Selected Ground-Water Data for the Logistics Center, Fort Lewis, Washington, 1997-98

By Raegan Huffman

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VERTICAL DATUM

Sea Level: In this report "sea level" refers to the National Geodetic Vertical Datum of 1929 (NGVD of 1929)--a geodetic datum derived from a general adjustment of the first-order level nets of both the United States and Canada, formerly called Sea Level Datum of 1929.

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ABSTRACT

In 1997, the U.S. Geological Survey and the U.S. Army entered into a joint agreement to investigate various methods to accelerate the removal of trichloroethylene and other volatile organic compounds from the ground water at the Logistics Center, Fort Lewis Army Post, Pierce County, Washington. Part of the U.S. Geological Survey's task was to collect data to help characterize the ground-water system. Effective cleanup methods require a thorough understanding of the ground-water system.

Ground-water data were collected and analyzed by the U.S. Geological Survey from October 1997, through November 1998, from selected wells on the Logistics Center. Information about the location and construction of 119 wells was gathered, and water-level measurements were recorded for 60 of these wells. Water samples were collected from 78 wells and analyzed for some or all of the following constituents: selected ions, lead, total organic carbon, and volatile organic compounds. Water samples from forty-two of these wells were analyzed for concentrations of volatile organic compounds, particularly trichloroethylene. Trichloroethylene, the main contaminant of concern, ranged in concentration from less than 1.0 to 400 micrograms per liter and was detected in 46 of 56 samples. *Cis*-1,2-dichloroethylene, a degradation product of trichloroethylene, was detected in 30 of 56 samples, and concentrations ranged from less than 0.50 to 86 micrograms per liter. Vinyl chloride, another degradation product, was not detected in any of the sampled wells.

INTRODUCTION

Fort Lewis is a 135-square-mile U.S. Army post located in the Puget Sound Lowlands of western Washington about 10 miles southwest of the city of Tacoma (fig. 1). In 1985, chlorinated volatile organic compounds (VOC's), particularly trichloroethylene (TCE), were detected in the shallow, unconfined aquifer under the Logistics Center, the post's regional maintenance facility. It was later discovered that a plume of TCE-contaminated ground water was flowing northwestward under the Logistics Center to the neighboring town of Tillicum, less than half a mile to the northwest (figs. 1 and 2a).

Further studies, conducted in 1987 and 1988, found that the East Gate Disposal Yard (EGDY) at the southeast end of the Logistics Center was the primary source of the VOC's in the shallow aquifer (Envirosphere, 1988). The EGDY had been used in the past for the deposition of waste solvents, particularly TCE. The resulting plume of contaminated ground water was found to be approximately 2 miles long and half a mile wide, with concentrations throughout the main body of the plume ranging from about 2 to 500 micrograms per liter (µg/L). Near the EGDY, TCE concentrations were greater than 1,500 µg/L and TCE also was detected in a lower aquifer down gradient from the EGDY. The federal maximum contaminant level for TCE in ground water used for drinking water is 5 µg/L. In 1989 the U.S. Environmental Protection Agency (USEPA) added the Logistics Center to its National Priorities List of Superfund sites.

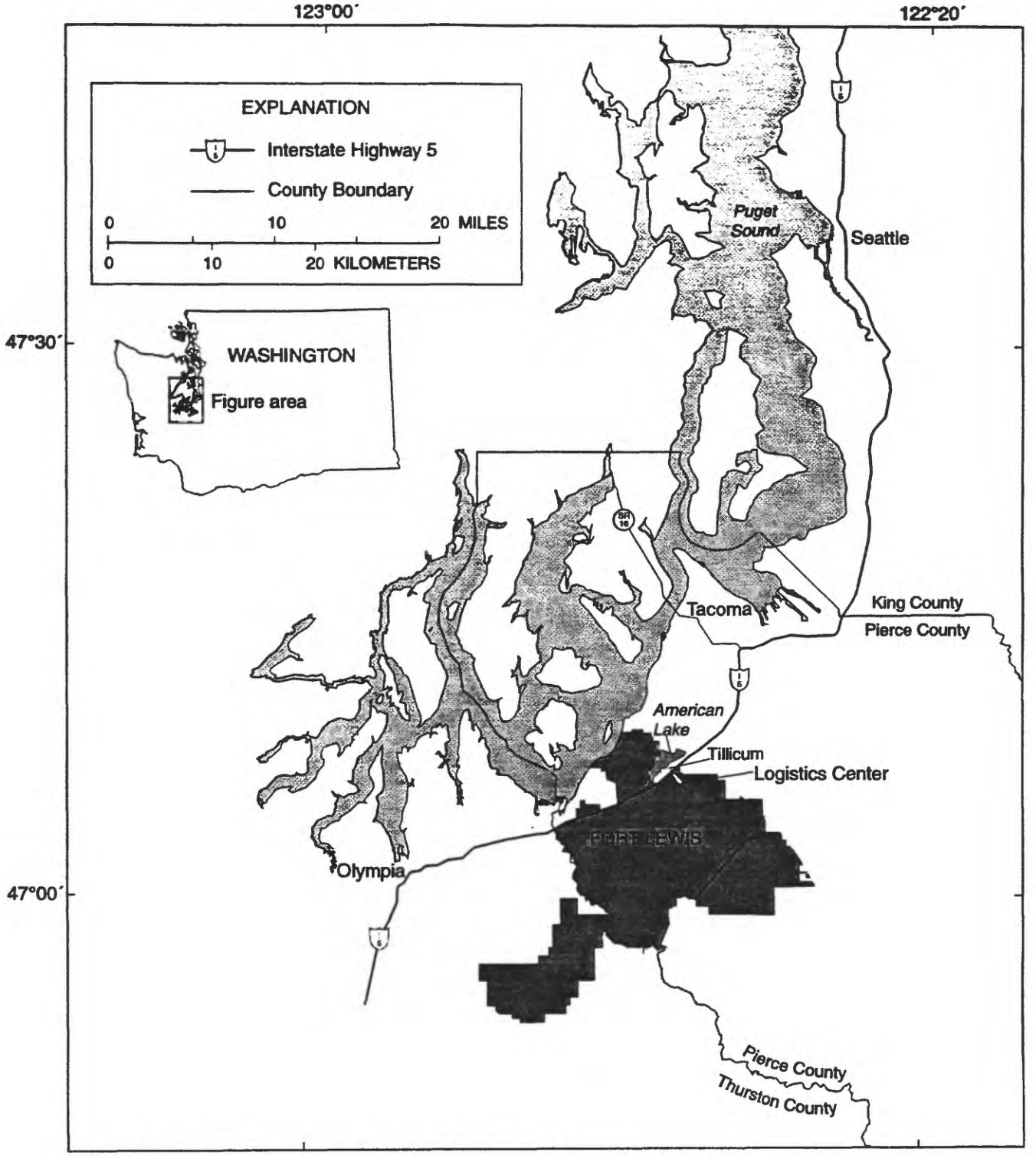

Figure 1. Location of Fort Lewis Army Base and Logistics Center, Washington.

Remediation of the shallow aquifer began in 1990 when the U.S. Army Corps of Engineers designed and installed two pump-and-treat systems, one at the EGDY designed to treat the source area and the other near the northwest end of the site along Interstate Highway 5 designed to prevent the contaminants from migrating off the installation property (fig. 2a). The completed pump-and-treat system began operation on August 31, 1995, and remediation of the shallow aquifer was originally estimated at 30 years (U.S. Environmental Protection Agency, 1997). However, new information about the limitations of the pump-and-treat system, as well as new estimates on the amount of solvents that were disposed in the EGDY, indicates that the pump-and-treat system alone may not be capable of remediating the shallow aquifer and cleanup may take much longer than originally expected (Pacific Northwest National Laboratory, 1998).

To enhance the overall clean-up strategy at the Logistics Center, a better understanding and evaluation is needed of the ground-water flow system at the site, as well as the present and historical distributions of the contaminants of concern, especially the TCE; and the potential for enhanced remediation using other techniques, such as natural or assisted biodegradation and phytoremediation. Because of these needs, the U.S. Army and the U.S. Geological Survey (USGS) entered into a cooperative agreement in which the USGS has been asked to develop a conceptual understanding of the ground water system, study the rate and direction of ground-water flow to help define the ground water system, and participate in the planning and implementation of new technologies (for example, bioremediation, phytoremediation, or a permeable reactive barrier) to restore the ground water to within acceptable limits. In 1997 the USGS began collecting physical, water-level, and water-quality data from ground-water wells at the Logistics Center to help further the understanding of the ground-water system and enhance the clean-up strategy.

Purpose and Scope

This report contains the ground-water data collected by the USGS during 1997 and 1998. The USGS activities included inventorying 119 wells; measuring water levels in 60 of these wells; and collecting water-quality samples from a total of 78 wells. Physical and construction data for the inventoried wells are listed in table 1. Water-quality and quality-control data are listed respectively in tables 2a, 2b and 3a, 3b; and water-level measurements are listed in table 4. Drillers' logs for 13 wells constructed at the Logistics Center by the USGS in 1998 are contained in Appendix 1. The study area and well locations are shown in figures 1, 2a, 2b, and 2c.

Acknowledgments

The work described in this report was part of a larger study funded by the Department of the Army through Military Inter-departmental Purchase Request 8EUSGS4012, which was administered by Mr. Dennis Korycinski, Installation Restoration Program Manager, Fort Lewis Public Works, Environmental and Natural Resources Division. Appreciation is expressed to the U.S. Army Corps of Engineers and URS Greiner Woodward-Clyde for sharing data collected at the site and for their cooperation during coordinated sampling events.

METHODS OF INVESTIGATON

The USGS began collecting data by compiling existing information from Army files on wells at the Logistics Center and by reviewing the records of all known wells in the study area. Throughout 1997 and 1998, wells selected for data collection were field located, water-level measurements were made, and suitability of the well for water-quality sampling was determined (table 1).

Water Quality

From October 1997, through November 1998, water samples were collected from a total of 78 wells and analyzed for some or all of the following constituents: selected ions (calcium, magnesium, sodium, potassium, chloride, sulfate, fluoride, silica, iron, manganese, and bromide), total organic carbon (TOC), lead, dissolved solids and volatile organic compounds (VOC's). Field measurements of water temperature, specific conductance, dissolved-oxygen, pH, and alkalinity (total, bicarbonate, and carbonate) also were made. All of these data are shown in table 2a with the exception of the VOC data, which are in table 2b.

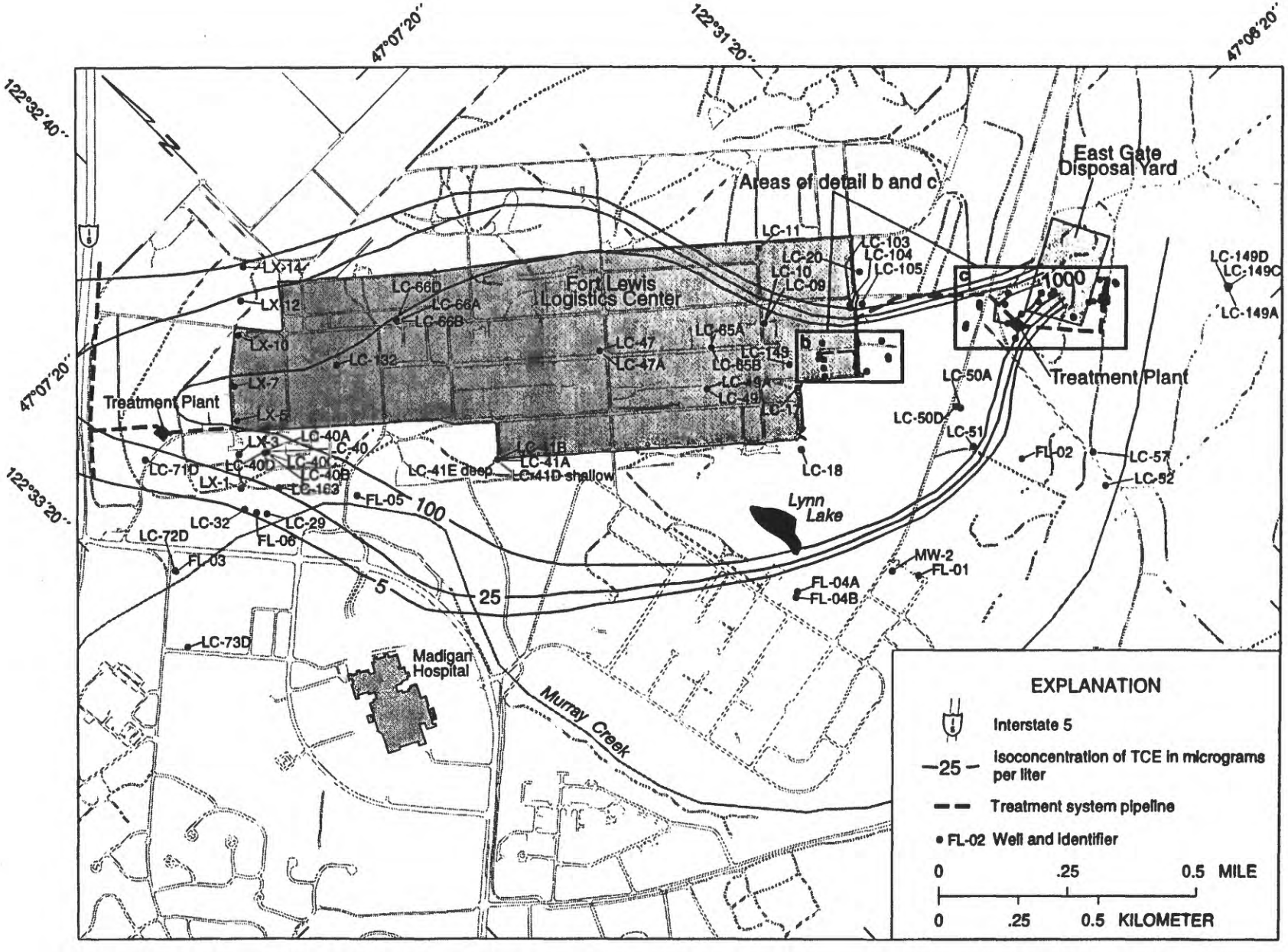

Figure 2a. Locations of wells used for data collection near the Logistics Center and East Gate Disposal Yard and of the trichloroethylene (TCE) plume. Isoconcentrations are from Woodward-Clyde, 1997. (Note: Areas of detail are shown in figures 2b and 2c.)

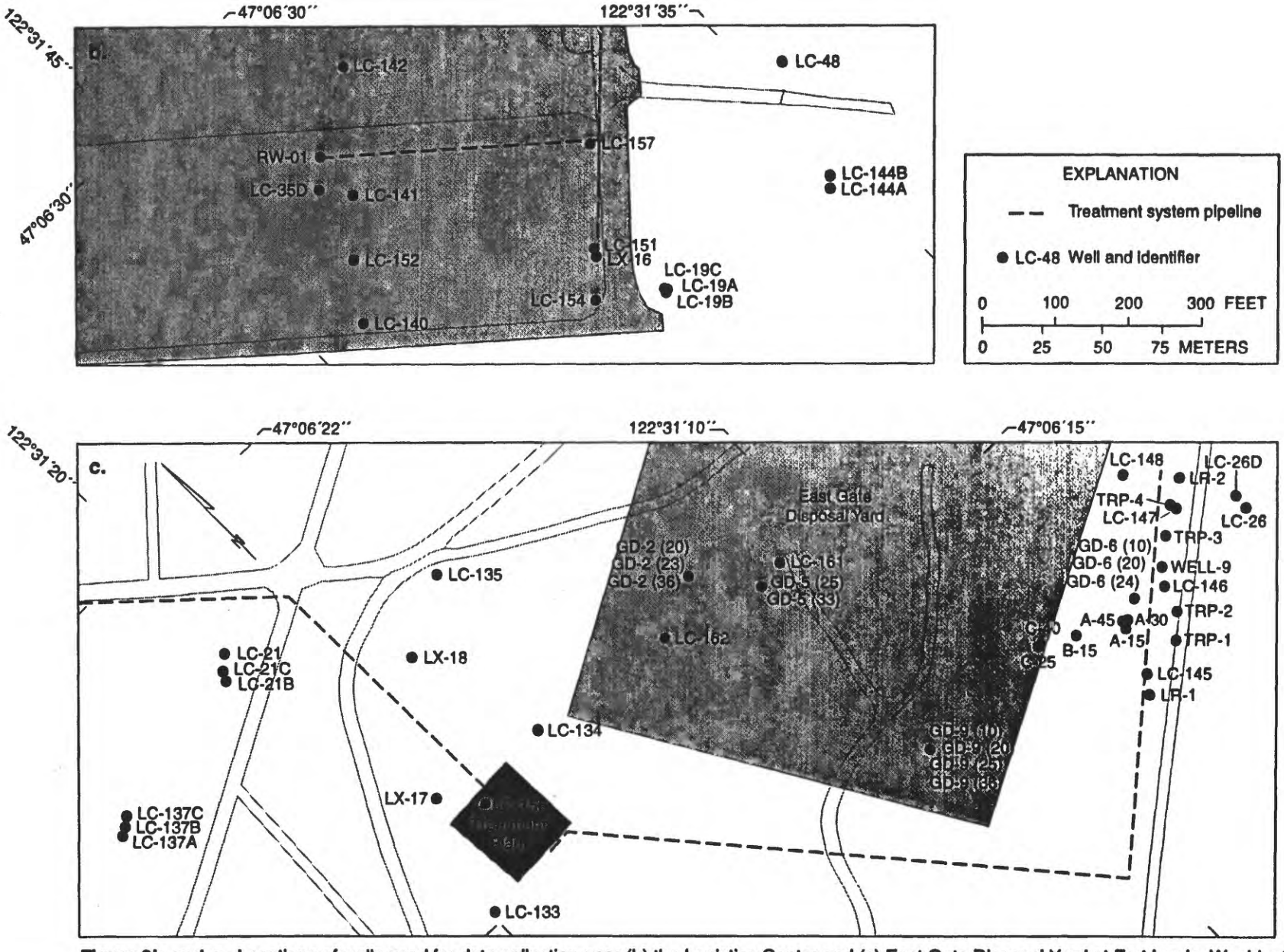

Figure 2b and c. Locations of wells used for data collection near (b) the Logistics Center and (c) East Gate Disposal Yard at Fort Lewis, Washington.

Ground-water samples usually were collected using a submersible pump, which was lowered down the well and placed within the screened interval if possible. Water was pumped through polyethylene tubing to a flow chamber where measurements of water temperature, specific conductance, dissolved-oxygen, and pH were continuously monitored. Measurements were recorded every 5 minutes. Once these values were stable and a minimum of three well-casing volumes had been purged from the well, samples were collected. The stabilization criteria for recording field measurements is described in the USGS National Field Manual (U.S. Geological Survey, 1998).

Unfiltered samples were analyzed for concentrations of VOC's and TOC. Samples analyzed for lead and selected ions were filtered through a 0.45 micron membrane filter. The filtered samples were then acidified with nitric acid to a pH of less than 2. Nitrate, manganese, ferrous iron, total iron, and sulfide were measured in the field immediately after collection using a Hach 2010 spectrophotometer.

Samples for VOC's and TOC were chilled to 4°Celsius and sent to the laboratory by air freight within 24 hours of being collected. All other samples were sent by priority mail on a weekly basis.

Measurements of water temperature, specific conductance, dissolved-oxygen concentration, and pH were made on site using methods outlined in the USGS National Field Manual (U.S. Geological Survey, 1998). Dissolved-oxygen concentrations were determined using a YSI model 50B dissolved-oxygen meter, and concentrations of 1.0 mg/L or less were verified with a Rhodazine-D colorimetric method (White and others, 1990). Field analyses of nitrate, manganese, ferrous iron, total iron, and sulfide were made using a Hach model 2010 spectrophotometer, according to Hach method numbers 8039, 8034, 8146, 8008 and 8131 (Hach, 1997). Inductively coupled plasma spectrometry and graphite furnace atomic absorption analyses for selected ions and lead were conducted at the USGS National Water Quality Laboratory (NWQL) using procedures described by Fishman and Friedman (1989). VOC analyses were conducted by Quanterra Inc. Laboratory using purge and trap gas chromatography/mass spectrometry as described by USEPA analytical method 8260A (U.S.Environmental Protection Agency, 1996).

As part of the quality-assurance program for this investigation, the accuracy of field measurements of pH and specific conductance was ensured by daily calibration of meters with known standards. Dissolved-oxygen meters also were calibrated daily using the water-saturated air technique (U.S. Geological Survey, 1998).

About 10 percent of all samples submitted for analysis were quality-control samples, which included field blanks and trip blanks to measure possible contamination and bias, replicate samples to measure variability, and field matrix-spike samples to measure recovery of analytes. A total of 10 blanks were collected: 4 trip blanks for VOC analysis, 4 VOC field blanks using nitrogen-purged organic free water, and 2 field blanks prepared with inorganic free water for analysis of selected ions and lead. Four replicate samples were collected, 1 for selected ions and 3 for VOC analysis. Replicate and blank samples were collected and processed in the same manner as ordinary ground-water samples and were submitted to the proper laboratory as normal ground-water samples. Two VOC matrix-spike samples that were field spiked with surrogate analytes also were submitted. For definitions of these quality-control samples, see Koterba and others, 1995. The results of the blank, replicate, and matrix-spike samples are listed in tables 3a and 3b.

Water Levels

Water levels were measured in 24 wells in February 1998 as part of a tracer study conducted by the USGS (Prych, 1999). Water levels were measured in another 36 wells in July and August 1998, following the cessation of pumping in two extraction wells (RW-01 and LX-16) that are part of the EGDY pump-and-treat system. The cessation of pumping provided an opportunity to collect data that could be useful for the calibration of a numerical model of the area. Water levels were measured using graduated steel or electric tapes, each with a reported accuracy of ±0.02 ft (table 4).

Construction of New Wells

Six wells (A15, A30, A45, B15, C25, and C40) were constructed using a hollow-stem auger, in February 1998, in the southeast portion of the study area for use in the tracer study described above. A separate interpretive report (Prych, 1999) contains the water-quality data associated with these wells. However, general site data and water levels for these six and other existing wells monitored during the tracer study

are included in this report in tables 1 and 4, respectively. Another seven wells (FL-01, FL-02, FL-03, FL-04A, FL-04B, FL-05, and FL-06) were constructed in March and April 1998 by the USGS, using the odex-rotary drilling method, to monitor water-quality along the southern margin of the plume. General site data and water-quality data for these wells are included in tables 1, 2a, and 2b. Drillers' logs for all of the wells constructed during this investigation are included in Appendix 1.

RESULTS

Out of the 78 wells sampled, 36 were analyzed for selected ions. Concentrations of calcium ranged from 8.1 to 15 mg/L, magnesium ranged from 0.25 to 6.8 mg/L, and sodium ranged from 4.3 to 19 mg/L. The minimum and maximum concentrations of potassium were 0.7 mg/L and 3.3 mg/L, respectively. Concentrations of chloride ranged from 1 to 3.9 mg/L, sulfate ranged from 0.5 to 21 mg/L, and fluoride ranged from <0.1 to 0.2 mg/L. Concentrations of silica ranged from 16 to 64 mg/L, total iron ranged from <10 to 550 mg/L, and manganese ranged from <4 to 350 µg/L. All of these constituents make up the major part of the dissolved solids content in water, including those contributing to alkalinity, most generally assumed to be bicarbonate and carbonate. The concentrations of selected ions, lead, and dissolved solids are presented in table 2a.

Samples from 41 wells were analyzed for concentrations of TOC (table 2a). The concentrations ranged from 0.1 to 2 mg/L. The dissolved lead concentrations were all less than 1 mg/L.

Fifty-six samples from 42 wells were analyzed for VOC's (table 2b), and concentrations of TCE ranged from less than 1.0 to 400 µg/L. Ten of these samples had estimated TCE concentrations less than the reporting limit of 1.0 µg/L. Measurable concentrations of *cis*-1,2-dichloroethylene, a degradation product of TCE, were detected in a total of 30 samples and ranged from less than 0.50 to 86 µg/L. Vinyl chloride, another degradation product, was not detected in any of the 56 samples. The vinyl chloride detection limits ranged from less than 2.0 to 17 µg/L because high concentrations of TCE in a sample required dilution (table 2b).

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Tables 1 – 4

Table 1. Construction data for the inventoried wells near the Logistics Center and East Gate Disposal Yard, Fort Lewis, Washington

[Site-ID, a 15-digit identification number assigned to the site based initially on the latitude and longitude of a point representing the best location available at the time the site-ID was assigned; the number is an identifier, not a locator. Remarks: W, water level measured in well; I, sampled for selected ions; P, sampled for lead; T, sampled for total organic carbon; V, sampled for volatile organic compounds; D, drive point, uncased temporary hole constructed in East Gate Disposal Yard for sample collection at various depths; --, no data; shal, shallow]

Army well identification number	U.S. Geological Survey Site-ID	Depth of well (feet)	Altitude of land surface (feet)	Date of construction	Diameter of screened interval (inches)	Top of screened interval (feet)	Screen length (feet)	State plane coordinates (NAD 27 unless otherwise noted)		Remarks
LC-09	470633122314401	60	286.23	01-28-1985	4	55	5	654184N	1494778E	W,I,P,T,V
LC-10	470633122314402	40	286.21	01-30-1985	4	20	20	654179N	1494782E	W
LC-11	470639122313701	60	287.29	02-11-1985	4	20	40	654752N	1495289E	W,I,P,T,V
LC-17	470627122314801	40	289.94	04-04-1985	2	20	20	653475N	1494544E	W
LC-18	470621122315401	42	282.54	04-02-1985	2	32	8	653005N	1494115E	W
LC-19A	470623122313902	55	289.20	04-09-1985	2	45	10	653095N	1495139E	W.I,P,T,V
LC-19B	470623122313903	35	289.20	04-12-1985	2	25	10	653093N	1495135E	W,I,P,T,V
LC-19C	470623122313901	75	289.18	04-08-1985	2	65	10	653099N	1495138E	W,I,P,T,V
LC-20	470630122312901	47.5	290.09	04-15-1985	2	37.5	10	653852N	1495823E	W,I.P,T,V
LC-21	470620122312001	42.2	279.50	04-16-1985	2	27.2	15	652756N	1496445E	I,P,T,V
LC-21B	470619122312001	116	279.60	04-23-1987	2	110.5	5	652728N	1496420E	I,P,T,V
LC-21C	470620122312003	143.9	279.70	03-30-1987	2	138.9	5	652743N	1496426E	I,P,T,V
LC-26	470611122310301	36.5	275.81	04-26-1985	2	11.5	25	651895N	1497563E	W
LC-26D	470612122310301	149.1	276.40	07-10-1991	4	139	10	651917N	1497564E	W,I,T
LC-29	470655122325701	54	265.30	12-13-1985	2	14	40	656471N	1489826E	I,P,T,V
LC-32	470656122325901	35	267.60	01-14-1986	2	15	20	656661N	1489700E	I,P,T,V
LC-35D	470627122314203	204.7	287.50	07-02-1991	4	194.7	10	653530N	1494905E	W,I,P,T,V
LC-40	470659122325001	69.8	277.60	01-24-1986	2	64.5	4.9	656912N	1490289E	I,P,T,V
LC-40A	470659122325002	34.6	277.60	01-31-1986	2	29.6	5	656921N	1490298E	I,P,T,V
LC-40B	470659122325101	125	278.10	04-17-1987	2	120	5	656900N	1490275E	I,P,T,V

Table 1. Construction data for the inventoried wells near the Logistics Center and East Gate Disposal Yard, Fort Lewis, Washington—Continued

Army well identification number	U.S. Geological Survey Site-ID	Depth of well (feet)	Altitude of land surface (feet)	Date of construction	Diameter of screened interval (inches)	Top of screened interval (feet)	Screen length (feet)	State plane coordinates (NAD 27 unless otherwise noted)		Remarks
LC-40C	470659122325003	152.3	277.70	03-05-1987	2	147.3	5	656905N	1490281E	I,P,V
LC-40D	470659122325102	178	277.30	10-12-1993	4	168	10	656927N	1490263E	I,T
LC-41A	470642122322704	94.5	282.50	11-11-1992	2	84.7	9.2	655151N	1491874E	I,T
LC-41B	470642122322601	139.9	282.60	11-17-1992	2	130.1	9.2	655159N	1494882E	I,T
LC-41D shal	470642122322702	202.7	281.80	02-17-1988	2	192.7	10	655154N	1491859E	I,P,T,V
LC-41E deep	470642122322703	290.2	281.80	02-17-1988	2	280.2	10	655154N	1491859E	I,P,T,V
LC-47	470643122320501	51	279.90	01-30-1986	2	45.3	5	655185N	1493391E	I,P,T,V
LC-47A	470643122320502	32	280.10	02-03-1986	2	27	5	655190N	1493396E	I,P,T,V
LC-48	470624122313401	33	289.23	02-03-1986	2	27.3	5	653198N	1495469E	W
LC-49	470633122315701	48.1	283.90	01-28-1986	2	43	4.5	654135N	1493877E	W,I,P,T,V
LC-49A	470633122315702	28	284.40	02-01-1986	2	23	5	654135N	1493887E	W,I,P,T,V
LC-50A	470614122313301	32	271.70	01-30-1986	2	26.5	5	652191N	1495527E	W
LC-50D	470614122313201	160.5	271.20	07-01-1991	2	150.3	9.5	652150N	1495547E	W
LC-51	470610122313501	32.5	274.12	01-25-1986	2	26.5	5.5	651777N	1495357E	W
LC-52	470558122312501	32	274.70	01-24-1986	2	26	5	650532N	1496018E	I,P,T,V
LC-57	470601122312301	44.7	284.60	02-06-1986	2	29.3	5	650865N	1496169E	I,P,T,V
LC-65A	470636122315301	40	286.50	02-25-1987	2	35	5	654400N	1494216E	W
LC-65B	470635122315301	79	286.50	02-24-1987	2	74	5	654393N	1494223E	W
LC-66A	470659122322301	39.5	280.70	02-17-1987	2	34.5	5	656886N	1492166E	I,T
LC-66B	470659122322302	73	280.40	02-17-1987	2	68	5	656883N	1492172E	I,T
LC-66D	470700122322301	185.9	281.20	10-20-1993	4	175.9	9.5	656900N	1492176E	I,T,V
LC-71D	470707122330401	231.6	269.50	10-29-1993	4	221.6	9.5	657746N	1489355E	I,T
LC-72D	470657122331201	176	263.90	11-05-1993	4	166	9.5	656736N	1488749E	I,T
LC-73D	470651122331901	174.9	269.60	11-15-1993	4	164.9	9.5	656095N	1488280E	I,T

Table 1. Construction data for the inventoried wells near the Logistics Center and East Gate Disposal Yard, Fort Lewis, Washington—Continued

Army well identification number	U.S. Geological Survey Site-ID	Depth of well (feet)	Altitude of land surface (feet)	Date of construction	Diameter of screened interval (inches)	Top of screened interval (feet)	Screen length (feet)	State plane coordinates (NAD 27 unless otherwise noted)		Remarks
LC-103*	470629122313302	58.2	289.56	07-15-1991	2	27.3	10	653687N	1495515E	W
					2	45.5	10			
LC-104*	470628122313401	58.3	288.85	07-13-1991	2	26.7	10	653659N	1495502E	W,V
					2	47.9	10			
LC-105*	470628122313201	78.9	290.62	07-11-1991	2	26.5	20	653612N	1495595E	W
					2	58.5	20			
LC-132	470701122323401	50	279.98	09-22-1992	4	40	10	656969.56N	1131533.76E	I,P,T,V
LC-133	470615122311901	38.3	280.09	08-13-1992	4	18.7	19.6	652243N	1496451E	I,P,T,V
LC-134	470616122311601	28	276.12	08-21-1992	4	18	10	652374N	1496669E	I,T
LC-135	470619122311501	34	280.30	08-26-1992	4	24	10	652622N	1496727E	I,T
LC-137A	470619122312401	45	289.32	08-20-1992	4	35	10	652685N	1496168E	W,I,P,T,V
LC-137B	470619122312301	60	289.05	10-20-1992	4	40	20	652691N	1496180E	W,I,P,T,V
LC-137C	470619122312302	125	289.19	10-26-1992	4	105	20	652699N	1496191E	W,I,T
LC-140	470625122314401	45	288.90	08-10-1992	2	25	20	653361N	1494817E	W
LC-141	470627122314204	49.5	287.24	08-07-1992	2	29	20.5	653493N	1494933E	W
LC-142	470628122314001	47.9	287.25	08-11-1992	2	27	20.9	653624N	1495048E	W
LC-143	470629122314601	50	286.26	09-08-1992	4	40	10	653700N	1494654E	W
LC-144A	470622122313501	51	290.06	08-31-1992	4	41	10	653031N	1495392E	W
LC-144B	470622122313502	85	290.44	10-27-1992	4	65	20	653044N	1495404E	W,I,T
LC-145	470611122310701	49.6	279.92	07-23-1992	2	30	19.6	651831N	1497306E	W
LC-146	470611122310501	49.5	277.59	07-27-1992	2	29.5	19.6	651898N	1497408E	W
LC-147	470612122310401	50	277.68	07-27-1992	2	30	20	651963N	1497496E	W
LC-148	470613122310501	50	279.81	07-28-1992	2	30	20	652045N	1497479E	W
LC-149A	470603122305201	40	305.87	09-09-1992	4	30	10	651051N	1498330E	W
LC-149C	470603122305101	48	306.12	11-06-1992	4	38	10	651059N	1498353E	W,I,T
LC-149D	470603122305202	80	305.89	12-22-1992	4	60	20	651072N	1498334E	W,I,T

Table 1. Construction data for the inventoried wells near the Logistics Center and East Gate Disposal Yard, Fort Lewis, Washington—Continued

Army well identification number	U.S. Geological Survey Site-ID	Depth of well (feet)	Altitude of land surface (feet)	Date of construction	Diameter of screened interval (inches)	Top of screened interval (feet)	Screen length (feet)	State plane coordinates (NAD 27 unless otherwise noted)		Remarks
LC-151	470624122313901	63	287.49	09-03-1992	2	43	20	653206N	1495111E	W
LC-152	470626122314301	75	287.16	08-10-1992	4	55	20	653429N	1494870E	W
LC-154	470623122314001	50	288.79	09-23-1992	4	30	20	653154N	1495062E	W
LC-156	470616122311804	35	276.60	08-31-1992	4	25	10	652357N	1496547E	I,T
LC-157	470625122313801	46.5	288.26	11-09-1992	2	26.5	20	653307N	1495207E	W
LC-161	470615122311001	34	280.36	07-02-1993	4	23.5	10	652299N	1497065E	W,I
LC-162	470616122311301	32.7	277.32	07-03-1993	4	22.4	10	652338N	1496882E	W,I,T
LC-163	470656122325301	43.5	272.13	07-07-1995	2	38	5	656509N	1130228E	I,P,T,V
LR-1	470611122310702	110	281.73	08-24-1992	12	78	30	651808N	1497288E	W
LR-2	470612122310402	100	277.96	08-26-1992	12	68	30	651988N	1497528E	W
LX-1	470658122325701	94	268.85	08-18-1992	10	72	20	656842N	1489833E	I
LX-3	470701122325302	90.5	270.89	08-14-1992	10	58.5	30	657095N	1490070E	I,T
LX-5*	470704122325001	92	270.93	08-05-1992	10	51.5	17.5	657354N	1490303E	I,T
						77.5	12.5			
LX-7*	470706122324701	92	271.60	07-29-1992	10	52	13	657615N	1490540E	I,T
						73	17			
LX-10	470710122324101	91	272.79	07-30-1992	10	73	13	657955N	1490939E	I,T
LX-12	470712122323801	87	269.98	07-20-1992	10	55	30	658179N	1491208E	I,T
LX-14	470714122323401	94	273.75	07-23-1992	10	62	30	658403N	1491478E	I,T
LX-16	470624122313902	74	287.33	09-10-1992	10	42	30	653197N	1495105E	W
LX-17	470616122311902	56.5	276.81	10-14-1992	10	34.5	20	652410N	1496505E	I,T
LX-18	470618122311703	43	279.09	09-03-1992	12	31	10	652569N	1496621E	I,T
RW-01*	470627122314202	71.3	287.10	01-20-1986	10	41.6	9.3	653561N	1494938E	W
					10	61.2	5			
WELL9	470612122310501	--	278.05	--	4	10	--	651921.86N	1497422.81E	W
TRP-1	470612122310704	5.3	279.59	--	--	--	--	651835.82N	1497367.56E	W
TRP-2	470612122310601	3.9	279.90	--	--	--	--	651862.98N	1497396.91E	W

Table 1. Construction data for the inventoried wells near the Logistics Center and East Gate Disposal Yard, Fort Lewis, Washington—Continued

Army well identification number	U.S. Geological Survey Site-ID	Depth of well (feet)	Altitude of land surface (feet)	Date of construction	Diameter of screened interval (inches)	Top of screened interval (feet)	Screen length (feet)	State plane coordinates (NAD 27 unless otherwise noted)		Remarks
TRP-3	470613122310502	4.4	278.23	--	--	--	--	651946.82N	1497459.28E	W
TRP-4	470613122310503	5.1	278.60	--	--	--	--	651971.27N	1497493.90E	W
A15	470612122310701	15.0	276.62	02-07-1998	2	4	10	651902.43N	1497340.95E	W
A30	470612122310702	30.0	277.05	02-06-1998	2	15	15	651896.99N	1497331.29E	W
A45	470612122310703	45.0	276.63	02-06-1998	2	29	15	651905.08N	1497334.32E	W
B15	470612122310801	15.0	278.19	02-08-1998	2	5	10	651937.03N	1497276.34E	W
C25	470613122310701	25.0	277.67	02-09-1998	2	5	20	651965.05N	1497230.13E	W
C40	470613122310802	40.0	277.53	02-09-1998	2	24	15	651964.63N	1497235.91E	W
FL-01	470605122315501	36	276.67	03-20-1998	4	31	5	**651200.60N	1134155.01E	I,P,T,V
FL-02	470606122313201	45	281.29	03-24-1998	4	40	5.0	**651243.20N	1135746.38E	I,P,T,V
FL-03	470657122331301	47.5	264.20	03-25-1998	4	37.5	5	**656664.23N	1128866.49E	I,P,V
FL-04A	470612122320901	138	278.01	04-04-1998	4	123	10	**651873.01N	1133141.48E	I,P,V
FL-04B	470612122321001	37	278.15	04-05-1998	4	27	5	**651888.72N	1133139.85E	I,P,T,V
FL-05	470550122324601	67	287.72	04-06-1998	4	57	5	**655915.27N	1130776.85E	I,P,V
FL-06	470656122325801	57	266.53	04-08-1998	4	47	10	**656487.72N	1129901.43E	I,P,V
MW-2	470607122315701	20	275.71	01-10-1996	2	4.8	14.5	**651362.36N	1133996.67E	I,P,T,V
GD-2 (20)	470616122311201	20	--	10-30-1998	--	--	--	652373.75N	1496965.45E	T,D
GD-2 (23)	470616122311202	23	--	10-30-1998	--	--	--	652373.75N	1496965.45E	T,D
GD-2 (36)	470616122311203	36	--	10-30-1998	--	--	--	652373.75N	1496965.45E	T,D
GD-5 (25)	470615122311101	25	--	11-04-1998	--	--	--	652294.24N	1497024.40E	T,D
GD-5 (33)	470615122311102	33	--	11-04-1998	--	--	--	652294.24N	1497024.40E	T,D
GD-6 (10)	470612122310602	10		11-04-1998				651914.84N	1497366.10E	T,D
GD-6 (20)	470612122310603	20		11-04-1998				651914.84N	1497366.10E	T,D
GD-6 (24)	470612122310603	24		11-05-1998				651914.84N	1497366.10E	T,D
GD-9 (10)	470612122311101	10	--	11-09-1998	--	--	--	651971.50N	1497022.42E	T,D

Table 1. Construction data for the inventoried wells near the Logistics Center and East Gate Disposal Yard, Fort Lewis, Washington—Continued

Army well identification number	U.S. Geological Survey Site-ID	Depth of well (feet)	Altitude of land surface (feet)	Date of construction	Diameter of screened interval (inches)	Top of screened interval (feet)	Screen length (feet)	State plane coordinates (NAD 27 unless otherwise noted)		Remarks
GD-9 (20)	470612122311102	20	--	11-10-1998	--	--	--	651971.50N	1497022.42E	T,D
GD-9 (25)	470612122311103	25	--	11-10-1998	--	--	--	651971.50N	1497022.42E	T,D
GD-9 (36)	470612122311104	36	--	11-10-1998	--	--	--	651971.50N	1497022.42E	T,D

* Well with multiple openings.

** State plane coordinate is North American Datum of 1983 (NAD 83).

Table 2a. Values of field measurements and concentrations of selected ions, total organic carbon, lead, and dissolved solids in samples of ground water from wells near the Logistics Center and East Gate Disposal Yard, Fort Lewis, Washington

[Data analyzed by National Water Quality Laboratory; --, analysis not performed; <, not detected at the given concentration; mg/L, milligrams per liter; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; °C, degrees Celsius; shal, shallow

Army well identification number	Date	Time	Temperature water (°C)	Specific conductance (µS/cm)	Oxygen, dissolved (mg/L)	pH, water whole field (standard units)	Calcium, dissolved (mg/L as Ca)	Magnesium, dissolved (mg/L as Mg)	Sodium, dissolved (mg/L as Na)	Potassium, dissolved (mg/L as K)
LC-09	09-09-98	1630	13.0	157	0.01	8.1	15	5.2	6.4	2.6
LC-11	03-11-98	1500	13.0	109	7.6	6.7	12	3.3	4.4	0.8
LC-19A	07-22-98	1145	11.0	148	6.9	6.8	--	--	--	--
	09-10-98	1130	11.0	147	7.0	6.7	14	5.9	5.8	1.4
	09-18-98	0930	11.5	146	7.0	6.7	14	5.9	5.5	1.5
LC-19B	07-22-98	1145	12.0	120	7.4	6.5	--	--	--	--
	09-10-98	0930	12.0	126	7.1	6.2	13	4.3	5.0	0.9
LC-19C	07-22-98	1145	12.5	139	7.1	6.9	--	--	--	--
	09-10-98	1230	11.5	143	7.0	7.0	13	5.7	5.6	1.6
LC-20	03-13-98	1230	12.5	124	6.4	6.1	14	3.3	4.4	0.7
	03-17-98	1600	--	--	--	--	14	3.5	4.5	0.7
LC-21	09-17-98	1030	12.0	133	3.3	6.6	15	4.2	4.8	1.3
LC-21B	09-17-98	1400	11.5	160	0.12	7.2	12	6.7	9.2	2.9
LC-21C	09-17-98	1145	11.5	122	8.6	6.9	10	5.1	5.5	1.8
LC-26D	08-31-98	1500	11.5	129	5.5	6.7	11	5.7	6.4	2.0
LC-29	03-14-98	1530	8.5	110	1.9	6.1	11	3.8	4.3	0.7
LC-32	03-14-98	1430	10.0	111	3.0	6.2	11	3.8	4.7	0.8
LC-35D	09-08-98	1330	12.0	131	0.81	7.5	9.7	5.4	7.0	2.0
LC-40	03-16-98	1230	--	--	--	--	12	4.6	5.7	1.0
LC-40A	03-15-98	1315	--	--	--	--	12	4.2	6.4	0.9
LC-40B	03-16-98	1540	--	--	--	--	13	6.8	6.8	1.7
LC-40C	03-15-98	1600	--	--	--	--	8.6	5.4	6.0	2.6
LC-40D	09-01-98	1030	13.0	127	3.8	6.6	11	5.3	6.4	2.4
LC-41A	10-14-97	1100	12.5	132	5.0	6.7	--	--	--	--
	09-14-98	1230	13.5	132	5.4	6.8	--	--	--	--
LC-41B	10-15-97	1500	12.5	131	6.8	6.5	--	--	--	--
	09-17-98	1600	13.0	147	6.1	6.6	14	5.7	5.6	1.2
LC-41D shal	10-14-97	1245	12.0	144	6.0	6.4	--	--	--	--
	09-14-98	1345	13.0	143	6.3	6.8	12	6.3	5.8	1.5
LC-41E deep	10-14-97	1500	--	133	0.6	7.2	--	--	--	--
	09-14-98	1500	13.0	134	0.25	7.6	12	4.4	7.1	3.1
LC-47	03-13-98	1100	14.0	177	6.3	9.1	12	0.25	19	3.3
LC-47A	03-13-98	1130	14.0	124	9.5	7.0	11	3.2	6.3	1.1
LC-49	09-15-98	1245	14.5	187	--	7.7	14	8.9	7.6	2.6
LC-49A	09-15-98	1200	11.5	116	6.0	6.4	11	3.9	4.8	0.9
LC-52	03-12-98	1300	10.0	113	5.7	6.9	11	4.0	4.9	0.9
LC-57	03-12-98	1200	11.5	118	8.4	6.6	11	4.1	4.9	1
LC-66A	10-02-97	1400	13.5	133	4.3	6.7	--	--	--	--
LC-66B	10-02-97	1515	13.5	137	4.5	6.7	--	--	--	--
LC-66D	08-31-98	1330	13.5	138	2.4	7.1	13	5.1	6.6	2.5
	09-18-98	1230	13.5	146	1.7	7.3	--	--	--	--

Table 2a. Values of field measurements and concentrations of selected ions, total organic carbon, lead, and dissolved solids in samples of ground water from wells near the Logistics Center and East Gate Disposal Yard, Fort Lewis, Washington—Continued

Army well identification number	Alkalinity field (mg/L As $CaCO_3$)	Bicarbonate field (mg/L as HCO_3)	Carbonate field (mg/L as CO_3)	Chloride, dissolved (mg/L as Cl)	Sulfate, dissolved (mg/L as SO_4)	Sulfide field (mg/L)	Fluoride, dissolved (mg/L as F)	Silica, dissolved (mg/L as SiO_2)	Iron, dissolved (µg/L as Fe)
LC-09	62	74	0	2.5	9.7	--	<0.1	28	16
LC-11	--	--	--	1.3	3.9	--	<0.1	23	<10
LC-19A	--	--	--	--	--	--	--	--	--
	60	74	0	2.3	5.1	--	<0.1	29	<10
	61	74	0	2.4	5.0	--	<0.1	29	<10
LC-19B	--	--	--	--	--	--	--	--	--
	50	61	0	2.2	5.4	--	<0.1	24	<10
LC-19C	--	--	--	--	--	--	--	--	--
	61	75	0	2.3	4.7	--	<0.1	32	<10
LC-20	--	--	--	1.0	3.8	--	<0.1	24	<10
	--	--	--	1.0	3.8	--	<0.1	24	<10
LC-21	56	68	0	1.9	4.7	--	<0.1	22	<10
LC-21B	78	95	0	1.5	0.5	--	0.2	64	550
LC-21C	53	65	0	2.1	4.1	--	<0.1	32	<10
LC-26D	--	--	--	2.1	4.0	--	<0.1	33	<10
LC-29	--	--	--	2.1	4.2	--	<0.1	22	16
LC-32	--	--	--	2.3	5.3	--	<0.1	21	<10
LC-35D	57	70	0	2.0	3.8	--	0.1	36	<10
LC-40	--	--	--	2.6	5.2	--	<0.1	25	14
LC-40A	--	--	--	2.6	4.6	--	<0.1	23	<10
LC-40B	--	--	--	2.6	6.9	--	<0.1	28	<10
LC-40C	--	--	--	2.2	3.9	--	<0.1	53	<10
LC-40D	56	68	0	2.4	4.8	--	<0.1	43	<10
LC-41A	47	57	0	2.6	7.3	<0.01	--	--	6
	49	60	0	--	--	--	--	--	--
LC-41B	47	57	0	2.6	6.0	<0.01	--	--	6
	53	63	0	3.0	6.7	--	<0.1	24	<10
LC-41D shal	53	64	0	2.8	6.1	<0.01	--	--	65
	55	67	0	2.6	6.7	--	<0.1	29	<10
LC-41E deep	57	70	0	1.8	2.9	<0.01	--	--	88
	60	73	0	1.7	3.6	--	0.1	42	83
LC-47	--	--	--	7.7	21	--	<0.1	16	<10
LC-47A	--	--	--	2.4	16	--	<0.1	19	<10
LC-49	78	93	0	2.3	8.2	--	<0.1	29	<10
LC-49A	45	54	0	2.4	5.5	--	<0.1	23	<10
LC-52	--	--	--	2.2	4.2	--	<0.1	25	<10
LC-57	--	--	--	2.1	4.9	--	<0.1	23	<10
LC-66A	--	--	--	3.9	5.6	--	--	--	--
LC-66B	--	--	--	3.6	6.3	--	--	--	--
LC-66D	--	--	--	2.0	4.8	--	<0.1	36	22
	61	75	0	--	--	--	--	--	--

Table 2a. Values of field measurements and concentrations of selected ions, total organic carbon, lead, and dissolved solids in samples of ground water from wells near the Logistics Center and East Gate Disposal Yard, Fort Lewis, Washington—Continued

Army well identi-fication number	Iron, water total field (mg/L)	Iron, ferrous water field (mg/L)	Manga-nese, dis-solved (µg/L as Mn)	Manga-nese field (mgL)	Solids, residue at 180°C, dis-solved (mg/L)	Bromide, dis-solved (mg/L as Br)	Nitrate field (mg/L as N)	Carbon, organic total (mg/L as C)	Lead, dis-solved (µg/L as Pb)
LC-09	0.21	0.15	53	<0.6	--	--	--	0.2	<1
LC-11	--	--	<4	--	76	0.02	--	0.5	1
LC-19A	--	--	--	--	--	--	--	--	--
	0.02	<0.02	<4	<0.6	--	--	--	0.2	<1
	0.03	<0.02	<4	<0.6	--	--	--	0.3	<1
LC-19B	--	--	--	--	--	--	--	--	--
	0.04	<0.02	<4	<0.6	--	--	--	0.4	<1
LC-19C	--	--	--	--	--	--	--	--	--
	0.03	<0.02	<4	<0.6	--	--	--	0.2	<1
LC-20	--	--	<4	--	84	0.02	--	0.4	<1
	--	--	<4	--	88	0.02	--	--	<1
LC-21	0.02	<0.02	<4	<0.6	--	--	--	1	<1
LC-21B	0.58	0.45	350	<0.6	--	--	--	2.5	<1
LC-21C	<0.02	<0.02	<4	<0.6	--	--	--	2	<1
LC-26D	0.03	<0.02	<4	<0.6	--	--	--	0.2	--
LC-29	--	--	15	--	78	<0.01	--	1.5	<1
LC-32	--	--	<4	--	74	<0.01	--	0.7	<1
LC-35D	0.03	0.02	6	<0.6	--	--	--	0.1	<1
LC-40	--	--	13	--	88	0.02	--	0.5	<1
LC-40A	--	--	<4	--	82	0.02	--	0.6	<1
LC-40B	--	--	<4	--	103	0.02	--	0.1	<1
LC-40C	--	--	<4	--	112	0.02	--	--	<1
LC-40D	0.02	<0.02	<4	<0.6	--	--	--	0.2	--
LC-41A	<0.02	<0.02	<1	<0.6	--	--	1.4	0.1	--
	0.03	<0.02	--	<0.6	--	--	--	--	--
LC-41B	<0.02	<0.02	2	<0.6	--	--	2.0	0.2	--
	<0.02	<0.02	<4	<0.6	--	--	--	0.4	<1
LC-41D shal	0.03	0.15	2	<0.6	--	--	1.5	0.4	--
	0.04	0.02	<4	<0.6	--	--	--	--	<1
LC-41E deep	0.10	0.07	54	<0.6	--	--	<0.8	0.3	--
	--	--	56	--	--	--	--	--	<1
LC-47	--	--	<4	--	107	0.02	--	0.6	<1
LC-47A	--	--	<4	--	86	0.02	--	0.6	<1
LC-49	--	--	<4	--	--	--	--	0.2	<1
LC-49A	--	--	<4	--	--	--	--	0.4	<1
LC-52	--	--	<4	--	80	0.01	--	0.3	<1
LC-57	--	--	<4	--	83	3.6	--	0.4	<1
LC-66A	0.04	0.02	--	--	--	--	1.4	0.1	--
LC-66B	0.06	<0.02	--	<0.6	--	--	1.2	1.9	--
LC-66D	0.04	<0.02	<4	<0.6	--	--	--	0.2	--
	<0.02	<0.02	--	<0.6	--	--	--	--	--

Table 2a. Values of field measurements and concentrations of selected ions, total organic carbon, lead, and dissolved solids in samples of ground water from wells near the Logistics Center and East Gate Disposal Yard, Fort Lewis, Washington—Continued

Army well identification number	Date	Time	Temperature water (°C)	Specific conductance (µS/cm)	Oxygen, dissolved (mg/L)	pH, water whole field (standard units)	Calcium, dissolved (mg/L as Ca)	Magnesium, dissolved (mg/L as Mg)	Sodium, dissolved (mg/L as Na)	Potassium, dissolved (mg/L as K)
LC-71D	09-01-98	1200	13.0	116	0.7	6.9	8.1	4.8	8.2	2.8
LC-72D	08-31-98	1130	12.0	129	2.4	6.4	11	5.5	6.6	2.4
LC-73D	09-01-98	1400	--	--	3.3	--	11	6.0	6.5	2.7
LC-104	09-10-98	1400	13.0	147	3.1	7.1	--	--	--	--
LC-132	10-02-97	1100	13.5	128	7.9	6.7	--	--	--	--
	03-17-98	1530	--	--	--	--	12	4.3	5.8	1.0
LC-133	10-07-97	1115	11.0	126	0.8	6.5	--	--	--	--
	03-14-98	1100	10.5	126	1.4	6.2	13	4.0	4.8	1.0
LC-134	10-07-97	1530	10.5	181	0.3	7.0	--	--	--	--
LC-135	10-07-97	1430	10.5	137	5.7	7.1	--	--	--	--
LC-137A	09-16-98	1100	11.0	142	4.2	6.2	14	5.6	5.1	1.1
LC-137B	09-16-98	1300	11.0	154	3.8	6.3	15	6.3	4.9	1.3
LC-137C	10-03-97	1530	11.0	157	3.1	7.1	--	--	--	--
	09-16-98	1430	11.5	149	5.1	7.0	11	6.5	7.8	2.6
LC-144B	10-03-97	1120	11.5	150	6.6	7.1	--	--	--	--
LC-149C	10-06-97	1530	10.0	116	10	7.1	--	--	--	--
LC-149D	10-06-97	1630	10.0	111	9.4	6.9	--	--	--	--
LC-156	10-15-97	1700	13.0	124	0.04	6.0	--	--	--	--
LC-161	11-06-98	1145	10.5	114	5.6	6.5	10	4.1	5.3	0.9
LC-162	11-06-98	1315	10.5	234	0.09	6.9	20	10	11	1.6
LC-163	10-15-97	1030	12.0	118	0.05	6.1	--	--	--	--
	03-13-98	1430	12.0	110	0.1	6.6	11	4.0	5.0	0.9
LX-01	10-15-97	1230	--	--	--	--	--	--	--	--
LX-03	10-06-97	0930	11.0	137	3.4	6.7	--	--	--	--
LX-05	10-06-97	0945	13.5	133	7.6	7.1	--	--	--	--
LX-07	10-06-97	1000	13.5	133	8.5	7.0	--	--	--	--
LX-10	10-06-97	1015	12.0	134	8.2	6.7	--	--	--	--
LX-12	10-06-97	1045	12.0	125	8.2	6.7	--	--	--	--
LX-14	10-06-97	1030	11.5	156	7.9	6.8	--	--	--	--
LX-17	10-06-97	1130	10.5	118	5.1	6.8	--	--	--	--
LX-18	10-06-97	1145	11.0	117	5.4	6.9	--	--	--	--
FL-01	05-06-98	1330	10.0	114	5.4	6.4	9.9	4.3	4.6	1.1
	05-08-98	1400	10.0	112	5.4	6.4	10	4.3	4.6	1.1
	09-10-98	1600	11.0	111	7.4	6.5	10	3.9	4.9	1.1
FL-02	05-07-98	0930	10.0	114	6.9	6.2	11	3.9	4.6	0.9
	09-11-98	1000	10.5	109	7.9	6.5	11	3.5	4.8	0.9
FL-03	05-07-98	1130	12.5	119	4.0	6.0	11	4.4	5.0	1.1
	09-11-98	1130	12.5	121	5.3	6.3	11	4.4	5.2	1.1
FL-04A	05-08-98	1230	11.0	136	7.9	7.1	12	5.3	6.5	1.1
	09-15-98	1445	11.0	134	8.8	7.2	12	5.5	5.6	1.2

Table 2a. Values of field measurements and concentrations of selected ions, total organic carbon, lead, and dissolved solids in samples of ground water from wells near the Logistics Center and East Gate Disposal Yard, Fort Lewis, Washington—Continued

Army well identification number	Alkalinity field (mg/L As $CaCO_3$)	Bicarbonate field (mg/L as HCO_3)	Carbonate field (mg/L as CO_3)	Chloride, dissolved (mg/L as Cl)	Sulfate, dissolved (mg/L as SO_4)	Sulfide field (mg/L)	Fluoride, dissolved (mg/L as F)	Silica, dissolved (mg/L as SiO_2)	Iron, dissolved (µg/L as Fe)
LC-71D	56	65	0	1.5	3.4	--	0.2	45	26
LC-72D	--	--	--	2.1	5.3	--	<0.1	42	<10
LC-73D	62	75	0	2.7	7.2	--	<0.1	48	<10
LC-104	61	76	0	--	--	--	--	--	--
LC-132	--	--	--	3.7	7.3	--	--	--	--
	--	--	--	3.6	7.1	--	0.1	22	<10
LC-133	51	63	0	2.0	5.2	0.01	--	--	--
	--	--	--	1.9	5.7	--	<0.1	21	<10
LC-134	81	99	0	2.8	5.0	--	--	--	280
LC-135	57	69	0	2.1	5.1	0.03	--	--	--
LC-137A	59	72	0	2.3	5.6	--	<0.1	25	<10
LC-137B	63	75	0	2.2	6.1	--	<0.1	25	<10
LC-137C	72	87	0	1.6	1.8	<0.01	--	--	--
	68	82	0	1.9	2.5	--	<0.1	44	<10
LC-144B	--	--	--	2.4	5.6	<0.01	--	--	--
LC-149C	47	57	0	2.3	5.5	<0.01	--	--	<3
LC-149D	46	56	0	2.3	5.3	<0.01	--	--	--
LC-156	56	68	0	2.2	2.7	<0.01	--	--	69
LC-161	51	62	0	2.6	4.6	--	<0.1	24	<10
LC-162	112	137	0	3.3	3.9	--	<0.1	29	110
LC-163	49	59	0	2.5	4.1	<0.01	--	--	7
	--	--	--	2.3	4.5	--	<0.1	23	<10
LX-01	50	60	0	2.9	5.2	<0.01	--	--	16
LX-03	52	63	0	2.7	6.3	--	--	--	--
LX-05	61	74	0	2.8	6.9	--	--	--	--
LX-07	51	62	0	2.7	6.7	--	--	--	--
LX-10	52	63	0	1.9	5.0	--	--	--	--
LX-12	--	--	--	1.9	4.7	--	--	--	--
LX-14	--	--	--	2.4	4.7	--	--	--	--
LX-17	49	60	0	2.3	5.0	--	--	--	--
LX-18	49	60	0	2.2	4.0	--	--	--	--
FL-01	47	57	0	2.5	5.2	--	<0.1	23	66
	44	53	0	2.5	5.3	--	<0.1	23	39
	43	53	0	2.3	5.0	--	<0.1	24	<10
FL-02	45	55	0	2.5	5.4	--	<0.1	21	<10
	42	51	0	2.6	4.9	--	<0.1	23	<10
FL-03	46	56	0	2.6	6.4	--	<0.1	24	<10
	46	57	0	2.4	6.9	--	<0.1	25	<10
FL-04A	55	67	0	2.6	6.9	--	<0.1	25	<10
	54	65	0	2.4	6.4	--	<0.1	27	<10

Table 2a. Values of field measurements and concentrations of selected ions, total organic carbon, lead, and dissolved solids in samples of ground water from wells near the Logistics Center and East Gate Disposal Yard, Fort Lewis, Washington—Continued

Army well identification number	Iron, water total field (mg/L)	Iron, ferrous water field (mg/L)	Manganese, dissolved (µg/L as Mn)	Manganese field (mgL)	Solids, residue at 180°C, dissolved (mg/L)	Bromide, dissolved (mg/L as Br)	Nitrate field (mg/L as N)	Carbon, organic total (mg/L as C)	Lead, dissolved (µg/L as Pb)
LC-71D	0.07	<0.02	100	<0.6	--	--	--	0.4	--
LC-72D	0.02	<0.02	<4	<0.6	--	--	--	0.7	--
LC-73D	0.05	0.02	<4	<0.6	--	--	--	0.3	--
LC-104	0.05	0.03	--	<0.6	--	--	--	--	--
LC-132	--	--	--	--	--	--	--	0.3	--
	--	--	<4	--	86	0.03	--	0.3	<1
LC-133	0.07	0.02	--	<0.6	--	--	<0.8	0.6	--
	--	--	22	--	78	0.03	--	0.9	<1
LC-134	0.12	0.04	180	<0.6	--	--	0.8	0.9	--
LC-135	0.14	0.04	--	<0.6	--	--	<0.8	1.4	--
LC-137A	0.04	<0.02	<4	<0.6	--	--	--	0.4	<1
LC-137B	0.03	<0.02	<4	<0.6	--	--	--	0.6	<1
LC-137C	<0.02	0.02	--	<0.6	--	--	<0.8	1.8	--
	0.02	<0.02	91	<0.6	--	--	--	2	<1
LC-144B	0.06	<0.02	--	<0.6	--	--	1.4	0.4	--
LC-149C	0.05	<0.02	<1	<0.6	--	--	<0.8	0.3	--
LC-149D	0.05	<0.02	--	<0.6	--	--	0.8	0.2	--
LC-156	0.08	0.02	19	<0.6	--	--	<0.8	0.9	--
LC-161	<0.02	<0.02	<4	--	--	--	--	--	--
LC-162	0.15	0.08	330	--	--	--	--	0.2	--
LC-163	0.21	<0.02	6	<0.6	--	--	<0.8	0.8	--
	--	--	<4	--	77	<0.01	--	0.7	<1
LX-01	0.02	<0.02	10	<0.6	--	--	0.8	--	--
LX-03	<0.02	<0.02	--	--	--	--	--	0.9	--
LX-05	<0.02	<0.02	--	--	--	--	--	16	--
LX-07	--	--	--	--	--	--	--	0.3	--
LX-10	<0.02	<0.02	--	--	--	--	--	0.2	--
LX-12	<0.02	<0.02	--	--	--	--	--	0.2	--
LX-14	<0.02	<0.02	--	--	--	--	--	0.2	--
LX-17	<0.02	<0.02	--	--	--	--	--	0.7	--
LX-18	<0.02	<0.02	--	--	--	--	--	0.5	--
FL-01	--	--	260	--	89	0.80	--	0.6	<1
	--	--	240	--	87	0.88	--	0.6	<1
	0.03	<0.02	29	<0.6	--	--	--	--	<1
FL-02	--	--	4	--	85	0.64	--	0.4	<1
	<0.02	<0.02	<4	<0.6	--	--	--	--	<1
FL-03	--	--	20	--	92	0.02	--	--	<1
	0.06	<0.02	<4	<0.6	--	--	--	--	<1
FL-04A	--	--	7	--	100	<0.01	--	--	<1
	--	--	<4	--	--	--	--	--	<1

Table 2a. Values of field measurements and concentrations of selected ions, total organic carbon, lead, and dissolved solids in samples of ground water from wells near the Logistics Center and East Gate Disposal Yard, Fort Lewis, Washington—Continued

Army well identification number	Date	Time	Temperature water (°C)	Specific conductance (µS/cm)	Oxygen, dissolved (mg/L)	pH, water whole field (standard units)	Calcium, dissolved (mg/L as Ca)	Magnesium, dissolved (mg/L as Mg)	Sodium, dissolved (mg/L as Na)	Potassium, dissolved (mg/L as K)
FL-04B	05-08-98	1030	11.5	176	3.6	9.2	20	4.9	7.0	1.9
	09-15-98	1350	12.5	169	4.4	8.6	16	5.8	7.4	1.6
FL-05	05-07-98	1500	11.0	129	5.9	6.2	12	5.3	5.1	1.1
	09-11-98	1345	11.5	118	3.0	6.2	11	4.2	5.1	1
FL-06	05-07-98	1330	10.5	113	1.9	6.0	11	4.1	4.6	1.2
	09-14-98	1015	11.0	133	2.6	6.5	12	5.6	5.3	1.1
MW-2	03-13-98	1330	9.0	113	6.1	6.5	11	3.9	4.6	0.9
GD-2 (20)	10-30-98	0900	--	--	--	--	--	--	--	--
GD-2 (23)	10-30-98	1000	--	--	--	--	--	--	--	--
GD-2 (36)	10-30-98	1100	--	--	--	--	--	--	--	--
GD-5 (25)	11-04-98	1130	--	--	--	--	--	--	--	--
GD-5 (33)	11-04-98	1330	--	--	--	--	--	--	--	--
GD-6 (10)	11-04-98	1530	--	--	--	--	--	--	--	--
GD-6 (20)	11-04-98	1630	--	--	--	--	--	--	--	--
GD-6 (24)	11-05-98	0900	--	--	--	--	--	--	--	--
GD-9 (10)	11-09-98	1010	--	--	--	--	--	--	--	--
GD-9 (20)	11-10-98	0825	--	--	--	--	--	--	--	--
GD-9 (25)	11-10-98	0925	--	--	--	--	--	--	--	--
GD-9 (36)	11-10-98	1240	--	--	--	--	--	--	--	--

Army well identification number	Alkalinity field (mg/L As $CaCO_3$)	Bicarbonate field (mg/L as HCO_3)	Carbonate field (mg/L as CO_3)	Chloride, dissolved (mg/L as Cl)	Sulfate, dissolved (mg/L as SO_4)	Sulfide field (mg/L)	Fluoride, dissolved (mg/L as F)	Silica, dissolved (mg/L as SiO_2)	Iron, dissolved (µg/L as Fe)
FL-04B	87	71	17	2.9	10	--	<0.1	17	<10
	71	82	2	2.9	7.8	--	<0.1	23	<10
FL-05	53	65	0	2.6	6.3	--	<0.1	24	<10
	48	58	0						
FL-06	45	54	0	2.3	5.2	--	<0.1	22	<10
	54	66	0	2.3	5.3	--	<0.1	26	<10
MW-2	--	--	--	2.3	5.5	--	<0.1	23	<10
GD-2 (20)	--	--	--	--	--	--	--	--	--
GD-2 (23)	--	--	--	--	--	--	--	--	--
GD-2 (36)	--	--	--	--	--	--	--	--	--
GD-5 (25)	--	--	--	--	--	--	--	--	--
GD-5 (33)	--	--	--	--	--	--	--	--	--
GD-6 (10	--	--	--	--	--	--	--	--	--
GD-6 (20)	--	--	--	--	--	--	--	--	--
GD-6 (24)	--	--	--	--	--	--	--	--	--
GD-9 (10)	--	--	--	--	--	--	--	--	--
GD-9 (20)	--	--	--	--	--	--	--	--	--
GD-9 (25)	--	--	--	--	--	--	--	--	--
GD-9 (36)	--	--	--	--	--	--	--	--	--

Table 2a. Values of field measurements and concentrations of selected ions, total organic carbon, lead, and dissolved solids in samples of ground water from wells near the Logistics Center and East Gate Disposal Yard, Fort Lewis, Washington—Continued

Army well identi-fication number	Iron, water total field (mg/L)	Iron, ferrous water field (mg/L)	Manga-nese, dis-solved (µg/L as Mn)	Manga-nese field (mgL)	Solids, residue at 180°C, dis-solved (mg/L)	Bromide, dis-solved (mg/L as Br)	Nitrate field (mg/L as N)	Carbon, organic total (mg/L as C)	Lead, dis-solved (µg/L as Pb)
FL-04B	--	--	23	--	122	<0.01	--	1.4	<1
	--	--	34	--	--	--	--	--	<1
FL-05	--	--	15	--	98	0.01	--	--	<1
	--	--	<4	--	--	--	--	--	<1
FL-06	--	--	<4	--	86	0.03	--	--	<1
	0.03	<0.02	12	<0.6	--	--	--	--	<1
MW-2	--	--	<4	--	86	<0.01	--	0.6	<1
GD-2 (20)	--	--	--	--	--	--	--	0.1	--
GD-2 (23)	--	--	--	--	--	--	--	0.2	--
GD-2 (36)	--	--	--	--	--	--	--	0.1	--
GD-5 (25)	--	--	--	--	--	--	--	1.0	--
GD-5 (33)	--	--	--	--	--	--	--	0.1	--
GD-6 (10)	--	--	--	--	--	--	--	0.5	--
GD-6 (20)	--	--	--	--	--	--	--	0.4	--
GD-6 (24)	--	--	--	--	--	--	--	0.1	--
GD-9 (10)	--	--	--	--	--	--	--	73	--
GD-9 (20)	--	--	--	--	--	--	--	4.3	--
GD-9 (25)	--	--	--	--	--	--	--	6.5	--
GD-9 (36)	--	--	--	--	--	--	--	16	--

Table 2b. Concentrations of volatile organic compounds (VOCs) in samples of ground water from wells near the Logistics Center and East Gate Disposal Yard, Fort Lewis, Washington

[Data analyzed by Quanterra Inc. Laboratory; Note: all VOC analyses were performed on unfiltered samples and are total analyses; --, analysis not performed; <, not detected at the given concentration; E, result is detected below the reporting limit and is an estimated concentration; µg/L, micrograms per liter; shal, shallow]

Army well identification number	Date	Time	Acetone (µg/L)	Benzene (µg/L)	Bromodichloromethane (µg/L)	Bromoform (µg/L)	Carbon disulfide (µg/L)	Carbon Tetrachloride (µg/L)	Chlorobenzene (µg/L)	Chloroethane (µg/L)
LC-09	09-09-98	1630	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
LC-11	03-11-98	1500	3.9E	0.90E	<1.0	<1.0	0.72E	<1.0	<1.0	<2.0
LC-19A	07-22-98	1145	<36	<3.6	<3.6	<3.6	<3.6	<3.6	<3.6	<7.1
	09-10-98	1130	<50	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10
	09-18-98	0930	<50	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10
LC-19B	07-22-98	1145	<25	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<5.0
	09-10-98	0930	<31	<3.1	<3.1	<3.1	<3.1	<3.1	<3.1	<6.2
LC-19C	07-22-98	1145	<17	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<3.3
	09-10-98	1230	<25	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<5.0
LC-20	03-13-98	1230	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
	03-17-98	1600	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
LC-21	09-17-98	1030	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
LC-21B	09-17-98	1400	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
LC-21C	09-17-98	1145	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
LC-29	03-14-98	1530	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
LC-32	03-14-98	1430	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
LC-35D	09-08-98	1330	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
LC-40	03-16-98	1230	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
LC-40A	03-15-98	1315	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
LC-40B	03-16-98	1540	<10	<1.0	<1.0	<1.0	<1.0	1.6	<1.0	<2.0
LC-40C	03-15-98	1600	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
LC-41A	09-14-98	1230	<50	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10
LC-41B	09-17-98	1600	<42	<4.2	<4.2	<4.2	<4.2	<4.2	<4.2	<8.3
LC-41D shal	09-14-98	1345	<42	<4.2	<4.2	<4.2	<4.2	<4.2	<4.2	<8.3
LC-41E deep	09-14-98	1500	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
LC-47	03-13-98	1100	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
LC-47A	03-13-98	1130	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
LC-49	09-15-98	1245	<83	<8.3	<8.3	<8.3	<8.3	<8.3	<8.3	<17
LC-49A	09-15-98	1200	<25	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<5.0
LC-52	03-12-98	1300	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
LC-57	03-12-98	1200	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
LC-66D	09-18-98	1230	<17	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<3.3
LC-104	09-10-98	1400	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
LC-132	03-17-98	1530	<25	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<5.0
	05-07-98	1630	--	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<4.0
LC-133	03-14-98	1100	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
LC-137A	09-16-98	1100	<83	<8.3	<8.3	<8.3	<8.3	<8.3	<8.3	<17
LC-137B	09-16-98	1300	<83	<8.3	<8.3	<8.3	<8.3	<8.3	<8.3	<17
LC-137C	09-16-98	1430	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0

Table 2b. Concentrations of volatile organic compounds (VOCs) in samples of ground water from wells near the Logistics Center and East Gate Disposal Yard, Fort Lewis, Washington—Continued

Army well identification number	Chloroform (µg/L)	Chlorodibromomethane (µg/L)	1,1-Dichloroethane (µg/L)	1,2-Dichloroethane (µg/L)	1,1-Dichloroethylene (µg/L)	*cis*-1,2-Dichloroethene (µg/L)	*trans*-1,2-Dichloroethene (µg/L)	1,2-Dichloroethene, total (µg/L)	1,2-Dichloropropane (µg/L)
LC-09	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	<1.0	<1.0
LC-11	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	--	<1.0
LC-19A	<3.6	<3.6	<3.6	<3.6	<3.6	--	--	15	<3.6
	<5.0	<5.0	<5.0	<5.0	<5.0	--	--	11	<5.0
	<5.0	<5.0	<5.0	<5.0	<5.0	--	--	11	<5.0
LC-19B	<2.5	<2.5	<2.5	<2.5	<2.5	--	--	10	<2.5
	<3.1	<3.1	<3.0	<3.1	<3.1	--	--	11	<3.1
LC-19C	<1.7	<1.7	<1.7	<1.7	<1.7	--	--	7.4	<1.7
	<2.5	<2.5	<2.5	<2.5	<2.5	--	--	6.6	<2.5
LC-20	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	--	<1.0
	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	--	<1.0
LC-21	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	0.96E	<1.0
LC-21B	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	<1.0	<1.0
LC-21C	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0	<1.0
LC-29	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	--	<1.0
LC-32	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	--	<1.0
LC-35D	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	<1.0	<1.0
LC-40	<1.0	<1.0	<1.0	<1.0	<1.0	1.3	<0.50	--	<1.0
LC-40A	<1.0	<1.0	<1.0	<1.0	<1.0	0.31E	<0.50	--	<1.0
LC-40B	0.24E	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	--	<1.0
LC-40C	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	--	<1.0
LC-41A	<5.0	<5.0	<5.0	<5.0	<5.0	--	--	4.0E	<5.0
LC-41B	<4.2	<4.2	<4.2	<4.2	<4.2	--	--	3.0E	<4.2
LC-41D shal	<4.2	<4.2	<4.2	<4.2	<4.2	--	--	4.1E	<4.2
LC-41E deep	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	<1.0	<1.0
LC-47	<1.0	<1.0	<1.0	<1.0	<1.0	0.99	<0.50	--	<1.0
LC-47A	<1.0	<1.0	<1.0	<1.0	<1.0	0.96	<0.50	--	<1.0
LC-49	<8.3	<8.3	<8.3	<8.3	<8.3	--	--	45	<8.3
LC-49A	<2.5	<2.5	<2.5	<2.5	<2.5	--	--	<8.1	<2.5
LC-52	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	--	<1.0
LC-57	<1.0	<1.0	<1.0	<1.0	<1.0	0.89E	<0.50	--	<1.0
LC-66D	0.19E	<1.7	<1.7	<1.7	<1.7	--	--	5.1	<1.7
LC-104	<1.0	<1.0	0.14E	<1.0	<1.0	--	--	4.5	<1.0
LC-132	0.88E	<2.5	<2.5	<2.5	<2.5	5.5	<1.2	--	<2.5
	0.75E	<2.0	<2.0	<2.0	<2.0	4.6	<1.0	--	<2.0
LC-133	<1.0	<1.0	1.7	<1.0	<1.0	45	0.29E	--	<1.0
LC-137A	<8.3	<8.3	<8.3	<8.3	<8.3	--	--	22	<8.3
LC-137B	<8.3	<8.3	<8.3	<8.3	<8.3	--	--	16	<8.3
LC-137C	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	3.3	<1.0

Table 2b. Concentrations of volatile organic compounds (VOCs) in samples of ground water from wells near the Logistics Center and East Gate Disposal Yard, Fort Lewis, Washington—Continued

Army well identification number	*cis*-1,3-Dichloropropene (µg/L)	*trans*-1,3-Dichloropropene (µg/L)	Ethylbenzene (µg/L)	2-Hexanone (µg/L)	Methylbromide (µg/L)	Methylchloride (µg/L)	Methylene chloride (µg/L)	Methylethylketone (µg/L)	Methyl Isobutylketone (µg/L)
LC-09	<1.0	<1.0	<1.0	<5.0	<2.0	<2.0	<1.0	<5.0	<5.0
LC-11	<1.0	<1.0	0.33E	<5.0	<2.0	<2.0	0.20E	<5.0	<5.0
LC-19A	<3.6	<3.6	<3.6	<18	<7.1	<7.1	1.6E	<18	<18
	<5.0	<5.0	<5.0	<25	<10	<10	1.1E	<25	<25
	<5.0	<5.0	<5.0	<25	<10	<10	1.4E	<25	<25
LC-19B	<2.5	<2.5	<2.5	<12	<5.0	<5.0	0.68E	<12	<12
	<3.1	<3.1	<3.1	<16	<6.2	<6.2	0.55E	<16	<16
LC-19C	<1.7	<1.7	<1.7	<8.3	<3.3	<3.3	0.43E	<8.3	<8.3
	<2.5	<2.5	<2.5	<12	<5.0	<5.0	0.44E	<12	<12
LC-20	<1.0	<1.0	<1.0	<5.0	<2.0	<2.0	0.80E	<5.0	<5.0
	<1.0	<1.0	<1.0	<5.0	<2.0	<2.0	<1.0	<5.0	<5.0
LC-21	<1.0	<1.0	<1.0	<5.0	<2.0	<2.0	0.17E	<5.0	<5.0
LC-21B	<1.0	<1.0	<1.0	<5.0	<2.0	<2.0	0.15E	<5.0	<5.0
LC-21C	1.0	<1.0	<1.0	<5.0	<2.0	<2.0	0.18E	<5.0	<5.0
LC-29	<1.0	<1.0	<1.0	<5.0	<2.0	<2.0	0.23E	<5.0	<5.0
LC-32	<1.0	<1.0	<1.0	<5.0	<2.0	<2.0	<1.0	<5.0	<5.0
LC-35D	<1.0	<1.0	<1.0	<5.0	<2.0	<2.0	<1.0	<5.0	<5.0
LC-40	<1.0	<1.0	<1.0	<5.0	<2.0	<2.0	<1.0	<5.0	<5.0
LC-40A	<1.0	<1.0	<1.0	<5.0	<2.0	<2.0	<1.0	<5.0	<5.0
LC-40B	<1.0	<1.0	<1.0	<5.0	<2.0	<2.0	0.20E	<5.0	<5.0
LC-40C	<1.0	<1.0	<1.0	<5.0	<2.0	<2.0	<1.0	<5.0	<5.0
LC-41A	<5.0	<5.0	<5.0	<25	<10	<10	0.68E	<25	<25
LC-41B	<4.2	<4.2	<4.2	<21	<8.3	<8.3	1.4E	<21	<21
LC-41D shal	<4.2	<4.2	<4.2	<21	<8.3	<8.3	0.76E	<21	<21
LC-41E deep	<1.0	<1.0	<1.0	<5.0	<2.0	<2.0	0.83E	<5.0	<5.0
LC-47	<1.0	<1.0	<1.0	<5.0	<2.0	<2.0	0.92E	<5.0	<5.0
LC-47A	<1.0	<1.0	<1.0	<5.0	<2.0	<2.0	0.84E	<5.0	<5.0
LC-49	<8.3	<8.3	<8.3	<42	<17	<17	2.7E	<42	<42
LC-49A	<2.5	<2.5	<2.5	<12	<5.0	<5.0	1.1E	<12	12.E
LC-52	<1.0	<1.0	<1.0	<5.0	<2.0	<2.0	<1.0	<5.0	<5.0
LC-57	<1.0	<1.0	<1.0	<5.0	<2.0	<2.0	<1.0	<5.0	<5.0
LC-66D	<1.7	<1.7	<1.7	<8.3	<3.3	<3.3	0.64E	<8.3	<8.3
LC-104	<1.0	<1.0	<1.0	<5.0	<2.0	<2.0	<1.0	<5.0	<5.0
LC-132	<2.5	<2.5	<2.5	<12	<5.0	<5.0	0.75E	<12	<12
	<2.0	<2.0	<2.0	<10	<4.0	<4.0	<2.0	<10	<10
LC-133	<1.0	<1.0	<1.0	<5.0	<2.0	<2.0	<1.0	<5.0	<5.0
LC-137A	<8.3	<8.3	<8.3	<42	<17	<17	0.89E	<42	<42
LC-137B	<8.3	<8.3	<8.3	<42	<17	<17	3.2E	<42	<42
LC-137C	<1.0	<1.0	<1.0	<5.0	<2.0	<2.0	0.16E	<5.0	<5.0

Table 2b. Concentrations of volatile organic compounds (VOCs) in samples of ground water from wells near the Logistics Center and East Gate Disposal Yard, Fort Lewis, Washington—Continued

Army well identification number	Styrene (µg/L)	1,1,2,2-Tetrachloroethane (µg/L)	Tetrachloroethylene (µg/L)	Toluene (µg/L)	1,1,1-Trichloroethane (µg/L)	1,1,2-Trichloroethane (µg/L)	Trichloroethylene (µg/L)	Vinyl chloride (µg/L)	Xylene (µg/L)
LC-09	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0
LC-11	<1.0	<1.0	<1.0	0.44E	<1.0	<1.0	<1.0	<2.0	0.33E
LC-19A	<3.6	<3.6	<3.6	<3.6	<3.6	<3.6	200	<7.1	<3.6
	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	190	<10	<5.0
	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	180	<10	<5.0
LC-19B	<2.5	<2.5	1.7E	<2.5	<2.5	<2.5	97	<5.0	<2.5
	<3.1	<3.1	1.9E	<3.1	<3.1	<3.1	110	<6.2	<3.1
LC-19C	<1.7	<1.7	<1.7	<1.7	0.54E	<1.7	76	<3.3	<1.7
	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	88	<5.0	<2.5
LC-20	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.6	<2.0	<1.0
	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.4	<2.0	<1.0
LC-21	<1.0	<1.0	<1.0	0.19E	<1.0	<1.0	15	<2.0	<1.0
LC-21B	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0
LC-21C	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.18E	<2.0	<1.0
LC-29	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.5	<2.0	<1.0
LC-32	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	2.7	<2.0	<1.0
LC-35D	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0
LC-40	<1.0	<1.0	<1.0	<1.0	1.7	<1.0	17	<2.0	<1.0
LC-40A	<1.0	<1.0	<3.0	<1.0	<1.0	<1.0	5.0	<2.0	<1.0
LC-40B	<1.0	<1.0	<1.0	<1.0	0.75E	<1.0	<1.0	<2.0	<1.0
LC-40C	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0
LC-41A	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	160	<10	<5.0
LC-41B	<4.2	<4.2	<4.2	<4.2	<4.2	<4.2	160	<8.3	<4.2
LC-41D shal	<4.2	<4.2	<4.2	<4.2	<4.2	<4.2	170	<8.3	<4.2
LC-41E deep	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0
LC-47	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	3.7	<2.0	<1.0
LC-47A	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	8.3	<2.0	<1.0
LC-49	<8.3	<8.3	<8.3	<8.3	2.5E	<8.3	250	<17	<8.3
LC-49A	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	92	<5.0	<2.5
LC-52	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0
LC-57	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	3.7	<2.0	<1.0
LC-66D	<1.7	<1.7	<1.7	<1.7	0.27E	<1.7	63	<3.3	<1.7
LC-104	<1.0	<1.0	<1.0	<1.0	0.39E	<1.0	32	<2.0	<1.0
LC-132	<2.5	<2.5	1.1E	<2.5	<2.5	<2.5	100	<5.0	<2.5
	<2.0	<2.0	0.99E	<2.0	0.29E	<2.0	85	<4.0	<2.0
LC-133	<1.0	<1.0	<1.0	<1.0	0.49E	<1.0	29	<2.0	<1.0
LC-137A	<8.3	<8.3	<8.3	<8.3	<8.3	<8.3	400	<17	<8.3
LC-137B	<8.3	<8.3	<8.3	<8.3	<8.3	<8.3	310	<17	<8.3
LC-137C	<1.0	<1.0	<1.0	0.15E	<1.0	<1.0	22	<2.0	<1.0

Table 2b. Concentrations of volatile organic compounds (VOCs) in samples of ground water from wells near the Logistics Center and East Gate Disposal Yard, Fort Lewis, Washington—Continued

Army well identification number	Date	Time	Acetone (µg/L)	Benzene (µg/L)	Bromodichloromethane (µg/L)	Bromoform (µg/L)	Carbon disulfide (µg/L)	Carbon Tetrachloride (µg/L)	Chlorobenzene (µg/L)	Chloroethane (µg/L)
LC-163	03-13-98	1430	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
FL-01	05-06-98	1330	--	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<5.0
	05-08-98	1400	--	<3.1	<3.1	<3.1	<3.1	<3.1	<3.1	<6.2
	09-10-98	1600	<31	<3.1	<3.1	<3.1	<3.1	<3.1	<3.1	<6.2
FL-02	05-07-98	0930	--	<3.1	<3.1	<3.1	<3.1	<3.1	<3.1	<6.2
	09-11-98	1000	<50	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10
FL-03	05-07-98	1130	--	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
	09-11-98	1130	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
FL-04A	05-08-98	1230	--	<1.0	<1.0	<1.0	<1.0	0.12E	<1.0	<2.0
	09-15-98	1445	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
FL-04B	05-08-98	1030	--	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
	09-15-98	1350	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
FL-05	05-07-98	1500	--	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
	09-11-98	1345	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
FL-06	05-07-98	1330	--	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
	09-14-98	1015	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
MW-2	03-13-98	1330	12.E	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<5.0

Army well identification number	Chloroform (µg/L)	Chlorodibromomethane (µg/L)	1,1-Dichloroethane (µg/L)	1,2-Dichloroethane (µg/L)	1,1-Dichloroethylene (µg/L)	*cis*-1,2-Dichloroethene (µg/L)	*trans*-1,2-Dichloroethene (µg/L)	1,2-Dichloroethene, total (µg/L)	1,2-Dichloropropane (µg/L)
LC-163	<1.0	<1.0	<1.0	<1.0	<1.0	0.29E	<0.50	--	<1.0
FL-01	<2.5	<2.5	<2.5	<2.5	<2.5	82	0.97E	--	<2.5
	<3.1	<3.1	<3.1	<3.1	<3.1	86	0.96E	--	<3.1
	<3.1	<3.1	<1.1	<3.1	<3.1	--	--	14	<3.1
FL-02	<3.1	<3.1	<3.1	<3.1	<3.1	29	0.77E	--	<3.1
	<5.0	<5.0	<5.0	<5.0	<5.0	--	--	70	<5.0
FL-03	<1.0	<1.0	<1.0	<1.0	<1.0	0.24E	<0.50	--	<1.0
	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	<1.0	<1.0
FL-04A	<1.0	<1.0	<1.0	<1.0	<1.0	0.86	<0.50	--	<1.0
	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	0.98E	<1.0
FL-04B	<1.0	<1.0	<1.0	<1.0	<1.0	0.98	<0.50	--	<1.0
	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	1.4	<1.0
FL-05	<1.0	<1.0	<1.0	<1.0	<1.0	1.5	<0.50	--	<1.0
	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	<1.0	<1.0
FL-06	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	--	<1.0
	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	1.1	<1.0
MW-2	<2.5	<2.5	<2.5	<5.0	<2.5	85	0.70E	--	<2.5

Table 2b. Concentrations of volatile organic compounds (VOCs) in samples of ground water from wells near the Logistics Center and East Gate Disposal Yard, Fort Lewis, Washington—Continued

Army well identification number	*cis*-1,3-Dichloropropene (µg/L)	*trans*-1,3-Dichloropropene (µg/L)	Ethylbenzene (µg/L)	2-Hexanone (µg/L)	Methylbromide (µg/L)	Methylchloride (µg/L)	Methylene Chloride (µg/L)	Methylethylketone (µg/L)	Methyl Isobutyl ketone (µg/L)
LC-163	<1.0	<1.0	<1.0	<5.0	<2.0	<2.0	0.71E	<5.0	<5.0
FL-01	<2.5	<2.5	<2.5	<12	<5.0	<5.0	0.63E	<12	<12
	<3.1	<3.1	<3.1	<16	<6.2	<6.2	<3.1	<16	<16
	<3.1	<3.1	<3.1	<16	<6.2	<6.2	1.5E	<16	<16
FL-02	<3.1	<3.1	<3.1	<16	<6.2	<6.2	1.2E	<16	<16
	<5.0	<5.0	<5.0	<25	<10	<10	<2.5	<25	<25
FL-03	<1.0	<1.0	<1.0	<5.0	<2.0	<2.0	0.21E	<5.0	<5.0
	<1.0	<1.0	<1.0	<5.0	<2.0	<2.0	0.30E	<5.0	<5.0
FL-04A	<1.0	<1.0	<1.0	<5.0	<2.0	<2.0	<1.0	<5.0	<5.0
	<1.0	<1.0	<1.0	<5.0	<2.0	<2.0	0.28E	<5.0	<5.0
FL-04B	<1.0	<1.0	<1.0	<5.0	<2.0	<2.0	<1.0	<5.0	<5.0
	<1.0	<1.0	<1.0	<5.0	<2.0	<2.0	0.30E	<5.0	<5.0
FL-05	<1.0	<1.0	<1.0	<5.0	<2.0	<2.0	<1.0	<5.0	<5.0
	<1.0	<1.0	<1.0	<5.0	<2.0	<2.0	0.27E	<5.0	<5.0
FL-06	<1.0	<1.0	<1.0	<5.0	<2.0	<2.0	<1.0	<5.0	<5.0
	<1.0	<1.0	<1.0	<5.0	<2.0	<2.0	0.76E	<5.0	<5.0
MW-2	<2.5	<2.5	<2.5	<12	<5.0	<5.0	1.9E	<12	<12

Army well identification number	Styrene (µg/L)	1,1,2,2-Tetrachloroethane (µg/L)	Tetrachloroethylene (µg/L)	Toluene (µg/L)	1,1,1-Trichloroethane (µg/L)	1,1,2-Trichloroethane (µg/L)	Trichloroethylene (µg/L)	Vinyl Chloride (µg/L)	Xylene (µg/L)
LC-163	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	4.5	<2.0	<1.0
FL-01	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	120	<5.0	<2.5
	<3.1	<3.1	<3.1	<3.1	<3.1	<3.1	140	<6.2	<3.1
	<3.1	<3.1	<3.1	<3.1	<3.1	<3.1	120	<6.2	<3.1
FL-02	<3.1	<3.1	<3.1	<3.1	<3.1	<3.1	110	<6.2	<3.1
	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	190	<10	<5.0
FL-03	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	4.8	<2.0	<1.0
	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	5.0	<2.0	<1.0
FL-04A	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.8	<2.0	<1.0
	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	2.5	<2.0	<1.0
FL-04B	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.99E	<2.0	<1.0
	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	2.5	<2.0	<1.0
FL-05	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	21	<2.0	<1.0
	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	3.9	<2.0	<1.0
FL-06	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	4.2	<2.0	<1.0
	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	23	<2.0	<1.0
MW-2	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	99	<5.0	<2.5

Table 3a. Concentrations of selected ions and lead in quality-control samples of ground water from wells near the Logistics Center and East Gate Disposal Yard, Fort Lewis, Washington

[Data analyzed by National Water Quality Laboratory; --, analysis not performed; <, not detected at the given concentration; mg/L, milligrams per liter; µg/L, micrograms per liter; sample type: FB, field blank, R, replicate sample; *ES*, environmental sample that corresponds to replicate sample; °C, degrees Celsius]

Army well identi-fication number	Sample type	Date	Time	Calcium, dissolved (mg/L as Ca)	Magnesium dissolved (mg/L as Mg)	Sodium, dissolved (mg/L as Na)	Potassium, dissolved (mg/L as K)	Chloride, dissolved (mg/L as Cl)	Sulfate, dissolved (mg/L as SiO_4)
LC-21	FB	09-18-98	0831	<0.02	0.00	<0.1	<0.1	<0.1	0.3
LC-132	FB	03-17-98	1540	<0.02	<0.004	<0.1	<0.1	<0.1	0.2
FL-06	R	09-14-98	1020	12	5.5	5.0	1.0	2.4	5.4
	ES	*09-14-98*	*1015*	*11*	*3.9*	*4.6*	*0.9*	*2.3*	*5.3*

Army well identi-fication number	Sample type	Fluoride, dissolved (mg/L as F)	Silica, dissolved (mg/L as SiO_2)	Iron, dissolved (µg/L as Fel)	Manganese dissolved (µg/L as Mn)	Solids, residue at 180°C dissolved (mg/L)	Bromide, dissolved (µg/L as Br)	Lead dissolved (µg/L as Pb)
LC-21	FB	<0.1	0.12	<10	<4	--	--	<1
LC-132	FB	<0.1	<0.1	<10	<4	<10	<0.01	<1
Fl-06	R	<0.1	26	<10	11	--	--	<1
	ES	*<0.1*	*26*	*<10*	*12*	--	--	*<1*

Table 3b. Concentrations of volatile organic compounds (VOCs) in quality-control samples of ground water from wells near the Logistics Center and East Gate Disposal Yard, Fort Lewis, Washington

[Data analyzed by Quanterra Inc. Laboratory; Note: all VOC analyses were performed on unfiltered samples and are total analyses; --, analysis not performed; <, not detected at the given concentration; µg/L, micrograms per liter; Sample type: FB, field blank; TB, trip blank; FS, field spike; LS, lab spike; R, replicate sample; *ES*, environmental sample that corresponds to replicate sample; E, result is detected below the reporting limit and is an estimated concentration]

Army well identification number	Sample type	Date	Time	Acetone (µg/L)	Benzene (µg/L)	Bromodichloromethane (µg/L)	Bromoform (µg/L)	Carbon Disulfide (µg/L)	Carbon Tetrachloride (µg/L)	Chlorobenzene (µg/L)	Chloroethane (µg/L)
LC-19A	FS	09-18-98	0932	<62	78	84	89	<6.2	72	<6.2	<12
	LS	09-18-98	0934	<62	<6.2	<6.2	<6.2	<6.2	<6.2	<6.2	<12
	FB	07-22-98	1145	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
LC-19C	R	07-22-98	1146	<17	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<3.3
	ES	*07-22-98*	*1145*	*<17*	*<1.7*	*<1.7*	*<1.7*	*<1.7*	*<1.7*	*<1.7*	*<3.3*
LC-21	FB	09-17-98	0830	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
LC-66D	TB	09-18-98	1231	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
LC-132	FB	03-17-98	1539	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
	FS	03-17-98	1536	15.E	<2.5	<2.5	<2.5	0.57E	0.64E	<2.5	0.67E
	R	03-17-98	1531	10.E	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<5.0
	ES	*03-17-98*	*1530*	*<25*	*<2.5*	*<2.5*	*<2.5*	*<2.5*	*<2.5*	*<2.5*	*<5.0*
LC-137C	TB	09-16-98	1431	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
LC-163	TB	03-13-98	1431	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
FL-01	FB	05-06-98	1500	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
FL-04A	TB	09-15-98	1446	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
FL-06	R	09-14-98	1020	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
	ES	*09-14-98*	*1015*	*<10*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<2.0*

Army well identification number	Sample type	Chloroform (µg/L)	Chlorodibromomethane (µg/L)	1,1-Dichloroethane (µg/L)	1,2-Dichloroethane (µg/L)	1,1-Dichloroethylene (µg/L)	*cis*-1,2-Dichloroethene (µg/L)	*trans*-1,2-Dichloroethene (µg/L)	1,2-Dichloroethene, total (µg/L)	1,2-Dichloropropane (µg/L)
LC-19A	FS	87	78	<6.2	92	76	--	--	180	78
	LS	<6.2	<6.2	<6.2	<6.2	<6.2	--	--	12	<6.2
	FB	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	<1.0	<1.0
LC-19C	R	<1.7	<1.7	<1.7	<1.7	<1.7	--	--	7.0	<1.7
	ES	*<1.7*	*<1.7*	*<1.7*	*<1.7*	*<1.7*	--	--	*7.4*	*<1.7*
LC-21	FB	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	<1.0	<1.0
LC-66D	TB	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	<1.0	<1.0
LC-132	FB	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	--	<1.0
	FS	1.2E	1.4E	0.52E	<2.5	<2.5	5.7	<1.2	--	<2.5
	R	0.88E	<2.5	<2.5	<2.5	<2.5	5.3	<1.2	--	<2.5
	ES	*0.88E*	*<2.5*	*<2.5*	*<2.5*	*<2.5*	*5.5*	*<1.2*	--	*<2.5*
LC-137C	TB	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	<1.0	<1.0
LC-163	TB	<1.0	<2.0	<1.0	<1.0	<1.0	<0.50	<0.50	--	<1.0
FL-01	FB	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	--	<1.0
FL-04A	TB	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	<1.0	<1.0
FL-06	R	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	1.1	<1.0
	ES	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	--	--	*1.1*	*<1.0*

Table 3b. Concentrations of volatile organic compounds (VOCs) in quality-control samples of ground water from wells near the Logistics Center and East Gate Disposal Yard, Fort Lewis, Washington—Continued

Army well identification number	Sample type	*cis*-1,3-Dichloropropene (µg/L)	*trans*-1,3-Dichloropropene (µg/L)	Ethylbenzene (µg/L)	2-Hexanone (µg/L)	Methylbromide (µg/L)	Methylchloride (µg/L)	Methylene Chloride (µg/L)	Methylethylketone (µg/L)	Methyl Isobutyl ketone (µg/L)
LC-19A	FS	77	76	<6.2	<31	<12	<12	86	<31	<31
	LS	<6.2	<6.2	<6.2	<31	<12	<12	1.2E	<31	<31
	FB	<1.0	<1.0	<1.0	<5.0	<2.0	<2.0	0.12E	<5.0	<5.0
LC-19C	R	<1.7	<1.7	<1.7	<8.3	<3.3	<3.3	0.35E	<8.3	<8.3
	ES	*<1.7*	*<1.7*	*<1.7*	*<8.3*	*<3.3*	*<3.3*	*0.43E*	*<8.3*	*<8.3*
LC-21	FB	<1.0	<1.0	<1.0	<5.0	<2.0	<2.0	0.18E	<5.0	<5.0
LC-66D	TB	<1.0	<1.0	<1.0	<5.0	<2.0	<2.0	1.1	<5.0	<5.0
LC-132	FB	<1.0	<1.0	<1.0	<5.0	<2.0	<2.0	<1.0	<5.0	<5.0
	FS	0.61E	0.89E	0.57E	<12	1.6E	1.4E	3.5	11.E	2.6E
	R	<2.5	<2.5	<2.5	<12	<5.0	<5.0	1.2E	<12	<12
	ES	*<2.5*	*<2.5*	*<2.5*	*<12*	*<5.0*	*<5.0*	*0.45E*	*<12*	*<12*
LC-137C	TB	<1.0	<1.0	<1.0	<5.0	<2.0	<2.0	1.3	<5.0	<5.0
LC-163	TB	<1.0	<1.0	<1.0	<5.0	<2.0	<2.0	1.1	<5.0	<5.0
FL-01	FB	<1.0	<1.0	<1.0	<5.0	<2.0	<2.0	0.38E	<5.0	<5.0
FL-04A	TB	<1.0	<1.0	<1.0	<5.0	<2.0	<2.0	1.1	<5.0	<5.0
FL-06	R	<1.0	<1.0	<1.0	<5.0	<2.0	<2.0	0.86E	<5.0	<5.0
	ES	*<1.0*	*<1.0*	*<1.0*	*<5.0*	*<2.0*	*<2.0*	*0.76E*	*<5.0*	*<5.0*

Army well identification number	Sample type	Styrene (µg/L)	1,1,2,2-Tetrachloroethane (µg/L)	Tetrachloroethylene (µg/L)	Toluene (µg/L)	1,1,1-Trichloroethane (µg/L)	1,1,2-Trichloroethane (µg/L)	Trichloroethylene (µg/L)	Vinyl Chloride (µg/L)	Xylene (µg/L)
LC-19A	FS	<6.2	<6.2	68	76	74	83	270	<12	250
	LS	<6.2	<6.2	<6.2	<6.2	<6.2	<6.2	190	<12	<6.2
	FB	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0
LC-19C	R	<1.7	<1.7	<1.7	<1.7	0.66E	<1.7	76	<3.3	<1.7
	ES	*<1.7*	*<1.7*	*<1.7*	*<1.7*	*0.54E*	*<1.7*	*76*	*<3.3*	*<1.7*
LC-21	FB	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0
LC-66D	TB	<1.0	<1.0	<1.0	0.11E	<1.0	<1.0	<1.0	<2.0	<1.0
LC-132	FB	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0
	FS	<2.5	<2.5	1.8E	<2.5	0.71E	<2.5	100	0.68E	1.1E
	R	<2.5	<2.5	1.1E	<2.5	<2.5	<2.5	95	<5.0	<2.5
	ES	*<2.5*	*<2.5*	*1.1E*	*<2.5*	*<2.5*	*<2.5*	*100*	*<5.0*	*<2.5*
LC-137C	TB	<1.0	<1.0	<1.0	0.27E	<1.0	<1.0	<1.0	<2.0	<1.0
LC-163	TB	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0
FL-01	FB	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0
FL-04A	TB	<1.0	<1.0	<1.0	0.23E	<1.0	<1.0	<1.0	<2.0	<1.0
FL-06	R	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	23	<2.0	<1.0
	ES	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*<1.0*	*23*	*<2.0*	*<1.0*

Table 4.--Water levels measured in 1998 in wells near the Logistics Center and East Gate Disposal Yard, Fort Lewis, Washington

[Water level status: S, nearby pumping; T, nearby recently pumped; P, pumping; R, recently pumped; D, dry; Water level method: T, electric tape; S, steel tape; --, not recorded]

Army well identification number	USGS Site-ID	Water-level measurement date	Measurement time	Water level, feet below land surface	Water-level status	Water-level method
LC-09	470633122314401	07-17-1998	1447	25.07	S	T
		07-17-1998	1451	25.07	S	T
		07-22-1998	0945	25.18	S	T
		07-22-1998	0950	25.18	S	T
		07-23-1998	0855	25.20	S	T
		07-23-1998	0900	25.20	S	T
		07-23-1998	1415	25.19	T	S
		07-23-1998	1418	25.12	T	S
		07-23-1998	1420	25.12	T	S
		07-23-1998	1424	25.18	T	S
		07-23-1998	1429	25.18	T	S
		07-23-1998	1641	25.15	T	S
		07-23-1998	1644	25.15	T	S
		07-23-1998	1801	25.14	T	T
		07-24-1998	1003	25.08	T	T
		07-24-1998	1004	25.08	T	T
		07-25-1998	1022	25.04	T	T
		07-25-1998	1023	25.05	T	T
		07-27-1998	1000	25.00	T	T
		07-27-1998	1001	24.98	T	T
		07-29-1998	0947	24.97	T	T
		07-29-1998	0948	24.98	T	T
		08-04-1998	1038	25.03	T	T
		08-04-1998	1039	25.04	T	T
LC-10	470633122314402	07-17-1998	1442	25.03	S	T
		07-17-1998	1446	25.05	S	T
		07-22-1998	0946	25.10	S	T
		07-22-1998	0952	25.11	S	T
		07-23-1998	0853	25.18	S	T
		07-23-1998	0858	25.18	S	T
		07-23-1998	1410	25.18	T	S
		07-23-1998	1411	25.18	T	S
		07-23-1998	1637	25.19	T	S
		07-23-1998	1639	25.19	T	S
		07-23-1998	1800	25.14	T	T
		07-24-1998	1000	25.07	T	T
		07-24-1998	1001	25.07	T	T
		07-25-1998	1024	25.05	T	T

Table 4.--Water levels measured in 1998 in wells near the Logistics Center and East Gate Disposal Yard, Fort Lewis, Washington--Continued

Army well identification number	USGS Site-ID	Water-level measure-ment date	Measure-ment time	Water level, feet below land surface	Water-level status	Water-level method
LC-10	470633122314402	07-25-1998	1025	25.03	T	T
		07-27-1998	0958	24.94	T	T
		07-27-1998	0959	24.94	T	T
		07-29-1998	0949	24.93	T	T
		07-29-1998	0950	24.92	T	T
		08-04-1998	1037	24.99	T	T
		08-04-1998	1038	24.98	T	T
LC-11	470639122313701	07-20-1998	0950	26.18	S	T
		07-20-1998	0955	26.12	S	T
		07-20-1998	0956	26.10	S	T
		07-20-1998	1000	26.12	S	T
		07-22-1998	1109	26.13	S	T
		07-22-1998	1112	26.13	S	T
		07-23-1998	0905	26.18	S	T
		07-23-1998	0910	26.17	S	T
		07-23-1998	1434	26.20	T	S
		07-23-1998	1435	26.18	T	S
		07-23-1998	1615	26.19	T	S
		07-23-1998	1617	26.18	T	S
		07-23-1998	1758	26.16	T	T
		07-24-1998	1008	26.17	T	T
		07-24-1998	1009	26.19	T	T
		07-25-1998	1027	26.22	T	T
		07-25-1998	1028	26.22	T	T
		07-25-1998	1029	26.19	T	T
		07-25-1998	1030	26.19	T	T
		07-27-1998	1002	26.23	T	T
		07-27-1998	1003	26.20	T	T
		07-29-1998	0952	26.21	T	T
		07-29-1998	0953	26.21	T	T
		08-04-1998	1042	26.25	T	T
		08-04-1998	1043	26.25	T	T
LC-17	470627122314801	07-17-1998	1253	29.62	S	T
		07-17-1998	1254	29.62	S	T
		07-22-1998	1042	29.69	S	T
		07-22-1998	1045	29.67	S	T
		07-23-1998	0857	29.72	S	T
		07-23-1998	0904	29.72	S	T
		07-23-1998	1055	29.69	S	S
		07-23-1998	1133	29.69	T	S

Table 4.--Water levels measured in 1998 in wells near the Logistics Center and East Gate Disposal Yard, Fort Lewis, Washington--Continued

Army well identification number	USGS Site-ID	Water-level measure-ment date	Measure-ment time	Water level, feet below land surface	Water-level status	Water-level method
LC-17	470627122314801	07-23-1998	1135	29.69	T	S
		07-23-1998	1152	29.69	T	S
		07-23-1998	1154	29.69	T	S
		07-23-1998	1231	29.68	T	S
		07-23-1998	1233	29.69	T	S
		07-23-1998	1256	29.68	T	S
		07-23-1998	1258	29.67	T	S
		07-23-1998	1336	29.67	T	S
		07-23-1998	1337	29.68	T	S
		07-23-1998	1441	29.67	T	S
		07-23-1998	1443	29.67	T	S
		07-23-1998	1500	29.67	T	S
		07-23-1998	1501	29.67	T	S
		07-23-1998	1628	29.67	T	T
		07-23-1998	1718	29.66	T	T
		07-23-1998	1820	29.66	T	T
		07-24-1998	0942	29.60	T	T
		07-24-1998	0943	29.60	T	T
		07-25-1998	1004	29.56	T	T
		07-25-1998	1005	29.55	T	T
		07-27-1998	0930	29.48	T	T
		07-27-1998	0931	29.46	T	T
		07-29-1998	0914	29.40	T	T
		07-29-1998	0915	29.41	T	T
		08-04-1998	1011	29.41	T	T
		08-04-1998	1012	29.40	T	T
LC-18	470621122315401	07-20-1998	1140	20.42	S	T
		07-20-1998	1145	20.40	S	T
		07-22-1998	1034	20.39	S	T
		07-22-1998	1037	20.37	S	T
		07-23-1998	0815	20.43	S	T
		07-23-1998	0820	20.48	S	T
		07-23-1998	1317	20.42	T	T
		07-23-1998	1400	20.42	T	T
		07-23-1998	1455	20.43	T	T
		07-23-1998	1618	20.43	T	T
		07-23-1998	1817	20.43	T	T
		07-24-1998	1058	20.43	T	T
		07-24-1998	1059	20.43	T	T
		07-25-1998	1114	20.44	T	T

Table 4. Water levels measured in 1998 in wells near the Logistics Center and East Gate Disposal Yard, Fort Lewis, Washington—Continued

Army well identification number	USGS Site-ID	Water-level measure-ment date	Measure-ment time	Water level, feet below land surface	Water-level status	Water-level method
LC-18	470621122315401	07-25-1998	1115	20.42	T	T
		07-27-1998	0935	20.41	T	T
		07-27-1998	0936	20.44	T	T
		07-29-1998	0917	20.42	T	T
		07-29-1998	0918	20.42	T	T
		08-04-1998	1016	20.48	T	T
		08-04-1998	1017	20.47	T	T
LC-19A	470623122313902	07-17-1998	1225	27.28	S	T
		07-17-1998	1231	27.28	S	T
		07-22-1998	0839	27.36	S	T
		07-22-1998	0844	27.34	S	T
		07-23-1998	0819	27.37	S	T
		07-23-1998	0829	27.37	S	T
		07-23-1998	1106	27.33	T	S
		07-23-1998	1125	27.32	T	S
		07-23-1998	1138	27.31	T	S
		07-23-1998	1153	27.33	T	S
		07-23-1998	1154	27.33	T	S
		07-23-1998	1206	27.35	T	S
		07-23-1998	1211	26.97	T	S
		07-23-1998	1214	26.93	T	S
		07-23-1998	1216	26.92	T	S
		07-23-1998	1221	26.90	T	S
		07-23-1998	1224	26.89	T	S
		07-23-1998	1227	26.88	T	S
		07-23-1998	1231	26.89	T	S
		07-23-1998	1235	26.88	T	S
		07-23-1998	1239	26.88	T	S
		07-23-1998	1243	26.88	T	S
		07-23-1998	1248	26.87	T	S
		07-23-1998	1255	26.87	T	S
		07-23-1998	1300	26.87	T	S
		07-23-1998	1322	26.87	T	S
		07-23-1998	1331	26.88	T	S
		07-23-1998	1352	26.86	T	S
		07-23-1998	1412	26.85	T	S
		07-23-1998	1428	26.83	T	S
		07-23-1998	1444	26.83	T	S
		07-23-1998	1445	26.83	T	S
		07-23-1998	1522	26.84	T	S

Table 4. Water levels measured in 1998 in wells near the Logistics Center and East Gate Disposal Yard, Fort Lewis, Washington—Continued

Army well identification number	USGS Site-ID	Water-level measurement date	Measurement time	Water level, feet below land surface	Water-level status	Water-level method
LC-19A	470623122313902	07-23-1998	1628	26.84	T	T
		07-23-1998	1629	26.84	T	T
		07-23-1998	1859	26.84	T	T
		07-24-1998	0902	26.75	T	T
		07-24-1998	0903	26.74	T	T
		07-27-1998	0858	26.62	T	T
		07-27-1998	0859	26.60	T	T
		07-29-1998	0836	26.56	T	T
		07-29-1998	0837	26.56	T	T
		08-04-1998	0919	26.61	T	T
		08-04-1998	0920	26.62	T	T
LC-19B	470623122313903	07-17-1998	1228	27.15	S	T
		07-17-1998	1233	27.14	S	T
		07-22-1998	0837	27.21	S	T
		07-22-1998	0840	27.20	S	T
		07-23-1998	0821	27.13	S	T
		07-23-1998	0831	27.12	S	T
		07-23-1998	1104	27.21	S	S
		07-23-1998	1122	27.20	T	S
		07-23-1998	1139	27.20	T	S
		07-23-1998	1156	27.20	T	S
		07-23-1998	1157	27.20	T	S
		07-23-1998	1207	27.21	T	S
		07-23-1998	1213	27.20	T	S
		07-23-1998	1217	27.20	T	S
		07-23-1998	1222	27.20	T	S
		07-23-1998	1226	27.20	T	S
		07-23-1998	1230	27.20	T	S
		07-23-1998	1234	27.19	T	S
		07-23-1998	1238	27.19	T	S
		07-23-1998	1242	27.19	T	S
		07-23-1998	1248	27.19	T	S
		07-23-1998	1254	27.19	T	S
		07-23-1998	1259	27.18	T	S
		07-23-1998	1320	27.18	T	S
		07-23-1998	1331	27.18	T	S
		07-23-1998	1345	27.18	T	S
		07-23-1998	1410	27.17	T	S
		07-23-1998	1425	27.16	T	S
		07-23-1998	1443	27.15	T	S

Table 4. Water levels measured in 1998 in wells near the Logistics Center and East Gate Disposal Yard, Fort Lewis, Washington—Continued

Army well identification number	USGS Site-ID	Water-level measure-ment date	Measure-ment time	Water level, feet below land surface	Water-level status	Water-level method
LC-19B	470623122313903	07-23-1998	1520	27.14	T	S
		07-23-1998	1633	27.14	T	T
		07-23-1998	1634	27.15	T	T
		07-23-1998	1900	27.12	T	T
		07-24-1998	0904	26.98	T	T
		07-24-1998	0905	26.97	T	T
		07-27-1998	0900	26.79	T	T
		07-27-1998	0901	26.82	T	T
		07-29-1998	0838	26.76	T	T
		07-29-1998	0839	26.75	T	T
		08-04-1998	0921	26.80	T	T
		08-04-1998	0922	26.80	T	T
LC-19C	470623122313901	07-17-1998	1230	27.29	S	T
		07-17-1998	1234	27.29	S	T
		07-22-1998	0838	27.37	S	T
		07-22-1998	0841	27.36	S	T
		07-23-1998	0823	27.46	S	T
		07-23-1998	0831	27.46	S	T
		07-23-1998	1108	27.37	T	S
		07-23-1998	1110	27.35	T	S
		07-23-1998	1126	27.37	T	S
		07-23-1998	1140	27.37	T	S
		07-23-1998	1158	27.36	T	S
		07-23-1998	1159	27.36	T	S
		07-23-1998	1210	27.35	T	S
		07-23-1998	1215	26.94	T	S
		07-23-1998	1219	26.95	T	S
		07-23-1998	1223	26.95	T	S
		07-23-1998	1228	26.94	T	S
		07-23-1998	1231	26.93	T	S
		07-23-1998	1236	26.93	T	S
		07-23-1998	1240	26.91	T	S
		07-23-1998	1244	26.92	T	S
		07-23-1998	1250	26.90	T	S
		07-23-1998	1256	26.90	T	S
		07-23-1998	1302	26.90	T	S
		07-23-1998	1323	26.90	T	S
		07-23-1998	1333	26.90	T	S
		07-23-1998	1355	26.89	T	S
		07-23-1998	1413	26.87	T	S

Table 4. Water levels measured in 1998 in wells near the Logistics Center and East Gate Disposal Yard, Fort Lewis, Washington—Continued

Army well identification number	USGS Site-ID	Water-level measurement date	Measurement time	Water level, feet below land surface	Water-level status	Water-level method
LC-19C	470623122313901	07-23-1998	1430	26.86	T	S
		07-23-1998	1447	26.86	T	S
		07-23-1998	1635	26.86	T	T
		07-23-1998	1636	26.86	T	T
		07-23-1998	1905	26.82	T	T
		07-24-1998	0906	26.74	T	T
		07-24-1998	0907	26.74	T	T
		07-27-1998	0902	26.65	T	T
		07-27-1998	0903	26.65	T	T
		07-29-1998	0840	26.62	T	T
		07-29-1998	0841	26.63	T	T
		08-04-1998	0922	26.65	T	T
		08-04-1998	0923	26.64	T	T
LC-20	470630122312901	07-17-1998	1427	27.16	S	T
		07-17-1998	1433	27.17	S	T
		07-22-1998	1116	27.29	S	T
		07-22-1998	1124	27.29	S	T
		07-23-1998	0915	27.35	S	T
		07-23-1998	0920	27.34	S	T
		07-23-1998	1203	27.34	T	S
		07-23-1998	1224	27.33	T	S
		07-23-1998	1353	27.33	T	S
		07-23-1998	1415	27.33	T	S
		07-23-1998	1434	27.33	T	S
		07-23-1998	1605	27.32	T	S
		07-23-1998	1606	27.33	T	S
		07-23-1998	1753	27.32	T	T
		07-24-1998	1012	27.29	T	T
		07-24-1998	1013	27.29	T	T
		07-25-1998	1031	27.30	T	T
		07-25-1998	1032	27.29	T	T
		07-27-1998	1006	27.29	T	T
		07-27-1998	1007	27.31	T	T
		07-29-1998	0956	27.31	T	T
		07-29-1998	0957	27.32	T	T
		08-04-1998	1046	27.49	T	T
		08-04-1998	1047	27.49	T	T
LC-26	470611122310301	01-15-1998	--	4.19	T	S
		02-09-1998	--	3.53	S	S
		02-27-1998	1420	3.76	S	S

Table 4. Water levels measured in 1998 in wells near the Logistics Center and East Gate Disposal Yard, Fort Lewis, Washington—Continued

Army well identification number	USGS Site-ID	Water-level measurement date	Measurement time	Water level, feet below land surface	Water-level status	Water-level method
LC-26D	470612122310301	03-04-1998	1121	3.45	S	S
		03-23-1998	1043	3.52	S	S
		01-15-1998	--	7.10	T	S
		02-09-1998	0940	6.69	S	S
		02-27-1998	1423	6.92	S	S
		03-04-1998	1114	6.65	S	S
		03-23-1998	1044	6.51	S	S
LC-35D	470627122314203	07-17-1998	1312	26.52	S	T
		07-17-1998	1317	26.52	S	T
		07-22-1998	0816	26.84	S	T
		07-22-1998	0821	26.82	S	T
		07-23-1998	0726	26.76	S	T
		07-23-1998	0733	26.77	S	T
		07-23-1998	1111	26.78	T	S
		07-23-1998	1120	26.79	T	S
		07-23-1998	1140	26.79	T	T
		07-23-1998	1148	26.80	T	T
		07-23-1998	1158	26.80	T	T
		07-23-1998	1213	26.80	T	T
		07-23-1998	1300	26.83	T	T
		07-23-1998	1328	26.85	T	T
		07-23-1998	1415	26.81	T	T
		07-23-1998	1554	26.79	T	T
		07-23-1998	1911	26.72	T	T
		07-24-1998	0818	26.71	T	T
		07-24-1998	0819	26.71	T	T
		07-27-1998	1025	26.77	T	T
		07-27-1998	1026	26.81	T	T
		07-29-1998	0829	26.85	T	T
		07-29-1998	0830	26.85	T	T
		08-04-1998	0943	26.97	T	T
		08-04-1998	0944	26.97	T	T
LC-48	470624122313401	07-17-1998	1239	27.62	S	T
		07-17-1998	1244	27.62	S	T
		07-22-1998	0847	27.67	S	T
		07-22-1998	0854	27.67	S	T
		07-23-1998	0827	27.68	S	T
		07-23-1998	0836	27.68	S	T
		07-23-1998	1119	27.67	T	S
		07-23-1998	1134	27.67	T	S

Table 4. Water levels measured in 1998 in wells near the Logistics Center and East Gate Disposal Yard, Fort Lewis, Washington—Continued

Army well identification number	USGS Site-ID	Water-level measurement date	Measurement time	Water level, feet below land surface	Water-level status	Water-level method
LC-48	470624122313401	07-23-1998	1150	27.68	T	S
		07-23-1998	1221	27.69	T	S
		07-23-1998	1224	27.69	T	S
		07-23-1998	1246	27.67	T	S
		07-23-1998	1248	27.67	T	S
		07-23-1998	1316	27.65	T	S
		07-23-1998	1341	27.65	T	S
		07-23-1998	1406	27.63	T	S
		07-23-1998	1421	27.63	T	S
		07-23-1998	1440	27.62	T	S
		07-23-1998	1459	27.60	T	S
		07-23-1998	1605	27.61	T	T
		07-23-1998	1709	27.60	T	T
		07-23-1998	1853	27.60	T	T
		07-24-1998	0919	27.49	T	T
		07-24-1998	0920	27.48	T	T
		07-27-1998	0910	27.29	T	T
		07-27-1998	0911	27.28	T	T
		07-29-1998	0844	27.18	T	T
		07-29-1998	0845	27.19	T	T
		08-04-1998	0930	27.26	T	T
		08-04-1998	0931	27.27	T	T
LC-49	470633122315701	07-20-1998	0920	23.18	S	T
		07-20-1998	0925	23.14	S	T
		07-22-1998	1021	23.14	S	T
		07-22-1998	1025	23.14	S	T
		07-23-1998	0831	23.18	S	T
		07-23-1998	0837	23.18	S	T
		07-23-1998	1345	23.17	T	S
		07-23-1998	1440	23.16	T	S
		07-23-1998	1443	23.16	T	S
		07-23-1998	1650	23.18	T	S
		07-23-1998	1654	23.18	T	S
		07-23-1998	1810	23.14	T	T
		07-23-1998	1811	23.15	T	T
		07-24-1998	1047	23.16	T	T
		07-24-1998	1048	23.17	T	T
		07-25-1998	1010	23.13	T	T
		07-25-1998	1011	23.13	T	T
		07-27-1998	0944	23.09	T	T

Table 4. Water levels measured in 1998 in wells near the Logistics Center and East Gate Disposal Yard, Fort Lewis, Washington—Continued

Army well identification number	USGS Site-ID	Water-level measurement date	Measurement time	Water level, feet below land surface	Water-level status	Water-level method
LC-49	470633122315701	07-27-1998	0945	23.10	T	T
		07-29-1998	0926	23.07	T	T
		07-29-1998	0927	23.10	T	T
		08-04-1998	1024	23.07	T	T
		08-04-1998	1025	23.08	T	T
LC-49A	470633122315702	07-20-1998	0920	23.25	S	T
		07-20-1998	0926	23.28	S	T
		07-22-1998	1019	23.25	S	T
		07-22-1998	1024	23.26	S	T
		07-23-1998	0830	23.27	S	T
		07-23-1998	0835	23.28	S	T
		07-23-1998	1349	23.28	T	S
		07-23-1998	1350	23.29	T	S
		07-23-1998	1351	23.29	T	S
		07-23-1998	1445	23.30	T	S
		07-23-1998	1655	23.26	T	S
		07-23-1998	1657	23.30	T	S
		07-23-1998	1700	23.29	T	S
		07-23-1998	1808	23.28	T	T
		07-24-1998	0949	23.27	T	T
		07-24-1998	0950	23.27	T	T
		07-25-1998	1012	23.25	T	T
		07-25-1998	1013	23.26	T	T
		07-27-1998	0941	23.21	T	T
		07-27-1998	0942	23.20	T	T
		07-29-1998	0924	23.17	T	T
		07-29-1998	0925	23.17	T	T
		08-04-1998	1021	23.18	T	T
		08-04-1998	1022	23.18	T	T
LC-50A	470614122313301	07-20-1998	1112	6.50	S	T
		07-20-1998	1117	6.53	S	T
		07-22-1998	1139	6.53	S	T
		07-22-1998	1150	6.54	S	T
		07-23-1998	0750	6.56	S	T
		07-23-1998	0755	6.59	S	T
		07-23-1998	1339	6.55	T	T
		07-23-1998	1427	6.55	T	T
		07-23-1998	1549	6.55	T	T
		07-23-1998	1700	6.54	T	T
		07-23-1998	1835	6.59	T	T

Table 4. Water levels measured in 1998 in wells near the Logistics Center and East Gate Disposal Yard, Fort Lewis, Washington—Continued

Army well identification number	USGS Site-ID	Water-level measure-ment date	Measure-ment time	Water level, feet below land surface	Water-level status	Water-level method
LC-50A	470614122313301	07-23-1998	1836	6.56	T	T
		07-23-1998	1837	6.60	T	T
		07-23-1998	1838	6.61	T	T
		07-23-1998	1839	6.58	T	T
		07-24-1998	1036	6.54	T	T
		07-24-1998	1037	6.54	T	T
		07-25-1998	1059	6.55	T	T
		07-25-1998	1100	6.55	T	T
		07-27-1998	1044	6.57	T	T
		07-27-1998	1055	6.56	T	T
		07-29-1998	1046	6.59	T	T
		07-29-1998	1047	6.58	T	T
		08-04-1998	1106	6.61	T	T
		08-04-1998	1107	6.60	T	T
LC-50D	470614122313201	07-22-1998	1142	7.64	S	T
		07-22-1998	1145	7.63	S	T
		07-23-1998	0752	7.56	S	T
		07-23-1998	0759	7.52	S	T
		07-23-1998	1342	7.48	T	T
		07-23-1998	1430	7.48	T	T
		07-23-1998	1551	7.47	T	T
		07-23-1998	1703	7.46	T	T
		07-23-1998	1841	7.63	T	T
		07-24-1998	1038	7.65	T	T
		07-25-1998	1055	7.56	T	T
		07-25-1998	1056	7.56	T	T
		07-27-1998	1056	7.62	T	T
		07-27-1998	1057	7.63	T	T
		07-29-1998	1048	7.79	T	T
		07-29-1998	1049	7.80	T	T
LC-51	470610122313501	07-20-1998	1133	6.72	S	T
		07-20-1998	1138	6.73	S	T
		07-22-1998	1150	6.75	S	T
		07-22-1998	1153	6.75	S	T
		07-23-1998	0802	6.81	S	T
		07-23-1998	0807	6.82	S	T
		07-23-1998	1349	6.79	T	T
		07-23-1998	1435	6.79	T	T
		07-23-1998	1557	6.80	T	T
		07-23-1998	1657	6.79	T	T

Table 4. Water levels measured in 1998 in wells near the Logistics Center and East Gate Disposal Yard, Fort Lewis, Washington—Continued

Army well identification number	USGS Site-ID	Water-level measure-ment date	Measure-ment time	Water level, feet below land surface	Water-level status	Water-level method
LC-51	470610122313501	07-23-1998	1846	6.82	T	T
		07-24-1998	1045	6.82	T	T
		07-24-1998	1046	6.82	T	T
		07-25-1998	1105	6.84	T	T
		07-25-1998	1106	6.84	T	T
		07-27-1998	1103	6.90	T	T
		07-27-1998	1104	6.89	T	T
		07-29-1998	1100	6.91	T	T
		07-29-1998	1101	6.91	T	T
		08-04-1998	1114	7.00	T	T
		08-04-1998	1115	7.01	T	T
LC-65A	470636122315301	07-17-1998	1454	23.59	S	T
		07-17-1998	1458	23.59	S	T
		07-22-1998	1004	23.73	S	T
		07-22-1998	1009	23.71	S	T
		07-23-1998	0838	23.78	S	T
		07-23-1998	0848	23.78	S	T
		07-23-1998	1357	23.77	T	S
		07-23-1998	1358	23.76	T	S
		07-23-1998	1450	23.77	T	S
		07-23-1998	1630	23.76	T	S
		07-23-1998	1632	23.76	T	S
		07-23-1998	1806	23.76	T	T
		07-24-1998	0954	23.77	T	T
		07-24-1998	0955	23.78	T	T
		07-25-1998	1016	23.81	T	T
		07-25-1998	1017	23.84	T	T
		07-27-1998	0951	23.85	T	T
		07-27-1998	0952	23.86	T	T
		07-29-1998	0932	23.87	T	T
		07-29-1998	0933	23.86	T	T
		08-04-1998	1029	23.99	T	T
		08-04-1998	1030	23.98	T	T
LC-65B	470635122315301	07-20-1998	0935	26.28	S	T
		07-20-1998	0941	26.24	S	T
		07-22-1998	1006	26.31	S	T
		07-22-1998	1010	26.30	S	T
		07-23-1998	0845	26.38	S	T
		07-23-1998	0850	26.36	S	T
		07-23-1998	1400	26.32	T	S

Table 4. Water levels measured in 1998 in wells near the Logistics Center and East Gate Disposal Yard, Fort Lewis, Washington—Continued

Army well identification number	USGS Site-ID	Water-level measurement date	Measurement time	Water level, feet below land surface	Water-level status	Water-level method
LC-65B	470635122315301	07-23-1998	1451	26.33	T	S
		07-23-1998	1453	26.34	T	S
		07-23-1998	1624	26.32	T	S
		07-23-1998	1625	26.32	T	S
		07-23-1998	1804	26.30	T	T
		07-24-1998	0956	26.30	T	T
		07-24-1998	0957	26.30	T	T
		07-25-1998	1018	26.31	T	T
		07-25-1998	1019	26.32	T	T
		07-27-1998	0952	26.27	T	T
		07-27-1998	0953	26.28	T	T
		07-29-1998	0935	26.29	T	T
		07-29-1998	0936	26.30	T	T
		08-04-1998	1030	26.40	T	T
		08-04-1998	1031	26.39	T	T
LC-103	470629122313302	07-17-1998	1401	27.85	S	T
		07-17-1998	1409	27.84	S	T
		07-22-1998	0930	27.94	S	T
		07-22-1998	0938	27.93	S	T
		07-23-1998	0845	27.99	S	T
		07-23-1998	0849	27.99	S	T
		07-23-1998	1103	28.00	S	S
		07-23-1998	1115	27.99	T	S
		07-23-1998	1126	27.99	T	S
		07-23-1998	1137	27.99	T	S
		07-23-1998	1148	27.99	T	S
		07-23-1998	1212	27.99	T	S
		07-23-1998	1229	27.99	T	S
		07-23-1998	1243	27.98	T	S
		07-23-1998	1257	27.98	T	S
		07-23-1998	1319	27.97	T	S
		07-23-1998	1345	27.97	T	S
		07-23-1998	1410	27.96	T	S
		07-23-1998	1428	27.96	T	S
		07-23-1998	1446	27.96	T	S
		07-23-1998	1655	27.94	T	S
		07-23-1998	1700	27.94	T	S
		07-23-1998	1746	27.91	T	T
		07-23-1998	1747	27.92	T	T
		07-24-1998	1018	27.82	T	T

Table 4. Water levels measured in 1998 in wells near the Logistics Center and East Gate Disposal Yard, Fort Lewis, Washington—Continued

Army well identification number	USGS Site-ID	Water-level measure-ment date	Measure-ment time	Water level, feet below land surface	Water-level status	Water-level method
LC-103	470629122313302	07-24-1998	1019	27.84	T	T
		07-25-1998	1035	27.77	T	T
		07-25-1998	1036	27.76	T	T
		07-27-1998	1011	27.68	T	T
		07-27-1998	1012	27.68	T	T
		07-29-1998	1000	27.66	T	T
		07-29-1998	1001	27.66	T	T
		08-04-1998	1051	27.70	T	T
		08-04-1998	1052	27.71	T	T
LC-104	470628122313401	07-17-1998	1358	27.11	S	T
		07-17-1998	1408	27.12	S	T
		07-22-1998	0928	27.22	S	T
		07-22-1998	0933	27.22	S	T
		07-23-1998	0844	27.25	S	T
		07-23-1998	0848	27.25	S	T
		07-23-1998	1108	27.25	T	S
		07-23-1998	1117	27.26	T	S
		07-23-1998	1128	27.26	T	S
		07-23-1998	1139	27.26	T	S
		07-23-1998	1150	27.25	T	S
		07-23-1998	1213	27.26	T	S
		07-23-1998	1232	27.24	T	S
		07-23-1998	1246	27.22	T	S
		07-23-1998	1258	27.24	T	S
		07-23-1998	1300	27.24	T	S
		07-23-1998	1322	27.24	T	S
		07-23-1998	1348	27.23	T	S
		07-23-1998	1412	27.23	T	S
		07-23-1998	1430	27.22	T	S
		07-23-1998	1448	27.22	T	S
		07-23-1998	1550	27.21	T	S
		07-23-1998	1551	27.21	T	S
		07-23-1998	1749	27.18	T	T
		07-23-1998	1750	27.18	T	T
		07-24-1998	1016	27.08	T	T
		07-24-1998	1017	27.10	T	T
		07-25-1998	1037	27.02	T	T
		07-25-1998	1038	27.03	T	T
		07-27-1998	1013	26.94	T	T
		07-27-1998	1014	26.94	T	T

Table 4. Water levels measured in 1998 in wells near the Logistics Center and East Gate Disposal Yard, Fort Lewis, Washington—Continued

Army well identification number	USGS Site-ID	Water-level measure-ment date	Measure-ment time	Water level, feet below land surface	Water-level status	Water-level method
LC-104	470628122313401	07-29-1998	1001	26.90	T	T
		07-29-1998	1002	26.90	T	T
		08-04-1998	1049	26.95	T	T
		08-04-1998	1050	26.95	T	T
LC-105	470628122313201	07-17-1998	1352	28.36	S	T
		07-17-1998	1404	28.35	S	T
		07-22-1998	0924	28.45	S	T
		07-22-1998	0932	28.47	S	T
		07-23-1998	0846	28.50	S	T
		07-23-1998	0851	28.50	S	T
		07-23-1998	1102	28.51	S	S
		07-23-1998	1111	28.50	T	S
		07-23-1998	1122	28.51	T	S
		07-23-1998	1134	28.51	T	S
		07-23-1998	1145	28.51	T	S
		07-23-1998	1208	28.51	T	S
		07-23-1998	1227	28.49	T	S
		07-23-1998	1240	28.48	T	S
		07-23-1998	1254	28.47	T	S
		07-23-1998	1317	28.46	T	S
		07-23-1998	1343	28.46	T	S
		07-23-1998	1407	28.45	T	S
		07-23-1998	1426	28.45	T	S
		07-23-1998	1443	28.45	T	S
		07-23-1998	1545	28.43	T	S
		07-23-1998	1647	28.43	T	S
		07-23-1998	1745	28.40	T	T
		07-24-1998	1021	28.33	T	T
		07-24-1998	1022	28.33	T	T
		07-25-1998	1039	28.29	T	T
		07-25-1998	1040	28.29	T	T
		07-27-1998	1015	28.22	T	T
		07-27-1998	1016	28.24	T	T
		07-29-1998	1004	28.22	T	T
		07-29-1998	1005	28.23	T	T
		08-04-1998	1052	28.34	T	T
		08-04-1998	1053	28.33	T	T
LC-137A	470619122312401	07-17-1998	1238	25.72	S	S
		07-22-1998	1124	25.79	S	T
		07-22-1998	1129	25.80	S	T

Table 4. Water levels measured in 1998 in wells near the Logistics Center and East Gate Disposal Yard, Fort Lewis, Washington—Continued

Army well identification number	USGS Site-ID	Water-level measurement date	Measurement time	Water level, feet below land surface	Water-level status	Water-level method
LC-137A	470619122312401	07-23-1998	0725	25.83	S	T
		07-23-1998	0732	25.81	S	T
		07-23-1998	1332	25.82	T	T
		07-23-1998	1408	25.81	T	T
		07-23-1998	1540	25.82	T	T
		07-23-1998	1645	25.82	T	T
		07-23-1998	1829	25.81	T	T
		07-24-1998	1026	25.79	T	T
		07-24-1998	1027	25.78	T	T
		07-25-1998	1044	25.80	T	T
		07-25-1998	1045	25.79	T	T
		07-27-1998	1046	25.79	T	T
		07-27-1998	1047	25.80	T	T
		07-29-1998	1035	25.84	T	T
		07-29-1998	1036	25.84	T	T
		08-04-1998	1057	25.95	T	T
		08-04-1998	1058	25.95	T	T
LC-137B	470619122312301	07-17-1998	1247	25.63	S	S
		07-22-1998	1126	25.71	S	T
		07-22-1998	1131	25.70	S	T
		07-23-1998	0730	25.74	S	T
		07-23-1998	0735	25.75	S	T
		07-23-1998	1331	25.75	T	T
		07-23-1998	1410	25.74	T	T
		07-23-1998	1542	25.74	T	T
		07-23-1998	1647	25.73	T	T
		07-23-1998	1830	25.73	T	T
		07-24-1998	1028	25.72	T	T
		07-24-1998	1029	25.72	T	T
		07-25-1998	1046	25.73	T	T
		07-25-1998	1047	25.72	T	T
		07-27-1998	1048	25.73	T	T
		07-27-1998	1049	25.73	T	T
		07-29-1998	1015	25.77	T	T
		07-29-1998	1016	25.77	T	T
		08-04-1998	1059	25.88	T	T
		08-04-1998	1100	25.89	T	T
LC-137C	470619122312302	07-17-1998	1245	26.08	S	S
		07-17-1998	1250	26.07	S	S
		07-22-1998	1127	26.14	S	T

Table 4. Water levels measured in 1998 in wells near the Logistics Center and East Gate Disposal Yard, Fort Lewis, Washington—Continued

Army well identification number	USGS Site-ID	Water-level measure-ment date	Measure-ment time	Water level, feet below land surface	Water-level status	Water-level method
LC-137C	470619122312302	07-22-1998	1132	26.15	S	T
		07-23-1998	0731	26.20	S	T
		07-23-1998	0737	26.19	S	T
		07-23-1998	1328	26.21	T	T
		07-23-1998	1412	26.21	T	T
		07-23-1998	1545	26.21	T	T
		07-23-1998	1650	26.20	T	T
		07-23-1998	1831	26.21	T	T
		07-24-1998	1030	26.20	T	T
		07-24-1998	1031	26.21	T	T
		07-25-1998	1048	26.23	T	T
		07-25-1998	1049	26.23	T	T
		07-27-1998	1050	26.23	T	T
		07-27-1998	1051	26.24	T	T
		07-29-1998	1011	26.28	T	T
		07-29-1998	1012	26.28	T	T
		08-04-1998	1100	26.39	T	T
		08-04-1998	1101	26.39	T	T
LC-140	470625122314401	07-20-1998	1501	27.20	S	T
		07-20-1998	1504	27.22	S	T
		07-22-1998	1051	27.22	S	T
		07-22-1998	1054	27.22	S	T
		07-23-1998	0901	27.24	S	T
		07-23-1998	0906	27.24	S	T
		07-23-1998	1045	27.18	S	S
		07-23-1998	1058	27.19	S	S
		07-23-1998	1124	27.15	T	S
		07-23-1998	1127	27.14	T	S
		07-23-1998	1148	27.17	T	S
		07-23-1998	1149	27.14	T	S
		07-23-1998	1227	27.09	T	S
		07-23-1998	1228	27.08	T	S
		07-23-1998	1246	27.06	T	S
		07-23-1998	1248	27.06	T	S
		07-23-1998	1329	27.04	T	S
		07-23-1998	1331	27.06	T	S
		07-23-1998	1414	27.04	T	S
		07-23-1998	1417	27.03	T	S
		07-23-1998	1455	27.01	T	S
		07-23-1998	1457	27.01	T	S

Table 4. Water levels measured in 1998 in wells near the Logistics Center and East Gate Disposal Yard, Fort Lewis, Washington—Continued

Army well identification number	USGS Site-ID	Water-level measure-ment date	Measure-ment time	Water level, feet below land surface	Water-level status	Water-level method
LC-140	470625122314401	07-23-1998	1633	27.03	T	T
		07-23-1998	1722	27.01	T	T
		07-23-1998	1823	27.01	T	T
		07-24-1998	0934	26.93	T	T
		07-24-1998	0935	26.92	T	T
		07-25-1998	1000	26.85	T	T
		07-25-1998	1001	26.83	T	T
		07-27-1998	0926	26.75	T	T
		07-27-1998	0927	26.77	T	T
		07-29-1998	0907	26.68	T	T
		07-29-1998	0908	26.69	T	T
		08-04-1998	1008	26.67	T	T
		08-04-1998	1009	26.68	T	T
LC-141	470627122314204	07-17-1998	1315	26.58	S	T
		07-17-1998	1318	26.58	S	T
		07-22-1998	0814	26.70	S	T
		07-22-1998	0818	26.71	S	T
		07-23-1998	0805	26.75	S	T
		07-23-1998	0813	26.75	S	T
		07-23-1998	1107	26.58	T	S
		07-23-1998	1109	26.47	T	S
		07-23-1998	1117	25.93	T	S
		07-23-1998	1129	25.87	T	T
		07-23-1998	1134	25.85	T	T
		07-23-1998	1144	25.83	T	T
		07-23-1998	1149	25.83	T	T
		07-23-1998	1154	25.82	T	T
		07-23-1998	1202	25.82	T	T
		07-23-1998	1215	25.76	T	T
		07-23-1998	1245	25.69	T	T
		07-23-1998	1259	25.68	T	T
		07-23-1998	1335	25.69	T	T
		07-23-1998	1350	25.67	T	T
		07-23-1998	1420	25.67	T	T
		07-23-1998	1443	25.65	T	T
		07-23-1998	1557	25.64	T	T
		07-23-1998	1558	25.64	T	T
		07-23-1998	1914	25.55	T	T
		07-24-1998	0815	25.42	T	T
		07-24-1998	0816	25.43	T	T

Table 4. Water levels measured in 1998 in wells near the Logistics Center and East Gate Disposal Yard, Fort Lewis, Washington—Continued

Army well identification number	USGS Site-ID	Water-level measure-ment date	Measure-ment time	Water level, feet below land surface	Water-level status	Water-level method
LC-141	470627122314204	07-27-1998	1027	25.23	T	T
		07-27-1998	1028	25.22	T	T
		07-29-1998	0827	25.19	T	T
		07-29-1998	0828	25.20	T	T
		08-04-1998	0946	25.21	T	T
		08-04-1998	0947	25.22	T	T
LC-142	470628122314001	07-20-1998	1025	25.92	S	T
		07-20-1998	1029	25.89	S	T
		07-22-1998	0957	25.92	S	T
		07-22-1998	0959	25.92	S	T
		07-23-1998	0921	25.96	S	T
		07-23-1998	0925	25.96	S	T
		07-23-1998	1103	25.95	S	S
		07-23-1998	1105	25.95	S	S
		07-23-1998	1107	25.81	T	S
		07-23-1998	1110	25.93	T	S
		07-23-1998	1111	25.92	T	S
		07-23-1998	1114	25.92	T	S
		07-23-1998	1115	25.92	T	S
		07-23-1998	1120	25.90	T	S
		07-23-1998	1123	25.91	T	S
		07-23-1998	1125	26.01	T	S
		07-23-1998	1127	26.01	T	S
		07-23-1998	1131	26.01	T	S
		07-23-1998	1137	25.90	T	S
		07-23-1998	1140	25.91	T	S
		07-23-1998	1145	25.90	T	S
		07-23-1998	1146	25.90	T	S
		07-23-1998	1154	25.90	T	S
		07-23-1998	1200	25.91	T	S
		07-23-1998	1205	25.91	T	S
		07-23-1998	1218	25.90	T	S
		07-23-1998	1223	25.90	T	S
		07-23-1998	1236	25.89	T	S
		07-23-1998	1250	25.88	T	S
		07-23-1998	1313	25.88	T	S
		07-23-1998	1338	25.88	T	S
		07-23-1998	1359	25.87	T	S
		07-23-1998	1421	25.86	T	S
		07-23-1998	1439	25.86	T	S

Table 4. Water levels measured in 1998 in wells near the Logistics Center and East Gate Disposal Yard, Fort Lewis, Washington—Continued

Army well identification number	USGS Site-ID	Water-level measure-ment date	Measure-ment time	Water level, feet below land surface	Water-level status	Water-level method
LC-142	470628122314001	07-24-1998	0855	25.69	T	T
		07-24-1998	0856	25.70	T	T
		07-27-1998	0917	25.50	T	T
		07-27-1998	0918	25.50	T	T
		07-29-1998	0944	25.47	T	T
		07-29-1998	0945	25.48	T	T
		08-04-1998	1034	25.52	T	T
		08-04-1998	1035	25.52	T	T
LC-143	470629122314601	07-17-1998	1303	24.70	S	T
		07-17-1998	1307	24.70	S	T
		07-22-1998	0825	24.83	S	T
		07-22-1998	0831	24.82	S	T
		07-23-1998	0810	24.83	S	T
		07-23-1998	0815	24.83	S	T
		07-23-1998	1110	24.80	T	T
		07-23-1998	1126	24.76	T	T
		07-23-1998	1140	24.73	T	T
		07-23-1998	1151	24.73	T	T
		07-23-1998	1200	24.72	T	T
		07-23-1998	1221	24.73	T	T
		07-23-1998	1238	24.68	T	T
		07-23-1998	1250	24.66	T	T
		07-23-1998	1320	24.67	T	T
		07-23-1998	1345	24.65	T	T
		07-23-1998	1405	24.67	T	T
		07-23-1998	1435	24.68	T	T
		07-23-1998	1545	24.66	T	T
		07-23-1998	1546	24.66	T	T
		07-23-1998	1909	24.58	T	T
		07-24-1998	0833	24.55	T	T
		07-24-1998	0834	24.55	T	T
		07-27-1998	1020	24.37	T	T
		07-27-1998	1021	24.36	T	T
		07-29-1998	0820	24.31	T	T
		07-29-1998	0821	24.32	T	T
		08-04-1998	0936	24.30	T	T
		08-04-1998	0937	24.30	T	T
LC-144A	470622122313501	07-20-1998	1448	27.82	S	T
		07-20-1998	1451	27.83	S	T
		07-22-1998	0851	27.87	S	T

Table 4. Water levels measured in 1998 in wells near the Logistics Center and East Gate Disposal Yard, Fort Lewis, Washington—Continued

Army well identification number	USGS Site-ID	Water-level measure-ment date	Measure-ment time	Water level, feet below land surface	Water-level status	Water-level method
LC-144A	470622122313501	07-22-1998	0857	27.87	S	T
		07-23-1998	0910	27.87	S	T
		07-23-1998	0915	27.87	S	T
		07-23-1998	1116	27.85	T	S
		07-23-1998	1131	27.84	T	S
		07-23-1998	1147	27.84	T	S
		07-23-1998	1234	27.59	T	S
		07-23-1998	1238	27.59	T	S
		07-23-1998	1243	27.59	T	S
		07-23-1998	1255	27.56	T	S
		07-23-1998	1256	27.56	T	S
		07-23-1998	1305	27.50	T	S
		07-23-1998	1338	27.48	T	S
		07-23-1998	1404	27.47	T	S
		07-23-1998	1417	27.47	T	S
		07-23-1998	1435	27.46	T	S
		07-23-1998	1453	27.46	T	S
		07-23-1998	1608	27.45	T	T
		07-23-1998	1712	27.44	T	T
		07-23-1998	1854	27.44	T	T
		07-24-1998	0917	27.37	T	T
		07-24-1998	0918	27.36	T	T
		07-27-1998	0905	27.21	T	T
		07-27-1998	0906	27.22	T	T
		07-29-1998	0848	27.19	T	T
		07-29-1998	0849	27.19	T	T
		08-04-1998	0928	27.23	T	T
		08-04-1998	0929	27.23	T	T
LC-144B	470622122313502	07-17-1998	1242	28.11	S	T
		07-17-1998	1246	28.11	S	T
		07-22-1998	0849	28.19	S	T
		07-22-1998	0856	28.18	S	T
		07-23-1998	0824	28.21	S	T
		07-23-1998	0833	28.21	S	T
		07-23-1998	1114	28.19	T	S
		07-23-1998	1130	28.21	T	S
		07-23-1998	1145	28.19	T	S
		07-23-1998	1210	27.97	T	S
		07-23-1998	1215	27.96	T	S
		07-23-1998	1219	27.94	T	S

Table 4. Water levels measured in 1998 in wells near the Logistics Center and East Gate Disposal Yard, Fort Lewis, Washington—Continued

Army well identification number	USGS Site-ID	Water-level measure-ment date	Measure-ment time	Water level, feet below land surface	Water-level status	Water-level method
LC-144B	470622122313502	07-23-1998	1240	27.92	T	S
		07-23-1998	1258	27.90	T	S
		07-23-1998	1307	27.85	T	S
		07-23-1998	1337	27.84	T	S
		07-23-1998	1402	27.83	T	S
		07-23-1998	1419	27.82	T	S
		07-23-1998	1437	27.82	T	S
		07-23-1998	1455	27.82	T	S
		07-23-1998	1610	27.79	T	T
		07-23-1998	1714	27.78	T	T
		07-23-1998	1855	27.79	T	T
		07-24-1998	0914	27.69	T	T
		07-24-1998	0915	27.71	T	T
		07-27-1998	0907	27.49	T	T
		07-27-1998	0908	27.49	T	T
		07-29-1998	0850	27.51	T	T
		07-29-1998	0851	27.51	T	T
		08-04-1998	0926	27.59	T	T
		08-04-1998	0927	27.58	T	T
LC-145	470611122310701	01-15-1998	--	9.09	T	S
		02-09-1998	0800	8.27	S	S
		02-26-1998	1312	8.52	S	S
		03-04-1998	1108	8.19	S	S
		03-23-1998	1029	8.28	S	S
LC-146	470611122310501	01-15-1998	--	6.30	T	S
		02-09-1998	0805	5.30	S	S
		02-26-1998	1316	5.55	S	S
		03-04-1998	1110	5.25	S	S
		03-23-1998	1032	5.29	S	S
LC-147	470612122310401	01-15-1998	--	6.33	T	S
		02-09-1998	0815	5.26	S	S
		02-26-1998	1320	5.51	S	S
		03-04-1998	1113	5.24	S	S
		03-23-1998	1034	5.25	S	S
LC-148	470613122310501	01-15-1998	--	8.32	T	S
		02-09-1998	0954	7.33	S	S
		02-26-1998	1325	7.62	S	S
		03-04-1998	1117	7.31	S	S
		03-23-1998	1039	7.33	S	S

Table 4. Water levels measured in 1998 in wells near the Logistics Center and East Gate Disposal Yard, Fort Lewis, Washington—Continued

Army well identification number	USGS Site-ID	Water-level measure-ment date	Measure-ment time	Water level, feet below land surface	Water-level status	Water-level method
LC-149A	470603122305201	02-09-1998	1055	32.34	S	S
		02-25-1998	1535	32.49	S	S
		03-26-1998	1007	32.11	S	S
LC-149C	470603122305101	02-09-1998	1050	32.56	S	S
		02-25-1998	1540	32.69	S	S
		03-26-1998	1010	32.34	S	S
LC-149D	470603122305202	02-09-1998	1058	32.09	S	S
		02-25-1998	1545	32.23	S	S
		03-26-1998	1014	31.85	S	S
LC-151	470624122313901	07-17-1998	1333	26.22	S	T
		07-17-1998	1340	26.22	S	T
		07-22-1998	0910	26.30	S	T
		07-22-1998	0918	26.30	S	T
		07-23-1998	0746	26.32	S	T
		07-23-1998	0751	26.32	S	T
		07-23-1998	1032	26.33	S	S
		07-23-1998	1038	26.33	S	S
		07-23-1998	1137	26.28	T	S
		07-23-1998	1139	26.16	T	S
		07-23-1998	1141	26.22	T	S
		07-23-1998	1157	26.28	T	S
		07-23-1998	1158	26.27	T	S
		07-23-1998	1215	25.28	T	S
		07-23-1998	1216	25.29	T	S
		07-23-1998	1223	25.25	T	T
		07-23-1998	1228	25.26	T	T
		07-23-1998	1236	25.24	T	T
		07-23-1998	1246	25.24	T	T
		07-23-1998	1257	25.22	T	T
		07-23-1998	1314	25.23	T	S
		07-23-1998	1316	25.23	T	S
		07-23-1998	1402	25.21	T	S
		07-23-1998	1404	25.20	T	S
		07-23-1998	1445	25.20	T	S
		07-23-1998	1447	25.20	T	S
		07-23-1998	1612	25.17	T	T
		07-23-1998	1613	25.18	T	T
		07-23-1998	1925	25.11	T	T
		07-24-1998	0850	25.03	T	T

Table 4. Water levels measured in 1998 in wells near the Logistics Center and East Gate Disposal Yard, Fort Lewis, Washington—Continued

Army well identification number	USGS Site-ID	Water-level measure-ment date	Measure-ment time	Water level, feet below land surface	Water-level status	Water-level method
LC-151	470624122313901	07-25-1998	0947	24.99	T	T
		07-24-1998	0851	25.03	T	T
		07-25-1998	0948	24.98	T	T
		07-27-1998	0847	24.90	T	T
		07-27-1998	0848	24.90	T	T
		07-29-1998	0859	24.88	T	T
		07-29-1998	0900	24.87	T	T
		08-04-1998	1000	24.90	T	T
		08-04-1998	1001	24.90	T	T
LC-152	470626122314301	07-17-1998	1321	25.62	S	T
		07-17-1998	1325	25.62	S	T
		07-22-1998	0808	25.71	S	T
		07-22-1998	0811	25.71	S	T
		07-23-1998	0807	25.75	S	T
		07-23-1998	0811	25.75	S	T
		07-23-1998	1113	25.62	T	T
		07-23-1998	1122	25.62	T	T
		07-23-1998	1135	25.59	T	T
		07-23-1998	1148	25.59	T	T
		07-23-1998	1158	25.60	T	T
		07-23-1998	1217	25.44	T	T
		07-23-1998	1235	25.43	T	T
		07-23-1998	1247	25.42	T	T
		07-23-1998	1317	25.43	T	T
		07-23-1998	1340	25.41	T	T
		07-23-1998	1402	25.42	T	T
		07-23-1998	1430	25.40	T	T
		07-23-1998	1455	25.36	T	T
		07-23-1998	1601	25.35	T	T
		07-23-1998	1602	25.36	T	T
		07-23-1998	1919	25.28	T	T
		07-24-1998	0823	25.19	T	T
		07-24-1998	0824	25.19	T	T
		07-27-1998	1038	24.97	T	T
		07-27-1998	1039	24.98	T	T
		07-29-1998	0832	24.96	T	T
		07-29-1998	0833	24.97	T	T
		08-04-1998	0948	25.00	T	T
		08-04-1998	0949	25.01	T	T

Table 4. Water levels measured in 1998 in wells near the Logistics Center and East Gate Disposal Yard, Fort Lewis, Washington—Continued

Army well identification number	USGS Site-ID	Water-level measure-ment date	Measure-ment time	Water level, feet below land surface	Water-level status	Water-level method
LC-152	470626122314301	07-22-1998	0914	27.26	S	T
		07-23-1998	0753	27.32	S	T
		07-23-1998	0801	27.32	S	T
		07-23-1998	1040	27.29	S	S
		07-23-1998	1045	27.29	S	S
		07-23-1998	1143	27.25	T	S
		07-23-1998	1145	27.29	T	S
		07-23-1998	1201	27.28	T	S
		07-23-1998	1203	27.29	T	S
		07-23-1998	1218	27.05	T	S
		07-23-1998	1220	27.04	T	S
		07-23-1998	1226	27.01	T	T
		07-23-1998	1232	27.00	T	T
		07-23-1998	1242	26.99	T	T
		07-23-1998	1252	26.98	T	T
		07-23-1998	1303	26.96	T	T
		07-23-1998	1325	26.97	T	S
		07-23-1998	1327	26.95	T	S
		07-23-1998	1408	26.93	T	S
		07-23-1998	1409	26.92	T	S
		07-23-1998	1449	26.90	T	S
		07-23-1998	1452	26.90	T	S
		07-23-1998	1620	26.86	T	T
		07-23-1998	1621	26.86	T	T
		07-23-1998	1927	26.77	T	T
		07-24-1998	0846	26.67	T	T
		07-24-1998	0847	26.67	T	T
		07-25-1998	0956	26.58	T	T
		07-25-1998	0957	26.58	T	T
		07-27-1998	0855	26.46	T	T
		07-27-1998	0856	26.47	T	T
		07-29-1998	0903	26.44	T	T
		07-29-1998	0904	26.44	T	T
		08-04-1998	1004	26.50	T	T
		08-04-1998	1005	26.50	T	T
LC-157	470625122313801	07-17-1998	1330	26.80	S	T
		07-17-1998	1338	26.79	S	T
		07-22-1998	0912	26.87	S	T
		07-22-1998	0920	26.88	S	T
		07-23-1998	0744	26.90	S	T

Table 4. Water levels measured in 1998 in wells near the Logistics Center and East Gate Disposal Yard, Fort Lewis, Washington—Continued

Army well identification number	USGS Site-ID	Water-level measurement date	Measurement time	Water level, feet below land surface	Water-level status	Water-level method
LC-157	470625122313801	07-17-1998	1335	27.17	S	T
		07-17-1998	1341	27.17	S	T
		07-22-1998	0907	27.25	S	T
		07-23-1998	0749	26.90	S	T
		07-23-1998	1116	26.88	T	T
		07-23-1998	1133	26.88	T	T
		07-23-1998	1144	26.86	T	T
		07-23-1998	1155	26.85	T	T
		07-23-1998	1203	26.85	T	T
		07-23-1998	1221	26.52	T	S
		07-23-1998	1222	26.51	T	S
		07-23-1998	1237	26.49	T	S
		07-23-1998	1238	26.51	T	S
		07-23-1998	1309	26.49	T	S
		07-23-1998	1310	26.50	T	S
		07-23-1998	1356	26.46	T	S
		07-23-1998	1357	26.46	T	S
		07-23-1998	1440	26.46	T	S
		07-23-1998	1442	26.45	T	S
		07-23-1998	1607	26.46	T	T
		07-23-1998	1608	26.46	T	T
		07-23-1998	1923	26.38	T	T
		07-23-1998	1924	26.44	T	T
		07-24-1998	0837	26.28	T	T
		07-24-1998	0838	26.28	T	T
		07-25-1998	0941	26.19	T	T
		07-25-1998	0942	26.20	T	T
		07-27-1998	0844	26.10	T	T
		07-27-1998	0845	26.11	T	T
		07-29-1998	0855	26.07	T	T
		07-29-1998	0856	26.08	T	T
		08-04-1998	0957	26.09	T	T
		08-04-1998	0958	26.10	T	T
LC-161	470615122311001	01-15-1998	--	9.14	T	S
		02-09-1998	1021	8.57	S	S
		02-27-1998	1643	8.90	S	S
		03-04-1998	1048	8.56	S	S
		03-23-1998	1104	8.62	S	S

Table 4. Water levels measured in 1998 in wells near the Logistics Center and East Gate Disposal Yard, Fort Lewis, Washington—Continued

Army well identification number	USGS Site-ID	Water-level measurement date	Measurement time	Water level, feet below land surface	Water-level status	Water-level method
LC-162	470616122311301	02-09-1998	1025	5.97	S	S
		02-27-1998	1652	6.29	S	S
		03-04-1998	1044	5.95	S	S
		03-23-1998	1107	6.02	S	S
LR-1	470611122310702	01-15-1998	--	10.32	T	S
		02-09-1998	0914	5.04	S	S
		03-04-1998	1106	4.98	S	S
		03-23-1998	1026	4.94	S	S
LR-2	470612122310402	01-15-1998	--	6.09	T	S
		02-09-1998	1606	4.55	S	S
		03-04-1998	1115	4.34	S	S
		03-23-1998	1038	4.47	S	S
LX-16	470624122313902	07-23-1998	1210	25.35	P	T
		07-23-1998	1212	23.62	R	T
		07-23-1998	1213	23.65	R	T
		07-23-1998	1214	23.65	R	T
		07-23-1998	1215	23.66	R	T
		07-23-1998	1216	23.67	R	T
		07-23-1998	1217	23.67	R	T
		07-23-1998	1218	23.67	R	T
		07-23-1998	1219	23.67	R	T
		07-23-1998	1220	23.67	R	T
		07-23-1998	1222	23.66	R	T
		07-23-1998	1224	23.65	R	T
		07-23-1998	1227	23.64	R	T
		07-23-1998	1230	23.64	R	T
		07-23-1998	1235	23.64	R	T
		07-23-1998	1240	23.63	R	T
		07-23-1998	1245	23.62	R	T
		07-23-1998	1250	23.62	R	T
		07-23-1998	1255	23.62	R	T
		07-23-1998	1300	23.62	R	T
		07-23-1998	1305	23.61	R	T
		07-23-1998	1313	23.67	R	T
		07-23-1998	1338	23.64	R	T
		07-23-1998	1358	23.61	R	T
		07-23-1998	1425	23.61	R	T
		07-23-1998	1452	23.60	R	T
		07-23-1998	1617	23.56	R	T
		07-23-1998	1618	23.57	R	T

Table 4. Water levels measured in 1998 in wells near the Logistics Center and East Gate Disposal Yard, Fort Lewis, Washington—Continued

Army well identification number	USGS Site-ID	Water-level measure-ment date	Measure-ment time	Water level, feet below land surface	Water-level status	Water-level method
LX-16	470624122313902	07-23-1998	1931	23.51	R	T
		07-24-1998	0844	23.44	R	T
		07-24-1998	0845	23.43	R	T
		07-25-1998	0942	23.35	R	T
		07-25-1998	0943	23.35	R	T
		07-27-1998	0845	23.25	R	T
		07-27-1998	0852	23.25	R	T
		07-29-1998	0901	23.24	R	T
		07-29-1998	0902	23.25	R	T
		08-04-1998	1003	23.25	R	T
		08-04-1998	1004	23.25	R	T
RW-01	470627122314202	07-23-1998	1102	30.49	P	T
		07-23-1998	1106	27.56	R	T
		07-23-1998	1108	27.13	R	T
		07-23-1998	1109	27.01	R	T
		07-23-1998	1110	26.72	R	T
		07-23-1998	1111	26.44	R	T
		07-23-1998	1112	25.91	R	T
		07-23-1998	1113	25.74	R	T
		07-23-1998	1114	25.70	R	T
		07-23-1998	1115	25.65	R	T
		07-23-1998	1117	25.61	R	T
		07-23-1998	1119	25.59	R	T
		07-23-1998	1120	25.57	R	T
		07-23-1998	1122	25.55	R	T
		07-23-1998	1125	25.54	R	T
		07-23-1998	1128	25.53	R	T
		07-23-1998	1130	25.52	R	T
		07-23-1998	1136	25.50	R	T
		07-23-1998	1143	25.49	R	T
		07-23-1998	1145	25.48	R	T
		07-23-1998	1150	25.48	R	T
		07-23-1998	1155	25.46	R	T
		07-23-1998	1200	25.46	R	T
		07-23-1998	1209	25.49	R	T
		07-23-1998	1232	25.38	R	T
		07-23-1998	1233	25.37	R	T
		07-23-1998	1245	25.35	R	T
		07-23-1998	1255	25.37	R	T
		07-23-1998	1330	25.34	R	T

Table 4. Water levels measured in 1998 in wells near the Logistics Center and East Gate Disposal Yard, Fort Lewis, Washington—Continued

Army well identification number	USGS Site-ID	Water-level measure-ment date	Measure-ment time	Water level, feet below land surface	Water-level status	Water-level method
RW-01	470627122314202	07-23-1998	1349	25.32	R	T
		07-23-1998	1410	25.31	R	T
		07-23-1998	1445	25.32	R	T
		07-23-1998	1550	25.28	R	T
		07-23-1998	1551	25.29	R	T
		07-23-1998	1915	25.17	R	T
		07-24-1998	0828	25.06	R	T
		07-24-1998	0829	25.07	R	T
		07-27-1998	1034	24.85	R	T
		07-27-1998	1035	24.87	R	T
		07-29-1998	0825	24.85	R	T
		07-29-1998	0826	24.85	R	T
		08-04-1998	0954	24.88	R	T
		08-04-1998	0955	24.88	R	T
WELL9	470612122310501	01-15-1998	--	6.75	T	S
		02-09-1998	0810	5.38	S	S
		03-04-1998	1112	5.32	S	S
		03-23-1998	1033	5.38	S	S
		09-09-1998	0915	7.18	S	T
TRP-1	470612122310704	02-09-1998	1257	--	D	S
TRP-2	470612122310601	02-09-1998	1259	--	D	S
TRP-3	470613122310502	02-09-1998	1304	--	D	S
TRP-4	470613122310503	02-09-1998	1307	--	D	S
A15	470612122310701	02-09-1998	0930	4.61	S	S
		02-26-1998	0809	4.85	S	S
		03-04-1998	0810	4.86	S	S
		03-23-1998	1047	4.65	S	S
A30	470612122310702	02-09-1998	0945	5.34	S	S
		02-26-1998	0812	5.57	S	S
		03-04-1998	1103	5.28	S	S
		03-23-1998	1051	5.37	S	S
A45	470612122310703	02-09-1998	0952	4.76	S	S
		02-26-1998	0816	5.10	S	S
		03-04-1998	1101	4.78	S	S
		03-23-1998	1044	4.85	S	S
B15	470612122310801	02-09-1998	1000	6.46	S	S
		02-26-1998	1004	6.73	S	S
		03-04-1998	1110	6.41	S	S
		03-23-1998	1053	6.49	S	S

Table 4. Water levels measured in 1998 in wells near the Logistics Center and East Gate Disposal Yard, Fort Lewis, Washington—Continued

Army well identification number	USGS Site-ID	Water-level measure-ment date	Measure-ment time	Water level, feet below land surface	Water-level status	Water-level method
C25	470613122310701	02-26-1998	1052	6.23	S	S
		03-04-1998	1011	5.91	S	S
		03-23-1998	1053	5.97	S	S
C40	470613122310802	02-26-1998	1055	6.16	S	S
		03-04-1998	1052	5.84	S	S
		03-13-1998	1056	5.91	S	S

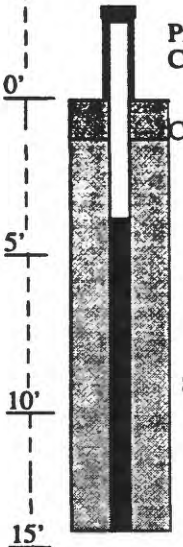
Appendix 1. Resource Protection Well Reports

RESOURCE PROTECTION WELL REPORT

START CARD NO. R26195

PROJECT NAME: USGS/Fort Lewis Project
WELL IDENTIFICATION NUMBER: A15 (ABO-132)
DRILLING METHOD: Hollow Stem Auger 4.25"
DRILLER: Owen Gary Holloway #2402
FIRM: U.S. Geological Survey
SIGNATURE:
CONSULTING FIRM: N/A
REPRESENTATIVE: Sue C. Kahle

COUNTY: Pierce
LOCATION: NE 1/4 SW 1/4 Sec 26 Twn 19N R 02E
STREET ADDRESS OF WELL: Fort Lewis
WATER LEVEL ELEVATION: 272.01 980226
GROUND SURFACE ELEVATION: 276.62'
INSTALLED: February 7, 1998
DEVELOPED: March 1998

AS-BUILT	WELL DATA	FORMATION DESCRIPTION
	Concrete Seal 0'-2 2" SH 40 PCV 0'-4' 8-12 Sand pack 2'-14' 0.010 PVC Screen 4'-14'	0'-2' Topsoil 2'-14' Cobble, Gravel and Sand Depth drilled 15'

SCALE: 0 1 2 3 4 5 FEET

PAGE 1 OF 1

Site ID 470612122310701
Local # A15 (Army ID)

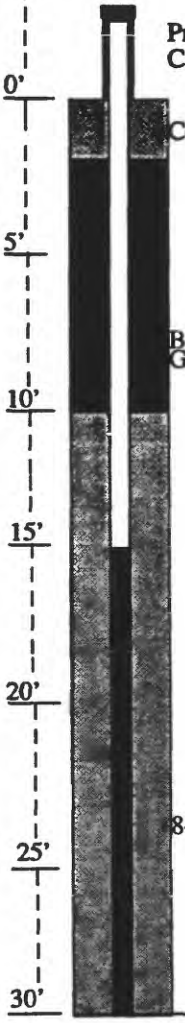
ECY 050-12 (Rev. 11/89)

RESOURCE PROTECTION WELL REPORT

START CARD NO. R26195

PROJECT NAME: USGS/Fort Lewis Project
WELL IDENTIFICATION NUMBER: A30 (ABO-130)
DRILLING METHOD: Hollow Stem Auger 4.25"
DRILLER: Owen Gary Holloway #2402
FIRM: U.S. Geological Survey
SIGNATURE:
CONSULTING FIRM: N/A
REPRESENTATIVE: Sue C. Kahle

COUNTY: Pierce
LOCATION: NE 1/4 SW 1/4 Sec 26 Twn 19N R 02E
STREET ADDRESS OF WELL: Fort Lewis
WATER LEVEL ELEVATION: 271.48 980226
GROUND SURFACE ELEVATION: 277.05'
INSTALLED: February 6, 1998
DEVELOPED: March 1998

AS-BUILT	WELL DATA	FORMATION DESCRIPTION
	Concrete Seal 0'-2	0'-2' Topsoil
	2" SH 40 PCV 0'-15'	2'-15' Cobble, Gravel and Sand
	Bentonite Grout 2'-10'	
	8-12 Sand pack 10'-30'	15'-30' Cobble, Gravel and Sand
	0.010 PVC Screen 15'-30'	
		Depth drilled 30'

SCALE: 0 1 2 3 4 5 FEET

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Site ID 470612122310702
Local # A30 (Army ID)

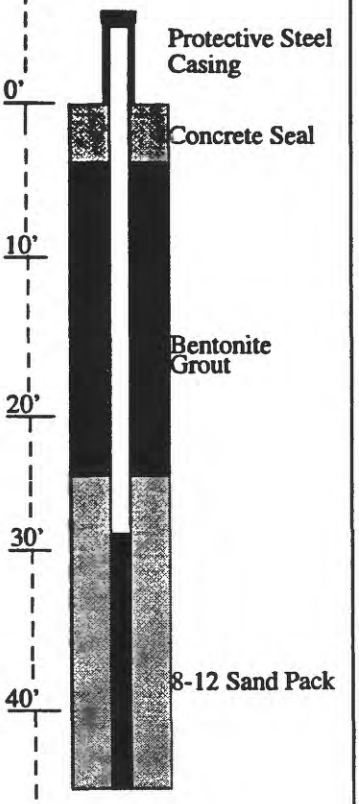
ECY 050-12 (Rev. 11/89)

RESOURCE PROTECTION WELL REPORT

START CARD NO. R26195

PROJECT NAME: USGS/Fort Lewis Project
WELL IDENTIFICATION NUMBER: A45 (ABO-131)
DRILLING METHOD: Hollow Stem Auger 4.25"
DRILLER: Owen Gary Holloway #2402
FIRM: U.S. Geological Survey
SIGNATURE:
CONSULTING FIRM: N/A
REPRESENTATIVE: Sue C. Kahle

COUNTY: Pierce
LOCATION: NE 1/4 SW 1/4 Sec 26 Twn 19N R 02E
STREET ADDRESS OF WELL: Fort Lewis
WATER LEVEL ELEVATION: 271.53 980226
GROUND SURFACE ELEVATION: 276.63'
INSTALLED: February 6, 1998
DEVELOPED: March 1998

AS-BUILT	WELL DATA	FORMATION DESCRIPTION
	Concrete Seal 0'-2	0'-2' Topsoil
	2" SH 40 PCV 0'-29'	2'-15' Cobble, Gravel and Sand
	Bentonite Grout 2'-24'	15'-45' Cobble, Gravel and Sand
	0.010 PVC Screen 29-44'	
	8-12 Sand pack 24'-44'	Depth drilled 45'

SCALE: 0 2 4 6 8 10 FEET

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Site ID 470612122310703
Local # A45 (Army ID)

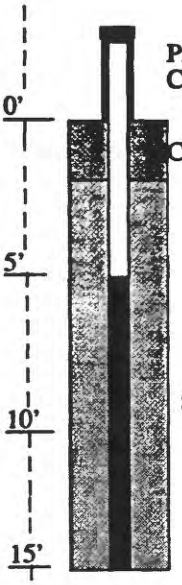
ECY 050-12 (Rev. 11/89)

RESOURCE PROTECTION WELL REPORT

START CARD NO. R26195

PROJECT NAME: USGS/Fort Lewis Project
WELL IDENTIFICATION NUMBER: B15 (ABO-129)
DRILLING METHOD: Hollow Stem Auger 4.25"
DRILLER: Owen Gary Holloway #2402
FIRM: U.S. Geological Survey
SIGNATURE:
CONSULTING FIRM: N/A
REPRESENTATIVE: Sue C. Kahle

COUNTY: Pierce
LOCATION: NE 1/4 SW 1/4 Sec 26 Twn 19N R 02E
STREET ADDRESS OF WELL: Fort Lewis
WATER LEVEL ELEVATION: 271.46 980226
GROUND SURFACE ELEVATION: 278.19'
INSTALLED: February 8, 1998
DEVELOPED: March 1998

AS-BUILT	WELL DATA	FORMATION DESCRIPTION
	Concrete Seal 0'-2 2" SH 40 PCV 0'-5' 8-12 Sand pack 2'-15' 0.010 PVC Screen 5'-15'	0'-2' Topsoil 2'-15' Cobble, Gravel and Sand Depth drilled 15'

SCALE: 0 1 2 3 4 5 FEET

ECY 050-12 (Rev. 11/89)

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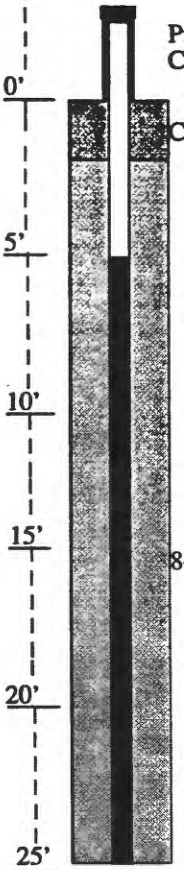
Site ID 470612122310801
Local # B15 (Army ID)

RESOURCE PROTECTION WELL REPORT

START CARD NO. R26195

PROJECT NAME: USGS/Fort Lewis Project
WELL IDENTIFICATION NUMBER: C25 (ABO-127)
DRILLING METHOD: Hollow Stem Auger 4.25"
DRILLER: Owen Gary Holloway #2402
FIRM: U.S. Geological Survey
SIGNATURE:
CONSULTING FIRM: N/A
REPRESENTATIVE: Sue C. Kahle

COUNTY: Pierce
LOCATION: NE 1/4 SW 1/4 Sec 26 Twn 19N R 02E
STREET ADDRESS OF WELL: Fort Lewis
WATER LEVEL ELEVATION: 271.44 980226
GROUND SURFACE ELEVATION: 277.67'
INSTALLED: February 9, 1998
DEVELOPED: March 1998

AS-BUILT	WELL DATA	FORMATION DESCRIPTION
	Concrete Seal 0'-2	
	2" SH 40 PCV 0'-5'	0'-2' Topsoil
		2'-15' Cobble, Gravel and Sand
	8-12 Sand pack 2'-25'	
	0.010 PVC Screen 5'-25'	15'-25' Cobble, Gravel and Sand
		Depth drilled 25'

SCALE: 0 1 2 3 4 5 FEET

PAGE 1 OF 1

Site ID 470613122310701
Local # C25 (Army ID)

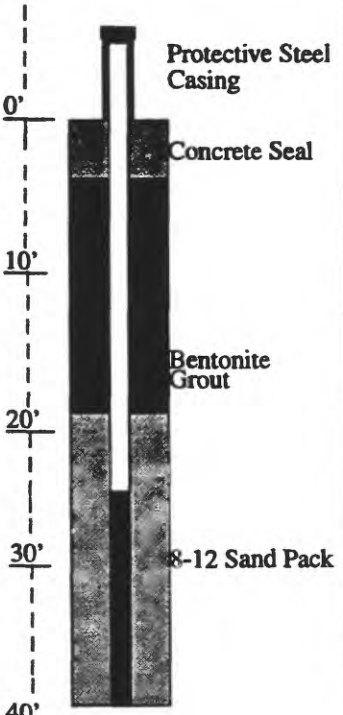
ECY 050-12 (Rev. 11/89)

RESOURCE PROTECTION WELL REPORT

START CARD NO. R26195

PROJECT NAME: USGS/Fort Lewis Project
WELL IDENTIFICATION NUMBER: C40 (ABO-128)
DRILLING METHOD: Hollow Stem Auger 4.25"
DRILLER: Owen Gary Holloway #2402
FIRM: U.S. Geological Survey
SIGNATURE:
CONSULTING FIRM: N/A
REPRESENTATIVE: Sue C. Kahle

COUNTY: Pierce
LOCATION: NE 1/4 SW 1/4 Sec 26 Twn 19N R 02E
STREET ADDRESS OF WELL: Fort Lewis
WATER LEVEL ELEVATION: 271.37 980226
GROUND SURFACE ELEVATION: 269.53'
INSTALLED: February 09, 1998
DEVELOPED: March 1998

AS-BUILT	WELL DATA	FORMATION DESCRIPTION
	Concrete Seal 0'-2	0'-2' Topsoil
	2" SH 40 PCV 0'-24'	2'-15' Cobble, Gravel and Sand
	Bentonite Grout 2'-19'	
	8-12 Sand pack 19'-39'	15'-39' Cobble, Gravel and Sand
	0.010 PVC Screen 24'-39'	
		Depth drilled 40'

SCALE: 0 2 4 6 8 10 FEET

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Site ID 470613122310802
Local # C40 (Army ID)

ECY 050-12 (Rev. 11/89)

RESOURCE PROTECTION WELL REPORT

START CARD NO. R 10001

PROJECT NAME: Fort Lewis Ground Water
WELL IDENTIFICATION NUMBER: FL-01 (ABO 122)
DRILLING METHOD: 8" O-dex
DRILLER: Western Region Drill Crew
FIRM: U.S. Geological Survey
SIGNATURE:
CONSULTING FIRM: n/a
REPRESENTATIVE: n/a

COUNTY: Pierce
LOCATION: SE 1/4 NW 1/4 Sec 44 Twn 19N R 02E
STREET ADDRESS OF WELL: SE corner of vacent lot at Coolidge Dr. & East Lincoln Road, Fort Lewis WA.
WATER LEVEL ELEVATION: 16' blw lsd
GROUND SURFACE ELEVATION:
INSTALLED: 03-20-98
DEVELOPED: yes

AS-BUILT	WELL DATA	FORMATION DESCRIPTION
Surface Protection: Concrete Pad, 3'x3'x0.5' 3 Steel Pipes, 7'x3.5" +4.2'-2.8'	+2.5' - 2.8' Casing, steel, 8" +2.0' - 31' Casing, PVC, 4"	Hole 0 - 38'
0 +0.5' - 2.5'Concrete 2.5' - 10' Bentonite chips, hydrated		0' - 3' Topsoil, brown, 3' - 14' Sand, Gravel, & Cobble, brown
10 10' - 14' Native, Cave-in		
14' - 15' Bentonite pellets 15' - 16' Sand, 20/40 16' - 21' Native, Cave-in		14' - - Gravel, Cobbles, & Boulders, gray, WB @ 16'
20 21'-36' 10/20 Sand		
30	31 ' -36' Screen, 4"x0.020", PVC	
36 - 38' Native, cave-in	36'Bottom of Well	36' End of Drilling 36' - 38' Core
40		

SCALE: 0 2 4 6 8 10 FEET

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Site ID 470605122315501
Local # FL-01 (Army ID)

ECY 050-12 (Rev. 11/89)

RESOURCE PROTECTION WELL REPORT

START CARD NO. R 10001

PROJECT NAME: Fort Lewis Ground Water
WELL IDENTIFICATION NUMBER: FL-02 (ABO 123)
DRILLING METHOD: 8" O-dex
DRILLER: Western Region Drill Crew
FIRM: U.S. Geological Survey
SIGNATURE:
CONSULTING FIRM: n/a
REPRESENTATIVE: n/a

COUNTY: Pierce
LOCATION: SE 1/4 NE 1/4 Sec 44 Twn 19N R 02E
STREET ADDRESS OF WELL: From Rainier Drive & East Lincoln Drive, 0.4 mi SW, 0.15 mi S on dirt road
WATER LEVEL ELEVATION: 9' blw lsd
GROUND SURFACE ELEVATION:
INSTALLED: 03-24-98
DEVELOPED: yes

AS-BUILT	WELL DATA	FORMATION DESCRIPTION
Surface Protection: Concrete Pad, 3'x3'x0.5' 3 Steep Pipes, 7' x 3.5" +4.3'-2.7'	+2.0'- 3.3' Casing, 8" Steel	Hole 0 - 48
0 +0.5'- 1.7' Concrete 1.7'- 12.5' Bentonite chips, hydrated	+1.7'- 35' Casing, 4" PVC	0'- 1' Topsoil, grayiish brown 1'- 7' Gravel, brown, silty, clayey 7'-14' Gravel, gray, WB @ 9'
10 12.5' - 14' Native, Cave-in 14' - 16' Bentonite pellets 16' - 27' Native, Cave-in		14'- 27' Gravel, Cobbles, Boulders, & Sand, grayish brown, WB
20		
27 '- 32' Sand, 20/40		27'- 41' Gravel, Cobbles, Boulders, & Sand, greenish-gray, WB
30 32' - 41' Sand, 10/20		
	35'-40' Screen, 4"x0.020 PVC	
40 41 ' -48' Native, Cave-in'	40'-45' Casing, 4" PVC 45' Bottom of Well	41' - --- Gravel, grayish brown, some Sand & Silt, WB 46' End of Drilling 46' - 48' Core
50		

SCALE: 0 2 4 6 8 10 FEET

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Site ID 470606122313201
Local # FL-02 (Army ID)

ECY 050-12 (Rev. 11/89)

RESOURCE PROTECTION WELL REPORT

START CARD NO. R 10001

PROJECT NAME: Fort Lewis Ground Water
WELL IDENTIFICATION NUMBER: FL-03 (ABO 124)
DRILLING METHOD: 8" O-dex
DRILLER: Western Region Drill Crew
FIRM: U.S. Geological Survey
SIGNATURE:
CONSULTING FIRM: n/a
REPRESENTATIVE: n/a

COUNTY: Pierce
LOCATION: NE 1/4 NW 1/4 Sec 45 Twn 19N R 02E
STREET ADDRESS OF WELL: Blaine Ave & Jackson Ave near Murray Creek, Fort Lewis, WA
WATER LEVEL ELEVATION: 12' blw lsd
GROUND SURFACE ELEVATION:
INSTALLED: 03-25-98
DEVELOPED: yes

AS-BUILT	WELL DATA	FORMATION DESCRIPTION
Surface Protection: Concrete Pad, 3'x3'x0.5' 3 Steel Pipes, 7'x 3.5" +4.0'-3' 0 +0.5 '- 1.5' Concrete 1.5' - 12' Bentonite chips hydrated	+1.9' - 3.4' Casing, 8" Steel +1.3' - 37.5' Casing, 4" PVC	Hole 0 - 48 0' - 2' Topsoil, dark brown, 2' - 7' Gravel & Sand, brown 7' - 12' Gravel & Sand greenish-gray, hard
10 12'-30' Native, cave-in		12' - 15' Gravel, gray, WB @ 12' 15' -- Sand, Gravel , & Cobbles gray, WB
20		
30 30'-35' Sand, 20/40 35'-47.5' Sand, 10/20		
	37.5'-42.5'Screen 4"x0.020"PVC	
40	42.5'-47.5' 4" PVC casing	
47.5'-48' Native, cave-in	47.5' Bottom of Well	46' End of Drilling 46' - 48' Core
50		

SCALE: 0 2 4 6 8 10 FEET

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Site ID 470657122331301
Local # FL-03 (Army ID)

ECY 050-12 (Rev. 11/89)

RESOURCE PROTECTION WELL REPORT

START CARD NO. R 10001

PROJECT NAME: Fort Lewis Ground Water
WELL IDENTIFICATION NUMBER: FL-04A (ABO 121)
DRILLING METHOD: 8" O-dex
DRILLER: Western Region Drill Crew
FIRM: U.S. Geological Survey
SIGNATURE:
CONSULTING FIRM: n/a
REPRESENTATIVE: n/a

COUNTY: Pierce
LOCATION: SE 1/4 SE 1/4 Sec 46 Twn 19N R 02E
STREET ADDRESS OF WELL: McKinley Ave & East Johnson St, NE corner of parking lot.
WATER LEVEL ELEVATION: 10' blw lsd
GROUND SURFACE ELEVATION:
INSTALLED: 04-04-98
DEVELOPED: yes

AS-BUILT	WELL DATA	FORMATION DESCRIPTION
Surface Protection: Concrete Pad, 8'x5'x1' 3 Steel Pipes, 7'x3.5" +4.9' - 2.1'	+1.6'- 23.7' Casing, 8" Steel +0.7 - 18.3' Casing, 10" PVC +1.5' -123' Casing, 4" PVC	Hole 0 - 138
0 +1' - 37' Concrete (outside 10" PVC)	Between 10"&8" cement +1.3'- 2.0'.	0' - 2' Topsoil, dark brown 2' - 12' Sand & Gravel, brown WB @ 10'
	Between 8" and 4" cement +1.3' to +1.0 Bentonite Chips +1 - 2.0	12' -32' Gravel greenish-gray, WB (16'-18' Core 1)
25		32' - 48 Gravel greenish-gray, WB (36'-38' Core 2)
37' - 39' Bentonite chips 39' - 59' Native, Cave-in	Inside 10" PVC = Bentonite Chips 2.0'- 16.3' Cement 16.3' - 18.3'	
50		48'- 95' Sand, some Gravel, brown, WB (56'-58' Core 3)
59' - 60' Bentonite Chips 60' - 79' Native, Cave-in		
75		
79' - 80' Bentonite Chips 80' -100' Native, Cave-in		
		95'-100' Sand & some Gravel, gray, WB
100 100'-117' Bentonite Chips		100'-125' Sand & some pebbles, brown WB
117'-119' Sand, 20/40 119'-134' Sand, 10/20		
125	123'-133' Screen, 4"x0.020" PVC	125'-137' Sand, Gravel & Cobbles gray, WB
134'-138' Native, Cave-in	133'-138' Casing, 4" PVC 138' Bottom of Well	136' End of Drilling, (136'-138' Core 4) 137'--Kitsap Formation, clay, silt, and fine sand, light brown
150		

SCALE: 0 5 10 15 20 25 FEET

PAGE 1 OF 1

Site ID 470612122320901
Local # FL-04A (Army ID)

ECY 050-12 (Rev. 11/89)

RESOURCE PROTECTION WELL REPORT

START CARD NO. R 10001

PROJECT NAME: Fort Lewis Ground Water
WELL IDENTIFICATION NUMBER: FL-04B (ABO 120)
DRILLING METHOD: 8" O-dex
DRILLER: Western Region Drill Crew
FIRM: U.S. Geological Survey
SIGNATURE:
CONSULTING FIRM: n/a
REPRESENTATIVE: n/a

COUNTY: Pierce
LOCATION: SE 1/4 SE 1/4 Sec 46 Twn 19N R 02E
STREET ADDRESS OF WELL: Mckinley Ave & East Johnson ST, NE corner of Parking lot,
WATER LEVEL ELEVATION: 11' blw lsd
GROUND SURFACE ELEVATION:
INSTALLED: 04-05-98
DEVELOPED: yes

AS-BUILT	WELL DATA	FORMATION DESCRIPTION
Surface Protection: Concrete Pad, 3'x3'x0.5' 3 Steel Pipes, 7'x3.5" +3.6'-3.4'	+2.2' -3.1' Casing, 8" Steel	Hole 0 - 38'
0 +0.5' - 3' Concrete 3' - 19.5 Bentonite chips, hydrated	+1.8'- 27' Casing, 4" PVC	0' 4' Topsoil & Sand, dark brwn
		4' - 8' Gravel & Sand,, Some Cobbles olive-brown 8' - 15' Sand & Gravel, light brown
10		WB @ 11'
		15' - Gravel, gray, WB
20 19.5' - 24' Native, cave-in 24'- 37' Sand, 10/20		
	27'-32' Screen, 4"x0.020" PVC	
30	32'-37' Casing, 4" PVC	
	37' Bottom of Well	38' End of Drilling No Cores
40		

SCALE: 0 2 4 6 8 10 FEET

ECY 050-12 (Rev. 11/89)

PAGE 1 OF 1

Site ID 470612122321001
Local # FL-04B (Army ID)

RESOURCE PROTECTION WELL REPORT

START CARD NO. R 10001

PROJECT NAME: Fort Lewis Ground Water
WELL IDENTIFICATION NUMBER: FL-05 (ABO 125)
DRILLING METHOD: 8" O-dex
DRILLER: Western Region Drill Crew
FIRM: U.S. Geological Survey
SIGNATURE:
CONSULTING FIRM: n/a
REPRESENTATIVE: n/a

COUNTY: Pierce
LOCATION: SE 1/4 NE 1/4 Sec 45 Twn 19N R 02E
STREET ADDRESS OF WELL: South F St & Murray Creek, Fort Lewis, Wa
WATER LEVEL ELEVATION: 33' blw lsd
GROUND SURFACE ELEVATION:
INSTALLED: 04 - 06 - 98
DEVELOPED: yes

AS-BUILT	WELL DATA	FORMATION DESCRIPTION
+0.5 '- 3.0' Concrete	+2.2' - 3.1' Casing, 8" Steel	Hole 0 - 68
3.0' - 10' Bentonite chips & pellets, hydrated	+1.8' - 57' Casing, 4" PVC	0' - 2' Topsoil, brown
		2' - 8' Gravel & Sand, gray-brown
	Surface Protection:	
10 10' - 16' Native, cave-in	Concrete Pad, 3'x3'x0.5'	8' - 10' Gravel, gray 10
	3 Steel Pipes, 7'x3.5", +4.9'-2.1'	10' - 12' Gravel, grayish bown,
		12' - 15 Sand, brown
16' - 36' Bentonite chips hydrated		15' - 18 Gravel, gray
		18' - 22' Sand & Gravel, olive-brown, moist
20		22' - 33' Gravel, gray 20
30		30
		33' - 43' Gravel, gray-brown, WB
36' - 46' Native, cave-in		
40		40
		43' - 53' Gravel, olive brown, WB
46' - 54' Sand, 20/40		
50		50
54' - 67' Sand, 10/20		53' - Sand, gray, WB
	57'-62' Screen, 4"x0.020" PVC	
60	62' - 67' Casing, 4"x0.020" PVC	60
	67' Bottom of Well	66' End of Drilling
67' - 68' Native, cave-in		66'-68' Core
70		70

SCALE: 0 2 4 6 8 10 FEET

PAGE 1 OF 1

Site ID 470550122324601
Local # FL-05 (Army ID)

ECY 050-12 (Rev. 11/89)

RESOURCE PROTECTION WELL REPORT

START CARD NO. R 10001

PROJECT NAME: Fort Lewis Ground Water
WELL IDENTIFICATION NUMBER: FL-06 (ABO 126)
DRILLING METHOD: 8" O-dex
DRILLER: Western Region Drill Crew
FIRM: U.S. Geological Survey
SIGNATURE:
CONSULTING FIRM: n/a
REPRESENTATIVE: n/a

COUNTY: Pierce
LOCATION: NW 1/4 NE 1/4 Sec 45 Twn 19N R 02E
STREET ADDRESS OF WELL: Jackson Ave & Murray Creek, near Shoppette
WATER LEVEL ELEVATION: 10' blw lsd
GROUND SURFACE ELEVATION:
INSTALLED: 04 - 08 - 98
DEVELOPED: yes

AS-BUILT	WELL DATA	FORMATION DESCRIPTION
Surface Protection: Concrete Pad, 3'x3'x0.5' 3 Steel Pipes, 7'x3.5", +4' - 3.5'	+2.2'-3.1' Casing, 8" steel +1.9'-47' Casing, 4" PVC	Hole 0 - 58
0 0' - 2.0' Concrete 2.0' - 19' Bentonite, chips hydrated		0'- 1' Sand, dark gray, 1'- 9' Sand, yellow-browm, moist
		9' -12' Sand, gray, clayey, WB @ 10
10		12'- 15' Gravel, some sand, silty & clay, gray WB 15' - -- Sand & Gravel, olive-brown, some silt & clay, WB
19' 32' Native, cave-in		
20		
30		
32'-37' Bentonite pellets hydrated 37'-41' Native, cave-in		
40 41'- 57' Sand, 10/20		
	47'-57' Screen, 4"x0.020" PVC	
50		
57'-58' Native, Cave-in	57' Bottom of Well	56' End of Drilling 56' - 58' Core
60		

SCALE: 0 2 4 6 8 10 FEET

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Site ID 470656122325801
Local # FL-06 (Army ID)

ECY 050-12 (Rev. 11/89)