Groundwater Vertical Gradients (Roux Associates, 1992)

Table 6. Calculation of Vertical Gradients at Selected Observation Well Clusters During the GSIP Phase 2 RI, Industri-Plex Site, Woburn, Massachusetts.

Well Number	Elevation of Bottom of Screen (ft relative to mean sea level)	Elevation of Midpoint of Screen (ft relative to mean sea level)	January 13 & 14, 1992					February 18 & 19, 1992				
			Water-Level Elevation (ft relative to mean sea level)	dh (ft)	dl (ft)	Iv	Direction of Flow	Water-Level Elevation (ft relative to mean sea level)	dh (ft)	dl (ft)	Iv	Direction of Flow
OW-18	7.30	27.30	53.80					53.73				
OW-18A	46.11	51.11	53.79	-0.01	23.81	0.0004	upward	52.31	-1.42	23.81	0.0596	upward
OW-30A	45.18	50.25	53.57					53.30				
OW-30B	5.27	10.34	53.44	0.13	39.91	0.0033	downward	53.28	0.02	39.91	0.0005	downward
OW-54A	50.70	54.70	55.88					56.46				
OW-54C	17.70	20.20	56.09	-0.21	34.50	0.0061	upward	56.31	0.15	34.50	0.0043	downward
OW-54C	17.70	20.20	56.09					56.31				
OW-55	-7.40	-1.35	55.73	0.36	21.55	0.0167	downward	55.59	0.72	21.55	0.0334	downward
OW-56A	45.10	50.10	51.90					51.88				
OW-56C	27.30	29.80	51.88	0.02	20.30	0.0010	downward	51.95	-0.07	20.30	0.0034	upward
OW-56C	27.30	29.80	51.88					51.95				
OW-57	-5.80	-3.30	14.58	*	*	*	*	26.00	*	*	*	*

dh - Difference of water-level elevation
dl - Difference between midpoints of screen
Iv - Vertical hydraulic gradient
* - Gradient is not considered representative since water-level elevation in bedrock well OW-57 had not reached static level.

APPENDIX 3A-4

Table 6. Calculation of Vertical Gradients at Selected Observation Well Clusters During the GSIP Phase 2 RI, Industri-Plex Site, Woburn, Massachusetts.

			Mar. 19-21, 1992				
Well Number	Elevation of Bottom of Screen (ft relative to mean sea level)	Elevation of Midpoint of Screen (ft relative to mean sea level)	Water-Level Elevation (ft relative to mean sea level)	dh (ft)	dl (ft)	Iv	Direction of Flow
OW-18	7.30	27.30	53.68				
OW-18A	46.11	51.11	53.68	0.00	23.81	0.0000	horizontal
OW-30A	45.18	50.25	53.32				
OW-30B	5.27	10.34	53.22	0.10	39.91	0.0025	downward
OW-54A	50.70	54.70	55.79				
OW-54C	17.70	20.20	56.00	-0.21	34.50	0.0061	upward
OW-54C	17.70	20.20	56.00				
OW-55	-7.40	-1.35	55.82	0.18	21.55	0.0084	downward
OW-56A	45.10	50.10	51.83				
OW-56C	27.30	29.80	51.89	-0.06	20.30	0.0030	upward
OW-56C	27.30	29.80	51.89				
OW-57	-5.80	-3.30	52.17	-0.28	33.10	0.0085	upward

dh - Difference of water-level elevation
dl - Difference between midpoints of screen
Iv - Vertical hydraulic gradient

Piezometer Measurements (TtNUS)

APPENDIX 3A-5
PIEZOMETER MEASUREMENTS
MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

STATION [1]	4/17/02 SURFACE WATER [3] ELEVATION (ft.- NGVD 1988)	4/17/02 GROUNDWATER [3] ELEVATION (ft.- NGVD 1988)	4/26/02 SURFACE WATER [4] ELEVATION (ft.- NGVD 1988)	4/26/02 GROUNDWATER [4] ELEVATION (ft.- NGVD 1988)	5/8/02 SURFACE WATER [3] ELEVATION (ft.- NGVD 1988)	5/8/02 GROUNDWATER [3] ELEVATION (ft.- NGVD 1988)
1	54.9	52.37	NR	NR	54.77	52.32
2	50.64	50.83	51.2	51.35	50.47	50.58
3	47.8	48.04	NR	48.3	47.97	47.97
5	42.93	42.94	NR[2B]	NR[2B]	42.88	42.91
6	33.2	33.29	NR[2B]	NR[2B]	32.23	32.23
7	15.36	15.53	15.72	15.83	15.34	15.74
8	9.89	9.78	10.33	10.42	9.88	9.74
10	NR[2A]	-2.72	-0.66	-0.53	-0.32	-0.44

STATION [1]	5/15/02 SURFACE WATER [4] ELEVATION (ft.- NGVD 1988)	5/15/02 GROUNDWATER [4] ELEVATION (ft.- NGVD 1988)	6/20/02 SURFACE WATER [3] ELEVATION (ft.- NGVD 1988)	6/20/02 GROUNDWATER [3] ELEVATION (ft.- NGVD 1988)	7/16/02 SURFACE WATER [3] ELEVATION (ft.- NGVD 1988)	7/16/02 GROUNDWATER [3] ELEVATION (ft.- NGVD 1988)
1	55.2	53.2	54.78	52.53	54.58	52.63
2	51.15	51.28	52.41	50.4	50.28	50.59
3	48.42	48.51	47.72	47.91	47.47	47.66
5	43.61	43.61	42.88	42.89	42.5	42.5
6	33.28	33.29	29.99	30.21	29.42	29.54
7	15.97	16.13	15.14	15.45	15.44	15.26
8	10.7	10.46	9.93	10.68	9.64	9.29
10	-0.28	-0.42	-0.67	-0.67	-0.37	-0.37

STATION [1]	7/25/02 SURFACE WATER [4] ELEVATION (ft.- NGVD 1988)	7/25/02 GROUNDWATER [4] ELEVATION (ft.- NGVD 1988)	8/6/02 SURFACE WATER [3] ELEVATION (ft.- NGVD 1988)	8/6/02 GROUNDWATER [3] ELEVATION (ft.- NGVD 1988)	8/31/02 SURFACE WATER [4] ELEVATION (ft.- NGVD 1988)	8/31/02 GROUNDWATER [4] ELEVATION (ft.- NGVD 1988)
1	54.65	52.86	54.42	52.48	54.6	53.04
2	50.35	50.37	NR[2A]	50.06	50.13	50.14
3	47.63	47.74	47.33	47.5	47.42	47.65
5	42.81	42.78	42.48	42.44	42.76	42.76
6	29.7	29.8	29.34	29.39	29.67	29.74
7	15.27	15.42	15.13	15.32	15.27	15.47
8	9.69	9.34	9.56	9.21	9.56	9.28
10	-0.56	-0.6	-0.61	-0.61	-0.7	-0.7

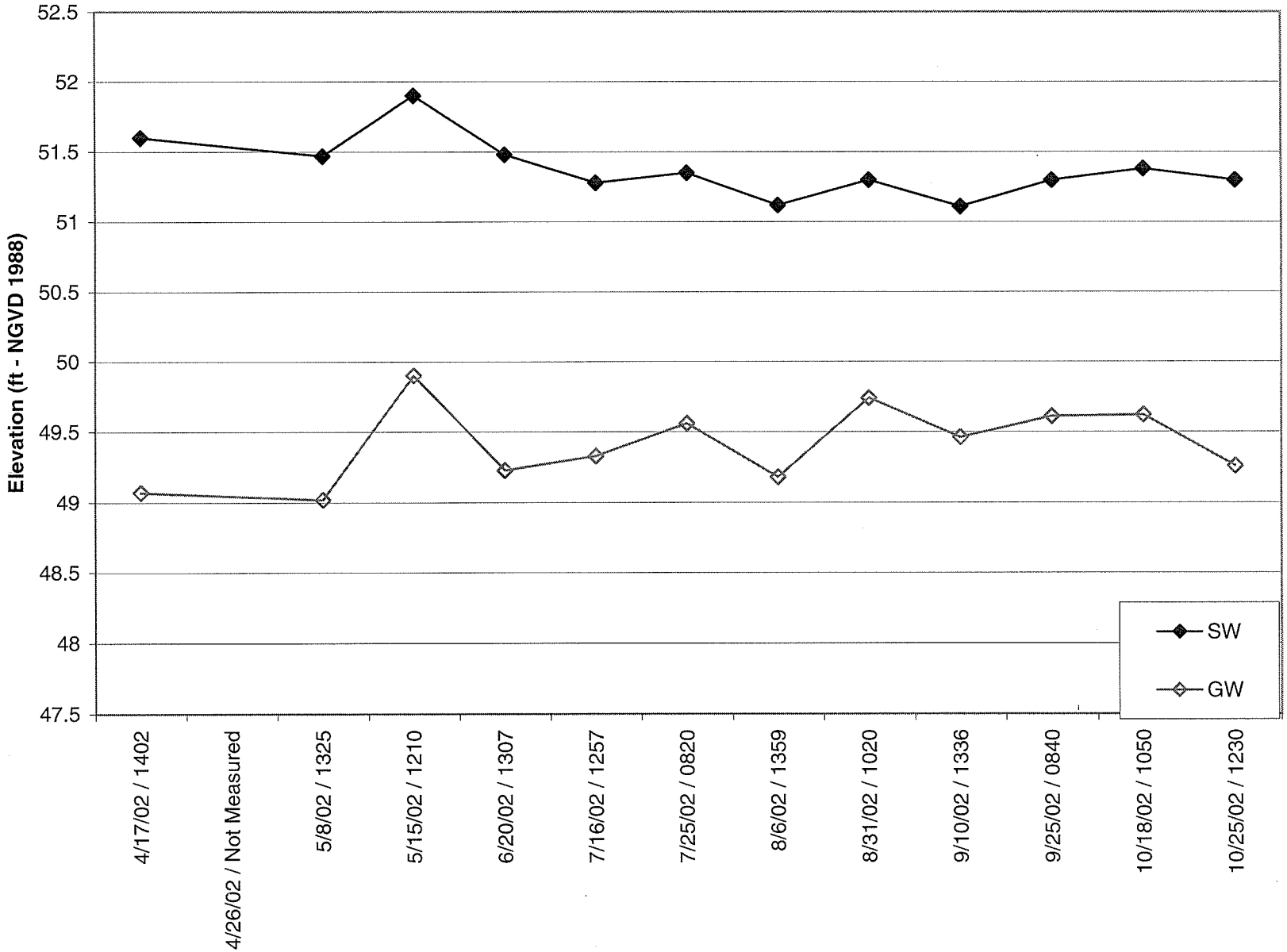
APPENDIX 3A-5
PIEZOMETER MEASUREMENTS
MSGRP REMEDIAL INVESTIGATION REPORT
INDUSTRI-PLEX SITE
WOBURN, MASSACHUSETTS

STATION [1]	9/10/02 SURFACE WATER [3] ELEVATION (ft.- NGVD 1988)	9/10/02 GROUNDWATER [3] ELEVATION (ft.- NGVD 1988)	9/25/02 SURFACE WATER [4] ELEVATION (ft.- NGVD 1988)	9/25/02 GROUNDWATER [4] ELEVATION (ft.- NGVD 1988)	10/18/02 SURFACE WATER [4] ELEVATION (ft.- NGVD 1988)	10/18/02 GROUNDWATER [4] ELEVATION (ft.- NGVD 1988)
1	54.41	52.76	54.6	52.91	54.68	52.92
2	NR[2A]	50.16	NR[2A]	50.2	50.46	50.5
3	47.53	47.67	47.57	47.63	47.77	47.9
5	42.41	42.38	43.71	43.64	43.17	43.19
6	29.36	29.54	29.54	29.59	31.18	31.22
7	15.27	15.36	14.94	14.97	15.07	15.22
8	9.4	9.08	9.75	9.39	10.03	9.61
10	-0.72	-0.6	-0.62	-0.62	-0.02	-0.15

STATION [1]	10/25/02 SURFACE WATER [3] ELEVATION (ft.- NGVD 1988)	10/25/02 GROUNDWATER [3] ELEVATION (ft.- NGVD 1988)
1	54.6	52.56
2	NR[2A]	50.39
3	47.54	47.67
5	43.14	42.99
6	29.75	29.83
7	14.83	14.91
8	9.71	9.35
10	-0.57	-0.55

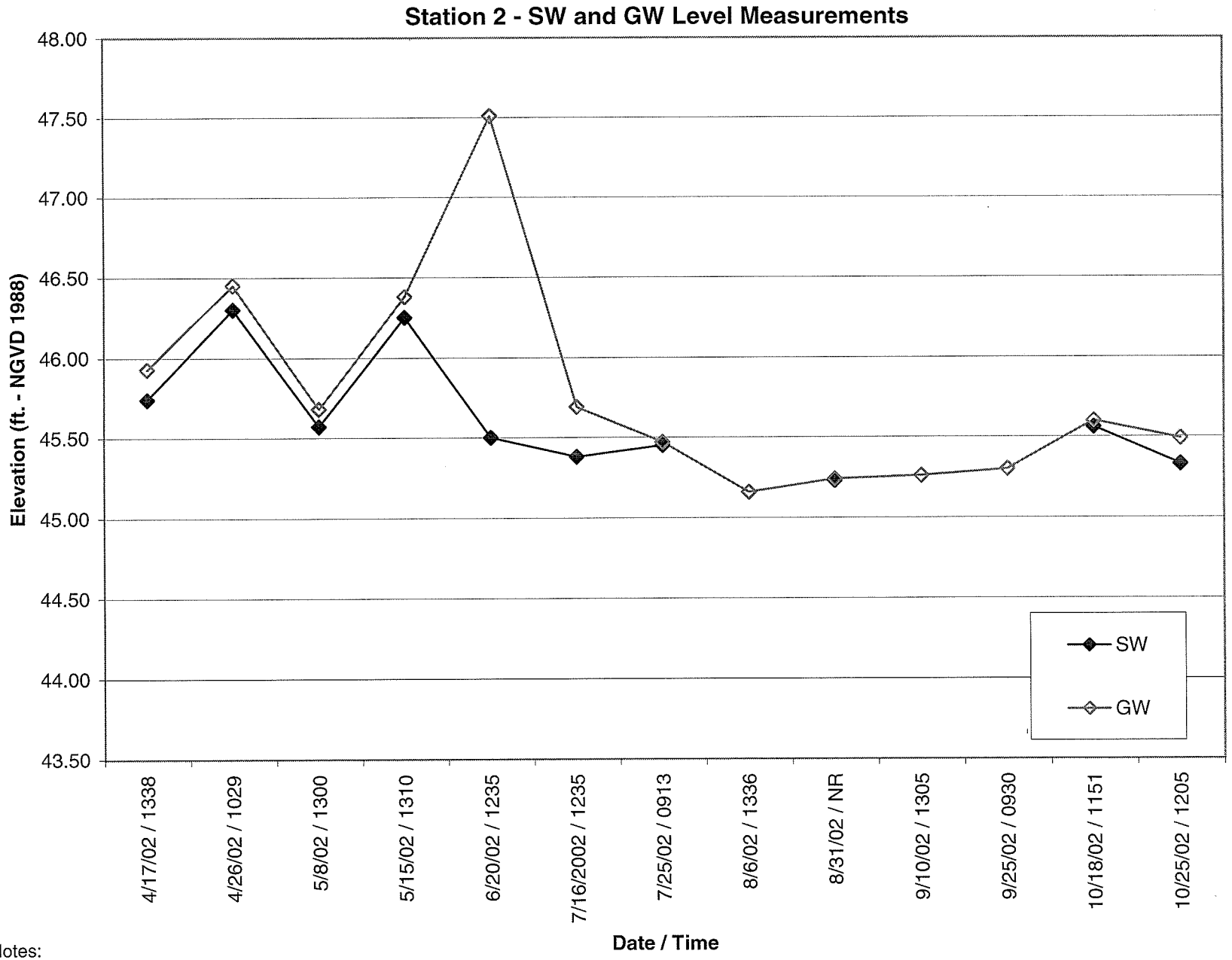
Notes:
1. A piezometer was not installed at Station 4 or Station 9.
2. NR = No Reading
   A. Surface Water level very low, therefore the surface water did not reach the piezometer for measurement and no reading.
   B. Surface Water level very high, therefore piezometer was not accessible to take measurement and no reading.
3. Water levels measured during base flow conditions; 4/17/02, 5/8/02, 6/20/02, 7/16/02, 8/6/02, 9/10/02, 10/25/02.
4. Water levels measured during storm flow conditions; 4/26/02, 5/15/02, 7/25/02, 8/31/02, 9/25/02, 10/18/02.

Station 1 - SW and GW Level Measurements



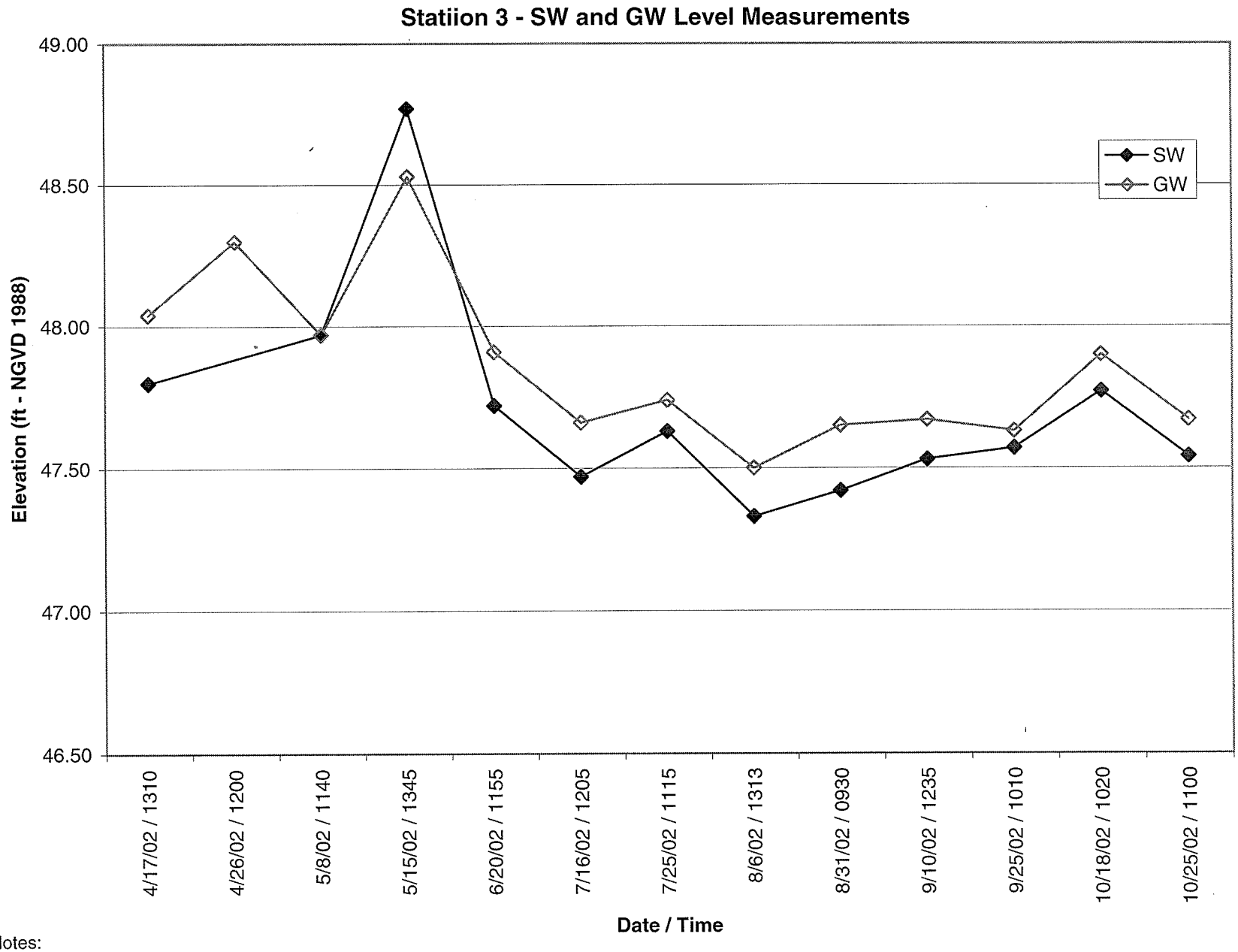
Notes:

1. Water levels not measured on 4/26/02.
2. Measurements made after storm events; 4/26/02, 5/15/02, 7/25/02, 8/31/02, 9/25/02, and 10/18/02. All other dates base flow events.



Notes:

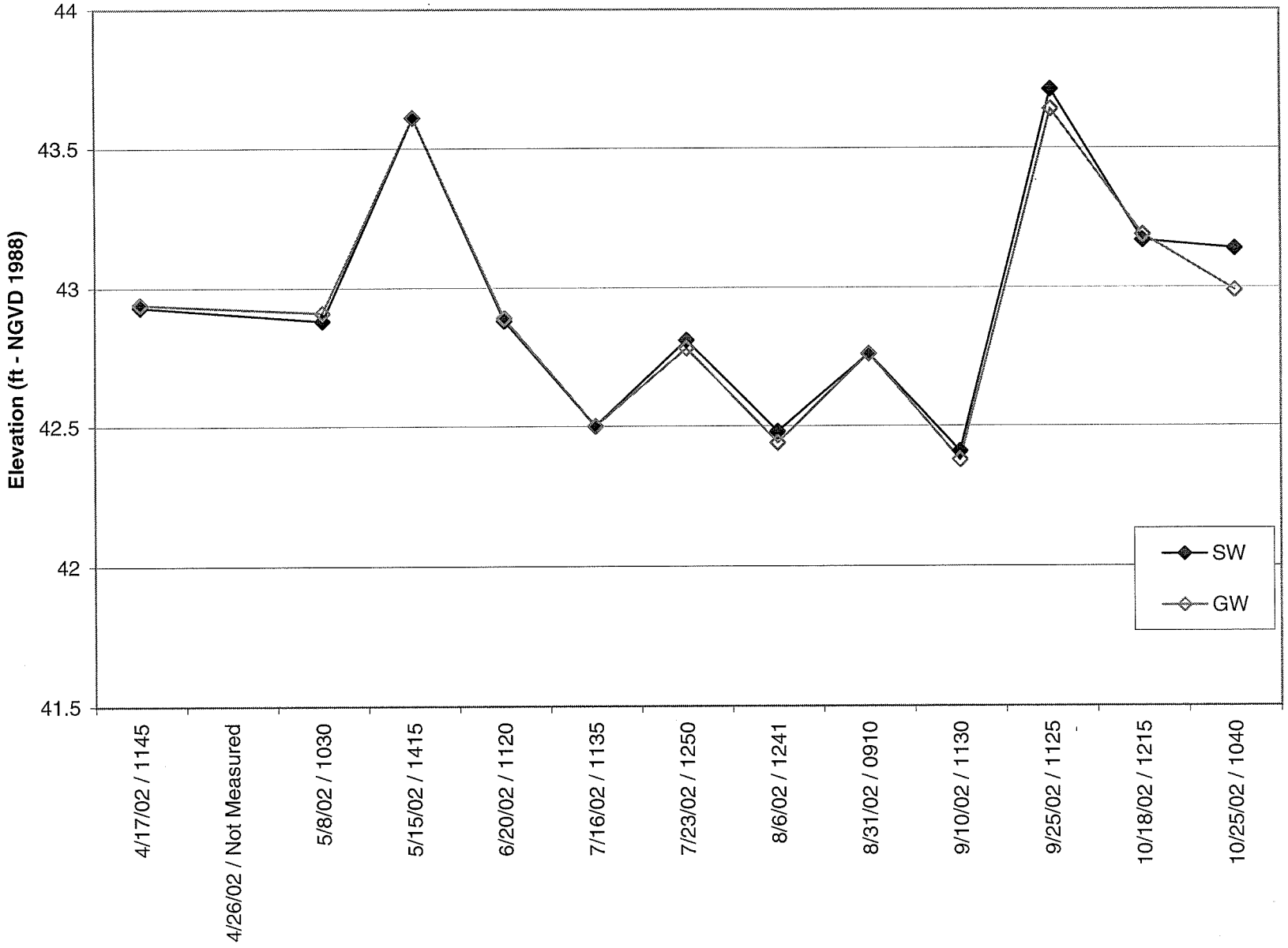
1. Surface water depths were not measured on 8/6/02, 9/10/02 and 9/23/02 because the surface water was very low and did not reach the piezometer.
2. The time of water level measurements was not recorded on 8/31/02.
3. Measurements made after storm events; 4/26/02, 5/15/02, 7/25/02, 8/31/02, 9/25/02, and 10/18/02. All other dates base flow events.



Notes:

1. No surface water level for 4/26/02.
2. Measurements made after storm events; 4/26/02, 5/15/02, 7/25/02, 8/31/02, 9/25/02, and 10/18/02. All other dates base flow events.

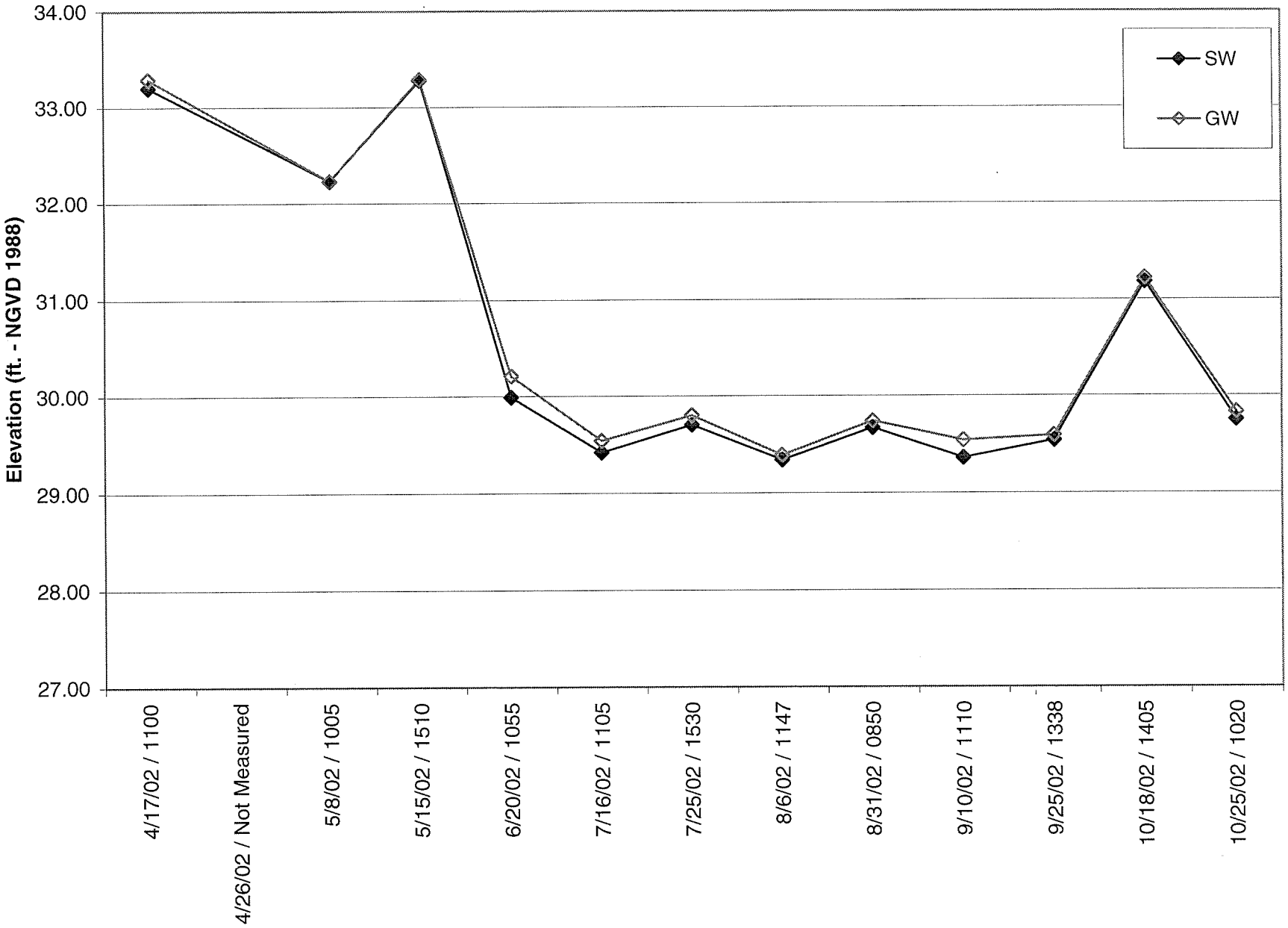
Station 5 - SW and GW Level Measurements



Note:

1. Water levels not measured on 4/26/02.
2. Measurements made after storm events; 4/26/02, 5/15/02, 7/25/02, 8/31/02, 9/25/02, and 10/18/02. All other dates base flow events.

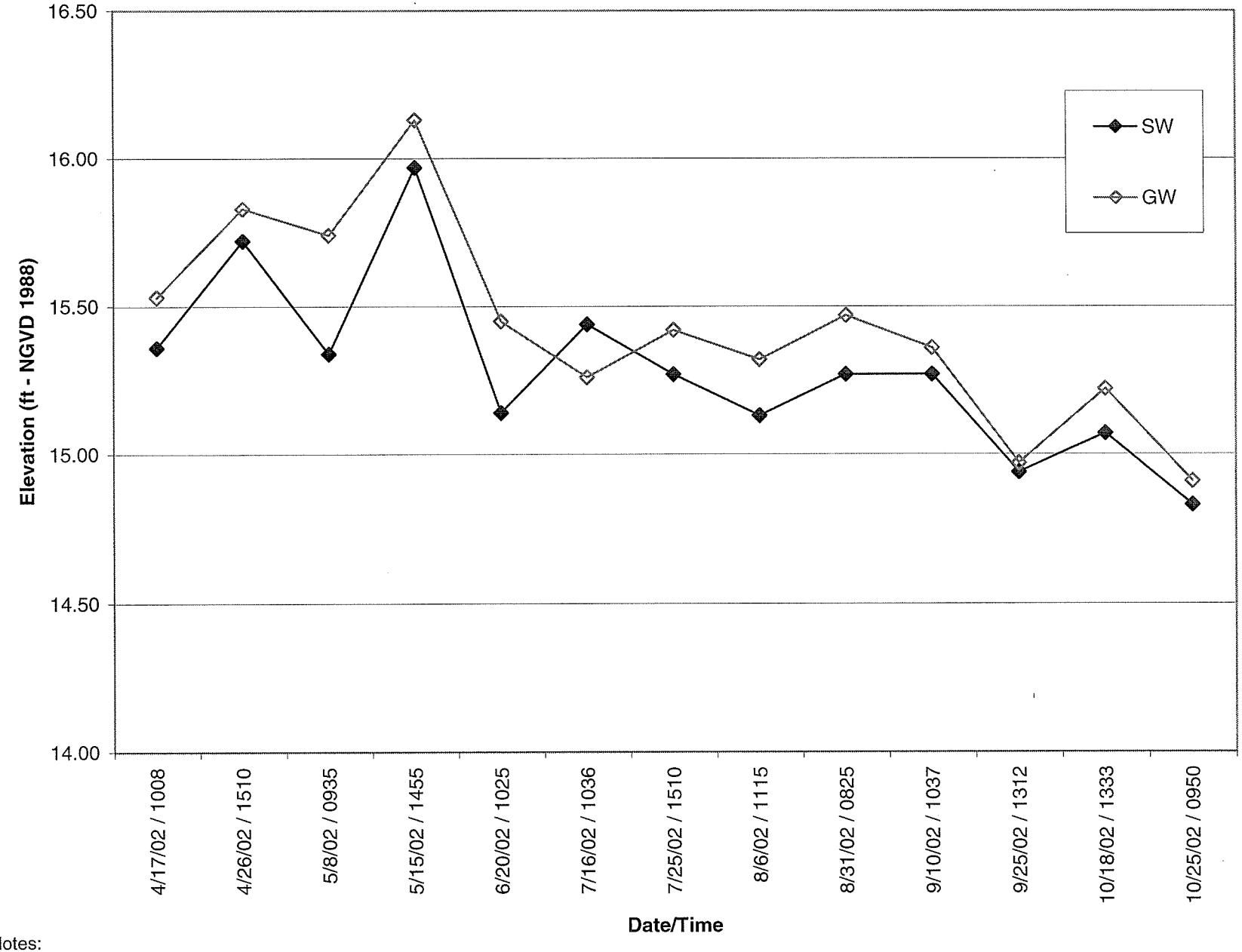
Station 6 - SW and GW Level Measurements



Notes:

1. Water levels not measured on 4/26/02.
2. Measurements made after storm events; 4/26/02, 5/15/02, 7/25/02, 8/31/02, 9/25/02, and 10/18/02. All other dates base flow events.

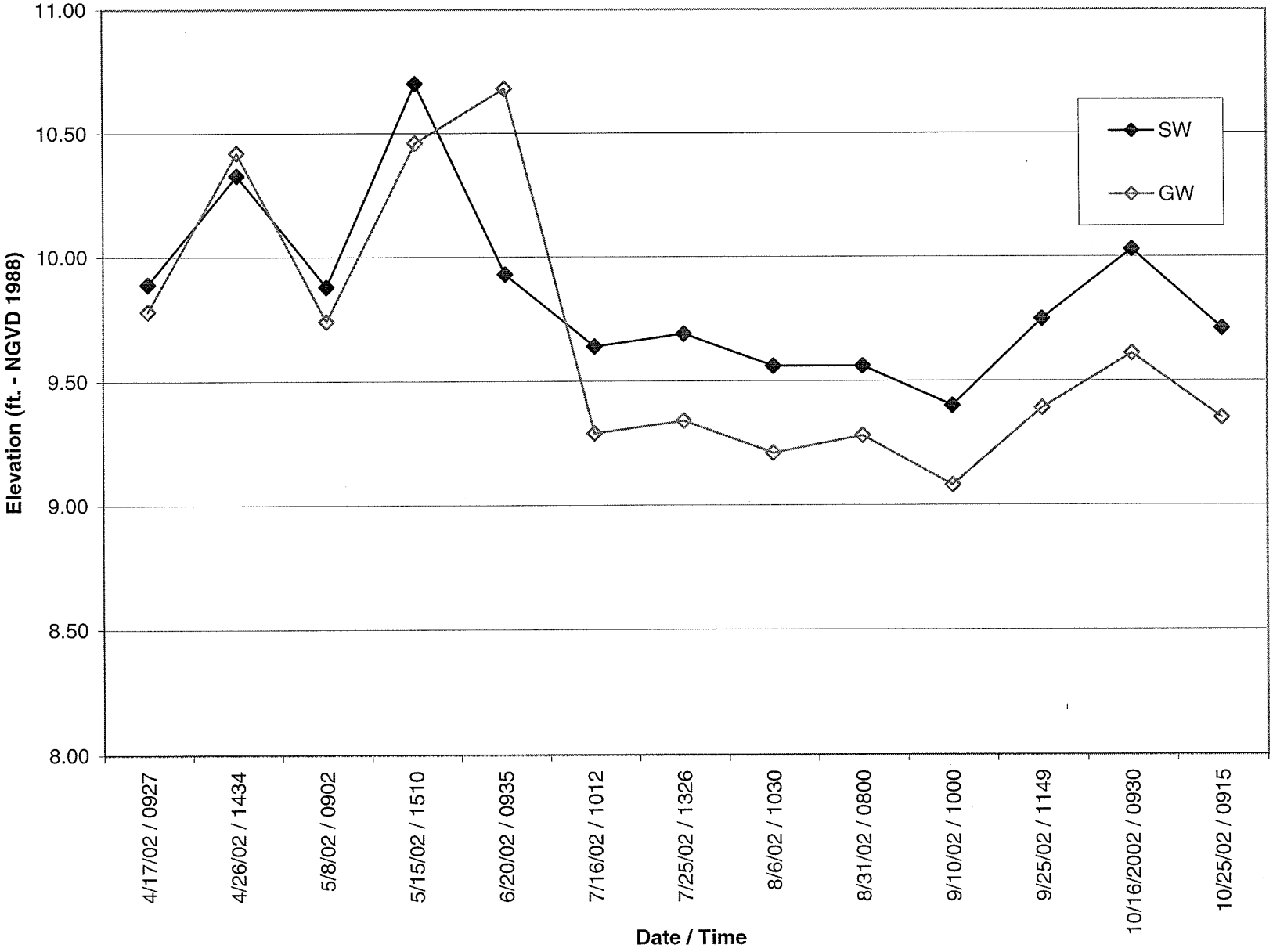
Station 7 - SW and GW Level Measurements



Notes:

1. Water levels not measured on 4/26/02.
2. Measurements made after storm events; 4/26/02, 5/15/02, 7/25/02, 8/31/02, 9/25/02, and 10/18/02. All other dates base flow events.

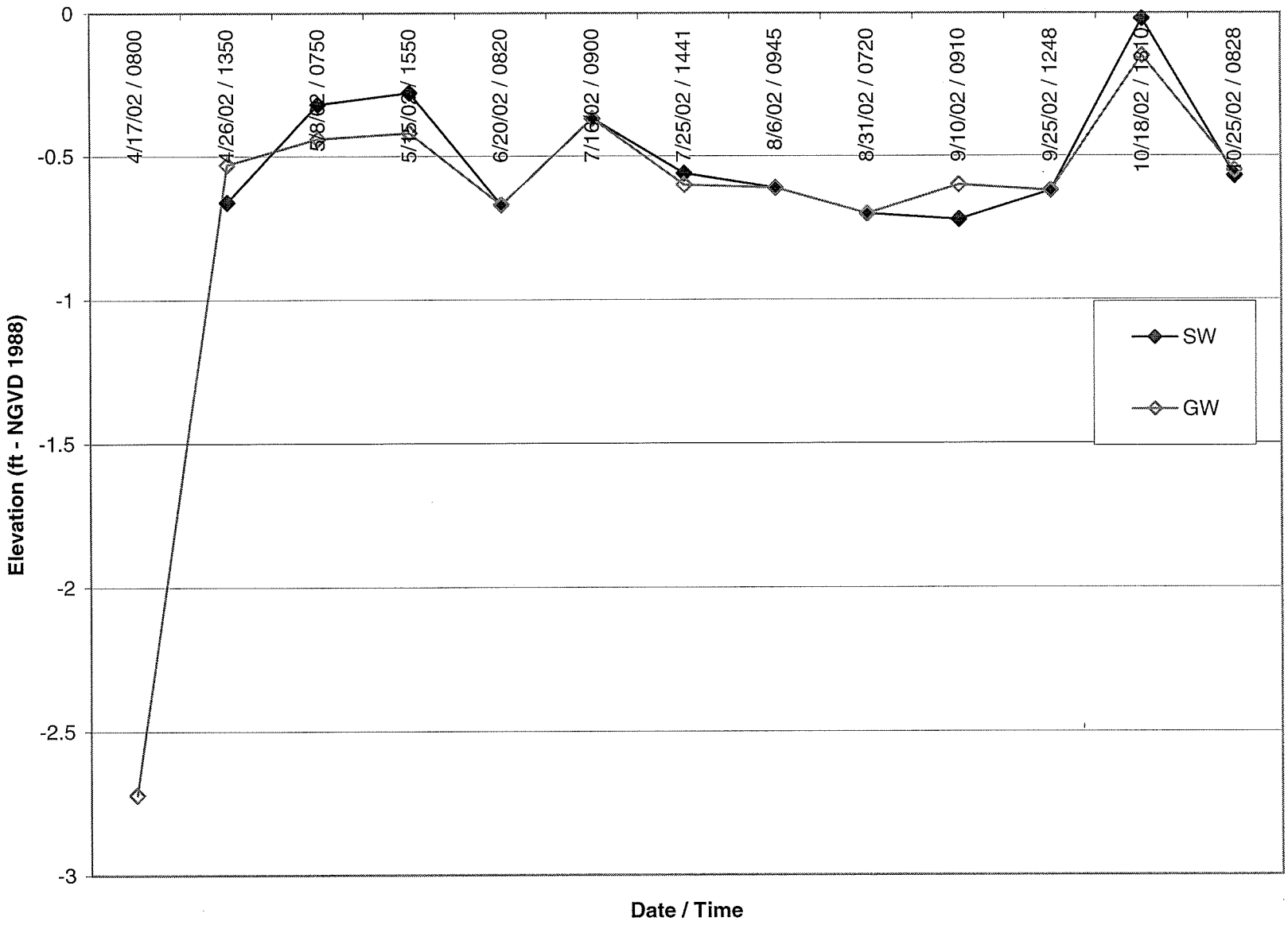
Station 8 - SW and GW Level Measurements



Notes:

1. Water levels not measured on 4/26/02.
2. Measurements made after storm events; 4/26/02, 5/15/02, 7/25/02, 8/31/02, 9/25/02, and 10/18/02. All other dates base flow events.

Station 10 - SW and GW Level Measurements



Notes:

1. Surface water level not measured on 4/17/02 because the surface water did not reach the location of the piezometer, because it was unusually low. The top of the piezometer is 3.87ft above the stream bottom and groundwater was measured 4.15 feet below the top of the piezometer. The elevation of the top of piezometer is 1.43 feet NGVD 1988 and stream bottom elevation is -2.44 feet NGVD 1988.
2. Measurements made after storm events; 4/26/02, 5/15/02, 7/25/02, 8/31/02, 9/25/02, and 10/18/02. All other dates base flow events.

3B Boring and Well Construction Logs

Phase 1-2 Stauffer RI (Roux Associates, 1982-1983)

GSIP Boring Logs (Golder Associates, 1990)

Well Construction Details and Logs

Phase 1-2 Stauffer Remedial Investigation
(Roux Associates, 1982-1983)

CONSULTING GROUND-WATER GEOLOGISTS

ROUX ASSOCIATES INC

WELL LOG

Project: Woburn
Client: Stauffer Chemical Company
Page 1 Of 4
Date Prepared 10/1/84 By J. DeMartinis
Owner: Stauffer Chemical Company
Well No. OW - 1
Loc.: New England Pigments and Resins
M.P. Elevation: 80.32'
Drilling Started 8/10/82, Ended 8/13/82
Driller: Domestic Wells, Inc.
Type Of Rig: Air/Mud Rotary

WELL DATA

Hole Diam.: 13"-24';5 3/4"-108'
Final Depth: 108'
Casing Diam.: 6.0"
Casing Length: 25.0'
Screen Setting:
Screen Slot & Type:
Well Status: Observation

G-W READING

Date	DTW MP	Elev.
8/83	7.90'	72.4
10/83	7.72'	72.6
12/83	6.46'	73.8
1/84	7.08'	73.2

SAMPLER

Type:
Hammer: lb.
Fall:

DEVELOPMENT

Depth in ft.	SAMPLE No.	Rec.	Depth	Blows 6	Strta Chg. & Gen. Desc.	SAMPLE DESCRIPTION
					Fill	Moist, black-brown fill; cobbles pebbles - dense
5						Loose, brown sandy fill
						Boulders of meta-gabbro with quar veins containing muscovite and green platey minerals; in a san matrix
10					Sand	Wet, brown, fine to medium sand; well sorted
15					Till	Moist gray, poorly sorted mixture of silt, sand, cobbles and boul
20					Fractured Bedrock	Fractured, dark gray meta-gabbro with veins of quartz, plagiocla and muscovite
					Bedrock	Gray meta-gabbro with abundant quartz veins (white with some pink)
25						Black-gray, meta-gabbro with phyllitic partings
30						Rusty Zone

REMARKS:

CONSULTING GROUND-WATER GEOLOGISTS

ROUX ASSOCIATES INC

WELL LOG

Project: Woburn
Client: Stauffer Chemical Company
Page: 2 Of 4
Date Prepared: 10/1/82 By: J. DeMartinis
Owner: Stauffer Chemical Company
Well No.: OW - 1
Loc.: New England Pigaments and Resins
M.P. Elevation: 80.32'
Drilling Started: 8/10/82, Ended: 8/13/82
Driller: Domestic Wells, Inc.
Type Of Rig: Air/Mud Rotary

WELL DATA

Hole Diam.: 13"-24';5 3/4"-108'
Final Depth: 108'
Casing Diam.: 6.0"
Casing Length: 25.0'
Screen Setting:
Screen Slot & Type:
Well Status: Observation

G-W READING

Date	DTW MP	Elev.W

SAMPLER

Type:
Hammer: lb.
Fall:

DEVELOPMENT

Depth in ft.	SAMPLE No.	Rec.	Depth	Blows 6	Strta Chg. & Gen. Desc.	SAMPLE DESCRIPTION
35						Gray meta-gabbro
						Zone of abundant plagioclase,quar epidate, and chlorite;green in color
40						Rusty green in color with more quartz
45						Becoming darker in color and high content of quartz
50						
55						Pink quartz,green platey mineral and muscovite
						Gray & green meta-gabbro with chlorite, muscovite and pink quartz
60						Alternating layers of gray and green mafic rock and pink quart pynite crystals in gray rock

REMARKS:

CONSULTING GROUND-WATER GEOLOGISTS

ROUX ASSOCIATES INC

WELL LOG

Project: Woburn
Client: Stauffer Chemical Company
Page 3 Of 4
Date Prepared 10/1/82 By J. DeMartinis
Owner Stauffer Chemical Company
Well No. OW - 1
Loc. New England Pigments and Resins
M.P. Elevation 80.32'
Drilling Started 8/10/82, Ended 8/13/83
Driller Domestic Wells, Inc.
Type Of Rig Air/Mud Rotary

WELL DATA

Hole Diam. 13"-24';5 3/4"-108'
Final Depth 108'
Casing Diam. 6.0"
Casing Length 25.0'
Screen Setting
Screen Slot & Type
Well Status Observation

G-W READING

Date	DTW MP	Elev.

SAMPLER

Type
Hammer lb.
Fall

DEVELOPMENT

Depth in ft.	SAMPLE No.	Rec.	Depth	Blows 6	Strta Chg. & Gen. Desc.	SAMPLE DESCRIPTION
65						Alternating layers of gray and green mafic rock and pink quart pyrite crystals in gray rock
						Soft zone - no water
70						Gray meta-gabbro with zones of green minerals and pink quartz
75						
80						
85						Green and purple meta-gabbro
90						Dark gray meta-gabbro

REMARKS:

CONSULTING GROUND-WATER GEOLOGISTS

ROUX ASSOCIATES INC

WELL LOG

Project: Woburn
Client: Stauffer Chemical Company
Page: 4 Of 4
Date Prepared: 10/1/82 By: J. DeMartinis
Owner: Stauffer Chemical Company
Well No.: OW - 1
Loc.: New England Pigments and Resins
M.P. Elevation: 80.32'
Drilling Started: 8/10/82, Ended: 8/10/82
Driller: Domestic Wells, Inc.
Type Of Rig: Air/Mud Rotary

WELL DATA

Hole Diam.: 13"-24';5 3/4"-108'
Final Depth: 108'
Casing Diam.: 6.0"
Casing Length: 25.0'
Screen Setting:
Screen Slot & Type:
Well Status: Observation

G-W READING

Date	DTW MP	Elev.

SAMPLER

Type:
Hammer: lb.
Fall:

DEVELOPMENT

Depth in ft.	SAMPLE No.	Rec.	Depth	Blows 6	Strta Chg. & Gen. Desc.	SAMPLE DESCRIPTION
95						Dark gray meta-gabbro .
100						Very soft, friable zone; quartz, feldspar and mafic minarals- no water
105						Green meta-gabbro; hard
110						

REMARKS:

CONSULTING GROUND-WATER GEOLOGISTS

ROUX ASSOCIATES INC

WELL LOG

Project: Woburn
Client: Stauffer Chemical Company
Page: 1 Of 1
Date Prepared: 10/1/82 By: J. DeMartinis
Owner: Stauffer Chemical Company
Well No.: OW - 1A
Loc.: New England Pigments and Resins
M.P. Elevation: 79.72'
Drilling Started: 9/14/82, Ended: 9/14/82
Driller: Domestic Wells, Inc.
Type Of Rig: Air/Mud Rotary

WELL DATA

Hole Diam.: 3.0"
Final Depth: 25.0'
Casing Diam.: 4.0"
Casing Length: 6.0'
Screen Setting: 5.0'-25.0'
Screen Slot & Type: .010 PVC
Well Status: Observation

G-W READING

Date	DTW MP	Elev.
8/83	7.31'	72
10/83	7.14'	72
12/83	5.31'	74.
1/84	5.86'	73.

SAMPLER

Type:
Hammer: ____ lb.
Fall:

DEVELOPMENT

1 hr. - Air/water

Depth in ft.	SAMPLE No.	SAMPLE Rec.	SAMPLE Depth	SAMPLE Blows 6	Strta Chg. & Gen. Desc.	SAMPLE DESCRIPTION
						For geologic log sec. OW - 1
5						
10						
15						
20						
25						
30						

REMARKS:

CONSULTING GROUND-WATER GEOLOGISTS

ROUX ASSOCIATES INC

WELL LOG

Project: Woburn
Client: Stauffer Chemical Company
Page: 1 Of 1
Date Prepared: 10/1/82 By: J. DeMartinis
Owner: Stauffer Chemical Company
Well No.: OW - 2
Loc.: North end of Site
M.P. Elevation: 128.02'
Drilling Started: 8/16/82 Ended: 8/17/82
Driller: Domestic Wells, Inc.
Type Of Rig: Air/Mud Rotary

WELL DATA

Hole Diam.: 8 3/4"-16';5 3/4"-100
Final Depth: 100'
Casing Diam.: 6.0"
Casing Length: 17.0'
Screen Setting:
Screen Slot & Type:
Well Status: Observation

G-W READING

Date	DTW MP	Elev.
8/83	20.54'	107
10/83	44.68'	83.3
12/83	5.10'	122
1/84	7.31'	120

SAMPLER

Type:
Hammer: lb.
Fall:

DEVELOPMENT

Depth in ft.	SAMPLE No.	Rec.	Depth	Blows 6	Strta Chg. & Gen. Desc.	SAMPLE DESCRIPTION
					Till	Brown-black organic zone Brown sandy loam with organic material
5						Gray poorly sorted mixture of sil sand and gravel Boulders at 6.0'
10					Fractured Bedrock	Gray meta-gabbro containing green minerals and quartz; fractured bedrock
15					Bedrock	Bedrock; Greenish-gray meta-gabbr with veins of pink and white quartz throughout
20						
25						
30						

REMARKS:

CONSULTING GROUND-WATER GEOLOGISTS

ROUX ASSOCIATES INC

WELL LOG

Project: Woburn
Client: Stauffer Chemical Company
Page: 1 Of 1
Date Prepared: 10/1/82 By: J. DeMartinis
Owner: Stauffer Chemical Company
Well No.: OW - 3
Loc.: East of Commerce Way near I-93
M.P. Elevation: 74.76'
Drilling Started: 8/3/82, Ended: 8/3/82
Driller: Domestic Wells, Inc.
Type Of Rig: Air/Mud Rotary

WELL DATA

Hole Diam.: 13"-12'; 5 3/4"-83'
Final Depth: 83'
Casing Diam.: 6.0"
Casing Length: 13.5'
Screen Setting:
Screen Slot & Type:
Well Status: Observation

G-W READING

Date	DTW MP	Elev
8/83	9.75'	65.
10/83	9.79'	64.
12/83	6.52'	68.
1/84	7.24'	67.

SAMPLER

Type:
Hammer: lb.
Fall:

DEVELOPMENT

Depth in ft.	SAMPLE No.	SAMPLE Rec.	SAMPLE Depth	SAMPLE Blows 6	Strta Chg. & Gen. Desc.	SAMPLE DESCRIPTION
					Sand	Moist, brown, fine-medium sand; well sorted; quartzose
5						Moist, gray, poorly sorted gravel sand; cobbles of quartz and maf rock
						Moist, gray boulders and cobbles a sand matrix
10					Bedrock	Bedrock-dark gray meta-gabbro wit gneissic texture; thin layers o quartz (white to pink) and gree minerals (chlorite, epidate and amphibole)
15						47' - 50'; soft, black, rusty zone
						73' - 75'; pink quartz vein
20						75' - 80'; rosy quartz vein - wate bearing
25						
30						

REMARKS:

CONSULTING GROUND-WATER GEOLOGISTS

ROUX ASSOCIATES INC

WELL LOG

Project: Woburn
Client: Stauffer Chemical Company
Page: 1 Of 2
Date Prepared: 10/1/82 By: J. DeMartinis
Owner: Stauffer Chemical Company
Well No.: OW-4
Loc.: Roma Stone near I-93
M.P. Elevation: 71.54'
Drilling Started: 8/4/82 Ended: 8/5/82
Driller: Domestic Wells, Inc.
Type Of Rig: Air/Mud Rotary

WELL DATA

Hole Diam.: 13"-25'; 5 3/4"-44'
Final Depth: 44.0'
Casing Diam.: 6.0"
Casing Length: 26.0'
Screen Setting:
Screen Slot & Type:
Well Status: Observation

G-W READING

Date	DTW MP	Elev.
8/83	8.89'	62.
10/83	9.38'	62.
12/83	5.19'	66.
1/84	6.25'	65.

SAMPLER

Type:
Hammer: lb.
Fall:

DEVELOPMENT

Depth in ft.	SAMPLE No.	Rec.	Depth	Blows 6	Strta Chg. & Gen. Desc.	SAMPLE DESCRIPTION
					Fill	Moist, brown sandy fill with pebb and cobbles
						Moist, grayish-brown cobble and boulder fill
5					Sand	Moist-wet, brown, fine-medium san well sorted; scattered pebbles
					Till	Moist, dark gray, poorly sorted mixture of grave (boulders, cobb and pebbles) in a sandy matrix Gravel clasts are exclusively of quartz and meta-gabbro
10						
15						
20					Bedrock	Fractured bedrock-rusty quartz in fracture zones with abundant epidote and plagioclase-water bearing at 26'
25						
30						Rock is grayish-green in color

REMARKS:

CONSULTING GROUND-WATER GEOLOGISTS

ROUX ASSOCIATES INC

WELL LOG

Project: Woburn
Client: Stauffer Chemical Company
Page: 2 Of: 2
Date Prepared: 10/1/82 By: J. DeMartinis
Owner: Stauffer Chemical Company
Well No.: OW - 4
Loc.: Roma Stone near I-93
M.P. Elevation: 71.54'
Drilling Started: 8/4/82, Ended: 8/5/82
Driller: Domestic Wells, Inc.
Type Of Rig: Air/Mud Rotary

WELL DATA

Hole Diam.: 13"-25'; 5 3/4"-44'
Final Depth: 44.0'
Casing Diam.: 6.0"
Casing Length: 26.0'
Screen Setting:
Screen Slot & Type:
Well Status: Observation

G-W READING

Date	DTW MP	Elev.

SAMPLER

Type:
Hammer: lb.
Fall:

DEVELOPMENT

Depth in ft.	SAMPLE No.	Rec.	Depth	Blows 6	Strta Chg. & Gen. Desc.	SAMPLE DESCRIPTION
35						Zone of platey green minerals
40						Zone of pink and white quartz Green meta-gabbro with thin quartz veins

REMARKS:

CONSULTING GROUND-WATER GEOLOGISTS

ROUX ASSOCIATES INC

WELL LOG

Project: Woburn
Client: Stauffer Chemical Company
Page: 1 Of 1
Date Prepared: 10/4/82 By: S. Sucharski
Owner: Stauffer Chemical Company
Well No.: OW - 5
Loc.: Harvey Industries
M.P. Elevation: 68.08'
Drilling Started: 8/26/82 Ended: 8/27/82
Driller: Domestic Wells, Inc.
Type Of Rig: Air/Mud Rotary

WELL DATA

Hole Diam.: 8.0"
Final Depth: 49.5'
Casing Diam.: 4.0"
Casing Length: 10.0'
Screen Setting: 9.0'-49.0'
Screen Slot & Type: .010 PVC
Well Status: Observation

G-W READING

Date	DTW MP	Elev.
8/83	9.45'	58.6
10/83	9.19'	58.8
12/83	8.52'	59.5
1/84	8.86'	59.2

SAMPLER

Type:
Hammer: lb.
Fall:

DEVELOPMENT

2 Hr. - Air/water

Depth in ft.	SAMPLE No.	Rec.	Depth	Blows 6	Strta Chg. & Gen. Desc.	SAMPLE DESCRIPTION
					Fill	Brown, hard packed sand, fill
5					Peat	Moist black silty peat
10						
15					Sand	Well sorted; coarse sand and gran brown-wet
20						33' - 37' - Cobble zone - Till 37' - 41' - Poorly sorted sand, granules, and gravel 41' - Bedrock - dark green meta-gabbro
25						
30						

REMARKS:

CONSULTING GROUND-WATER GEOLOGISTS

ROUX ASSOCIATES INC

WELL LOG

Project: Woburn
Client: Stauffer Chemical Company
Page: 1 Of 2
Date Prepared: 10/4/82 By: S. Sucharski
Owner: Stauffer Chemical Company
Well No.: OW - 6
Loc.: Behind Holiday Inn
M.P. Elevation: 62.67'
Drilling Started: 9/16/82, Ended: 9/17/82
Driller: Domestic Wells, Inc.
Type Of Rig: Air/Mud Rotary

WELL DATA

Hole Diam.: 8.0"
Final Depth: 56.0'
Casing Diam.: 4.0"
Casing Length: 7.0'
Screen Setting: 6.0' - 16.0'
Screen Slot & Type: .010 PVC
Well Status: Observation

G-W READING

Date	DTW MP	Elev.
8/83	9.37'	53.
10/83	9.28'	53.
12/83	7.96'	54.
1/84	8.52'	54.

SAMPLER

Type:
Hammer: lb.
Fall:

DEVELOPMENT

Depth in ft.	SAMPLE No.	Rec.	Depth	Blows 6	Strta Chg. & Gen. Desc.	SAMPLE DESCRIPTION
						Brown, silty sand with pebbles ar cobbles disseminated throughout
5						Coarse quartz and sand and granul with rock fragments of mica and meta-gabbro disseminated throug
10						
						Gray, sandy, clayey, silt
15						Brown clay with coarse sand and granules disseminated throughou
						Boulder, meta-gabbro
						Gray clayey silt with rock fragme (meta-gabbro, mica and quartz), and sand particles disseminated throughout-dense
20						
25						
30						

REMARKS:

CONSULTING GROUND-WATER GEOLOGISTS

ROUX ASSOCIATES INC

WELL LOG

Project: Woburn
Client: Stauffer Chemical Company
Page: 1 Of 1
Date Prepared: 10/4/82 By: S. Sucharski
Owner: Stauffer Chemical Company
Well No.: OW - 7
Loc.: Behind Woburn Mall
M.P. Elevation: 57.88'
Drilling Started: 9/15/82, Ended: 9/16/82
Driller: Domestic Wells, Inc.
Type Of Rig: Air/Mud Rotary

WELL DATA

Hole Diam.: 8.0"
Final Depth: 46.5'
Casing Diam.: 4.0"
Casing Length: 7.0'
Screen Setting: 6.0' - 36.0'
Screen Slot & Type: .010 PVC
Well Status: Observation

G-W READINGS

Date	DTW MP	Elev
8/83	7.61'	50.
10/83	7.66'	50.
12/83	6.51'	51.
1/84	6.97'	50.

SAMPLER

Type: Split Spoon
Hammer: 140 lb.
Fall: 30"

DEVELOPMENT

3/4 Hr. - Air/water

Depth in ft.	SAMPLE No.	Rec.	Depth	Blows 6	Strta Chg. & Gen. Desc.	SAMPLE DESCRIPTION
					Fill	Misc. debris and sandy fill
						Graded bedding - sequence of bro fine-medium sand in a gray cla matrix; overlying brown medium coarse sand with muscovite and granules of meta-gabbro and qu
5						Pebbles and cobbles found dissem throughout; alternating layers
10						39.0' - 40.0', Cobble Zone
						40.0' - Till, brown and gray coa sand & granules; in a clay mat
15						Pebbles (angular) of meta-gabbro and small-medium cobbles
20						
25						
30						

REMARKS:
Lost circulation at 45.0'

CONSULTING GROUND-WATER GEOLOGISTS

ROUX ASSOCIATES INC

WELL LOG

Project: Woburn
Client: Stauffer Chemical Company
Page 1 Of 1
Date Prepared 10/4/82 By J. DeMartinis
Owner: Stauffer Chemical Company
Well No.: OW - 8
Loc.: Linscott Road
M.P. Elevation: 68.85'
Drilling Started 8/24/82, Ended 8/25/82
Driller: Domestic Wells, Inc.
Type Of Rig: Air/Mud Rotary

WELL DATA

Hole Diam.: 8"-9'; 5 3/4"-100'
Final Depth: 100.0'
Casing Diam.: 6.0"
Casing Length: 10.0'
Screen Setting:
Screen Slot & Type:
Well Status: Observation

G-W READING

Date	DTW MP	Elev.
8/83	17.10'	51.7
10/83	17.34'	51.5
12/83	15.67'	53.1
1/84	16.30'	52.5

SAMPLER

Type:
Hammer: lb.
Fall:

DEVELOPMENT

Depth in ft.	SAMPLE No.	Rec.	Depth	Blows 6	Strta Chg. & Gen. Desc.	SAMPLE DESCRIPTION
					Fill	Black-brown, sand fill with cobbl
					Sand	Brown, fine sand; well-sorted;moi
5					Till	Brown-gray poorly sorted sand and cobbles
					Bedrock	Meta-gabbro; green-gray,with vein of pink quartz
10						35' - 47'; softer zone, green met gabbro with white quartz veins
						47' - 51'; Gray-green, meta-gabbr
15						51' - 62'; Dark gray, meta-gabbro with reddish quartz veins
						62' - 69'; Soft meta-gabbro, gree with white quartz veins
20						
25						
30						

REMARKS:

CONSULTING GROUND-WATER GEOLOGISTS

ROUX ASSOCIATES INC

WELL LOG

Project: Woburn
Client: Stauffer Chemical Company
Page 1 Of 1
Date Prepared 10/1/82 By J. DeMartinis
Owner: Stauffer Chemical Company
Well No. OW-9
Loc. North of Chrome Lagoon
M.P. Elevation 68.88'
Drilling Started 8/5/82, Ended 8/9/82
Driller: Domestic Wells, Inc.
Type Of Rig: Air/Mud Rotary

WELL DATA

Hole Diam. 13"-28'; 5 3/4"-123'
Final Depth 123.0'
Casing Diam. 6.0"
Casing Length 29.0'
Screen Setting
Screen Slot & Type
Well Status Observation

G-W READING

Date	DTW MP	Elev
8/83	11.23'	57.
10/83	11.52'	57.
12/83	8.70'	60.
1/84	9.26'	59.

SAMPLER

Type
Hammer lb.
Fall

DEVELOPMENT

Depth in ft.	SAMPLE No.	Rec.	Depth	Blows 6	Strta Chg. & Gen. Desc.	SAMPLE DESCRIPTION
					Fill	Moist, brown, sandy fill.
						Dry, reddish-brown, clayey fill w granules and pebbles
5						Moist, black, odorous hair and hi residue; mixed with black stair sand
10						
15					Peat	Moist; black stained peat
					Till	Poorly sorted mixture of sand and gravel
20					Fractured Bedrock	Alternating layers of fractured m gabbro (green and gray) with ve of white quartz and muscovite
25					Bedrock	Massive dark gray meta-gabbro with occasional thin quartz veins and softer zones
30						110' - 123', occasional euhedral pyrite crystal

REMARKS:

CONSULTING GROUND-WATER GEOLOGISTS

ROUX ASSOCIATES INC

WELL LOG

Project: Woburn
Client: Stauffer Chemical Company
Page: 1 Of 1
Date Prepared: 10/4/83 By: J. DeMartinis
Owner: Stauffer Chemical Company
Well No.: OW - 10
Loc.: Robert Abel Company
M.P. Elevation: 64.63'
Drilling Started: 8/17/82, Ended: 8/18/82
Driller: Domestic Wells, Inc.
Type Of Rig: Air/Mud Rotary

WELL DATA

Hole Diam.: 8.0"
Final Depth: 34.5'
Casing Diam.: 4.0"
Casing Length: 3.5'
Screen Setting: 2.5' - 32.5'
Screen Slot & Type: .010 PVC
Well Status: Observation

G-W READING

Date	DTW MP	Elev.
8/83	6.52'	58.1
10/83	6.00'	58.6
12/83	3.25'	61.3
1/84	4.28'	60.3

SAMPLER

Type:
Hammer: lb.
Fall:

DEVELOPMENT

1 ½ Hrs. - Air/water

Depth in ft.	SAMPLE No.	Rec.	Depth	Blows 6	Strta Chg. & Gen. Desc.	SAMPLE DESCRIPTION
0					Sand	Sandy topsoil
						Sandy sequence; alternating layer of fine silty sand; medium grai well-sorted sand; and coarse sa with granules and pebbles (Beds are approx. .3' thick).
5						
10						
15						
20						
25					Till	Gray, poorly sorted mixture of sil sand, pebbles, cobbles and boulc
					Bedrock	Dark gray, meta-gabbro with green colored zones (epidote and plagioclase)and white veins of quartz and muscovite
30						

REMARKS:

CONSULTING GROUND-WATER GEOLOGISTS

ROUX ASSOCIATES INC

WELL LOG

Project: Woburn
Client: Stauffer Chemical Company
Page: 1 Of 1
Date Prepared: 10/4/82 By: J. DeMartinis
Owner: Stauffer Chemical Company
Well No.: OW - 12
Loc.: Town of Reading Sewer Line
M.P. Elevation: 63.74'
Drilling Started: 8/18/82, Ended: 8/19/82
Driller: Domestic Wells, Inc.
Type Of Rig: Air/Mud Rotary

WELL DATA

Hole Diam.: 8.0"
Final Depth: 52.0'
Casing Diam.: 4.0"
Casing Length: 13.0'
Screen Setting: 12.0' - 52.0'
Screen Slot & Type: .010 PVC
Well Status: Observation

G-W READING

Date	DTW MP	Elev
8/83	8.47'	55.
10/83	8.63'	55.
12/83	6.47'	57.
1/84	6.72'	57.

SAMPLER

Type:
Hammer: lb.
Fall:

DEVELOPMENT

2 Hrs. - Air/water

Depth in ft.	SAMPLE No.	Rec.	Depth	Blows 6	Strta Chg. & Gen. Desc.	SAMPLE DESCRIPTION
					Fill	Gray cobbles in a silty sand mat: (fill)
						Brown, medium-coarse sand; well-sorted (fill)
5					Sand	Alternating layers of black-gray, fine sand (well-sorted) and coa sand and granules (rock fragmer & muscovite)
10						
15						Black, very fine to fine sand; odorous; quartz approx. 60%; muscovite approx. 30%
20						48.5' - Bedrock; layered meta-gab green; gray; and white quartz veins
25						
30						

REMARKS:

CONSULTING GROUND-WATER GEOLOGISTS

ROUX ASSOCIATES INC

WELL LOG

Project: Woburn
Client: Stauffer Chemical Company
Page 1 Of 2
Date Prepared 10/4/82 By S. Sucharski
Owner: Stauffer Chemical Company
Well No.: OW -14
Loc.: Near Chrome Lagoons
M.P. Elevation: 65.54'
Drilling Started 9/21/82, Ended 9/22/82
Driller: Domestic Well, Inc.
Type Of Rig: Air/Mud Rotary

WELL DATA

Hole Diam.: 8.0"
Final Depth: 52.0'
Casing Diam.: 4.0"
Casing Length: 8.0'
Screen Setting: 5.0' - 50.0'
Screen Slot & Type: .010 PVC
Well Status: Observation

G-W READING

Date	DTW MP	Elev.
8/83	8.12'	57.
10/83	8.58'	56.
12/83	6.28'	59.
1/84	6.95'	58.

SAMPLER

Type:
Hammer: lb.
Fall:

DEVELOPMENT

1 Hr. - Air/water

Depth in ft.	SAMPLE No.	Rec.	Depth	Blows 6	Strta Chg. & Gen. Desc.	SAMPLE DESCRIPTION
0					Fill	Poorly sorted sand and pebbles; purple in color changing to bri red with depth
5						Poorly sorted, multi colored, cru fill; sand, pebbles, cobbles, bricks, glass
						Black peat
10						Poorly sorted sand, cobbles, slag and cinder; multi-colored
15					Sand	Multi-colored coarse sand and granules; well sorted
20						
25						
30						

REMARKS:

CONSULTING GROUND-WATER GEOLOGISTS

ROUX ASSOCIATES INC

WELL LOG

Project: Woburn
Client: Stauffer Chemical Company
Page 2 Of 2
Date Prepared 10/4/82 By S. Sucharski
Owner Stauffer Chemical Company
Well No. OW - 14
Loc. Near Chrome Lagoons
M.P. Elevation 65.54'
Drilling Started 9/21/82, Ended 9/22/82
Driller Domestic Wells, Inc.
Type Of Rig Air/Mud Rotary

WELL DATA

Hole Diam. 8.0"
Final Depth 52.0'
Casing Diam. 4.0"
Casing Length 8.0'
Screen Setting 5.0' - 50.0'
Screen Slot & Type .010 PVC
Well Status Observation

G-W READING

Date	DTW MP	Elev.

SAMPLER

Type Split Spoon
Hammer 140 lb.
Fall 30"

DEVELOPMENT

Depth in ft.	SAMPLE No.	Rec.	Depth	Blows 6	Strta Chg. & Gen. Desc.	SAMPLE DESCRIPTION
ELEV 30'			TOP OF TILL BOTTOM OF OUTWASH -35'			
35					Till	Poorly sorted gray; mixture of sa silt, pebbles and cobbles
					Fractured Bedrock	Fractured bedrock; dark green met gabbro
40						
			TOP OF BEDROCK -45			
ELEV 20'						
45					Bedrock	Bedrock; dark green meta-gabbro
50						
55						

REMARKS:

CONSULTING GROUND-WATER GEOLOGISTS
ROUX ASSOCIATES INC

WELL LOG

Project Woburn
Client Stauffer Chemical Company
Page 1 Of 1
Date Prepared 9/2/83 By S. Sucharski
Owner Stauffer Chemical Company
Well No. OW-15
Loc. Roma Stone
M.P. Elevation 64.60'
Drilling Started 8/16/83, Ended 8/17/83
Driller D.L. Maher
Type Of Rig Mud Rotary

WELL DATA

Hole Diam. 12.0"
Final Depth 28.0'
Casing Diam. 6.0"
Casing Length 8.5'
Screen Setting 8.0' - 28.0'
Screen Slot & Type .010 P.V.C.
Well Status Observation

G-W READINGS

Date	DTW MP	Elev.W.T.
8/83	4.94'	59.66'
10/83	4.84	59.76
12/83	4.26	60.34
1/84	4.42	60.18

SAMPLER

Type
Hammer lb.
Fall

DEVELOPMENT

½ hr. - Air/water
2 hr. 20 min.- submersible

Depth in ft.	SAMPLE No.	Rec.	Depth	Blows 6	Strta Chg. & Gen. Desc.	SAMPLE DESCRIPTION
4.5					Fill	Brown, sandy loam with small cobbles, asphalt, bricks
5						Gray, pebbles and cobbles in a sand matrix
9.5						
10						Ledge boulder, gray-green meta-gabbro with thin veins of calcite and quartz, at 10.0' rock turns lighter in color-feldspar rich
13.5						
15					Sand	Out of ledge-wet, brown, poorly sorted sand and pebble gravel: scattered cobbles; angular grains: immature in places-pea gravel 12.5'-better sorted; coarse sand and pebble gravel; loose cobbles
20						
22.5					Till	Cobbly zone-cobbles in a sandy matrix
24.5						
25					Bedrock	Metagabbro with dense, quartz veins
30						

REMARKS:

CONSULTING GROUND-WATER GEOLOGISTS

ROUX ASSOCIATES INC

WELL LOG

Project: Woburn
Client: Stauffer Chemical Co.
Page: 2 Of 2
Date Prepared: 9/2/83 By: S. Sucharski
Owner:
Well No.: OW-18
Loc.: Behind Digital Corporation
M.P. Elevation: 62.76
Drilling Started: 8/23/83, Ended: 8/23/83
Driller: D.L. Maher
Type Of Rig: Mud Rotary

WELL DATA

Hole Diam.:
Final Depth:
Casing Diam.:
Casing Length:
Screen Setting:
Screen Slot & Type: .010 P.V.C.
Well Status: Observation

G-W READING

Date	DTW MP	Elev.

SAMPLER

Type: Split Spoon
Hammer: lb.
Fall: Pressed

DEVELOPMENT

1½ hr. - Air/Water
4 hr. 20 min. - Submersibl

Depth in ft.	SAMPLE No.	Rec.	Depth	Blows 6	Strta Chg. & Gen. Desc.	SAMPLE DESCRIPTION
35					Sand	Dense, fine sand with horizons of pebble gravel disseminated throughout Mica flakes and less than 10% clay
41	3	2'	40' - 42'	Pressed		Fine gravel; quartz, feldspar and mica fragments
45			TOP OF TILL BOTTOM OF OUTWASH SAND - 48'			Fine gravel, micaceous, fine sand silt, <10% clay (sequence repeats itself)
48	4	2'	48' - 50'	Pressed	Till	≅ 48' -49.5'- gray silty clay with pebbles throughout. Cohesive-soup consistency.
53			TOP OF BEDROCK - 55'			49.5' - gray-bluish gray silt with granules and small pebbles disseminated throughout
55					Bedrock	Greenish gray metagabbro

ELE/ 14'

ELEV. 7'

REMARKS:

ROUX ASSOCIATES INC

WELL LOG

Project: Woburn
Client: Stauffer Chemical Co.
Page: 1 Of 2
Date Prepared: 9/2/83 By: S. Sucharski
Owner: Stauffer Chemical Co.
Well No.: OW-18
Loc.: Behind Digital Corporation
M.P. Elevation: 62.76
Drilling Started: 8/23/83, Ended: 8/23/83
Driller: D.L. Maher
Type Of Rig: Mud Rotary

WELL DATA

Hole Diam.: 12.0"
Final Depth: 61.0'
Casing Diam.: 6.0"
Casing Length: 16.5'
Screen Setting: 15.0' - 55.0'
Screen Slot & Type: .010 P.V.C.
Well Status: Observation

G-W READINGS

Date	DTW MP	Elev.W
8/83	8.71'	54.0
10/83	8.85'	53.9
12/83	8.16'	54.60
1/84	8.53'	54.23

SAMPLER

Type: Split Spoon
Hammer: lb.
Fall: Pressed

DEVELOPMENT

1½ - Air/Water
4 hr. 20 min. - Submersible

Depth in ft.	SAMPLE No.	Rec.	Depth	Blows 6	Strta Chg. & Gen. Desc.	SAMPLE DESCRIPTION
5					Fill	Brown sandy loam with bricks, pebbles and cobbles
10						Coarse Gravel with some silt and fine sand; micaceous
15	1	2'	15' - 17'	Pressed	Sand	Poorly sorted, hard packed, iron stained pebbles in a sandy silt matrix, underlain by brown & gray pebble gravel in a sandy silt matrix with trace of clay. Mica throughout.
20						
22						Gray & brown micaceous silt
25	2	2'	26' - 28'	Pressed		
30						

REMARKS:

CONSULTING GROUND-WATER GEOLOGISTS

ROUX ASSOCIATES INC

WELL LOG

Project: Woburn
Client: Stauffer Chemical Co.
Page 1 Of 1
Date Prepared 9/2/83 By S. Sucharski
Owner: Stauffer Chemical Co.
Well No.: OW-18A
Loc.: Behind Digital Corporation
M.P. Elevation: 62.08'
Drilling Started 8/24/83, Ended 8/24/83
Driller: D.L. Maher
Type Of Rig: Mud Rotary

WELL DATA

Hole Diam.: 8.25"
Final Depth: 20.0'
Casing Diam.: 4.0"
Casing Length: 15.5'
Screen Setting: 20' - 15.0'
Screen Slot & Type: .010 P.V.C.
Well Status: Observation

G-W READINGS

Date	DTW MP	Elev.W
8/83	8.05'	54.0
10/83	8.13'	53.9
12/83	7.56'	54.5
1/84	7.82'	54.2

SAMPLER

Type:
Hammer: lb.
Fall:

DEVELOPMENT

0.5 Hr. - Air/Water.
0.5 Hr. - Submersible.

Depth in ft.	SAMPLE No.	Rec.	Depth	Blows 6	Strta Chg. & Gen. Desc.	SAMPLE DESCRIPTION
						For Geologic log see OW-18

REMARKS:

CONSULTING GROUND-WATER GEOLOGISTS
ROUX ASSOCIATES INC

WELL LOG

Project: Woburn
Client: Stauffer Chemical Company
Page 1 Of 2
Date Prepared 12/26/83 By A. Jaroszewski
Owner:
Well No. OW-19
Loc. Digital/E. side of road
M.P. Elevation 55.97'
Drilling Started 12/15/83, Ended 12/15/83
Driller D.L. Maher Company
Type Of Rig Air/Mud Rotary

WELL DATA

Hole Diam. 12.25"
Final Depth 70.0'
Casing Diam. 6.0"
Casing Length 71.5
Screen Setting 40.0 - 70.5
Screen Slot & Type .010 PVC
Well Status Observation

G-W READINGS

Date	DTW MP	Elev.W.T.
12/83	3.80'	52.17'
1/84	4.48'	51.49'

SAMPLER

Type
Hammer lb.
Fall

DEVELOPMENT

2.5 Hrs. - Air/water

Depth in ft.	SAMPLE No.	Rec.	Depth	Blows 6	Strta Chg. & Gen. Desc.	SAMPLE DESCRIPTION
					Fill	Brown poorly sorted sand with pebbles and cobbles; few mica flakes Wet at about 3.0'
5					Peat	Moist, brown silty peat to about 10.5'
10					Sand	Wet, gray moderately sorted medium to coarse sand between 10.5 and 11.5
15						Wet, gray silty poorly sorted sand with pebbles and cobbles (some very weathered) to 20' with a few thin silty horizons
20						Wet, gray, well sorted, medium sand to 21' with abundant mica flakes and quartz granules
25						Alternating layers of wet, brown poorly sorted sand, granules and occasional pebbles with gray silty fine sand to 36'
30						

REMARKS:

CONSULTING GROUND-WATER GEOLOGISTS
ROUX ASSOCIATES INC

WELL LOG

Project: Woburn
Client: Stauffer Chemical Company
Page: 1 Of 2
Date Prepared: 12/26/83 By: A. Jaroszewski
Owner:
Well No.: OW-19
Loc.: Digital/East of pond
M.P. Elevation: 55.97'
Drilling Started: 12/15/83, Ended: 12/15/83
Driller: D.L. Maher Company
Type Of Rig: Air/Mud Rotary

WELL DATA

Hole Diam.: 12.25"
Final Depth: 70.0'
Casing Diam.: 6.0"
Casing Length: 71.5'
Screen Setting: 40.0 - 70.5'
Screen Slot & Type: .010 PVC
Well Status: Observation

G-W READINGS

Date	DTW MP	Elev.W.T.

SAMPLER

Type:
Hammer: lb.
Fall:

DEVELOPMENT

Depth in ft.	SAMPLE No.	Rec.	Depth	Blows 6	Strta Chg. & Gen. Desc.	SAMPLE DESCRIPTION
40					Sand	Graded sequence of wet, brown fine to medium sand, few granules to well sorted fine sand, abundant mica flakes to fine to medium sand, granules to 50'
45						
50						Brown silty fine sand with few fine to medium sand layers to 60'
55						
60					Till	Pebbles and cobbles in cohesive green-gray clayey sand
65						Bedrock at 68.0'

REMARKS:

CONSULTING GROUNDWATER GEOLOGISTS

ROUX ASSOCIATES INC

WELL LOG

Project: Woburn
Client: Stauffer Chemical Company
Page: 1 Of 1
Date Prepared: 12/26/83 By: A. Jaroszewski
Owner:
Well No.: OW-19A
Loc.: 30' North of OW-19/Digital
M.P. Elevation: 55.87'
Drilling Started: 12/16/83 Ended: 12/16/83
Driller: D.L. Maher Co.
Type Of Rig: Mud/Air Rotary

WELL DATA

Hole Diam.: 8.0"
Final Depth: 40.0'
Casing Diam.: 4.0"
Casing Length: 41.0'
Screen Setting: 5.0 - 40'
Screen Slot & Type: .010 PVC
Well Status: Observation

G-W READINGS

Date	DTW MP	Elev.W.T.
12/83	4.11'	51.76'
1/84	4.39'	51.48'

SAMPLER

Type:
Hammer: lb.
Fall:

DEVELOPMENT

Air - 1 Hr.

Depth in ft.	SAMPLE No.	Rec.	Depth	Blows 6	Strta Chg. & Gen. Desc.	SAMPLE DESCRIPTION
						Refer to OW-19
5						
10						
15						
20						
25						
30						

REMARKS:

CONSULTING GROUND-WATER GEOLOGISTS

ROUX ASSOCIATES INC

WELL LOG

Project: Woburn
Client: Stauffer Chemical Company
Page: 1 Of 3
Date Prepared: 12/26/83 By: A. Jaroszewski
Owner:
Well No.: OW-20
Loc.: Bend in Dike
M.P. Elevation: 57.33'
Drilling Started: 12/12/83 . Ended: 12/12/83
Driller: D.L. Maher Company
Type Of Rig: Air/Mud Rotary

WELL DATA

Hole Diam.: 8.0"
Final Depth: 99.5'
Casing Diam.: 4.0"
Casing Length: 101.0'
Screen Setting: 49.5 - 99.5'
Screen Slot & Type: .010 PVC
Well Status: Observation

G-W READINGS

Date	DTW MP	Elev.W.T.
12/83	6.08'	51.25'
1/84	6.63'	50.70'

SAMPLER

Type:
Hammer: lb.
Fall:

DEVELOPMENT

Air: 2.0 Hrs.

Depth in ft.	SAMPLE No.	Rec.	Depth	Blows 6	Strta Chg. & Gen. Desc.	SAMPLE DESCRIPTION
			0 - 2'		Fill	Brown sandy loam with pebbles and cobbles
5						Color grades to dark gray with scattered pebbles and cobbles at 5.0'
10						Moist, dark brown sandy loam: occasional pebbles, roots; disseminated organics
15					Sand	Wet, light gray well sorted fine-medium sand at 11.0'
20						
25						Wet, brown well sorted fine sand at about 25'; abundant mica flakes
30						Wet, brown moderately sorted fine-medium sand at about 30'; trace of granules

REMARKS:

CONSULTING GROUND-WATER GEOLOGISTS
ROUX ASSOCIATES INC

WELL LOG

Project: Woburn
Client: Stauffer Chemical Company
Page: 2 Of 3
Date Prepared: 12/26/83 By: A. Jaroszewski
Owner:
Well No.: OW-20
Loc.: Bend in Dike
M.P. Elevation: 57.33'
Drilling Started: 12/12/83 Ended: 12/12/83
Driller: D.L. Maher Company
Type Of Rig: Air/Mud Rotary

WELL DATA

Hole Diam.: 8.0"
Final Depth: 99.5'
Casing Diam.: 4.0"
Casing Length: 101.0'
Screen Setting: 49.5 - 99.5'
Screen Slot & Type: .010 PVC
Well Status: Observation

G-W READINGS

Date	DTW MP	Elev.W.T.

SAMPLER

Type:
Hammer: lb.
Fall:

DEVELOPMENT

Air: 2.0 Hrs.

Depth in ft.	SAMPLE No.	Rec.	Depth	Blows 6	Strta Chg. & Gen. Desc.	SAMPLE DESCRIPTION
40					Sand	Wet, brown-orange well sorted fine sand at 35.0'; occasional granules few thin layers of gray-green clayey sand with occasional pebbles
						Pebbles and small cobbles between 38 and 40'
45						Graded sequence of wet, brown well sorted fine sand to medium to coarse sand from 40-45' with thin beds of gray silt within
						Wet, brown poorly sorted sand, granules, few pebbles from 45 - 47'
50						Alternating layers of gray silty fine sand with wet, gray fine to medium sand and occasional granules to 75'
55						Sand is slightly coarser from 55 - 60'
60						
65						

REMARKS:

CONSULTING GROUND-WATER GEOLOGISTS
ROUX ASSOCIATES INC

WELL LOG

Project: Woburn
Client: Stauffer Chemical Company
Page 3 Of 3
Date Prepared 12/26/83 By A. Jaroszewski
Owner:
Well No. OW-20
Loc. Bend in Dike
M.P. Elevation 57.33'
Drilling Started 12/12/83, Ended 12/12/83
Driller D.L. Maher Company
Type Of Rig Air/Mud Rotary

WELL DATA

Hole Diam. 8.0"
Final Depth 99.5'
Casing Diam. 4.0"
Casing Length 101.0'
Screen Setting 49.5 - 99.5'
Screen Slot & Type .010 PVC
Well Status Observation

G-W READINGS

Date	DTW MP	Elev.W.T.

SAMPLER

Type
Hammer lb.
Fall

DEVELOPMENT

Air: 2.0 Hrs.

Depth in ft.	SAMPLE No.	Rec.	Depth	Blows 6	Strta Chg. & Gen. Desc.	SAMPLE DESCRIPTION
75					Sand	Reverse graded sequence of medium sand to well sorted, fine sand to 85'; becomes finer between 80' and 85' with the appearance of about 10% silt
80						
85						Alternating layers of wet silty fine sand with gray silt Cobble zone between 88 - 90'
90						Layers of gray and brown clayey silt from 90 to 91'
95					Till	Brown silty poorly sorted sand with pebbles and cobbles (exotic and local) from 91 to 95.8 changing in color to green-gray at 95'
100						

REMARKS:

CONSULTING GROUND-WATER GEOLOGISTS

ROUX ASSOCIATES INC

WELL LOG

Project: Woburn
Client: Stauffer Chemical Company
Page 1 Of 1
Date Prepared 12/26/83 By A. Jaroszewski
Owner:
Well No. OW-20A
Loc. Bend in Dike
M.P. Elevation 57.97'
Drilling Started 12/13/83 Ended 12/13/83
Driller D.L. Maher Company
Type Of Rig Air/Mud Rotary

WELL DATA

Hole Diam. 8.0"
Final Depth 40.5
Casing Diam. 4.0"
Casing Length 40.7
Screen Setting 10.5 - 40.5
Screen Slot & Type .010 PVC
Well Status Observation

G-W READINGS

Date	DTW MP	Elev.W.T.
12/20/83	6.46'	51.51'
1/4/84	6.73'	51.24'

SAMPLER

Type
Hammer lb.
Fall

DEVELOPMENT

Air: 1.5 Hrs.

Depth in ft.	SAMPLE No.	Rec.	Depth	Blows 6	Strta Chg. & Gen. Desc.	SAMPLE DESCRIPTION
						Refer to OW-20

REMARKS:

CONSULTING GROUND-WATER GEOLOGISTS

ROUX ASSOCIATES INC

WELL LOG

Project: Woburn
Client: Stauffer Chemical Company
Page 1 Of 4
Date Prepared 10/1/84 By J. DeMartinis
Owner: Stauffer Chemical Company
Well No. OW - 1
Loc.: New England Pigments and Resins
M.P. Elevation: 80.32'
Drilling Started 8/10/82, Ended 8/13/82
Driller: Domestic Wells, Inc.
Type Of Rig: Air/Mud Rotary

WELL DATA

Hole Diam. 13"-24';5 3/4"-108'
Final Depth 108'
Casing Diam. 6.0"
Casing Length 25.0'
Screen Setting
Screen Slot & Type
Well Status Observation

G-W READING

Date	DTW MP	Elev.
8/83	7.90'	72.
10/83	7.72'	72.
12/83	6.46'	73.
1/84	7.08'	73.

SAMPLER

Type
Hammer lb.
Fall

DEVELOPMENT

Depth in ft.	SAMPLE No.	Rec.	Depth	Blows 6	Strta Chg. & Gen. Desc.	SAMPLE DESCRIPTION
					Fill	Moist, black-brown fill; cobbles pebbles - dense
5						Loose, brown sandy fill
						Boulders of meta-gabbro with quar veins containing muscovite and green platey minerals; in a san matrix
10					Sand	Wet, brown, fine to medium sand; well sorted
15					Till	Moist gray, poorly sorted mixture of silt, sand, cobbles and boul
20					Fractured Bedrock	Fractured, dark gray meta-gabbro with veins of quartz, plagiocla and muscovite
					Bedrock	Gray meta-gabbro with abundant quartz veins (white with some pink)
25						Black-gray, meta-gabbro with phyllitic partings
30						Rusty Zone

REMARKS: