



WESTON Ref. No.

Corporate Environmental Programs
General Electric Company
100 Woodlawn Avenue, Pittsfield, MA

01-0327

January 14, 2000

SDMS 158090

Mr. Dean Tagliaferro
Office of Site Remediation and Restoration
U.S. Environmental Protection Agency
One Congress Street, Suite 250
Boston, MA 02203-2211

Subject: **DNAPL Recovery Data and Evaluation at Newell Street Area II -
Plant Site 1 Groundwater Management Area**

Dear Mr. Tagliaferro:

As you know, General Electric (GE) currently operates two automated dense non-aqueous phase liquid (DNAPL) recovery systems at Newell Street Area II, ("NS Area II") (Figure 1). This summary report, which was requested by EPA in a letter dated March 17, 1999, evaluates the operation of those automated recovery systems, summarizes DNAPL thickness in monitoring wells at NS Area II and makes a proposal for future activities.

Background

On March 1, 1999, an initial automated system to recover DNAPL at wells NS-15, NS-30 and NS-32 became operational. In a letter dated March 10, 1999, GE proposed installation of an additional DNAPL recovery system in well N2SC-01I and received authorization from EPA (letter dated March 17, 1999) to install the system. The system at N2SC-01I began operation on July 15, 1999. In the March 17, 1999 approval letter, EPA requested that a summary report be submitted within six months of the initiation of operation of the recovery system at N2SC-01I. This report satisfies that requirement and provides information on both automated recovery systems operating at NS Area II. As requested by EPA, this report also assesses whether the automated recovery systems should be extended to wells N2SC-02, N2SC-03S, and N2SC-03I. Since DNAPL monitoring and recovery at NS Area II was previously summarized through May 1999 in a prior report (Source Control Investigation Addendum Report Upper Reach Housatonic River, HSI GeoTrans, June 1999), this report covers the time period of June through December 1999.

Description of System During the Evaluation Period

Automated DNAPL recovery systems are currently operating in wells NS-15, NS-30, NS-32 and N2SC-01I. The locations of the DNAPL recovery wells are shown on Figure 2. DNAPL

is recovered from these wells via automated pneumatic recovery pumps. The DNAPL from wells NS-15, NS-30 and NS-32 is pumped into a 55-gallon drum which is contained in a small enclosure located near well NS-15. The DNAPL from N2SC-1I is piped to four 1,000-gallon steel tanks contained in a portable trailer enclosure which is located just to the east of the well. Recovered DNAPL is removed from both collection systems at a frequency of 30 days or less, and is transported for off-site disposal.

Groundwater and NAPL Monitoring

In addition to operating the two recovery systems, depth to water and NAPL thickness are monitored weekly in select wells in NS Area II. These data are shown on Table 1. During this evaluation period, LNAPL was measured in well NS-10, while DNAPL was measured in wells MW-1S, MW-1D, N2SC-02, N2SC-03I, N2SC-03S, N2SC-08, N2SC-09I, and, N2SC-09S. Locations of wells with LNAPL and DNAPL are shown on Figure 2 along with the structural contours for the till confining layer.

DNAPL Recovery Analysis

As mentioned above, two automated DNAPL recovery systems are currently in operation at NS Area II. System 1, which began operation on March 1, 1999, recovers DNAPL from NS-15, NS-30, and NS-32. System 2, which began operation on July 15, 1999, recovers DNAPL from N2SC-01I. Monthly DNAPL recovery amounts from each system are shown on Table 2. During the six-month evaluation period, monthly recovery from System 1 was relatively consistent, ranging from 56 gallons in June 1999 to 90 gallons in November 1999, with a total recovery of 469.7 gallons. Monthly DNAPL recovery for System 1 is shown on Figure 3. Monthly recovery from System 2 was more variable, ranging from 1,004 gallons in October 1999 to 3,291 gallons in September 1999, with a total recovery of 10,915 gallons between July and December 1999. Monthly DNAPL recovery for System 2 is shown on Figure 4. It should also be noted that DNAPL was manually removed from N2SC-01I on a daily basis prior to startup of the automated recovery system. Between June 1, 1999 and July 14, 1999, approximately 325 gallons of DNAPL were manually pumped from the well.

In addition to the DNAPL recovery efforts mentioned above, manual recovery of DNAPL from monitoring wells at NS Area II has been conducted on a weekly basis if the DNAPL thickness exceeds 0.5 feet in a given well. Manual recovery of DNAPL during the evaluation period was conducted at wells MW-1S, N2SC-02, N2SC-03I, and N2SC-08. DNAPL thickness measurements and manual recovery amounts from these wells are shown on Tables 1 and 3, and are graphed on Figures 5 through 8. Total manual recovery for the six-month evaluation period in wells MW-1S, N2SC-02, N2SC-03I and N2SC-08 was 0.23 gallons, 41 gallons, 33 gallons, and 3.5 gallons, respectively. The DNAPL recovery rate in MW-1S and N2SC-08 generally declined over this evaluation period. DNAPL thickness appeared to consistently decrease in N2SC-08 until September 13, 1999 after which, the DNAPL thickness and those in N2SC-08 appears to fluctuate, showing no overall decrease or increase. DNAPL recovery in N2SC-02 and

N2SC-03I has generally remained consistent over the evaluation period and DNAPL thickness does not appear to be significantly decreasing in either well.

Proposal

In its letter dated March 17, 1999, EPA requested a summary and evaluation of the DNAPL monitoring and recovery efforts at NS Area II, including an assessment of whether automated recovery efforts should be extended to wells N2SC-02, N2SC-03S, and N2SC-03I. Overall, the operation of the two automated collection systems is effectively removing DNAPL from this area. System 2 collected significantly more DNAPL than System 1, with a monthly removal average of 1,819 gallons compared to 67 gallons. During the June 1999 through December 1999 evaluation period, DNAPL thickness in monitoring well N2SC-3S did not exceed 0.5 feet and manual removal of DNAPL was not initiated. As such, an automated pumping system for this well is not necessary. DNAPL thickness and recovery data from wells N2SC-02 and N2SC-03I show that, overall, DNAPL has not significantly decreased in either of these wells since the initiation of pumping in N2SC-01I. Therefore, installation of automated recovery systems in wells N2SC-02 and N2SC-03I may be warranted and should be further assessed. Accordingly, GE proposes to conduct additional DNAPL pumping over a 3-day period in each well to assist in the engineering evaluation of potential recovery equipment for these wells. Further, GE will discuss potential recovery options at these wells and potential access concerns with Western Massachusetts Electric Company, since it is the owner of the property. It is anticipated that the results of well pumping and a proposal for future activities can be submitted to EPA within 30 days of approval of this proposal.

If you have any questions on this matter, feel free to contact me at (413) 494-3952.

Sincerely,

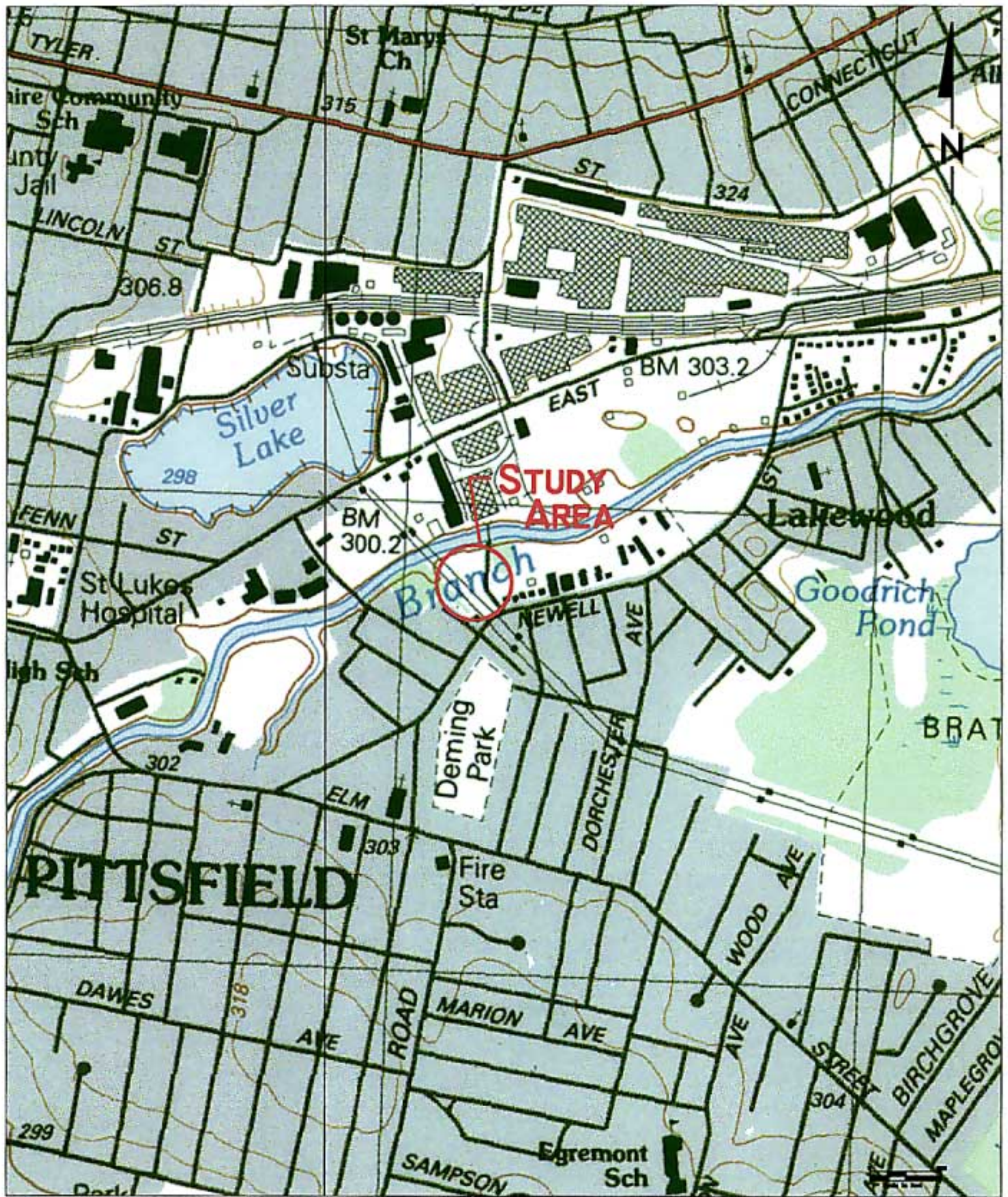


John D. Ciampa
Remediation Project Manager

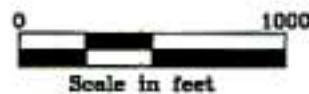
*With Attachments

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QUADRANGLE LOCATION



Contour Interval 3 Meters

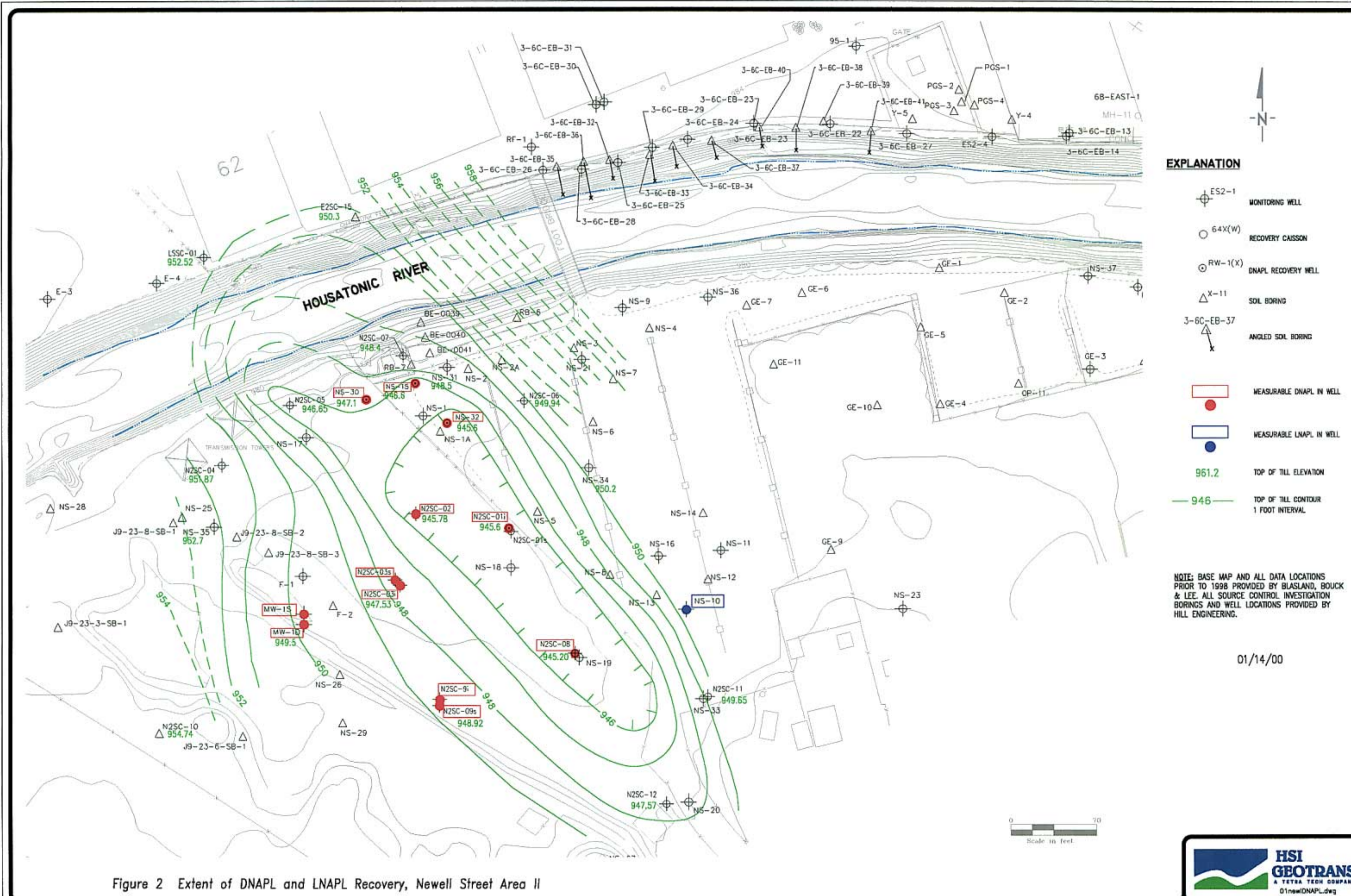
National Geodetic Vertical Datum Of 1929

FROM U.S.G.S. QUADRANGLE
PITTSFIELD, MASSACHUSETTS

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Figure 1 Study Area Location Map





- EXPLANATION**
- ⊕ ES2-1 MONITORING WELL
 - 64X(W) RECOVERY CAISSON
 - ⊙ RW-1(X) DNAPL RECOVERY WELL
 - △ X-11 SOIL BORING
 - △ 3-6C-EB-37 ANGLED SOIL BORING
 - MEASURABLE DNAPL IN WELL
 - MEASURABLE LNAPL IN WELL
 - 961.2 TOP OF TILL ELEVATION
 - 946 — TOP OF TILL CONTOUR 1 FOOT INTERVAL

NOTE: BASE MAP AND ALL DATA LOCATIONS PRIOR TO 1998 PROVIDED BY BLASLAND, BOUCK & LEE. ALL SOURCE CONTROL INVESTIGATION BORINGS AND WELL LOCATIONS PROVIDED BY HILL ENGINEERING.

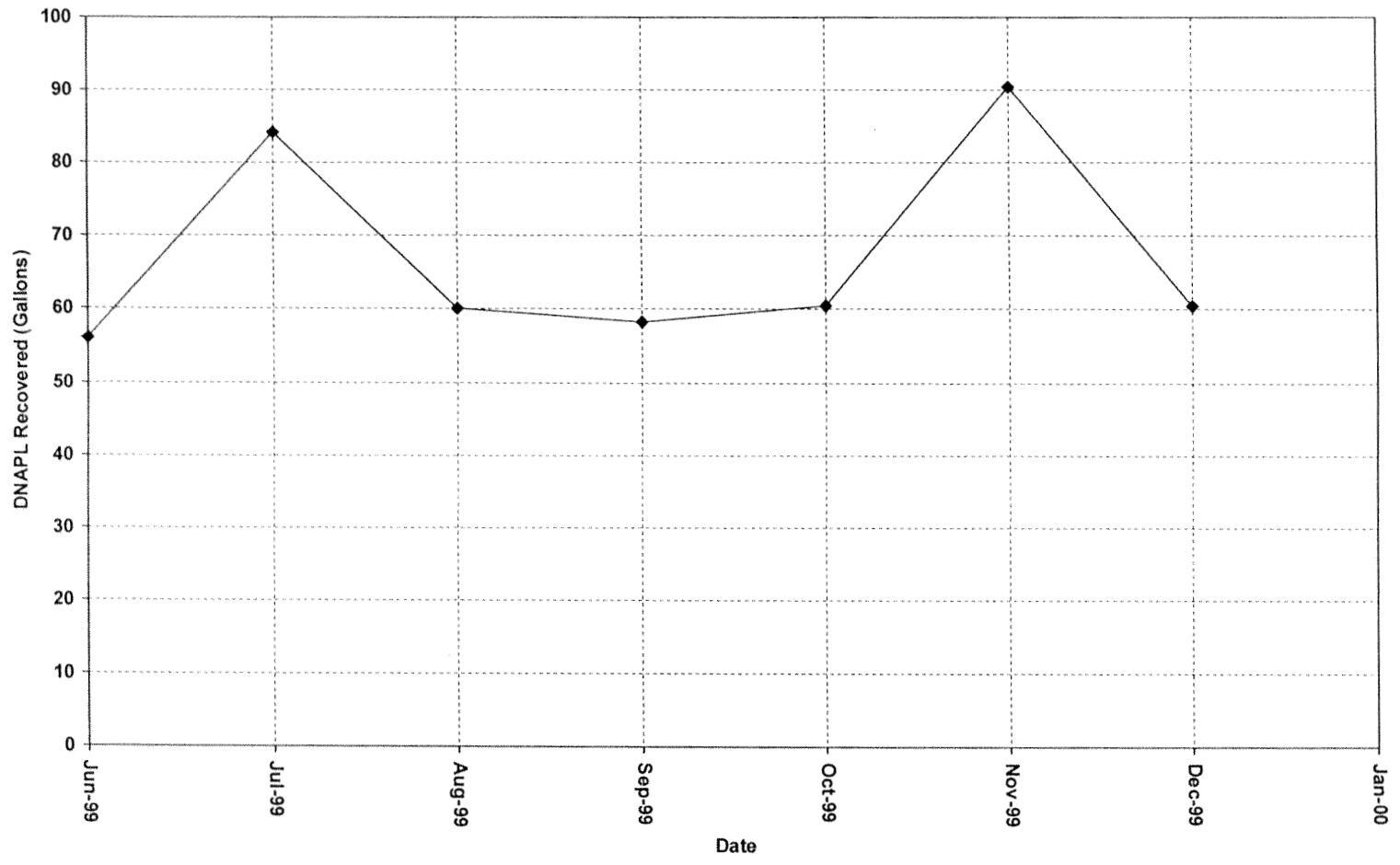
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Scale in feet

Figure 2 Extent of DNAPL and LNAPL Recovery, Newell Street Area II

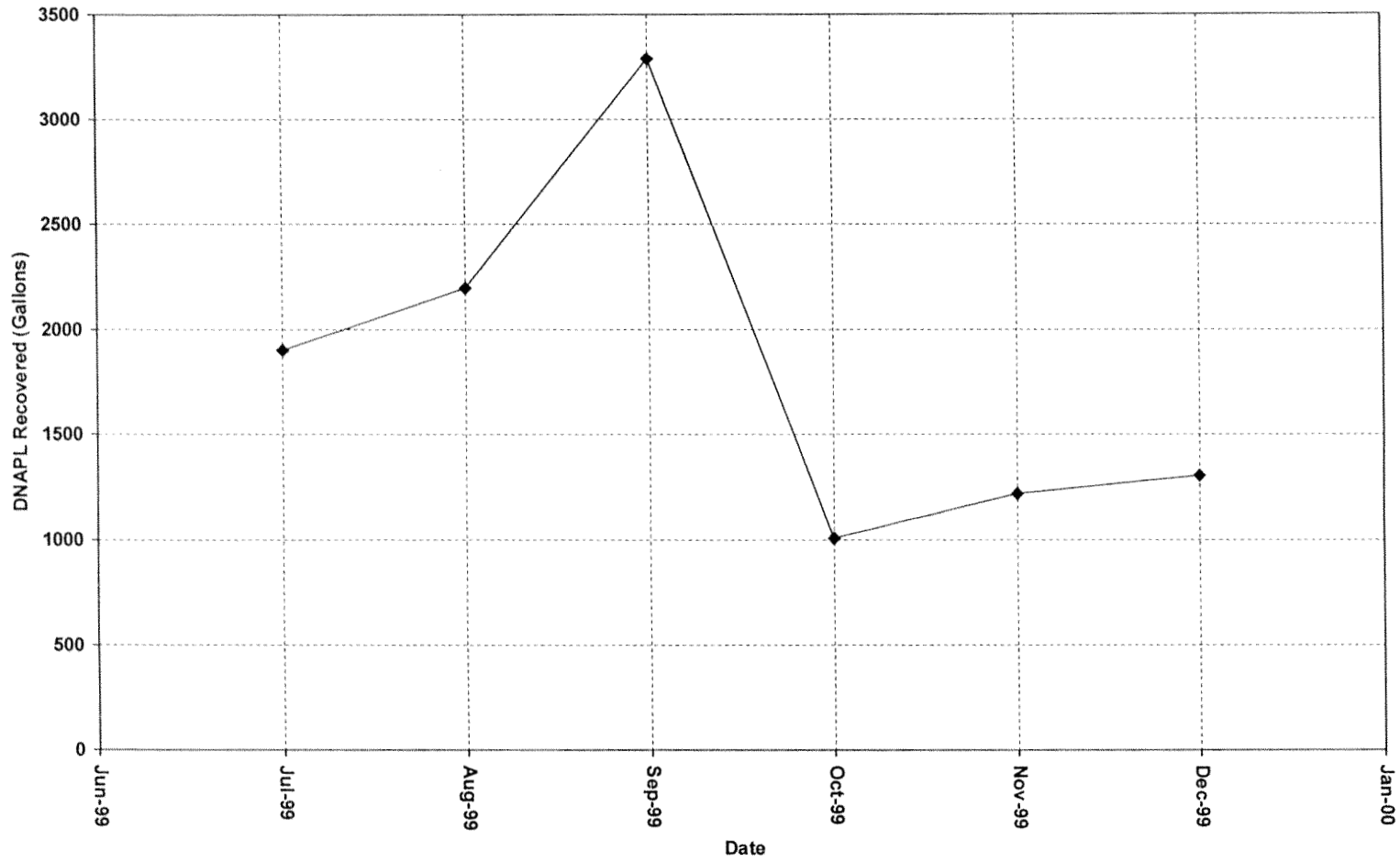


Figure 3. Automated DNAPL Recovery: System 1 (NS-15, NS-30, NS-32)



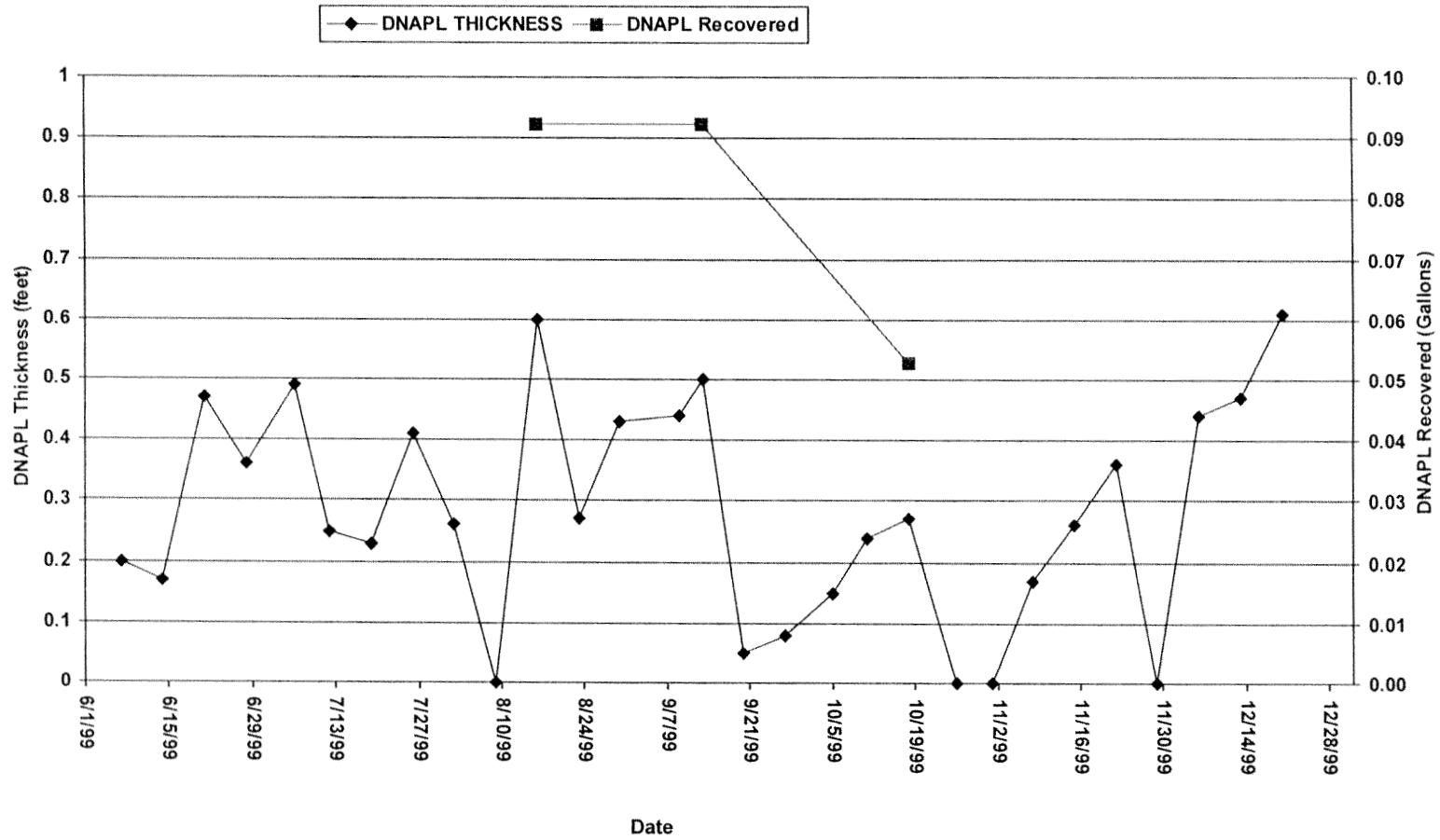
Data from 6/1/99 through 12/31/99

Figure 4. Automated DNAPL Recovery: System 2 (N2SC-01)



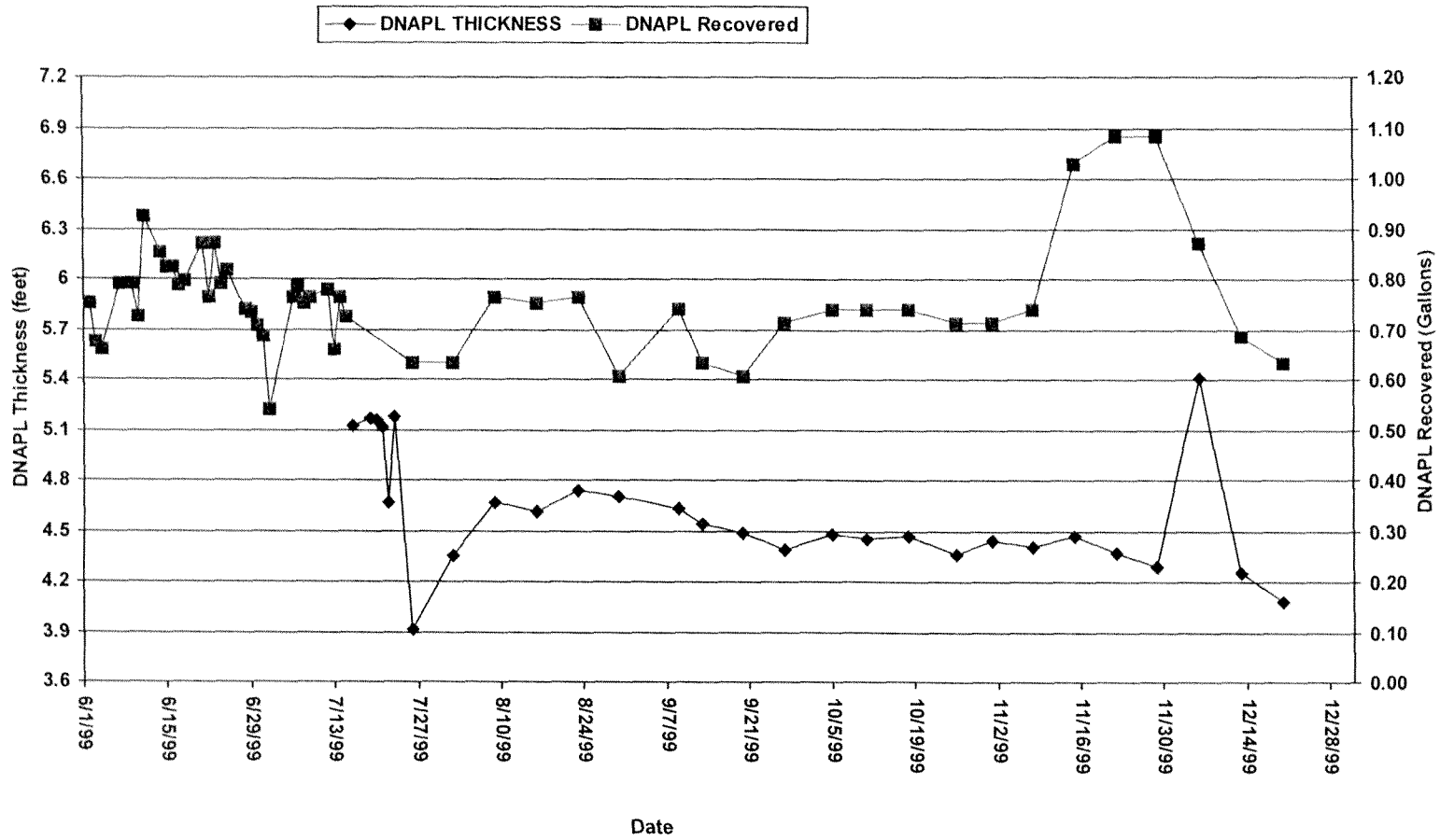
Data from 6/1/99 through 12/31/99

Figure 5. Manual DNAPL Recovery and Thickness: MW-1S



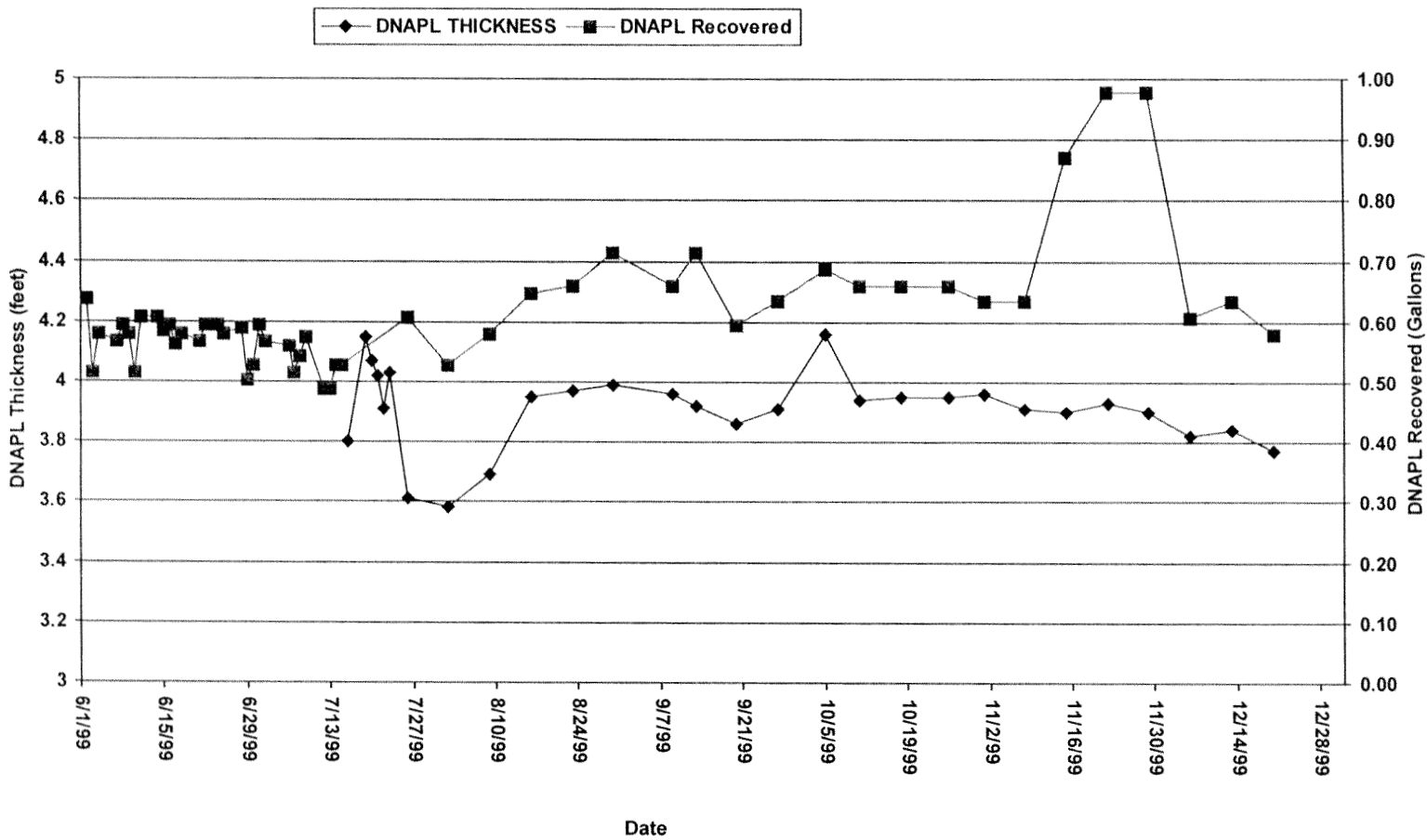
Data from 6/1/99 through 12/20/99

Figure 6. Manual DNAPL Recovery and Thickness: N2SC-02



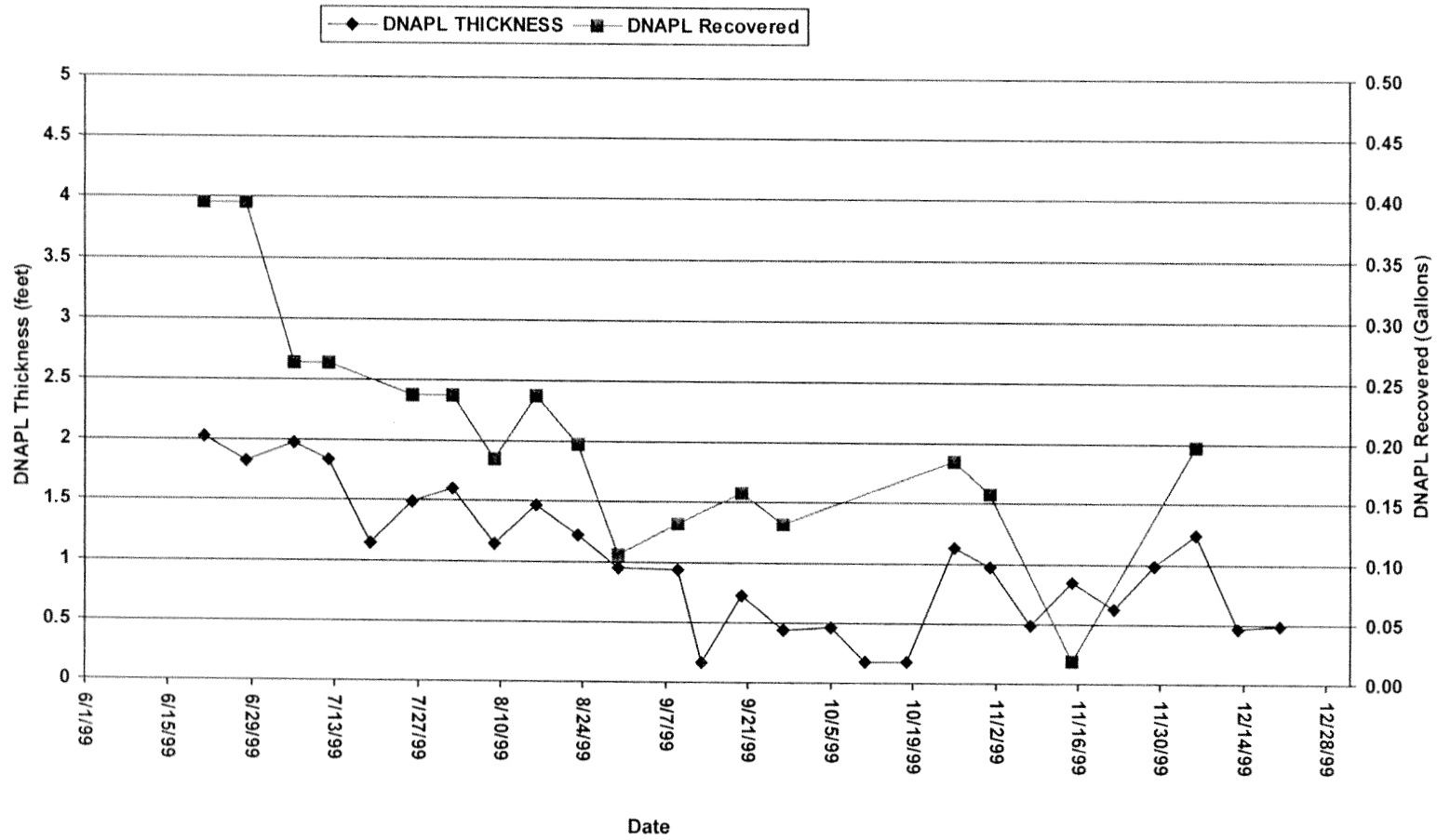
Data from 6/1/99 through 12/20/99

Figure 7. Manual DNAPL Recovery and Thickness: N2SC-03I



Data from 6/1/99 through 12/20/99

Figure 8. Manual DNAPL Recovery and Thickness: N2SC-08



Data from 6/1/99 through 12/20/99

Table 1. Water Level and NAPL Measurements, Newell Street Area II

Location	Date Measured	Measuring Point Elevation	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Depth to Water (feet)	Groundwater Elevation	Depth to DNAPL (feet)	DNAPL Thickness (feet)
NS-10	6/1/99	984.59	10.18	0.05	10.23	974.36		
	6/7/99	984.59	10.61	0.10	10.71	973.88		
	6/14/99	984.59	10.97	0.18	11.15	973.44		
	6/21/99	984.59	11.22	0.23	11.45	973.14		
	6/28/99	984.59	11.83	0.15	11.98	972.61		
	7/6/99	984.59	9.93	0.22	10.15	974.44		
	7/12/99	984.59	10.19	0.22	10.41	974.18		
	7/19/99	984.59	10.69	0.34	11.03	973.56		
	7/26/99	984.59	11.09	0.42	11.51	973.08		
	8/2/99	984.59	11.34	0.44	11.78	972.81		
	8/9/99	984.59	11.54	0.48	12.02	972.57		
	8/16/99	984.59	10.60	0.31	10.91	973.68		
	8/23/99	984.59	11.03	0.17	11.20	973.39		
	8/30/99	984.59	11.33	0.44	11.77	972.82		
	9/9/99	984.59	11.63	0.47	12.10	972.49		
	9/13/99	984.59	11.52	0.46	11.98	972.61		
	9/20/99	984.59	10.44	0.23	10.21	974.38		
	9/27/99	984.59	10.41	0.36	10.77	973.82		
	10/5/99	984.59	9.92	0.29	10.21	974.38		
	10/11/99	984.59	9.77	0.35	10.12	974.47		
	10/18/99	984.59	10.21	0.34	10.55	974.04		
	10/26/99	984.59	9.77	0.28	10.05	974.54		
	11/1/99	984.59	10.36	0.34	10.70	973.89		
	11/8/99	984.59	10.23	0.36	10.59	974.00		
	11/15/99	984.59	10.43	0.48	10.91	973.68		
	11/22/99	984.59	10.73	0.41	11.14	973.45		

Table 1. (continued)

Location	Date Measured	Measuring Point Elevation	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Depth to Water (feet)	Groundwater Elevation	Depth to DNAPL (feet)	DNAPL Thickness (feet)
	11/29/99	984.59	9.78	0.33	10.11	974.48		
	12/6/99	984.59	10.19	0.25	10.44	974.15		
	12/13/99	984.59	10.30	0.36	10.66	973.93		
	12/20/99	984.59	10.41	0.22	10.63	973.96		
<i>NS-31</i>	6/1/99	986.05			14.27	971.78		
	6/7/99	986.05			14.55	971.50		
	6/14/99	986.05			14.84	971.21		
	6/21/99	986.05			14.96	971.09		
	6/28/99	986.05			15.05	971.00		
	7/6/99	986.05			14.33	971.72		
	7/12/99	986.05			14.69	971.36		
	7/19/99	986.05			14.99	971.06		
	7/26/99	986.05			15.04	971.01		
	8/2/99	986.05			15.18	970.87		
	8/9/99	986.05			15.19	970.86		
	8/16/99	986.05			14.68	971.37		
	8/23/99	986.05			15.07	970.98		
	8/30/99	986.05			15.14	970.91		
	9/9/99	986.05			15.13	970.92		
	9/13/99	986.05			15.12	970.93		
	9/20/99	986.05			14.21	971.84		
	9/27/99	986.05			14.59	971.46		
	10/5/99	986.05			13.96	972.09		
	10/11/99	986.05			13.72	972.33		
	10/18/99	986.05			14.18	971.87		
	10/26/99	986.05			13.67	972.38		
	11/1/99	986.05			14.32	971.73		

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Table 1. (continued)

Location	Date Measured	Measuring Point Elevation	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Depth to Water (feet)	Groundwater Elevation	Depth to DNAPL (feet)	DNAPL Thickness (feet)
	11/8/99	986.05			13.95	972.10		
	11/15/99	986.05			14.25	971.80		
	11/22/99	986.05			14.45	971.60		
	11/29/99	986.05			13.45	972.60		
	12/6/99	986.05			14.03	972.02		
	12/13/99	986.05			14.04	972.01		
	12/20/99	986.05			14.24	971.81		
NS-33	6/1/99	987.21			12.38	974.83		
	6/7/99	987.21			12.89	974.32		
	6/14/99	987.21			13.09	974.12		
	6/21/99	987.21			13.36	973.85		
	6/28/99	987.21			13.58	973.63		
	7/6/99	987.21			12.38	974.83		
	7/12/99	987.21			12.49	974.72		
	7/19/99	987.21			12.30	974.91		
	7/26/99	987.21			13.05	974.16		
	8/2/99	987.21			13.05	974.16		
	8/9/99	987.21			13.44	973.77		
	8/16/99	987.21			12.93	974.28		
	8/23/99	987.21			13.16	974.05		
	8/30/99	987.21			13.46	973.75		
	9/9/99	987.21			13.81	973.40		
	9/13/99	987.21			13.73	973.48		
9/20/99	987.21			12.56	974.65			
9/27/99	987.21			12.61	974.60			
10/5/99	987.21			12.31	974.90			
10/11/99	987.21			12.14	975.07			

Table I. (continued)

Location	Date Measured	Measuring Point Elevation	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Depth to Water (feet)	Groundwater Elevation	Depth to DNAPL (feet)	DNAPL Thickness (feet)
	10/18/99	987.21			12.52	974.69		
	10/26/99	987.21			12.14	975.07		
	11/1/99	987.21			12.70	974.51		
	11/8/99	987.21			12.54	974.67		
	11/15/99	987.21			12.87	974.34		
	11/22/99	987.21			13.06	974.15		
	11/29/99	987.21			12.32	974.89		
	12/6/99	987.21			12.51	974.70		
	12/13/99	987.21			12.63	974.58		
	12/20/99	987.21			12.72	974.49		
NS-34								
	6/1/99	986.81			14.70	972.11		
	6/7/99	986.81			15.02	971.79		
	6/14/99	986.81			15.33	971.48		
	6/21/99	986.81			15.44	971.37		
	6/28/99	986.81			15.57	971.24		
	7/6/99	986.81			14.76	972.05		
	7/12/99	986.81			15.15	971.66		
	7/19/99	986.81			15.47	971.34		
	7/26/99	986.81			15.57	971.24		
	8/2/99	986.81			15.70	971.11		
	8/9/99	986.81			15.72	971.09		
	8/16/99	986.81			15.20	971.61		
	8/23/99	986.81			15.59	971.22		
	8/30/99	986.81			15.67	971.14		
	9/9/99	986.81			15.69	971.12		
	9/13/99	986.81			15.69	971.12		
	9/20/99	986.81			14.66	972.15		

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Table 1. (continued)

Location	Date Measured	Measuring Point Elevation	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Depth to Water (feet)	Groundwater Elevation	Depth to DNAPL (feet)	DNAPL Thickness (feet)
NS-35	9/27/99	986.81			15.03	971.78		
	10/5/99	986.81			14.53	972.28		
	10/11/99	986.81			14.39	972.42		
	10/18/99	986.81			14.70	972.11		
	10/26/99	986.81			14.20	972.61		
	11/1/99	986.81			14.85	971.96		
	11/8/99	986.81			13.48	973.33		
	11/15/99	986.81			14.77	972.04		
	11/22/99	986.81			14.98	971.83		
	11/29/99	986.81			13.93	972.88		
	12/6/99	986.81			14.57	972.24		
	12/13/99	986.81			14.57	972.24		
	12/20/99	986.81			14.76	972.05		
	6/1/99	982.99			10.86	972.13		
	6/7/99	982.99			11.18	971.81		
	6/14/99	982.99			11.48	971.51		
	6/21/99	982.99			11.62	971.37		
	6/28/99	982.99			11.74	971.25		
	7/6/99	982.99			10.93	972.06		
7/12/99	982.99			11.34	971.65			
7/19/99	982.99			11.65	971.34			
7/26/99	982.99			11.75	971.24			
8/2/99	982.99			11.89	971.10			
8/9/99	982.99			11.91	971.08			
8/16/99	982.99			11.36	971.63			
8/23/99	982.99			11.79	971.20			
8/30/99	982.99			11.87	971.12			

Table 1. (continued)

Location	Date Measured	Measuring Point Elevation	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Depth to Water (feet)	Groundwater Elevation	Depth to DNAPL (feet)	DNAPL Thickness (feet)
	9/9/99	982.99			11.92	971.07		
	9/13/99	982.99			11.90	971.09		
	9/20/99	982.99			10.87	972.12		
	9/27/99	982.99			11.31	971.68		
	10/5/99	982.99			10.69	972.30		
	10/11/99	982.99			10.54	972.45		
	10/18/99	982.99			10.93	972.06		
	10/26/99	982.99			10.45	972.54		
	11/1/99	982.99			11.05	971.94		
	11/8/99	982.99			10.69	972.30		
	11/15/99	982.99			10.96	972.03		
	11/22/99	982.99			11.17	971.82		
	11/29/99	982.99			10.17	972.82		
	12/6/99	982.99			10.74	972.25		
	12/13/99	982.99			10.75	972.24		
	12/20/99	982.99			10.96	972.03		
NS-36	6/1/99	985.2			12.88	972.32		
	6/7/99	985.2			13.26	971.94		
	6/14/99	985.2			13.56	971.64		
	6/21/99	985.2			13.70	971.50		
	6/28/99	985.2			13.83	971.37		
	7/6/99	985.2			12.96	972.24		
	7/12/99	985.2			13.32	971.88		
	7/19/99	985.2			13.71	971.49		
	7/26/99	985.2			13.82	971.38		
	8/2/99	985.2			13.95	971.25		
	8/9/99	985.2			14.00	971.20		

Table 1. (continued)

Location	Date Measured	Measuring Point Elevation	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Depth to Water (feet)	Groundwater Elevation	Depth to DNAPL (feet)	DNAPL Thickness (feet)
NS-37	8/16/99	985.2			13.52	971.68		
	8/23/99	985.2			13.84	971.36		
	8/30/99	985.2			13.93	971.27		
	9/9/99	985.2			13.99	971.21		
	9/13/99	985.2			13.95	971.25		
	9/20/99	985.2			12.79	972.41		
	9/27/99	985.2			13.27	971.93		
	10/5/99	985.2			12.94	972.26		
	10/11/99	985.2			12.71	972.49		
	10/18/99	985.2			12.98	972.22		
	10/26/99	985.2			12.38	972.82		
	11/1/99	985.2			13.11	972.09		
	11/8/99	985.2			12.79	972.41		
	11/15/99	985.2			13.05	972.15		
	11/22/99	985.2			13.26	971.94		
	11/29/99	985.2			12.13	973.07		
	12/6/99	985.2			12.89	972.31		
	12/13/99	985.2			12.89	972.31		
	12/20/99	985.2			12.95	972.25		
	6/1/99	986.2			14.63	971.57		
6/7/99	986.2			14.82	971.38			
6/14/99	986.2			15.11	971.09			
6/21/99	986.2			15.18	971.02			
6/28/99	986.2			15.29	970.91			
7/6/99	986.2			14.71	971.49			
7/12/99	986.2			15.02	971.18			
7/19/99	986.2			15.27	970.93			

Table 1. (continued)

Location	Date Measured	Measuring Point Elevation	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Depth to Water (feet)	Groundwater Elevation	Depth to DNAPL (feet)	DNAPL Thickness (feet)
	7/26/99	986.2			15.27	970.93		
	8/2/99	986.2			15.40	970.80		
	8/9/99	986.2			15.38	970.82		
	8/16/99	986.2			14.96	971.24		
	8/23/99	986.2			15.30	970.90		
	8/30/99	986.2			13.36	972.84		
	9/9/99	986.2			15.33	970.87		
	9/13/99	986.2			13.30	972.90		
	9/20/99	986.2			14.62	971.58		
	9/27/99	986.2			14.85	971.35		
	10/5/99	986.2			14.14	972.06		
	10/11/99	986.2			13.96	972.24		
	10/18/99	986.2			14.44	971.76		
	10/26/99	986.2			14.00	972.20		
	11/1/99	986.2			14.58	971.62		
	11/8/99	986.2			14.21	971.99		
	11/15/99	986.2			14.46	971.74		
	11/22/99	986.2			14.64	971.56		
	11/29/99	986.2			13.76	972.44		
	12/6/99	986.2			14.26	971.94		
	12/13/99	986.2			14.26	971.94		
	12/20/99	986.2			14.50	971.70		
<i>N2SC-02</i>								
	7/16/99	985.07			13.72	971.35	34.87	5.12
	7/19/99	985.07			13.86	971.21	34.81	5.17
	7/20/99	985.07			13.76	971.31	34.83	5.16
	7/21/99	985.07			13.85	971.22	34.88	5.11
	7/22/99	985.07			13.86	971.21	35.32	4.67

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Table 1. (continued)

Location	Date Measured	Measuring Point Elevation	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Depth to Water (feet)	Groundwater Elevation	Depth to DNAPL (feet)	DNAPL Thickness (feet)
	7/23/99	985.07			14.07	971.00	34.81	5.18
	7/26/99	985.07			13.91	971.16	36.08	3.91
	8/2/99	985.07			14.08	970.99	35.64	4.35
	8/9/99	985.07			14.12	970.95	35.32	4.67
	8/16/99	985.07			13.55	971.52	35.37	4.61
	8/23/99	985.07			13.94	971.13	35.25	4.74
	8/30/99	985.07			14.02	971.05	35.29	4.70
	9/9/99	985.07			14.03	971.04	35.37	4.63
	9/13/99	985.07			14.03	971.04	34.45	4.54
	9/20/99	985.07			13.02	972.05	35.49	4.49
	9/27/99	985.07			13.47	971.60	35.57	4.39
	10/5/99	985.07			12.88	972.19	35.51	4.48
	10/11/99	985.07			12.74	972.33	35.54	4.45
	10/18/99	985.07			13.17	971.90	35.50	4.47
	10/26/99	985.07			12.56	972.51	35.60	4.36
	11/1/99	985.07			13.19	971.88	35.52	4.44
	11/8/99	985.07			12.84	972.23	35.56	4.41
	11/15/99	985.07			13.12	971.95	35.51	4.47
	11/22/99	985.07			13.34	971.73	35.62	4.37
	11/29/99	985.07			12.31	972.76	35.69	4.29
	12/6/99	985.07			12.91	972.16	35.56	5.41
	12/13/99	985.07			12.92	972.15	35.78	4.25
	12/20/99	985.07			13.13	971.94	35.91	4.08
N2SC-03S								
	6/1/99	985.18			11.51	973.67	21.34	0.17
	6/2/99	985.18			11.30	973.88	21.21	0.30
	6/3/99	985.18			11.25	973.93	21.23	0.28
	6/4/99	985.18			11.39	973.79	21.27	0.24

Table 1. (continued)

Location	Date Measured	Measuring Point Elevation	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Depth to Water (feet)	Groundwater Elevation	Depth to DNAPL (feet)	DNAPL Thickness (feet)
	6/7/99	985.18			11.39	973.79	21.27	0.24
	6/8/99	985.18			11.40	973.78	21.28	0.23
	6/9/99	985.18			11.54	973.64	21.30	0.21
	6/10/99	985.18			11.56	973.62	21.35	0.16
	6/11/99	985.18			11.52	973.66	21.30	0.21
	6/14/99	985.18			11.61	973.57	21.35	0.16
	6/15/99	985.18			11.65	973.53	21.31	0.20
	6/16/99	985.18			11.60	973.58	21.31	0.20
	6/17/99	985.18			11.61	973.57	21.32	0.19
	6/18/99	985.18			11.63	973.55	21.33	0.18
	6/21/99	985.18			11.66	973.52	21.45	0.06
	6/22/99	985.18			11.85	973.33	21.35	0.16
	6/23/99	985.18			11.71	973.47	21.34	0.17
	6/24/99	985.18			11.75	973.43	21.36	0.15
	6/25/99	985.18			11.80	973.38	21.37	0.14
	6/28/99	985.18			11.72	973.46	21.41	0.10
	6/29/99	985.18			11.57	973.61	21.42	0.09
	6/30/99	985.18			11.28	973.90	21.36	0.15
	7/1/99	985.18			11.35	973.83	21.37	0.14
	7/2/99	985.18			11.57	973.61	21.37	0.14
	7/6/99	985.18			11.44	973.74	21.36	0.15
	7/7/99	985.18			11.36	973.82	21.39	0.12
	7/8/99	985.18			11.55	973.63	21.34	0.17
	7/9/99	985.18			11.57	973.61	21.36	0.15
	7/12/99	985.18			11.73	973.45	21.37	0.14
	7/13/99	985.18			11.50	973.68	21.36	0.15
	7/14/99	985.18			11.56	973.62	21.37	0.14
	7/15/99	985.18			11.53	973.65	21.38	0.13

Table 1. (continued)

Location	Date Measured	Measuring Point Elevation	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Depth to Water (feet)	Groundwater Elevation	Depth to DNAPL (feet)	DNAPL Thickness (feet)
	7/16/99	985.18			11.61	973.57	21.36	0.16
	7/19/99	985.18			11.76	973.42	21.37	0.20
	7/20/99	985.18			11.77	973.41	21.36	0.16
	7/21/99	985.18			11.66	973.52	21.38	0.14
	7/22/99	985.18			11.75	973.43	21.36	0.15
	7/23/99	985.18			11.66	973.52	21.44	0.07
	7/26/99	985.18			11.81	973.37	21.41	0.11
	8/2/99	985.18			11.93	973.25	21.42	0.09
	8/9/99	985.18			12.08	973.10	21.36	0.26
	8/16/99	985.18			11.88	973.30	21.36	0.30
	8/23/99	985.18			12.17	973.01	21.32	0.21
	8/30/99	985.18			12.29	972.89		
	9/9/99	985.18			12.40	972.78		
	9/13/99	985.18			12.38	972.80	21.40	0.13
	9/20/99	985.18			11.56	973.62	21.34	0.17
	9/27/99	985.18			11.48	973.70	21.42	0.10
	10/5/99	985.18			10.13	975.05	21.35	0.18
	10/11/99	985.18			10.63	974.55	21.32	0.19
	10/18/99	985.18			10.47	974.71	21.33	0.18
	10/26/99	985.18			10.24	974.94	21.37	0.14
	11/1/99	985.18			10.47	974.71	21.34	0.17
	11/8/99	985.18			10.29	974.89	21.32	0.19
	11/15/99	985.18			10.49	974.69	21.36	0.16
	11/22/99	985.18			10.82	974.36	21.34	0.17
	11/29/99	985.18			10.13	975.05	21.36	0.21
	12/6/99	985.18			10.07	975.11	21.48	0.04
	12/13/99	985.18			10.17	975.01		
	12/20/99	985.18			10.31	974.87	21.42	0.09

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Table 1. (continued)

Location	Date Measured	Measuring Point Elevation	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Depth to Water (feet)	Groundwater Elevation	Depth to DNAPL (feet)	DNAPL Thickness (feet)
<i>N2SC-031</i>								
	7/16/99	985.33			13.69	971.64	36.45	3.80
	7/19/99	985.33			13.81	971.52	36.09	4.15
	7/20/99	985.33			13.76	971.57	36.17	4.07
	7/21/99	985.33			13.83	971.50	36.21	4.02
	7/22/99	985.33			13.84	971.49	36.32	3.91
	7/23/99	985.33			13.88	971.45	36.21	4.03
	7/26/99	985.33			13.91	971.42	36.62	3.61
	8/2/99	985.33			14.06	971.27	26.66	3.58
	8/9/99	985.33			14.11	971.22	36.55	3.69
	8/16/99	985.33			13.58	971.75	36.34	3.95
	8/23/99	985.33			13.96	971.37	36.27	3.97
	8/30/99	985.33			14.12	971.21	36.25	3.99
	9/9/99	985.33			14.12	971.21	36.28	3.96
	9/13/99	985.33			14.11	971.22	36.33	3.92
	9/20/99	985.33			13.01	972.32	36.28	3.86
	9/27/99	985.33			13.47	971.86	36.33	3.91
	10/5/99	985.33			12.94	972.39	36.34	4.16
	10/11/99	985.33			12.80	972.53	36.29	3.94
	10/18/99	985.33			13.10	972.23	36.28	3.95
	10/26/99	985.33			12.60	972.73	36.29	3.95
	11/1/99	985.33			13.20	972.13	36.28	3.96
	11/8/99	985.33			12.89	972.44	36.33	3.91
	11/15/99	985.33			13.17	972.16	36.35	3.90
	11/22/99	985.33			13.42	971.91	36.31	3.93
	11/29/99	985.33			12.33	973.00	36.34	3.90
	12/6/99	985.33			12.94	972.39	36.42	3.82
	12/13/99	985.33			12.93	972.40	36.40	3.84

Table 1. (continued)

Location	Date Measured	Measuring Point Elevation	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Depth to Water (feet)	Groundwater Elevation	Depth to DNAPL (feet)	DNAPL Thickness (feet)
N2SC-07	12/20/99	985.33			13.17	972.16	36.47	3.77
	6/1/99	984.61			12.96	971.65		
	6/7/99	984.61			13.19	971.42		
	6/14/99	984.61			13.49	971.12		
	6/21/99	984.61			13.55	971.06		
	6/23/99	984.61			13.55	971.06		
	7/6/99	984.61			13.01	971.60		
	8/2/99	984.61			13.81	970.80		
	9/20/99	984.61			12.92	971.69		
	10/5/99	984.61			12.58	972.03		
	10/5/99	984.61			12.58	972.03		
	11/1/99	984.61			11.89	972.72		
12/6/99	984.61			12.71	971.90			
N2SC-08	6/21/99	986.07			13.70	972.37	40.32	2.03
	6/28/99	986.07			13.90	972.17	40.52	1.83
	7/6/99	986.07			12.91	973.16	40.37	1.98
	7/12/99	986.07			13.29	972.78	40.52	1.84
	7/19/99	986.07			13.67	972.40	41.21	1.15
	7/26/99	986.07			13.85	972.22	40.86	1.49
	8/2/99	986.07			14.07	972.00	40.75	1.60
	8/9/99	986.07			14.14	971.93	41.20	1.15
	8/16/99	986.07			13.54	972.53	40.98	1.47
	8/23/99	986.07			13.97	972.10	41.24	1.22
	8/30/99	986.07			14.11	971.96	41.52	0.95
	9/9/99	986.07			14.20	971.87	41.54	0.93
	9/13/99	986.07			14.17	971.90	42.42	0.16

Table 1. (continued)

Location	Date Measured	Measuring Point Elevation	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Depth to Water (feet)	Groundwater Elevation	Depth to DNAPL (feet)	DNAPL Thickness (feet)
	9/20/99	986.07			13.00	973.07	41.86	0.72
	9/27/99	986.07			13.39	972.68	41.91	0.44
	10/5/99	986.07			12.97	973.10	42.12	0.46
	10/11/99	986.07			12.87	973.20	42.42	0.17
	10/18/99	986.07			13.08	972.99	42.42	0.17
	10/26/99	986.07			12.67	973.40	41.45	1.13
	11/1/99	986.07			13.16	972.91	41.57	0.97
	11/8/99	986.07			12.88	973.19	42.11	0.48
	11/15/99	986.07			13.15	972.92	41.66	0.84
	11/22/99	986.07			13.37	972.70	41.95	0.62
	11/29/99	986.07			12.41	973.66	41.58	0.98
	12/6/99	986.07			12.94	973.13	41.34	1.25
	12/13/99	986.07			12.95	973.12	42.11	0.46
	12/20/99	986.07			13.08	972.99	42.09	0.49
<i>N2SC-09S</i>								
	6/21/99	987.84			14.74	973.10	18.23	0.01
	6/28/99	987.84			14.99	972.85	18.22	0.01
	7/6/99	987.84			13.39	974.45	18.23	0.01
	7/12/99	987.84			14.98	972.86	18.20	0.02
	7/19/99	987.84			14.70	973.14	18.23	0.02
	7/26/99	987.84			15.03	972.81		
	8/2/99	987.84			15.31	972.53		
	8/9/99	987.84			15.50	972.34	18.21	0.03
	8/16/99	987.84			14.12	973.72	18.22	0.02
	8/23/99	987.84			15.15	972.69	18.20	0.04
	8/30/99	987.84			15.52	972.32	18.21	0.04
	9/9/99	987.84			15.71	972.13		
	9/13/99	987.84			15.65	972.19	18.23	0.01

Table 1. (continued)

Location	Date Measured	Measuring Point Elevation	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Depth to Water (feet)	Groundwater Elevation	Depth to DNAPL (feet)	DNAPL Thickness (feet)
	9/20/99	987.84			13.51	974.33		
	9/27/99	987.84			13.36	974.48	18.19	0.00
	10/5/99	987.84			11.82	976.02	18.16	0.08
	10/11/99	987.84			11.43	976.41	18.11	0.13
	10/18/99	987.84			12.38	975.46	18.12	0.12
	10/26/99	987.84			11.61	976.23	18.14	0.10
	11/1/99	987.84			12.93	974.91	18.15	0.01
	11/8/99	987.84			13.03	974.81	18.05	0.19
	11/15/99	987.84			13.52	974.32	17.99	0.25
	11/22/99	987.84			14.14	973.70	18.02	0.23
	11/29/99	987.84			11.23	976.61	17.99	0.26
	12/6/99	987.84			12.35	975.49	17.99	0.25
	12/13/99	987.84			12.97	974.87	17.99	0.25
	12/20/99	987.84			13.28	974.56	18.01	0.24
<i>N2SC-09I</i>								
	6/21/99	987.77			15.41	972.36	43.48	0.03
	6/28/99	987.77			15.17	972.60	43.49	0.02
	7/6/99	987.77			14.62	973.15	43.47	0.04
	7/12/99	987.77			14.98	972.79	43.50	0.02
	7/19/99	987.77			15.38	972.39	43.37	0.15
	7/26/99	987.77			15.56	972.21	43.50	0.02
	8/2/99	987.77			15.87	971.90	43.48	0.04
	8/9/99	987.77			15.83	971.94	43.48	0.04
	8/16/99	987.77			15.25	972.52	43.46	0.05
	8/23/99	987.77			15.68	972.09	43.47	0.05
	8/30/99	987.77			15.80	971.97	43.46	0.06
	9/9/99	987.77			15.92	971.85	43.44	0.08
	9/13/99	987.77			15.89	971.88	43.43	0.09

Table 1. (continued)

Location	Date Measured	Measuring Point Elevation	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Depth to Water (feet)	Groundwater Elevation	Depth to DNAPL (feet)	DNAPL Thickness (feet)
	9/20/99	987.77			14.74	973.03	43.49	0.03
	9/27/99	987.77			15.11	972.66	43.46	0.08
	10/5/99	987.77			14.69	973.08	43.43	0.09
	10/11/99	987.77			14.57	973.20	43.39	0.13
	10/18/99	987.77			14.80	972.97	43.35	0.17
	10/26/99	987.77			14.39	973.38	43.35	0.15
	11/1/99	987.77			14.87	972.90	43.40	0.11
	11/8/99	987.77			14.59	973.18	43.36	0.20
	11/15/99	987.77			14.84	972.93	43.35	0.17
	11/22/99	987.77			15.10	972.67	43.33	0.23
	11/29/99	987.77			14.11	973.66	43.33	0.19
	12/6/99	987.77			14.63	973.14	43.34	0.19
	12/13/99	987.77			14.65	973.12	43.44	0.08
	12/20/99	987.77			14.78	972.99	43.31	0.22
<i>N2SC-11</i>								
	7/6/99	988.05			13.32	974.73		
	8/2/99	988.05			14.03	974.02		
	9/20/99	988.05			13.51	974.54		
	10/5/99	988.05			13.43	974.62		
	10/5/99	988.05			13.43	974.62		
	11/1/99	988.05			13.19	974.86		
	12/6/99	988.05			13.25	974.80		
<i>N2SC-12</i>								
	7/6/99	987.26			11.68	975.58		
	8/2/99	987.26			12.20	975.06		
	9/20/99	987.26			11.98	975.28		
	10/5/99	987.26			11.83	975.43		
	10/5/99	987.26			11.83	975.43		

Table 1. (continued)

Location	Date Measured	Measuring Point Elevation	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Depth to Water (feet)	Groundwater Elevation	Depth to DNAPL (feet)	DNAPL Thickness (feet)
<i>MW-1S</i>	11/1/99	987.26			11.59	975.67		
	12/6/99	987.26			11.56	975.70		
	6/1/99	986.6			14.17	972.43	25.10	0.14
	6/7/99	986.6			14.51	972.09	25.04	0.20
	6/14/99	986.6			14.80	971.80	25.09	0.17
	6/21/99	986.6			14.97	971.63	24.79	0.47
	6/28/99	986.6			15.11	971.49	24.89	0.36
	7/6/99	986.6			14.23	972.37	24.76	0.49
	7/12/99	986.6			14.64	971.96	25.00	0.25
	7/19/99	986.6			13.97	972.63	25.02	0.23
	7/26/99	986.6			15.11	971.49	24.84	0.41
	8/2/99	986.6			15.27	971.33	24.99	0.26
	8/9/99	986.6			15.34	971.26		
	8/16/99	986.6			14.75	971.85	24.25	0.60
	8/23/99	986.6			15.17	971.43	25.00	0.27
	8/30/99	986.6			15.28	971.32	24.85	0.43
	9/9/99	986.6			15.34	971.26	24.83	0.44
	9/13/99	986.6			15.31	971.29	24.78	0.50
	9/20/99	986.6			14.22	972.38	25.17	0.05
	9/27/99	986.6			14.62	971.98	25.17	0.08
10/5/99	986.6			14.14	972.46	25.13	0.15	
10/11/99	986.6			13.99	972.61	25.03	0.24	
10/18/99	986.6			14.30	972.30	25.01	0.27	
10/26/99	986.6			13.84	972.76			
11/1/99	986.6			14.39	972.21			
11/8/99	986.6			14.09	972.51	25.09	0.17	
11/15/99	986.6			14.37	972.23	25.02	0.26	

Table 1. (continued)

Location	Date Measured	Measuring Point Elevation	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Depth to Water (feet)	Groundwater Elevation	Depth to DNAPL (feet)	DNAPL Thickness (feet)
	11/22/99	986.6			14.56	972.04	24.91	0.36
	11/29/99	986.6			13.58	973.02		
	12/6/99	986.6			14.12	972.48	24.84	0.44
	12/13/99	986.6			14.12	972.48	24.81	0.47
	12/20/99	986.6			14.32	972.28	24.68	0.61
<i>MW-1D</i>	6/1/99	987.2			14.66	972.54	39.37	0.04
	6/7/99	987.2			15.02	972.18		
	6/14/99	987.2			15.33	971.87	39.26	0.17
	6/21/99	987.2			15.49	971.71		
	6/28/99	987.2			15.64	971.56		
	7/6/99	987.2			14.77	972.43		
	7/12/99	987.2			15.17	972.03		
	7/19/99	987.2			15.51	971.69		
	7/26/99	987.2			15.62	971.58		
	8/2/99	987.2			15.78	971.42		
	8/9/99	987.2			15.83	971.37		
	8/16/99	987.2			15.28	971.92		
	8/23/99	987.2			15.70	971.50		
	8/30/99	987.2			15.79	971.41	39.30	0.12
	9/9/99	987.2			15.86	971.34		
	9/13/99	987.2			15.89	971.31		
	9/20/99	987.2			14.75	972.45		
	9/27/99	987.2			15.17	972.03		
	10/5/99	987.2			14.66	972.54		
	10/11/99	987.2			14.51	972.69	39.15	0.25
	10/18/99	987.2			14.81	972.39	39.20	0.20
	10/26/99	987.2			14.36	972.84		

Table 1. (continued)

Location	Date Measured	Measuring Point Elevation	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Depth to Water (feet)	Groundwater Elevation	Depth to DNAPL (feet)	DNAPL Thickness (feet)
	11/1/99	987.2			14.91	972.29		
	11/8/99	987.2			14.58	972.62	39.17	0.21
	11/15/99	987.2			14.85	972.35	39.20	0.21
	11/22/99	987.2			15.08	972.12	39.30	0.10
	11/29/99	987.2			14.03	973.17		
	12/6/99	987.2			14.64	972.56	39.22	0.19
	12/13/99	987.2			14.65	972.55		
	12/20/99	987.2			14.82	972.38	39.27	0.14

Table 2. Automated DNAPL Recovery, Newell Street Area II

LOCATION	MONTH RECOVERED	DNAPL RECOVERED (Gallons)
<i>System 1 (NS-15, NS-30, NS-32)</i>		
	Jun, 1999	56.1
	Jul, 1999	84.1
	Aug, 1999	60
	Sep, 1999	58.2
	Oct, 1999	60.5
	Nov, 1999	90.4
	Dec, 1999	60.4
<i>System 2 (N2SC-011)</i>		
	Jul, 1999	1900
	Aug, 1999	2200
	Sep, 1999	3291
	Oct, 1999	1004
	Nov, 1999	1220
	Dec, 1999	1300

Table 3. Manual DNAPL Recovery, Newell Street Area II

LOCATION	DATE & TIME RECOVERED	DNAPL RECOVERED (Gallons)
<i>MW-1S</i>	8/16/99	0.09
	9/13/99	0.09
	10/18/99	0.05
<i>N2SC-011</i>	6/1/99	6.03
	6/2/99	7.42
	6/3/99	6.91
	6/4/99	6.86
	6/7/99	7.99
	6/8/99	7.94
	6/9/99	7.94
	6/10/99	8.2
	6/11/99	8.09
	6/14/99	10.54
	6/15/99	8.21
	6/16/99	8.54
	6/17/99	12.37
	6/18/99	12.47
	6/21/99	4.14
	6/22/99	12.1
	6/23/99	12.22
	6/24/99	11.31
	6/25/99	12.09
	6/28/99	12.88
	6/29/99	11.24
	6/30/99	12.76
	7/1/99	12.13
	7/2/99	12.31
	7/6/99	12.43
	7/7/99	12.99
7/8/99	13.19	
7/9/99	13.11	
7/12/99	13.59	
7/13/99	13.49	
7/14/99	12.99	
<i>N2SC-02</i>	6/1/99	0.73
	6/2/99	0.75

Table 3. (continued)

LOCATION	DATE & TIME RECOVERED	DNAPL RECOVERED (Gallons)
	6/3/99	0.67
	6/4/99	0.66
	6/7/99	0.79
	6/8/99	0.79
	6/9/99	0.79
	6/10/99	0.73
	6/11/99	0.92
	6/14/99	0.85
	6/15/99	0.82
	6/16/99	0.82
	6/17/99	0.79
	6/18/99	0.8
	6/21/99	0.87
	6/22/99	0.77
	6/23/99	0.87
	6/24/99	0.79
	6/25/99	0.82
	6/28/99	0.74
	6/29/99	0.73
	6/30/99	0.71
	7/1/99	0.69
	7/2/99	0.54
	7/6/99	0.77
	7/7/99	0.79
	7/8/99	0.75
	7/9/99	0.77
	7/12/99	0.78
	7/13/99	0.66
	7/14/99	0.77
	7/15/99	0.73
	7/26/99	0.63
	8/2/99	0.63
	8/9/99	0.77
	8/16/99	0.75
	8/23/99	0.77
	8/30/99	0.61
	9/9/99	0.74
	9/13/99	0.63
	9/20/99	0.61
	9/27/99	0.71

Table 3. (continued)

LOCATION	DATE & TIME RECOVERED	DNAPL RECOVERED (Gallons)
	10/5/99	0.74
	10/11/99	0.74
	10/18/99	0.74
	10/26/99	0.71
	11/1/99	0.71
	11/8/99	0.74
	11/15/99	1.03
	11/22/99	1.08
	11/29/99	1.08
	12/6/99	0.87
	12/13/99	0.69
	12/20/99	0.63
<i>N2SC-03I</i>		
	6/1/99	0.59
	6/2/99	0.64
	6/3/99	0.51
	6/4/99	0.58
	6/7/99	0.57
	6/8/99	0.59
	6/9/99	0.58
	6/10/99	0.51
	6/11/99	0.61
	6/14/99	0.61
	6/15/99	0.58
	6/16/99	0.59
	6/17/99	0.56
	6/18/99	0.58
	6/21/99	0.57
	6/22/99	0.59
	6/23/99	0.59
	6/24/99	0.59
	6/25/99	0.58
	6/28/99	0.59
	6/29/99	0.5
	6/30/99	0.53
	7/1/99	0.59
	7/2/99	0.57
	7/6/99	0.56
	7/7/99	0.51
	7/8/99	0.54

Table 3. (continued)

LOCATION	DATE & TIME RECOVERED	DNAPL RECOVERED (Gallons)
	7/9/99	0.57
	7/12/99	0.49
	7/13/99	0.49
	7/14/99	0.53
	7/15/99	0.53
	7/26/99	0.61
	8/2/99	0.53
	8/9/99	0.58
	8/16/99	0.65
	8/23/99	0.66
	8/30/99	0.71
	9/9/99	0.66
	9/13/99	0.71
	9/20/99	0.59
	9/27/99	0.63
	10/5/99	0.69
	10/11/99	0.66
	10/18/99	0.66
	10/26/99	0.66
	11/1/99	0.63
	11/8/99	0.63
	11/15/99	0.87
	11/22/99	0.98
	11/29/99	0.98
	12/6/99	0.61
	12/13/99	0.63
	12/20/99	0.58
N2SC-08	6/21/99	0.4
	6/28/99	0.4
	7/6/99	0.26
	7/12/99	0.26
	7/26/99	0.24
	8/2/99	0.24
	8/9/99	0.18
	8/16/99	0.24
	8/23/99	0.2
	8/30/99	0.11
	9/9/99	0.13
	9/20/99	0.16

Table 3. (continued)

LOCATION	DATE & TIME RECOVERED	DNAPL RECOVERED (Gallons)
	9/27/99	0.13
	10/26/99	0.18
	11/1/99	0.16
	11/15/99	0.02
	12/6/99	0.2