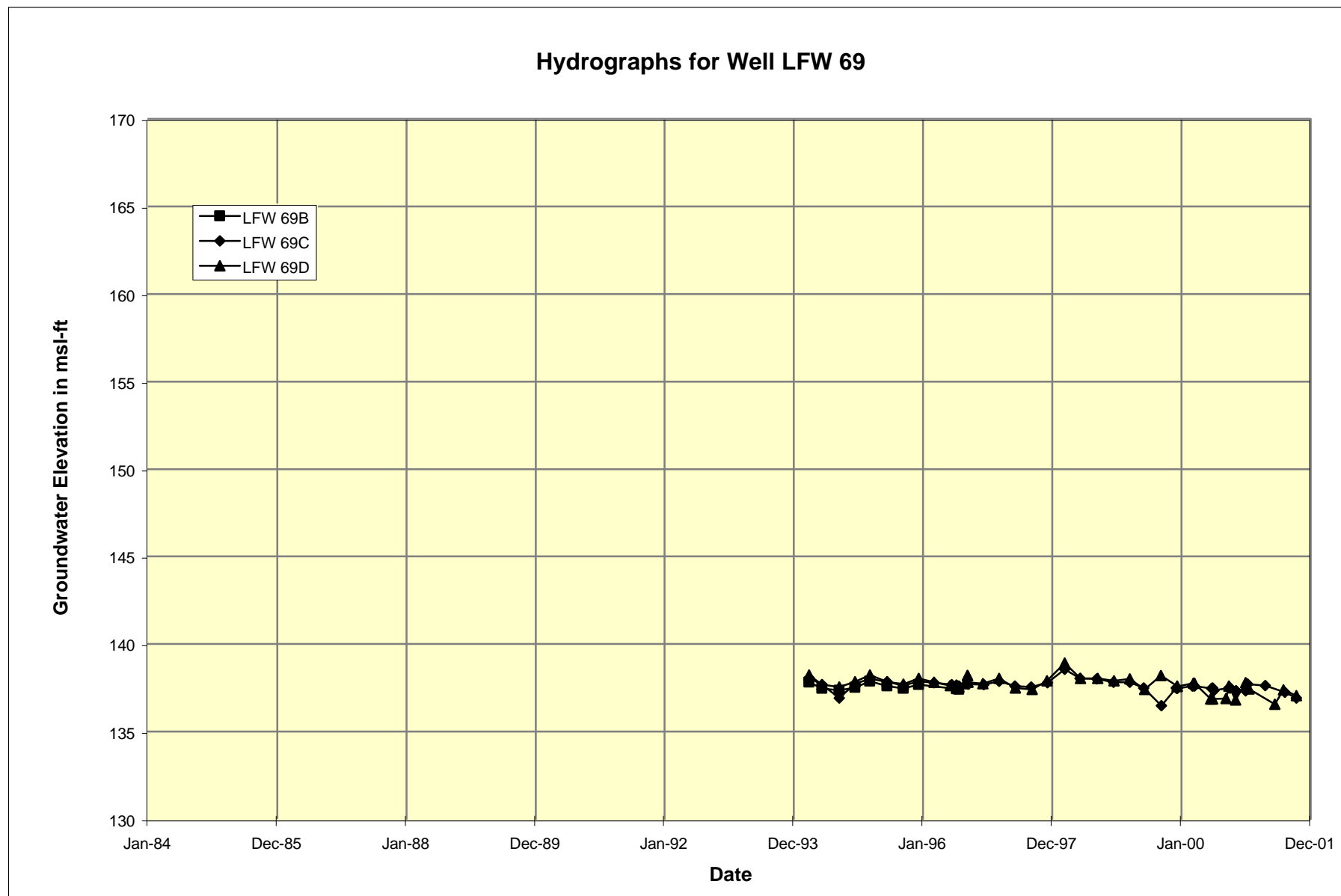


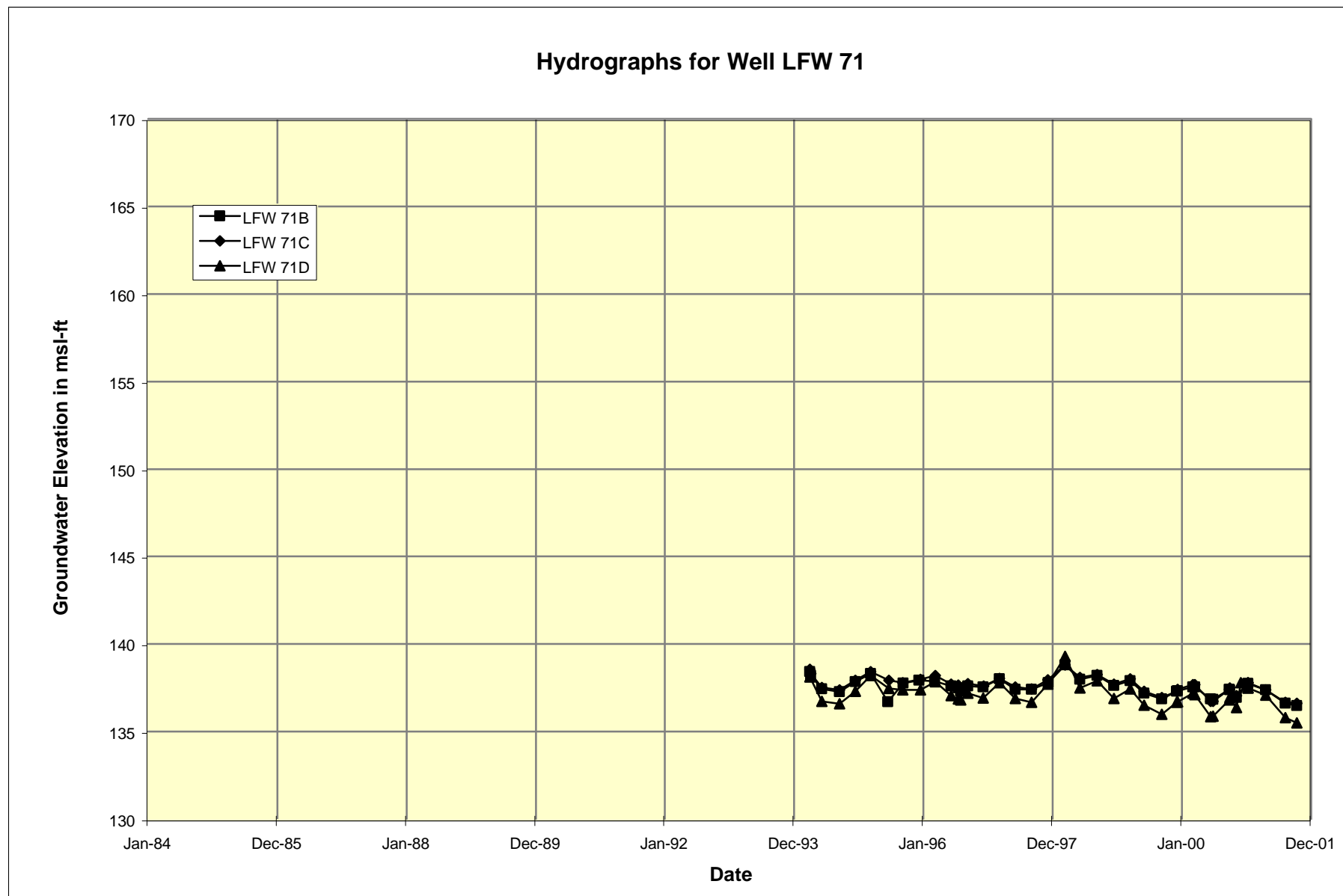


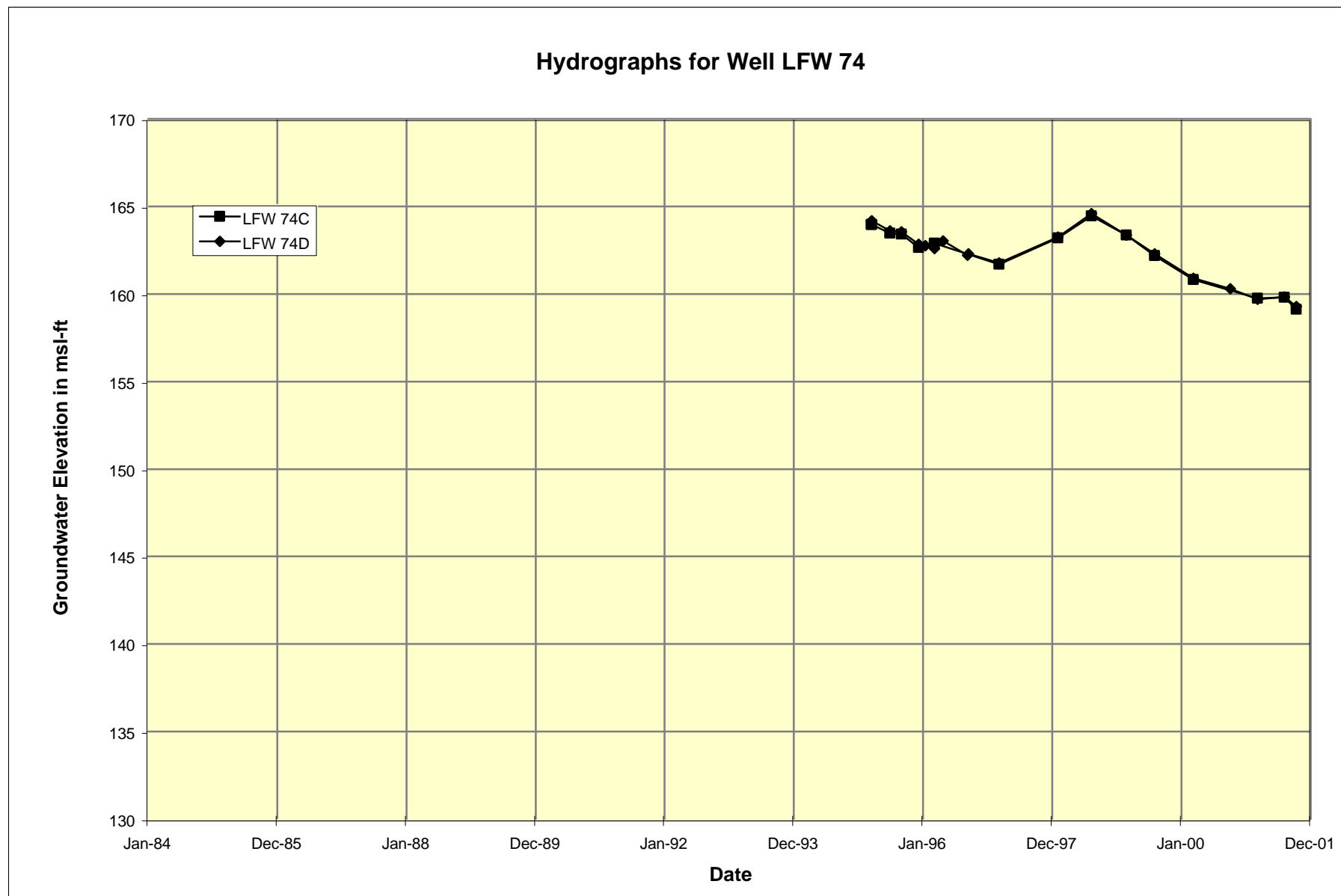


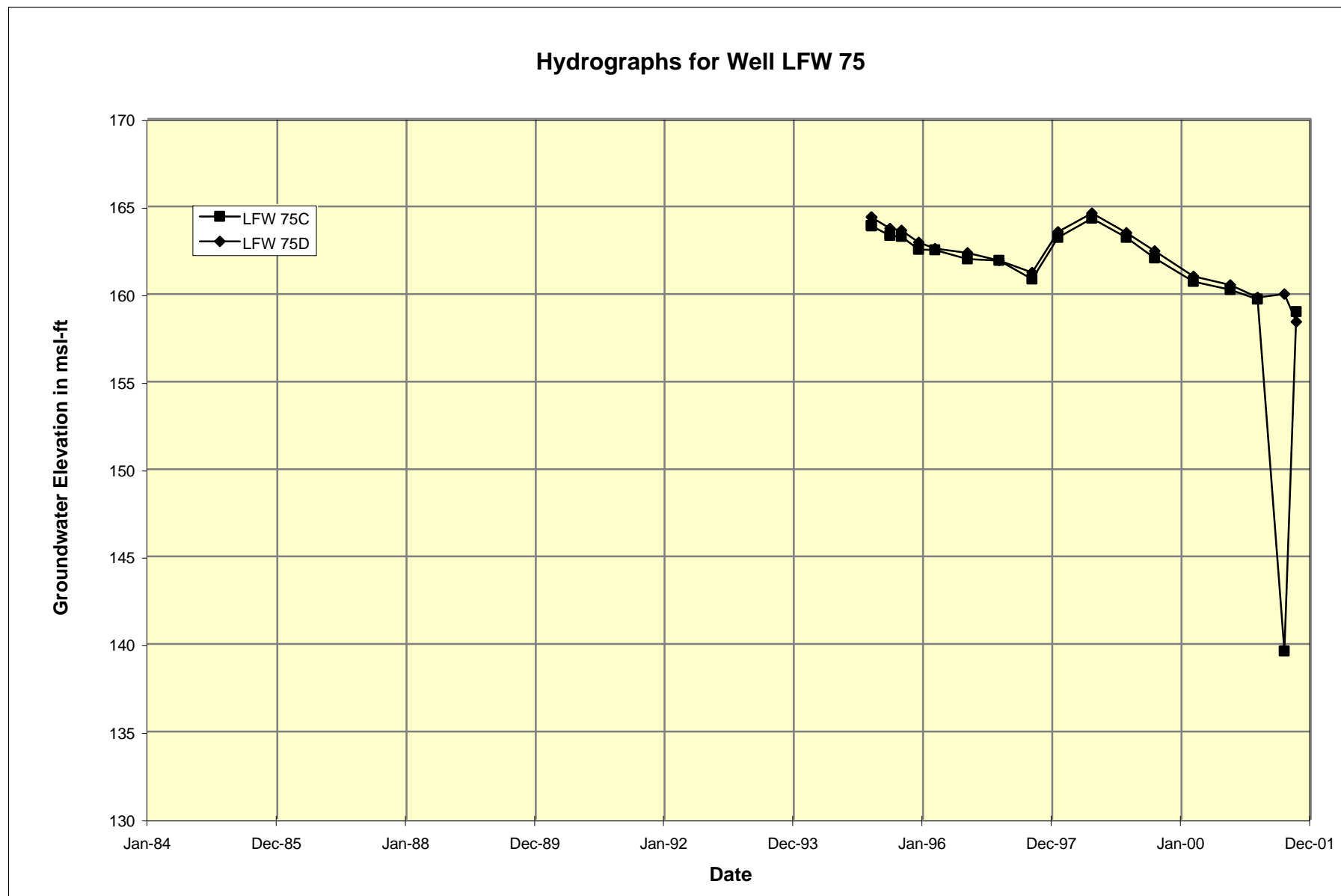












**This Page Left Intentionally Blank**



---

**Appendix E**

**Microbial Characterization**

**Of**

**Sanitary Landfill Groundwater**

---

**THIS PAGE LEFT BLANK INTENTIONALLY.**

Table E-1. Chemical Data

<u>Well</u>	<u>Sample Date</u>	<u>Chloride</u>	<u>Nitrate</u>	<u>Sulfate</u>	<u>TCE</u> (ug/L)	<u>PCE</u> (ug/L)	<u>dichlorodiflor</u> <u>omethane</u>	<u>vinyl chloride</u>	<u>Methylene</u> <u>Chloride</u>	<u>Benzene</u>	<u>Methane</u> (ppmv in 10 ml sample)	<u>Notes</u>
LFW 36R	May-99	6.3	1	1.4	5	5					4,747	
LFW 41R	May-99											
LFW 47D	May-99											
LFW 56D	May-99											
LFW 58D	May-99	43.1	1	4.1	7.04	3.7						
LFW 59B	May-99											
LFW 59C	May-99											
LFW 59D	May-99				6.03	31.5						
LFW 61C	May-99	7.5	1.9	1								
LFW 61D	May-99	5	1.6	1.7	8.9	13.5					882	
LFW 62B	May-99	3.4	3.9	5.5								
LFW 62C	May-99	22.7	5	1								
LFW 62D	May-99	37.1	1	5.8	5.93	3.7					11,085	
LFW 63B	May-99	3.5	4.2	12.9								
LFW 63C	May-99	3.5	7.9	2.3								
LFW 63D	May-99	4.7	2	1.5	5.93	2.3					3,310	
LFW 64B	May-99	3.2	1.9	18.2								
LFW 64C	May-99	3.4	5.3	14.4								
LFW 64D	May-99	5.1	1	2.2	6.83	5						
LFW 67B	May-99	3.4	4.7	9.2								
LFW 67C	May-99	27.9	1	1.6	5	6.4					180,091	
LFW 67D	May-99	10.4	2	2.4	19.2	11.5					695	
LFW 71B	May-99	3.3	5	8.9								
LFW 71C	May-99	4	11.1	2.3								
LFW 71D	May-99	3.4	1.3	1.7	1	1					ND	
LFW 8R	May-99											
LFW 36R	Sep-99	7.58	0	2.07	0.0	0.0	1.0	22.6	0.0	1.0		
LFW 41R	Sep-99	2.6	1.56	20.04	1.0	1.0	5.4	2.1	0.0	0.0		
LFW 47D	Sep-99	3.93	9.9	6.67	0.0	0.0	0.0	0.0	0.0	0.0		
LFW 56D	Sep-99	3.27	1.16	3.58	0.0	0.0	1.9	0.0	0.0	0.0		
LFW 58D	Sep-99											
LFW 59B	Sep-99				0.0	0.0	0.0	0.0	0.0	0.0		

Table E-1. Chemical Data (cont.)

<u>Well</u>	<u>Sample Date</u>	<u>Chloride</u>	<u>Nitrate</u>	<u>Sulfate</u>	<u>TCE</u> (ug/L)	<u>PCE</u> (ug/L)	<u>dichlorodiflor</u> <u>omethane</u>	<u>vinyl chloride</u>	<u>Methylene</u> <u>Chloride</u>	<u>Benzene</u>	<u>Methane</u> (ppmv in 10 ml sample)	<u>Notes</u>
LFW 59C	Sep-99											
LFW 59D	Sep-99	6.81	2.88	1.26	28.9	35.1	56.8	7.0	32.4	4.2		
LFW 61C	Sep-99											
LFW 61D	Sep-99											
LFW 62B	Sep-99				0.0	0.0	0.0	0.0	0.0	0.0		
LFW 62C	Sep-99											
LFW 62D	Sep-99	55.79	0	5.81	7.6	1.8	18.1	25.2	7.2	18.8		
LFW 63B	Sep-99	1.65	0.92	12.77	0.0	0.0	0.0	0.0	0.0	0.0		
LFW 63C	Sep-99	1.8	4.53	8.85	0.0	0.0	0.0	0.0	0.0	1.0		
LFW 63D	Sep-99	8.79	0.5	2.26	1.0	1.0	1.8	13.7	1.1	0.0		
LFW 64B	Sep-99											
LFW 64C	Sep-99	1.35	0.5	17.95	0.0	0.0	0.0	0.0	0.0	0.0		
LFW 64D	Sep-99	5.98	0.5	3.82	0.0	0.0	0.0	0.0	0.0	0.0		
LFW 65B	Sep-99											
LFW 65C	Sep-99											
LFW 65D	Sep-99											
LFW 67B	Sep-99	1.47	1.91	8.33	0.0	0.0	0.0	0.0	0.0	0.0		
LFW 67C	Sep-99											
LFW 67D	Sep-99				14.9	4.3	39.9	2.2	0.0	1.0		
LFW 71B	Sep-99	1.53	2	5.83	0.0	0.0	0.0	0.0	0.0	0.0		
LFW 71C	Sep-99	2	7.18	5.41	0.0	0.0	0.0	0.0	0.0	0.0		
LFW 71D	Sep-99	2.89	0.5	2.17	0.0	0.0	0.0	0.0	0.0	0.0		
LFW 8R	Sep-99	8.08	0	6.6	0.0	0.0	5.8	18.5	0.0	1.0		
LFW 36R	Apr-00	9.60	2.18	2.03	4	4	4	0.0	0.0	4		
LFW 41R	Apr-00	4.24	3.40	1.89	0.0	0.0	0.0	0.0	0.0	0.0		
LFW 47D	Apr-00	4.60	5.78	5.19	4	0.0	0.0	0.0	0.0	0.0		
LFW 56D	Apr-00	4.33	2.70	1.90	0.0	0.0	0.0	0.0	0.0	0.0		
LFW 58D	Apr-00	25.54	1.95	4.03	0.0	<4	0.0	0.0	0.0	0.0		
LFW 59B	Apr-00	3.28	2.38	7.48	0.0	0.0	0.0	0.0	0.0	0.0		
LFW 59C	Apr-00	18.66	2.01	5.24	4	11	0.0	0.0	0.0	0.0		
LFW 59D	Apr-00	6.04	3.92	1.98	6	15	7	0.0	0.0	0.0		

Table E-1. Chemical Data (cont.)

<u>Well</u>	<u>Sample Date</u>	<u>Chloride</u>	<u>Nitrate</u>	<u>Sulfate</u>	<u>TCE</u> (ug/L)	<u>PCE</u> (ug/L)	<u>dichlorodiflor</u> <u>omethane</u>	<u>vinyl chloride</u>	<u>Methylene</u> <u>Chloride</u>	<u>Benzene</u>	<u>Methane</u> (ppmv in 10 ml sample)	<u>Notes</u>
LFW 61C	Apr-00	11.72		2.08	4	4	0	0.0	0.0	0.0		
LFW 61D	Apr-00											
LFW 62B	Apr-00	3.35	2.91	6.73	4	4	8	0	0	0		
LFW 62C	Apr-00											
LFW 62D	Apr-00	28.89		5.08	4	4	0	10	0	4		
LFW 63B	Apr-00	3.37	2.94	11.01	4	4	0	0	0	0		
LFW 63C	Apr-00	3.47	4.64	6.42	0	0	0	0	0	0		
LFW 63D	Apr-00	7.21	3.96	2.65								
LFW 64B	Apr-00	3.37		19.04	0	0	0	0	0	0		
LFW 64C	Apr-00	3.33	2.03	18.94	0	0	0	0	0	0		
LFW 64D	Apr-00	6.36		2.51	0	0	0	0	0	0		
LFW 65B	Apr-00				0	0	0	0	0	0		
LFW 65C	Apr-00				0	0	0	0	0	0		
LFW 67B	Apr-00	3.30	3.26	13.80	6	21	0	0	12	0		
LFW 67C	Apr-00	17.62		2.01	6	4	25	14	0	10		
LFW 67D	Apr-00	7.18	2.57	2.33	8	23	35	31	0	6		
LFW 71B	Apr-00	3.24	3.42	6.21	0	0	0	0	0	0		
LFW 71C	Apr-00	3.51	5.31	2.91	0	0	0	0	0	0		
LFW 71D	Apr-00	4.85	2.82	2.74	0	0	0	0	0	0		
LFW 8R	Apr-00	6.74		4.97	4	4	4	4	0	4		
LFW 36R	Jul-00	11.68	0.61	0.68	2	2	0	67	0	4		
LFW 41R	Jul-00	3.70	2.74	0.50								
LFW 47D	Jul-00	4.26	5.22	2.74								
LFW 56D	Jul-00	4.10	1.48	0.50								
LFW 58D	Jul-00	26.81	0.85	2.83								Exceeded hold time.
LFW 59B	Jul-00	3.24	0.83	13.19								
LFW 59C	Jul-00	17.62		2.52	2	10	10	42	4	6		
LFW 59D	Jul-00	5.93	3.20	0.50	2	2	0	0	4	0		
LFW 61C	Jul-00	8.54			5	3	25	10	0	5		
LFW 61D	Jul-00	8.19										
LFW 62B	Jul-00	2.57	2.24	13.59								
LFW 62D	Jul-00	38.37	0.59	4.85	13	4	111	23	4	30		

Table E-1. Chemical Data (cont.)

<u>Well</u>	<u>Sample Date</u>	<u>Chloride</u>	<u>Nitrate</u>	<u>Sulfate</u>	<u>TCE</u> (ug/L)	<u>PCE</u> (ug/L)	<u>dichlorodiflor</u> <u>omethane</u>	<u>vinyl chloride</u>	<u>Methylene</u> <u>Chloride</u>	<u>Benzene</u>	<u>Methane</u> (ppmv in 10 ml sample)	<u>Notes</u>
LFW 63B	Jul-00	2.61	1.81	11.51	0	0	0	0	0	0		
LFW 63C	Jul-00	2.48	3.63	6.16	0	0	0	0	0	0		
LFW 63D	Jul-00	11.07	6.31	1.17								
LFW 64B	Jul-00	2.51		26.61								
LFW 64C	Jul-00	2.39	1.91	32.45								
LFW 64D	Jul-00	7.06	0.9	1.58	0	0	0	40	0	0		
LFW 65B	Jul-00	2.55	0.70	19.71	0	0	0	0	0	0		
LFW 65C	Jul-00	2.54			0	0	0	0	0	0		
LFW 65D	Jul-00	6.32	0.79	6.42	0	0	0	0	0	0		
LFW 67B	Jul-00	2.26	2.31	17.99	0	0	0	0	0	0		
LFW 67C	Jul-00	16.03		0.75	0	0	0	258	0	5		
LFW 67D	Jul-00	6.8	1.45	1.22	2	3	35	20	0	0		
LFW 71B	Jul-00	2.98	2.78	17.74	0	0	0	0	0	4		
LFW 71C	Jul-00	3.00	5.27	9.14	0	0	0	0	0	0		
LFW 71D	Jul-00											
LFW 8R	Jul-00	7.61	0.66	3.52	4	0	0	0	0	0		
LFW 36R	Apr-01	12	ND	2.1	> 5	BDL	N/A	N/A	N/A	N/A		
LFW 41R	Apr-01	4.8	ND	BDL								
LFW 59B	Apr-01	3.2	ND	12								
LFW 59C	Apr-01				***	***	N/A	N/A	N/A	N/A		
LFW 59D	Apr-01	7.5	ND	1	10	0	N/A	N/A	N/A	N/A		
LFW 61C	Apr-01	6.9	ND	BDL	10	BDL	N/A	N/A	N/A	N/A		
LFW 61D	Apr-01	5.1	ND	BDL								
LFW 62B	Apr-01	3.3	ND	9.2								
LFW 62C	Apr-01											
LFW 62D	Apr-01	36	ND	4.4	12	1	N/A	N/A	N/A	N/A		
LFW 63B	Apr-01	3.3	ND	13	BDL	BDL	N/A	N/A	N/A	N/A		
LFW 63C	Apr-01	3.4	ND	4.1	BDL	BDL	N/A	N/A	N/A	N/A		
LFW 63D	Apr-01	8.8	ND	1.1								
LFW 64B	Apr-01											
LFW 64C	Apr-01											
LFW 64D	Apr-01	6.5	ND	BDL	BDL	BDL	N/A	N/A	N/A	N/A		

Table E-1. Chemical Data (cont.)

<u>Well</u>	<u>Sample Date</u>	<u>Chloride</u>	<u>Nitrate</u>	<u>Sulfate</u>	<u>TCE</u> (ug/L)	<u>PCE</u> (ug/L)	<u>dichlorodiflor</u> <u>omethane</u>	<u>vinyl chloride</u>	<u>Methylene</u> <u>Chloride</u>	<u>Benzene</u>	<u>Methane</u> (ppmv in 10 ml sample)	<u>Notes</u>
LFW 67B	Apr-01	3.2	ND	10	BDL	BDL	N/A	N/A	N/A	N/A		
LFW 67C	Apr-01	16	ND	BDL	11	2	N/A	N/A	N/A	N/A		
LFW 67D	Apr-01	6.4	ND	BDL	BDL	BDL	N/A	N/A	N/A	N/A		
LFW 71B	Apr-01	3.1	ND	7.5	BDL	BDL	N/A	N/A	N/A	N/A		
LFW 71C	Apr-01	3.5	ND	1.8	BDL	BDL	N/A	N/A	N/A	N/A		
LFW 71D	Apr-01	5	ND	1.4	BDL	BDL	N/A	N/A	N/A	N/A		
LFW 8R	Apr-01	7.6	ND	2.5		BDL	N/A	N/A	N/A	N/A		
LFW 41R	Jul-01	4.8	ND	2	21	BDL	N/A	N/A	N/A	N/A		
LFW 47D	Jul-01	4	ND	5.6	163	BDL	N/A	N/A	N/A	N/A		
LFW 56D	Jul-01	5.2	ND	2	48	BDL	N/A	N/A	N/A	N/A		
LFW 59B	Jul-01	3.6	ND	6.8	BDL	BDL	N/A	N/A	N/A	N/A		
LFW 62B	Jul-01	3.5	ND	10.9	22	10	N/A	N/A	N/A	N/A		
LFW 63B	Jul-01	3.6	ND	12.6	BDL	BDL	N/A	N/A	N/A	N/A		
LFW 63C	Jul-01	3.6	ND	5	BDL	BDL	N/A	N/A	N/A	N/A		
LFW 64B	Jul-01	3.5	ND	14.9	BDL	BDL	N/A	N/A	N/A	N/A		
LFW 59C	Jul-01				163	6	N/A	N/A	N/A	N/A		
LFW 63D	Jul-01				194	BDL	N/A	N/A	N/A	N/A		
LFW 64C	Jul-01	3.7	ND	17.5	69	BDL	N/A	N/A	N/A	N/A		
LFW 64D	Jul-01				214	< 5	N/A	N/A	N/A	N/A		
LFW 65B	Jul-01	3.5	ND	12.6	BDL	BDL	N/A	N/A	N/A	N/A		
LFW 65C	Jul-01	3.6	ND	5.2	15	9	N/A	N/A	N/A	N/A		
LFW 67B	Jul-01	3.5	ND	10.9	BDL	BDL	N/A	N/A	N/A	N/A		
LFW 67C	Jul-01				79	< 5	N/A	N/A	N/A	N/A		
LFW 67D	Jul-01				BDL	BDL	N/A	N/A	N/A	N/A		
LFW 71B	Jul-01	3.4	ND	8.9	BDL	BDL	N/A	N/A	N/A	N/A		
LFW 71C	Jul-01	3.8	ND	4.1	BDL	BDL	N/A	N/A	N/A	N/A		
LFW 71D	Jul-01	5.1	ND	2.2	BDL	BDL	N/A	N/A	N/A	N/A		
LFW 8R	Jul-01				239	BDL	N/A	N/A	N/A	N/A		
LFW 36R	Jul-01				158	< 5	N/A	N/A	N/A	N/A		
LFW 59D	Jul-01				54	< 5	N/A	N/A	N/A	N/A		
LFW 61C	Jul-01				88	< 5	N/A	N/A	N/A	N/A		
LFW 61D	Jul-01				218	BDL	N/A	N/A	N/A	N/A		
LFW 62D	Aug-01				129	7	N/A	N/A	N/A	N/A		

**THIS PAGE LEFT BLANK INTENTIONALLY.**



**Table E-2. Microbial Data**

Well	Plate Counts cfu/ml	AODC Spring'99	AODC Fall'99	AODC Spring'00	AODC Fall'00	AODC Fall'01	FA's Spring 99	FA's Fall'99	FA's Spring '00	FA's Fall'00	FA's Fall'01	MPN'S Spring '99	MPN'S Fall'99	MPN'S Spring '00	MPN'S Fall'00	MPN'S Fall'01
LFW 36R	40	195720	194019	444200	313568	725869	0	1226	1634	204	3440	4800	42	4600	18800	1850
LFW 41R	225	50921	25461	30464	9327	151308	41	82	20	33	BD	18	<0.7	5	5	18
LFW 47D	590	3676	5514	25188	22469	70542	749	95	1294	204	1720	2	<0.7	>0.7	5	<0.7
LFW 56D	1700	264223	126251	179722	305588	182855	0	0	82	0	BD	84	2	46	46	2
LFW 58D	515	409595	----	155215	273508	----	0	----	409	0	----	3000	----	15	46	----
LFW 59B	105	24834	221249	25427	85393	21674	123	286	1328	----	1200	<0.7	463	15	46	5
LFW 59C	465	12254	----	16850	154076	282578	68	----	0	68	3440	850	----	850	463	184
LFW 59D	55	144323	29409	269875	83767	160713	50	0	245	340	3440	42	1	84	84	5
LFW 61C	14200	825089	272307	94967	251995	502655	0	82	368	0	1720	>2200 0	550	184	4600	463
LFW 61D	315	244509	1047700	----	----	805612	0	1389	----	0	BD	29	84	----	1850	84
LFW 62B	305	9258	59907	13956	55033	188112	82	7490	0	20	1720	8	18	3	5	1
LFW 62C	610	462241	46633	----	----	----	340	0	----	----	----	3000	184	----	----	----
LFW 62D	8250	2266953	1817647	921122	2225263	1553972	163	1089	102	0	3440	22000	84	46	18800	850
LFW 63B	1360	47381	14750	6264	19500	33908	34	61	68	0	3440	42	2	3	8	8
LFW 63C	140	8904	6209	6637	455603	13291	0	95	61	143	BD	18	<0.7	2	1	<0.7
LFW 63D	205	279795	234184	5514	786863	1421067	41	82	0	681	BD	184	46	294	18	3
LFW 64B	0	10947	9531	7352	25525	19510	82	61	20	16	3440	3	5	29	1	3
LFW 64C	105	2315	64162	15794	13285	58887	143	817	0	0	BD	1	<0.7	>0.7	<0.7	<0.7
LFW 64D	100	77293	60248	77611	202981	135359	41	82	0	170	6880	850	46	850	4600	463
LFW 65B	970	14941	101298	53445	28932	195707	51	65	16	0	5160	0	<0.7	----	<0.7	<0.7
LFW 65C	955	5147	20861		450038	6901	82	136	20	0	3440	<0.7	<0.7	----	<0.7	<0.7
LFW 65D	110	37170	265499	----	54378	----	11	245	----	0	----	0	<0.7	----	3	----
LFW 67B	515	12439	5106	7189	21210	11450	61	71	109	17	5160	<0.7	<0.7	>0.7	4	<0.7
LFW 67C	230	6045	----	100758	117570	560589	715	----	0	1471	1720	84	----	184	84	29
LFW 67D	850	143369	167097	6331750	27061	801522	619	613	12256 2	368	3440	463	29	1850	8600	84
LFW 71B	310	5637	3659	2763	5520	23412	41	27	16	0	BD	8	<0.7	>0.7	<0.7	<0.7
LFW 71C	115	8251	2655	1634	4528	2317	41	61	41	70	BD	<0.7	<0.7	1	<0.7	<0.7
LFW 71D	200	3513	30362	16452	----	133782	11	0	0	----	BD	1	<0.7	1	----	<0.7
LFW 8R						137553					BD				850	8600

**THIS PAGE LEFT BLANK INTENTIONALLY.**

**Table E-3. Physical Data**

<u>Well</u>	<u>Location</u> (U/D Gradient)	<u>Sample</u> <u>Date</u>	<u>Well</u> <u>Level</u> (feet)	<u>Well</u> <u>Level</u> (Total feet)	<u>Temp.</u>	<u>O2</u> (%)	<u>O2</u>	<u>Cond.</u>	<u>Cond.</u>	<u>Redox</u>	<u>pH</u>	<u>Time</u>
LFW 71D	Down Gradient TCE	Mar-99										
LFW 59D	Up Gradient TCE	Mar-99										
LFW 62D	Up Gradient TCE	Mar-99										
LFW 63D	Down Gradient VC	Mar-99										
LFW 64D	Down Gradient VC	Mar-99										
LFW 56D	Down Gradient VC	May-99			19.71		4.85	0.019		398.5	5.04	
LFW 36R	Up Gradient VC	May-99										
LFW 56D	Down Gradient VC	May-99	27		17.1	32.8		0.022			5.03	11:25
LFW 58D	Down Gradient VC	May-99										
LFW 61D	Up Gradient TCE	May-99										
LFW 63B	Down Gradient VC	May-99	28	10	18.5	69.4					4.1	10:41
LFW 67C	Down Gradient TCE	May-99										
LFW 67D	Down Gradient TCE	May-99										
LFW 47D	Up Gradient VC	May-99	10	13	18.4	73.9		0.056			4.77	12:06
LFW 59B	Up Gradient TCE	May-99	25.5		18.9	54.7		0.052			3.8	14:54
LFW 59C	Up Gradient TCE	May-99	0		20.7	69.8		0.094			5.06	12:44
LFW 61C	Up Gradient TCE	May-99	64		19.8	60.8		0.081			5.06	
LFW 62C	Up Gradient TCE	May-99	26	33	21.9	19		0.082			4.62	1:15
LFW 63C	Down Gradient VC	May-99	27	40	18.9	46		0.058			3.78	10:44
LFW 64B	Down Gradient VC	May-99	87	11	18.4	1.5		0.068			3.77	16:01
LFW 67B	Down Gradient TCE	May-99	79	19	19	68.8		0.056			3.89	17:43
LFW 71C	Down Gradient TCE	May-99	55	10	18.8	102.8		0.038			4.22	17:10
LFW 41R	Up Gradient TCE	May-99	27		19.9	71					4.66	9:45
LFW 64C	Down Gradient VC	May-99	49	16	18.6	65.4		0.074			3.6	16:22
LFW 62B	Up Gradient TCE	May-99	26	51.5	18.9	52.9		0.038			4.34	2:15
LFW 71B	Down Gradient TCE	May-99	38	11	18.7	80.2		0.05			3.85	16:56
LFW 41R	Up Gradient TCE	Sep-99			201		5.54		24		4.9	
LFW 56D	Down Gradient VC	Sep-99			19.9		2.26		23		4.9	
LFW 62D	Up Gradient TCE	Sep-99			22.96		3.04		219		5.6	
LFW 64D	Down Gradient VC	Sep-99			19.7		2.86		45		5.6	

Table E-3. Physical Data (Continued)

<u>Well</u>	<u>Location</u> (U/D Gradient)	<u>Sample</u> <u>Date</u>	<u>Well</u> <u>Level</u> (feet)	<u>Well</u> <u>Level</u> (Total feet)	<u>Temp.</u>	<u>O2</u> (%)	<u>O2</u>	<u>Cond.</u>	<u>Cond.</u>	<u>Redox</u>	<u>pH</u>	<u>Time</u>
LFW 67D	Down Gradient TCE	Sep-99			20.8		3.06		71		4.9	
LFW 63B	Down Gradient VC	Sep-99			19.9		2.75		59		4.1	
LFW 63C	Down Gradient VC	Sep-99			20		2.3		53		5	
LFW 63D	Down Gradient VC	Sep-99			20		2.3		53		5	
LFW 64B	Down Gradient VC	Sep-99			18.3	0.02		0.07		328	3.43	
LFW 64C	Down Gradient VC	Sep-99			19.4		1.56		72		4	
LFW 67B	Down Gradient TCE	Sep-99			20.2		4.08		53		4.2	
LFW 71B	Down Gradient TCE	Sep-99			19.8		4.63		45		4.2	
LFW 71C	Down Gradient TCE	Sep-99			20.4		5.13		21		4.9	
LFW 71D	Down Gradient TCE	Sep-99			20		5.99		36		4.6	
LFW 36R	Up Gradient VC	Sep-99			20.6		1.06		148		6.3	
LFW 47D	Up Gradient VC	Sep-99			22.4		3.62		57		5	
LFW 59D	Up Gradient TCE	Sep-99			21		1.84		44		4.7	
LFW 8R	Up Gradient VC	Sep-99			20.3		1.04		223		6.5	
LFW 59B	Up Gradient TCE	Sep-99			22.8		3.61		3.8	272	3.8	
LFW 62B	Up Gradient TCE	Sep-99			23.6		4.01		36	259	3.86	
LFW 61C	Up Gradient TCE	Sep-99			28.25		1.8		0.284	-229	6.36	
LFW 61D	Up Gradient TCE	Sep-99			26.55		3		0.268	-121	5.99	
LFW 62C	Up Gradient TCE	Sep-99			24		14.9		0.074	253	4.39	
LFW 36R	Up Gradient VC	May-00	21.8		19.45		0.2		40.94	-24.8	6.47	
LFW 58D	Down Gradient VC	May-00	26.35		20.08		6.75		50.5	249	5.97	
LFW 61C	Up Gradient TCE	May-00	18.7		20.79		0.07		143	-230	7.01	
LFW 63B	Down Gradient VC	May-00	27.68		19.83		3.17	0.055		468.7	4.14	
LFW 63C	Down Gradient VC	May-00	28.05		20.08		8.73	0.03		440.7	4.55	
LFW 8R	Up Gradient VC	May-00	22.45		19.67		0.2	92.25		119	6.56	
LFW 41R	Up Gradient TCE	May-00	25.1		20.17		4.51	0.025		452.3	4.89	
LFW 47D	Up Gradient VC	May-00	13.5		17.03		5.47	0.042		320.9	5.14	
LFW 59B	Up Gradient TCE	May-00	26		20.32		2.31	0.041		446.8	4.24	
LFW 62B	Up Gradient TCE	May-00	22.4		19.89		3.91	0.033		391	4.45	
LFW 64B	Down Gradient VC	May-00	12.1		19.26		0.18	0.056		443.7	4.12	
LFW 64C	Down Gradient VC	May-00	11.8		19.05		0.46	0.065		445.6	4.04	
LFW 67B	Down Gradient TCE	May-00	19.82		19.84		4.35	0.045		515.3	4.21	

Table E-3. Physical Data (Continued)

<u>Well</u>	<u>Location</u> (U/D Gradient)	<u>Sample</u> <u>Date</u>	<u>Well</u> <u>Level</u> (feet)	<u>Well</u> <u>Level</u> (Total feet)	<u>Temp.</u>	<u>O2</u> (%)	<u>O2</u>	<u>Cond.</u>	<u>Cond.</u>	<u>Redox</u>	<u>pH</u>	<u>Time</u>
LFW 71B	Down Gradient TCE	May-00	10.08		19.67		5.71	0.04		490.7	4.26	
LFW 71C	Down Gradient TCE	May-00	10.35		19.72		8.45	0.04		487.4	4.62	
LFW 71D	Down Gradient TCE	May-00	11.4		18.21		7.83	0.023		480.7	4.82	
LFW 62D	Up Gradient TCE	May-00	22.2		24.29		2.95	0.147		107.2	5.62	
LFW 64D	Down Gradient VC	May-00	12.1		18.81		0.13	0.04		303	5.31	
LFW 59C	Up Gradient TCE	May-00	28.3		20.6		0.23	0.116		236.5	5.317	
LFW 59D	Up Gradient TCE	May-00	25.5		22.67		9.63	0.03		265.8	5.21	
LFW 61D	Up Gradient TCE	May-00	25.32									
LFW 63D	Down Gradient VC	May-00	28.6		19.39		1.4	0.061		186.5	5.73	
LFW 67C	Down Gradient TCE	May-00	18.3		20.04		0.1	0.259		-141	6.72	
LFW 67D	Down Gradient TCE	May-00	17.7		19.1		7.27	0.038		321	5.01	
LFW 58D	Down Gradient VC	Jul-00	25.76		21.8		8.36	0.125		389	6.09	
LFW 36R	Up Gradient VC	Jul-00	22.71		19.38		8.91	0.011		368.5	5.86	
LFW 59C	Up Gradient TCE	Jul-00	23.5		20.53		0.36	0.106		315.1	5.35	
LFW 59D	Up Gradient TCE	Jul-00	24.03		21.13		11.74	0.031		399.4	5.34	
LFW 61C	Up Gradient TCE	Jul-00	23.65		20.58		0.1	0.322		-189.3	6.87	
LFW 62D	Up Gradient TCE	Jul-00	21.88		22.57		0.53	0.183		206	5.5	
LFW 64D	Down Gradient VC	Jul-00	12.74		18.44		0.68	0.049		298.6	5.43	
LFW 65B	Down Gradient TCE	Jul-00	11.52		20.08			0.047		479.2	4.31	
LFW 65C	Down Gradient TCE	Jul-00	11.92		19.65		6.98	0.03		489.4	4.71	
LFW 67B	Down Gradient TCE	Jul-00	19.85		22.48		6.3	0.041		409.5	5.02	
LFW 67C	Down Gradient TCE	Jul-00	19.74		20.16		0.07	0.289		-157	6.73	
LFW 67D	Down Gradient TCE	Jul-00	17.05		19.26		8.51	0.042		324	4.94	
LFW 71B	Down Gradient TCE	Jul-00	10.48		19.76		5.95	0.046		498.9	4.18	
LFW 71C	Down Gradient TCE	Jul-00	10.65		19.81		9	0.036		498	4.52	
LFW 71D	Down Gradient TCE	Jul-00	11.68		19.02		7.6	0.029		487.8	4.72	
LFW 8R	Up Gradient VC	Jul-00	22.25		19.86		0.09	0.219		137	6.49	
LFW 61D	Up Gradient TCE	Jul-00	24.65		21.44		3.15	0.12		-3.3	6.33	
LFW 63B	Down Gradient VC	Jul-00	28.94		19.67		2.84	0.06		523.2	4.02	
LFW 63C	Down Gradient VC	Jul-00	29.22		19.58		8.36	0.036		523.5	4.45	
LFW 36R	Up Gradient VC	Apr-01	22.65		18.41		0.374	0.138		-19.1	5.97	

Table E-3. Physical Data (Continued)

<u>Well</u>	<u>Location</u> (U/D Gradient)	<u>Sample</u> <u>Date</u>	<u>Well</u> <u>Level</u> (feet)	<u>Well</u> <u>Level</u> (Total feet)	<u>Temp.</u>	<u>O2</u> (%)	<u>O2</u>	<u>Cond.</u>	<u>Cond.</u>	<u>Redox</u>	<u>pH</u>	<u>Time</u>
LFW 41R	Up Gradient TCE	Apr-01	26.38		19.79		3.99	0.034		257.6	4.67	
LFW 47D	Up Gradient VC	Apr-01	12.79		16.01		7.54	0.037		252	4.88	
LFW 56D	Down Gradient VC	Apr-01	12.91		17.51		7.66	0.022		282.7	4.67	
LFW 58D	Down Gradient VC	Apr-01	26.1		21.01		9.12	0.125		168	5.97	
LFW 59B	Up Gradient TCE	Apr-01	25.75		21.33		1.05	0.048		254.3	4.02	
LFW 59C	Up Gradient TCE	Apr-01										
LFW 59D	Up Gradient TCE	Apr-01	22.85		20.53		9.27	0.031		51.7	4.79	
LFW 61C	Up Gradient TCE	Apr-01	26.5		21.79		0.93	0.237		-145.6	6.23	
LFW 61D	Up Gradient TCE	Apr-01	21.1		20.06		3.7	0.066		77.8	5.75	
LFW 62B	Up Gradient TCE	Apr-01	23.1		19.92		4.1	0.039		277.6	4.22	
LFW 62C	Up Gradient TCE	Apr-01										
LFW 62D	Up Gradient TCE	Apr-01	20.67		23.74		3.18	0.168		91.2	5.31	
LFW 63B	Down Gradient VC	Apr-01	28.2		19.45		2.32	0.057		313.6	3.95	
LFW 63C	Down Gradient VC	Apr-01	28.43		19.19		8.62	0.03		303.5	4.42	
LFW 63D	Down Gradient VC	Apr-01	28.35		21.82		8.83	0.046		225.9	5.14	
LFW 64B	Down Gradient VC	Apr-01	11.65		19.23		0.13	0.059		262.6	3.84	
LFW 64C	Down Gradient VC	Apr-01	12.32		19.03		5.13	0.078		305.3	3.7	
LFW 64D	Down Gradient VC	Apr-01	12.5		17.96		0.68	0.038		199.4	4.94	
LFW 65B	Down Gradient TCE	Apr-01	9.58		19.54		0.92	0.045		2.67	3.98	
LFW 65C	Down Gradient TCE	Apr-01	9.15		19.51		6.1	0.028		293.2	3.39	
LFW 65D	Down Gradient TCE	Apr-01										
LFW 67B	Down Gradient TCE	Apr-01	18.95		19.68		4.49	0.055		280.8	4.02	
LFW 67C	Down Gradient TCE	Apr-01	18.3		19.87		0.24	0.262		-147.9	6.67	
LFW 67D	Down Gradient TCE	Apr-01	14.8		18.35		1.17	0.033		148	4.85	
LFW 71B	Down Gradient TCE	Apr-01	9.5		19.52		6.12	0.044		323.1	4.11	
LFW 71C	Down Gradient TCE	Apr-01	9.85		19.64		8.59	0.035		325.5	4.38	
LFW 71D	Down Gradient TCE	Apr-01	10		16.94		8.68	0.025		315.8	4.79	
LFW 8R	Up Gradient VC	Apr-01	21.62		18.36		0.56	0.182		-31.9	6.14	
LFW 36R	Up Gradient VC	Jul-01	24.48		20.62		1.85	139		-61.9	6.36	
LFW 41R	Up Gradient TCE	Jul-01	27.7		19.56		4.26	31		392.5	4.83	
LFW 47D	Up Gradient VC	Jul-01	13.9		19.74		2.37	34		277.7	5.09	

Table E-3. Physical Data (Continued)

<u>Well</u>	<u>Location</u> (U/D Gradient)	<u>Sample</u> <u>Date</u>	<u>Well</u> <u>Level</u> (feet)	<u>Well</u> <u>Level</u> (Total feet)	<u>Temp.</u>	<u>O2</u> (%)	<u>O2</u>	<u>Cond.</u>	<u>Cond.</u>	<u>Redox</u>	<u>pH</u>	<u>Time</u>
LFW 56D	Down Gradient VC	Jul-01	13.8		18.32		3.56	22		217	4.82	
LFW 58D	Down Gradient VC	Jul-01										
LFW 59B	Up Gradient TCE	Jul-01	26.6		20.05		2.61	41		379.4	4.18	
LFW 59C	Up Gradient TCE	Jul-01	26.21		21.15		6.92	53		167.4	5.49	
LFW 59D	Up Gradient TCE	Jul-01	25.75		20.57		10.16	28		200	5.16	
LFW 61C	Up Gradient TCE	Jul-01	25.27		21.1		3.08	241		-98	6.67	
LFW 61D	Up Gradient TCE	Jul-01	25.55		20.13		5.97	56		52	6.25	
LFW 62B	Up Gradient TCE	Jul-01	23.8		20.04		6.23	37		366	4.33	
LFW 62C	Up Gradient TCE	Jul-01										
LFW 62D	Up Gradient TCE	Aug-01	22.68		26.19		4.99	128		118.3	5.28	
LFW 63B	Down Gradient VC	Jul-01	28.75		19.7		2.44	49.01		354.2	4.05	
LFW 63C	Down Gradient VC	Jul-01	28.9		19.72		4.31	28		350.6	4.5	
LFW 63D	Down Gradient VC	Jul-01	28.9		18.93		10.16	28		250.12	5.41	
LFW 64B	Down Gradient VC	Jul-01	12.3		19.25		1.26	52		308.6	3.99	
LFW 64C	Down Gradient VC	Jul-01	12.9		19.07		5.04	69		373.4	3.86	
LFW 64D	Down Gradient VC	Jul-01	13		19.19		0.61	34		203.6	5.15	
LFW 65B	Down Gradient TCE	Jul-01	11.2		19.65		1.14	40		372	4.25	
LFW 65C	Down Gradient TCE	Jul-01	11.21		19.57		6.73	26		360.2	4.66	
LFW 65D	Down Gradient TCE	Jul-01										
LFW 67B	Down Gradient TCE	Jul-01	19.8		19.81		4.88	45		417.5	4.09	
LFW 67C	Down Gradient TCE	Jul-01	19.41		21.16		3.38	195		-87.8	6.54	
LFW 67D	Down Gradient TCE	Jul-01	17.8		22.05		6	24		260.9	5.05	
LFW 71B	Down Gradient TCE	Jul-01	10.2		19.64		5.7	39		417.4	4.12	
LFW 71C	Down Gradient TCE	Jul-01	10.5		19.74		8.77	32		404.5	4.43	
LFW 71D	Down Gradient TCE	Jul-01	11.1		18.5		8.14	19		370.9	4.73	
LFW 8R	Up Gradient VC	Jul-01	22.8		20.16		0.86	168		-77	6.36	

**THIS PAGE LEFT BLANK INTENTIONALLY.**