LEGGETTE, BRASHEARS & GRAHAM, INC.

PROFESSIONAL GROUNDWATER AND ENVIRONMENTAL ENGINEERING SERVICES

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MAR 31 2015
TOWN OF FISHKILL
SUPERVISOR'S OFFICE

March 27, 2015

Mr. Robert LaColla
Supervisor – Town of Fishkill
807 Route 52
Fishkill, NY 12524

RE: Quarterly Groundwater Sample Collection
February 2015
Snook Road Well Field
(T) Fishkill, New York

Dear Mr. LaColla:

The following is a summary of the results of the February 2015 quarterly groundwater sample collection event completed by Leggette, Brashears & Graham, Inc. (LBG) at the Snook Road Well Field located on Snook Road in the Town of Fishkill, New York (Figure 1). A quarterly groundwater sampling program was previously conducted at the well field from June 2009 through July 2010 and was resumed in May 2012.

Groundwater samples were collected from four monitoring well clusters and the two production wells at the well field during the sampling event on February 27, 2015. The well locations are shown on Figure 2 and copies of the monitoring well diagrams are included in Appendix I.

Groundwater Sample Collection

Groundwater samples were collected from monitoring wells MW-1A, MW-1B, MW-2A, MW-2B, MW-3A, MW-3B, MW-4A and MW-4B February 27, 2015. The monitoring well designations A and B signify shallow (crossing the water table) and deep (80 feet) screen settings, respectively.

Depth-to-water measurements collected from the monitoring wells on February 27 are shown on Table 1 along with associated groundwater elevations. Groundwater contour maps showing the direction of groundwater flow are shown on Figures 2 and 3 for the shallow and

deep wells, respectively. During this groundwater sampling event, the direction of groundwater flow was southeast to northwest in the shallow and deep aquifers at the well field.

Three standing well volumes were evacuated from each monitoring well prior to the collection of the groundwater samples. Samples from all of the monitoring wells collected on February 27 were analyzed for sodium and chloride. In addition, samples collected from MW-1A and MW-1B were analyzed for volatile organic compounds (VOCs). The samples were packed on ice after collection and sent to York Analytical Laboratory (York) located in Stratford, Connecticut for analysis. A copy of the York laboratory report for this sampling event is included in Appendix II.

Water-Quality Results

Table 2 contains a summary of the sodium and chloride sample results for the monitoring wells from all the quarterly sampling events completed by LBG at the well field to date. The sample results from February 2015 are also shown on Figure 4. Graphs depicting the change in sodium and chloride concentrations in the monitoring wells over time are included in Appendix III.

The sodium concentrations in the shallow monitoring wells in February 2015 ranged from 76.3 mg/l (milligrams per liter) to 145 mg/l and the sodium concentrations in the deep wells ranged from 96.5 mg/l to 103 mg/l during this sampling event. Chloride concentrations in the shallow wells ranged from 132 mg/l to 249 mg/l and the chloride concentrations in the deep wells ranged from 149 mg/l to 168 mg/l.

Production well T-1 has been sampled for sodium and chloride twice per month since January 2009 by the Town's water operators, CAMO Pollution Control. Bimonthly sodium and chloride sample collection for production well T-2 was started in January 2014. Graphs of the sodium and chloride concentrations reported in T-1 compared to monthly precipitation and pumping withdrawals from T-1 are included in Appendix IV. A graph of the sodium and chloride concentrations reported in T-2 compared to monthly precipitation is included in Appendix V.

Table 3 shows the sodium and chloride water-quality results from the production wells T-1 and T-2 (aka P-1). The sodium and chloride concentrations in Production Well T-1 from February 27 were 85.2 mg/l and 132 mg/l, respectively. The February 2015 chloride concentrations in Production Well T-1 continue to show a decrease compared to the 2014 peak concentration of 190 mg/l which was reported in May 2014. However, the chloride concentration

in T-2 has shown an increase over the last few months, rising to a peak level of 204 mg/l in early February 2015.

Groundwater samples were also collected from MW-1A and MW1-B for analysis for aromatic VOCs. No VOC detections were reported in the samples collected from MW-1A and MW-1B in February 2015 (table 4).

Discussion

A significant decrease in the chloride concentrations at the Snook Road well field occurred in 2011 as a result of abnormally high precipitation and a very mild 2011/2012 winter season. Because of the decrease in the chloride concentration in the production well, T-1 was placed on as the primary source of water for the Merritt Park Water District in April 2012, with the Village of Fishkill water as the back-up supply. The quarterly groundwater sampling program was also resumed at the well field in May 2012 to monitor sodium and chloride concentrations in the groundwater.

Overall, the quarterly groundwater sampling program has shown an increase in the chloride concentrations in both the shallow and deep monitoring wells and the production wells at the well field since 2013. The graphs for MW-2A and MW-2B are clear examples of the increasing trend in concentration.

The changes in chloride concentrations in groundwater (increases and decreases) are dependent on the lag time between the application of the road salt, its infiltration into groundwater, and the travel time through the aquifer. For example, a significant rise in chloride concentration was reported in MW-1A in February 2014 and again in February 2015. These rises in concentration in this well occurred near the time of the actual application of road salt because the water table in this well is shallow (therefore quickly recharged by surface-water runoff infiltration) and the well is close to the roadway. For the deep screened monitoring wells, the peak chloride concentrations occurred later in the year because of the travel time of the chloride through the overburden formation to the deep aquifer.

The water-quality data from 2014 and early 2015 for the monitoring wells and production wells indicate that seasonal loading of chloride has started to reoccur at the well field. If compounding of chloride from seasonal loading continues, the chloride concentration in the production wells will continue to rise. Exceedance of the NYSDOH MCL for chloride (250 mg/l) in the production wells at some point in the future will likely occur unless there is a

change in conditions (i.e., a significantly above average period of precipitation, a series of mild winters, or a significant reduction in road salt application).

The timeframe for the potential exceedance of the chloride MCL in the production wells cannot be estimated because of the dependence on two major varying factors: the amount of precipitation received and the number of winter storms requiring road salt application. As shown on table 5, since 2011 the annual precipitation totals for the region have been below average. This is likely contributing to the rise in chloride concentrations at the well field because of the decreased precipitation available to provide dilution of the chloride in the aquifer.

Conclusions

The combination of abnormally high precipitation in 2011 and a very mild 2011/2012 winter season requiring limited road salt application contributed to a notable decrease in chloride concentrations at the Snook Road Well Field at that time. Because of the decrease in the chloride concentration in the production well, T-1 was placed on as the primary source of water for the Merritt Park Water District in April 2012, with the Village of Fishkill water as the back-up supply.

VOC samples collected from monitoring wells MW-1A and MW-1B as part of the ongoing quarterly groundwater sampling program have shown no significant detections of VOCs in the wells to date.

The sodium and chloride water-quality data from 2014 and early 2015 for the monitoring wells and production wells indicate that seasonal loading of chloride is occurring at the well field. If compounding of chloride from seasonal loading continues, the chloride concentration in the production wells will continue to rise. Exceedance of the NYSDOH MCL for chloride in the production wells at some point in the future will likely occur unless there is a change in conditions (i.e. a significantly above average period of precipitation, a series of mild winters, or a significant reduction in road salt application).

The bi-monthly sample collection from production wells T-1 and T-2 by CAMO and quarterly sample collection from the monitoring wells by LBG will continue to assess the concentration changes in the wells over time. The information will be used to continue to monitor the effects of seasonal loading of chloride at the well field.

Should you have any questions, please contact me or Thomas Cusack at (203) 929-8555.

Very truly yours,

LEGGETTE, BRASHEARS & GRAHAM, INC.

Stacy Stieber, CPG
Associate/Hydrogeologist

Reviewed by:

Thomas P. Cusack, CPG
Principal

SS:etn
Enclosures
cc: J. Andrews
L. Felshin - Dutchess Co. DOH
M. Tremper - Camo Pollution
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TABLES

TABLE 1

SNOOOK ROAD WELL FIELD
(T) FISHKILL, NEW YORK

Summary of Depth-to-Water Measurements Collected

Well ID	Top of Casing Elevation	Sample Date	DTW (ft btoc)	Water Level Elevation
MW-1A	234.06	6/26/09	22.90	211.19
		9/10/09	26.40	207.69
		12/7/09	25.24	208.85
		3/22/10	17.83	216.26
		7/1/10	26.21	207.91
		5/4/12	25.53	208.56
		8/14/12	26.14	207.92
		11/6/12	24.74	209.32
		2/7/13	23.85	210.21
		5/7/13	24.88	209.18
		8/16/13	24.70	209.36
		11/11/13	28.28	205.78
		2/20/14	24.96	209.10
		5/15/14	22.02	212.04
		8/8/14	24.47	208.59
		11/24/14	27.38	206.68
		2/27/15	24.88	209.18
MW-1B	233.84	6/26/09	22.65	211.19
		9/10/09	26.35	207.49
		12/7/09	24.91	208.93
		3/22/10	17.46	216.38
		7/1/10	26.17	207.67
		5/4/12	25.47	208.37
		8/14/12	25.88	207.96
		11/6/12	24.52	209.32
		2/7/13	23.61	210.23
		5/7/13	24.61	209.23
		8/16/13	24.44	209.40
		11/11/13	28.07	205.77
		2/20/14	24.73	209.11
		5/15/14	21.77	212.07
		8/8/14	25.26	208.58
		11/24/14	27.15	206.69
		2/27/15	24.62	209.22
MW-2A	235.82	6/26/09	24.65	211.17
		9/10/09	24.76	211.06
		12/7/09	27.05	208.77
		3/22/10	19.57	216.25
		7/1/10	28.17	207.65
		5/4/12	27.42	208.40
		8/14/12	27.92	207.90
		11/6/12	26.60	209.22
		2/7/13	25.64	210.18
		5/7/13	26.66	209.16
		8/16/13	26.45	209.37
		11/11/13	30.00	205.82

TABLE 1

SNOOOK ROAD WELL FIELD
(T) FISHKILL, NEW YORK

Summary of Depth-to-Water Measurements Collected

Well ID	Top of Casing Elevation	Sample Date	DTW (ft btoc)	Water Level Elevation
MW-2A Continued		2/20/14	26.75	209.07
		5/15/14	23.77	212.05
		8/8/14	27.25	208.57
		11/24/14	29.23	206.59
		2/27/15	26.71	209.11
MW-2B	235.86	6/26/09	24.60	211.27
		9/10/09	24.55	211.32
		12/7/09	26.99	208.88
		3/22/10	19.44	216.43
		7/1/10	28.13	207.75
		5/4/12	27.42	208.45
		8/14/12	27.88	207.98
		11/6/12	26.54	209.32
		2/7/13	25.54	210.32
		5/7/13	26.67	209.19
		8/16/13	26.46	209.40
		11/11/13	30.16	205.70
		2/20/14	26.72	209.14
		5/15/14	23.67	212.19
		8/8/14	27.25	208.61
		11/24/14	29.18	206.68
		2/27/15	26.7	209.16
MW-3A	239.23	6/26/09	27.35	211.98
		9/10/09	29.55	209.73
		12/7/09	30.02	209.26
		3/22/10	21.57	217.71
		7/1/10	31.33	207.94
		5/4/12	30.71	208.57
		8/14/12	31.00	208.23
		11/6/12	29.58	209.65
		2/7/13	28.46	210.77
		5/7/13	29.88	209.35
		8/16/13	29.70	209.53
		11/11/13	33.38	205.85
		2/20/14	29.39	209.84
		5/15/14	26.46	212.77
		8/8/14	30.10	209.13
		11/24/14	32.41	206.82
		2/27/15	26.35	212.88
MW-3B	239.42	6/26/09	27.35	212.09
		9/10/09	29.87	209.57
		12/7/09	30.06	209.38
		3/22/10	21.69	217.75
		7/1/10	31.40	208.06
		5/4/12	30.66	208.78
		8/14/12	31.02	208.40

TABLE 1

SNOOOK ROAD WELL FIELD
(T) FISHKILL, NEW YORK

Summary of Depth-to-Water Measurements Collected

Well ID	Top of Casing Elevation	Sample Date	DTW (ft btoc)	Water Level Elevation
MW-3B (continued)		11/6/12	29.45	209.97
		2/7/13	28.48	210.94
		5/7/13	29.93	209.49
		8/16/13	29.70	209.72
		11/11/13	33.54	205.88
		2/20/14	26.43	209.42
		5/15/14	26.46	212.96
		8/8/14	30.51	208.91
		11/24/14	32.52	206.90
		2/27/15	25.98	213.44
MW-4A	235.85	6/26/09	23.90	212.01
		9/10/09	26.20	209.71
		12/7/09	26.55	209.36
		3/22/10	18.40	217.51
		7/1/10	27.62	208.35
		5/4/12	27.19	208.72
		8/14/12	27.55	208.30
		11/6/12	25.99	209.86
		2/7/13	25.03	210.82
		5/7/13	26.39	209.46
		8/16/13	26.20	209.65
		11/11/13	29.94	205.91
		2/20/14	26.11	209.72
		5/15/14	23.07	212.78
		8/8/14	26.94	208.91
		11/24/14	29.00	206.85
		2/27/15	29.90	205.95
MW-4B	235.83	6/26/09	23.45	212.37
		9/10/09	25.96	209.95
		12/7/09	26.21	209.70
		3/22/10	17.60	218.22
		7/1/10	24.43	208.47
		5/4/12	27.18	208.73
		8/14/12	27.19	208.64
		11/6/12	25.56	210.27
		2/7/13	24.58	211.25
		5/7/13	26.04	209.79
		8/16/13	25.89	209.94
		11/11/13	NM	NM
		2/20/14	26.11	209.72
		5/15/14	22.52	213.31
		8/8/14	26.67	209.16
		11/24/14	28.72	207.11
		2/27/15	29.83	206.00

DTW depth to water
ft btoc feet below top of PVC casing
NM not measured
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TABLE 2

SNOOOK ROAD WELL FIELD
(T) FISHKILL, NEW YORK

Summary of Sodium and Chloride Water-Quality Results from Monitoring Wells

Well ID	Sample Date	Sodium (mg/l)	Chloride (mg/l)
MW-1A	6/26/09	62.3	84.1
	9/10/09	59.4	88.8
	12/7/09	78.4	118
	3/22/10	85.8	214
	7/1/10	80.1	157
	5/4/12	120	130
	8/14/12	105	115
	11/6/12	122	134
	2/7/13	103	104
	5/7/13	123	163
	8/16/13	101	132
	11/11/13	110	134
	2/20/14	127	**336**
	5/15/14	71.1	88.1
	8/8/14	108	139
	11/24/14	134	205
	2/27/15	145	249
MW-1B	6/26/09	58.0	98.4
	9/10/09	126	**278**
	12/7/09	129	**283**
	3/22/10	202	**428**
	7/1/10	158	245
	5/4/12	127	175
	8/14/12	99.5	128
	11/6/12	107	145
	2/7/13	103	133
	5/7/13	103	134
	8/16/13	107	160
	11/11/13	100	158
	2/20/14	105	169
	5/15/14	116	198
	8/8/14	110	181
	11/24/14	96.5	151
	2/27/15	101	165
MW-2A	6/26/09	112	225
	9/10/09	104	221
	12/7/09	115	225
	3/22/10	102	180
	7/1/10	130	202
	5/4/12	99.2	114
	8/14/12	87.7	114
	11/6/12	92.2	106
	2/7/13	92.6	97.6
	5/7/13	96.9	101
	8/16/13	97.1	115
	11/11/13	98.1	113
	2/20/14	92.1	115
	5/15/14	90.4	122
	8/8/14	95.8	137
	11/24/14	95.5	130
	2/27/15	100	150

TABLE 2
(continued)

SNOOOK ROAD WELL FIELD
(T) FISHKILL, NEW YORK

Summary of Sodium and Chloride Water-Quality Results

Well ID	Sample Date	Sodium (mg/l)	Chloride (mg/l)
MW-2B	6/26/09	114	236
	9/10/09	112	242
	12/7/09	121	**262**
	3/22/10	136	**301**
	7/1/10	149	237
	5/4/12	112	138
	8/14/12	104	133
	11/6/12	107	129
	2/7/13	97.1	106
	5/7/13	93.6	113
	8/16/13	96.7	124
	11/11/13	99.4	125
	2/20/14	93.6	128
	5/15/14	97.2	153
	8/8/14	103	162
	11/24/14	102	158
	2/27/15	99	158
MW-3A	6/26/09	102	153
	9/10/09	97.9	**386**
	12/7/09	122	**313**
	3/22/10	102	244
	7/1/10	127	211
	5/4/12	85.0	49.1
	8/14/12	69.3	56.6
	11/6/12	67.3	70.4
	2/7/13	56.0	73.7
	5/7/13	56.7	82.0
	8/16/13	67.7	152
	11/11/13	76.6	121
	2/20/14	105	133
	5/15/14	69.8	150
	8/8/14	74.1	137
	11/24/14	71.4	70.9
	2/27/15	76	132
MW-3B	6/26/09	125	243
	9/10/09	174	**447**
	12/7/09	195	**465**
	3/22/10	172	**370**
	7/1/10	192	**277**
	5/4/12	137	153
	8/14/12	126	152
	11/6/12	119	144
	2/7/13	118	146
	5/7/13	110	144
	8/16/13	112	183
	11/11/13	81.0	125
	2/20/14	101	133

TABLE 2
(continued)

SNOOOK ROAD WELL FIELD
(T) FISHKILL, NEW YORK

Summary of Sodium and Chloride Water-Quality Results

Well ID	Sample Date	Sodium (mg/l)	Chloride (mg/l)
MW-3B (Continued)	5/15/14	95.8	171
	8/8/14	106	218
	11/24/14	113	193
	2/27/15	103	168
MW-4A	6/26/09	111	151
	9/10/09	118	**331**
	12/7/09	159	**417**
	3/22/10	122	202
	7/1/10	119	202
	5/4/12	109	111
	8/14/12	105	112
	11/6/12	110	109
	2/7/13	98.5	103
	5/7/13	96.9	103
	8/16/13	110	160
	11/11/13	118	180
	2/20/14	114	160
	5/15/14	80.0	143
	8/8/14	86.1	164
	11/24/14	101	206
	2/27/15	98	158
MW-4B	6/26/09	111	**223**
	9/10/09	151	**341**
	12/7/09	168	**427**
	3/22/10	151	**277**
	7/1/10	161	241
	5/4/12	107	130
	8/14/12	103	126
	11/6/12	105	111
	2/7/13	114	117
	5/7/13	122	119
	8/16/13	129	168
	11/11/13	126	172
	2/20/14	108	137
	5/15/14	101	164
	8/8/14	103	225
	11/24/14	102	150
	2/27/15	97	149
NYSDOH Drinking Water Standard		270*	250

Note: Bold denotes drinking water standard exceedance.
* Recommended limit for sodium. NYSDOH does not currently have a drinking water standard.
mg/l milligrams per liter
NYSDOH New York State Department of Health
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TABLE 3

SNOOOK ROAD WELL FIELD
(T) FISHKILL, NEW YORK

Summary of Sodium and Chloride Water-Quality Results from Production Wells T-1 and T-2

Well ID	Sample Date	Sodium (mg/l)	Chloride (mg/l)
T-1	1/9/2009	125	233
	1/19/2009	130	250
	1/21/2009	121	236
	2/4/2009	128	236
	3/24/2009	143	296
	4/1/2009	135	308
	4/23/2009	139	293
	4/29/2009	158	318
	5/13/2009	163	293
	6/3/2009	162	327
	6/26/2009	167	390
	6/30/2009	164	316
	7/24/2009	161	294
	7/30/2009	160	312
	8/12/2009	165	330
	9/2/2009	145	303
	9/10/2009	141	295
	9/16/2009	149	257
	9/30/2009	152	266
	10/14/2009	310	292
	10/28/2009	152	323
	11/11/2009	138	267
	11/24/2009	147	250
	12/7/2009	145	292
	12/29/2009	154	265
	1/6/2010	151	269
	1/20/2010	157	255
	2/3/2010	102	257
	2/17/2010	148	264
	3/3/2010	144	262
	3/17/2010	157	288
	3/22/2010	162	318
	4/7/2010	151	285
	4/21/2010	144	301
	5/19/2010	150	346
	6/8/2010	150	343
	6/23/2010	148	346
	7/1/2010	154	246
	7/7/2010	145	352
	7/28/2010	142	345
	8/11/2010	127	342
	8/17/2010	76.1	163
	9/1/2010	143	312

LEGGETTE, BRASHEARS & GRAHAM, INC.

TABLE 3

SNOOOK ROAD WELL FIELD
(T) FISHKILL, NEW YORK

Summary of Sodium and Chloride Water-Quality Results from Production Wells T-1 and T-2

Well ID	Sample Date	Sodium (mg/l)	Chloride (mg/l)
T-1	9/15/2010	143	**328**
(continued)	9/28/2010	153	**330**
	10/13/2010	148	**318**
	10/27/2010	143	**290**
	11/10/2010	136	**274**
	11/23/2010	133	237
	12/8/2010	140	234
	12/20/2010	143	248
	1/5/2011	133	236
	1/19/2011	140	**258**
	2/9/2011	146	**255**
	3/2/2011	145	**269**
	3/16/2011	139	231
	3/30/2011	141	232
	4/13/2011	131	207
	4/29/2011	137	262
	5/13/2011	135	**266**
	5/25/2011	126	**263**
	6/21/2011	136	**254**
	7/6/2011	137	246
	7/27/2011	135	245
	8/10/2011	125	240
	8/31/2011	131	197
	9/28/2011	108	147
	10/11/2011	114	168
	10/26/2011	114	172
	11/9/2011	105	164
	11/30/2011	116	164
	12/7/2011	123	174
	12/19/2011	121	168
	1/11/2012	125	166
	2/8/2012	116	160
	2/22/2012	112	150
	3/7/2012	117	140
	3/21/2012	119	142
	4/11/2012	112	120
	4/25/2012	101	113
	5/4/2012	106	99.0
	5/9/2012	104	110
	5/23/2012	108	109
	6/6/2012	102	109
	6/20/2012	101	119
	7/11/2012	110	104

TABLE 3

SNOOOK ROAD WELL FIELD
(T) FISHKILL, NEW YORK

Summary of Sodium and Chloride Water-Quality Results from Production Wells T-1 and T-2

Well ID	Sample Date	Sodium (mg/l)	Chloride (mg/l)
T-1 (continued)	7/25/2012	105	113
	8/8/2012	60	102
	8/14/2012	95.7	97.5
	8/22/2012	103	106
	9/5/2012	97.9	107
	9/19/2012	98.6	106
	10/10/2012	98.4	105
	10/24/2012	103	106
	11/6/2012	43.6	70.1
	11/6/2012	93.8	93.0
	12/5/2012	92.4	94
	12/19/2012	104	94
	1/9/2013	102	95.7
	1/23/2013	102	96
	2/7/2013	95.6	95.7
	2/20/2013	111	104
	3/6/2013	117	106
	3/20/2013	116	119
	4/3/2013	112	112
	4/18/2013	104	119
	5/7/2013	91.1	99.7
	5/15/2013	98.4	113
	5/29/2013	103	113
	6/12/2013	97.1	113
	6/26/2013	105	109
	7/3/2013	104	117
	7/17/2013	99.9	108
	8/6/2013	95.7	112
	8/16/2013	89.4	106
	9/4/2013	90.6	112
	9/16/2013	97.3	113
	10/2/2013	91.9	115
	10/16/2013	97	116
	10/30/2013	107	118
	11/13/2013	97.3	122
	12/18/2013	98.4	129
	1/8/2014	94.1	128
	1/22/2014	105	122
	2/12/2014	92	107
	2/20/14	86.9	112
	2/26/2014	95.6	112
	3/11/14	99.2	117
	3/25/14	100	132

TABLE 3

SNOOOK ROAD WELL FIELD
(T) FISHKILL, NEW YORK

Summary of Sodium and Chloride Water-Quality Results from Production Wells T-1 and T-2

Well ID	Sample Date	Sodium (mg/l)	Chloride (mg/l)
T-1 (continued)	4/9/14	107	155
	4/23/14	103	154
	5/7/14	101	171
	5/15/14	90.8	165
	5/21/14	96.4	190
	6/3/2014	96	181
	6/18/2014	101	184
	7/2/2014	97	179
	7/16/2014	95.5	169
	8/8/2014	88	163
	8/27/14	91.6	166
	9/10/14	100	167
	9/23/14	100	164
	10/8/14	100	163
	10/22/14	110	166
	11/5/14	100	164
	11/19/14	90.5	151
	11/24/14	89.4	145
	12/3/14	66	158
	12/22/14	87	147
	1/14/15	110	136
	1/28/15	135	95
	2/11/15	100	141
	2/27/15	85.2	132
T-2	12/14/06	110	190
	8/17/10	61.6	162
	11/6/12	100	116
	12/18/13	118	138
	1/8/14	108	151
	1/22/14	117	152
	2/12/14	109	154
	2/26/14	115	160
	3/11/14	119	160
	3/25/14	118	164
	4/9/14	116	153
	4/23/14	113	147
	5/7/14	114	146
	5/15/14	98.9	133
	5/21/14	106	149
	6/3/2014	116	157
	6/18/2014	119	164
	7/2/2014	116	172
	7/16/2014	118	166

TABLE 3

SNOOOK ROAD WELL FIELD
(T) FISHKILL, NEW YORK

Summary of Sodium and Chloride Water-Quality Results from Production Wells T-1 and T-2

Well ID	Sample Date	Sodium (mg/l)	Chloride (mg/l)
T-2 (continued)	8/8/2014	104	162
	8/27/14	113	169
	9/10/14	120	171
	9/23/14	120	169
	10/8/14	120	168
	10/22/14	130	169
	11/5/14	120	163
	11/19/14	72.6	156
	11/24/14	103	153
	12/3/14	104	169
	12/22/14	69.6	178
	1/14/15	120	196
	1/28/15	198	120
	2/11/15	130	204
	2/27/15	106	192
NYSDOH Drinking Water Standard		270*	250

Note: Bold denotes drinking water standard exceedance.
* Recommended limit for sodium. NYSDOH does not currently have a drinking water standard.
mg/l milligrams per liter
NYSDOH New York State Department of Health
H:\SNOOK\2015\Feb 2015 Table 3 WQ T1 summary.doc

TABLE 4

SNOOOK ROAD WELL FIELD
(T) FISHKILL, NEW YORK

Summary of Volatile Organic Compound Water-Quality Results from MW-1A and MW-1B

Well ID	Sample Date	Bromo-Dichloro-methane (ug/l)	Bromoform (ug/l)	Chloroform (ug/l)	Dibromo-chloromethane (ug/l)	Acetone (ug/l)	Toluene (ug/l)	Methylene Chloride (ug/l)	Naphthalene (ug/l)	1,2,3-Trichlorobenzene (ug/l)
MW-1A	6/26/09	ND<0.5	ND<0.5	0.5	ND<0.5	NR	ND<0.5	ND<0.5	ND<0.5	ND<0.5
	9/10/09	ND<0.5	ND<0.5	0.9	ND<0.5	2.2/1	ND<0.5	ND<2.0	ND<0.5	ND<0.5
	12/7/09	ND<0.5	ND<0.5	ND<0.5	ND<0.5	NR	ND<0.5	ND<0.5	ND<0.5	ND<0.5
	3/22/10	ND<0.5	ND<0.5	ND<0.5	ND<0.5	NR	ND<0.5	ND<0.5	MD<0.5	ND<0.5
	7/1/10	ND<0.5	ND<0.5	0.4J	ND<0.5	NR	ND<0.5	0.9B	ND<0.5	ND<0.5
	5/4/12	ND<0.5	ND<0.5	ND<0.5	ND<0.5	NR	ND<0.5	0.9JB	0.4JB	0.2J
	8/14/12	ND<0.5	ND<0.5	ND<0.5	ND<0.5	NR	ND<0.5	ND<0.5	0.3JB	ND<2.0
	11/6/12	ND<0.5	ND<0.5	ND<0.5	ND<0.5	NR	ND<0.5	ND<2.0	ND<2.0	ND<2.0
	2/7/13	ND<0.5	ND<0.5	ND<0.5	ND<0.5	NR	ND<0.5	ND<2.0	ND<2.0	ND<2.0
	5/7/13	ND<0.5	ND<0.5	ND<0.5	ND<0.5	NR	0.1	ND<2.0	ND<2.0	ND<2.0
	5/30/13	ND<0.5	ND<0.5	ND<0.5	ND<0.5	NR	ND<0.5	ND<2.0	ND<2.0	ND<2.0
	8/16/13	ND<0.5	ND<0.5	ND<0.5	ND<0.5	NR	ND<0.5	ND<2.0	ND<2.0	ND<2.0
	11/11/13	ND<0.5	ND<0.5	ND<0.5	ND<0.5	NR	ND<0.5	ND<2.0	ND<2.0	ND<2.0
	2/20/14	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.0	ND<2.0	ND<0.5
	5/15/14	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.0	ND<2.0	ND<0.5
	8/8/14	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	0.4B	ND<2.0	ND<0.5
	11/24/14	ND<0.5	ND<0.5	ND<0.5	ND<0.5	NR	ND<0.5	ND<0.5	ND<2.0	ND<0.5
	2/27/15	ND<0.5	ND<0.5	ND<0.5	ND<0.5	NR	ND<0.5	ND<0.5	ND<2.0	ND<0.5
MW-1B	6/26/09	ND<0.5	0.6	ND<0.5	0.6	NR	0.7	ND<0.5	ND<0.5	ND<0.5
	9/10/09	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.0	ND<0.5	ND<0.5
	12/7/09	ND<0.5	ND<0.5	ND<0.5	ND<0.5	NR	ND<0.5	ND<0.5	ND<0.5	ND<0.5
	3/22/10	ND<0.5	ND<0.5	ND<0.5	ND<0.5	NR	ND<0.5	ND<0.5	ND<0.5	ND<0.5
	7/1/10	ND<0.5	ND<0.5	ND<0.5	ND<0.5	NR	ND<0.5	0.8B	ND<0.5	ND<0.5
	5/4/12	ND<0.5	ND<0.5	ND<0.5	ND<0.5	NR	ND<0.5	0.9JB	0.2JB	ND<2.0
	8/14/12	ND<0.5	ND<0.5	ND<0.5	ND<0.5	NR	ND<0.5	0.6J	0.2JB	ND<2.0
	11/6/12	ND<0.5	ND<0.5	ND<0.5	ND<0.5	NR	ND<0.5	ND<2.0	ND<2.0	ND<2.0
	2/7/13	ND<0.5	ND<0.5	ND<0.5	ND<0.5	NR	ND<0.5	ND<2.0	ND<2.0	ND<2.0
	5/7/13	ND<0.5	ND<0.5	ND<0.5	ND<0.5	NR	ND<0.5	ND<2.0	ND<2.0	ND<2.0
	5/30/13	ND<0.5	ND<0.5	ND<0.5	ND<0.5	NR	ND<0.5	ND<2.0	0.1B	ND<2.0
	8/16/13	ND<0.5	ND<0.5	ND<0.5	ND<0.5	NR	ND<0.5	ND<2.0	0.2B	ND<2.0
	11/11/13	ND<0.5	ND<0.5	ND<0.5	ND<0.5	NR	ND<0.5	ND<2.0	ND<2.0	ND<2.0
	2/20/14	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.0	ND<2.0	ND<0.5
	5/15/14	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<2.0	ND<2.0	ND<0.5
	8/8/14	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	0.3B	ND<2.0	ND<0.5
	11/24/14	ND<0.5	ND<0.5	ND<0.5	ND<0.5	NR	ND<0.5	ND<0.5	ND<2.0	ND<0.5
	2/27/15	ND<0.5	ND<0.5	ND<0.5	ND<0.5	NR	ND<0.5	ND<0.5	ND<2.0	ND<0.5
NYSDOH Drinking Water Standard		5	5	5	5	5	5	5	5	5

ug/l micrograms per liter
1/ Compound detected in method blank.
NR not reported
J Detected below the Reporting Limit but greater than or equal to the Method Detection Limit (MDL); therefore, the result is an estimated concentration.
B Analyte is found in the associated batch blank.
NYSDOH New York State Department of Health

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LEGGETTE, BRASHEARS & GRAHAM, INC.

TABLE 5

SNOOOK ROAD WELL FIELD
(T) FISHKILL, NEW YORK

Summary of Monthly Precipitation Observed at Poughkeepsie Weather Station

Year	Month	Precipitation in Inches	30-Year Mean Precipitation in Inches (1981-2010)
2009	January	2.09	3.08
	February	0.81	2.66
	March	1.86	3.57
	April	1.89	3.78
	May	6.31	4.41
	June	9.22	4.43
	July	6.38	4.65
	August	4.87	4.20
	September	1.64	4.28
	October	4.21	4.47
	November	1.45	3.47
	December	3.75	3.53
2009 Annual Precipitation		**44.48**	**46.53**
2010	January	3.08	3.08
	February	2.66	2.66
	March	3.57	3.57
	April	3.78	3.78
	May	4.41	4.41
	June	4.43	4.43
	July	4.65	4.65
	August	4.20	4.20
	September	4.28	4.28
	October	4.47	4.47
	November	3.47	3.47
	December	3.53	3.53
2010 Annual Precipitation		**38.53**	**46.53**
2011	January	1.78	3.08
	February	3.65	2.66
	March	5.17	3.57
	April	4.63	3.78
	May	5.16	4.41
	June	4.40	4.43
	July	2.24	4.65
	August	13.23	4.20
	September	7.50	4.28
	October	4.10	4.47
	November	2.94	3.47
	December	4.39	3.53
2011 Annual Precipitation		**59.19**	**46.53**
2012	January	2.14	3.08
	February	1.47	2.66

TABLE 5

SNOOOK ROAD WELL FIELD
(T) FISHKILL, NEW YORK

Summary of Monthly Precipitation Observed at
Poughkeepsie Weather Station

Year	Month	Precipitation in Inches	30-Year Mean Precipitation in Inches (1981-2010)
2012 (continued)	March	1.19	3.57
	April	2.06	3.78
	May	4.60	4.41
	June	4.01	4.43
	July	3.93	4.65
	August	3.23	4.20
	September	5.60	4.28
	October	3.79	4.47
	November	0.69	3.47
	December	4.22	3.53
2012 Annual Precipitation		**36.93**	**46.53**
2013	January	2.05	3.08
	February	1.61	2.66
	March	1.48	3.57
	April	1.32	3.78
	May	4.19	4.41
	June	9.82	4.43
	July	3.14	4.65
	August	6.61	4.20
	September	2.32	4.28
	October	1.61	4.47
	November	2.43	3.47
	December	3.33	3.53
2013 Annual Precipitation		**39.91**	**46.53**
2014	January	1.50	3.08
	February	2.78	2.66
	March	2.75	3.57
	April	4.43	3.78
	May	2.57	4.41
	June	2.29	4.43
	July	4.97	4.65
	August	3.38	4.20
	September	0.52	4.28
	October	3.76	4.47
	November	2.19	3.47
	December	3.00	3.53
2014 Annual Precipitation		**34.14**	**46.53**
2015	January	2.94	3.08
	February	1.36	2.66

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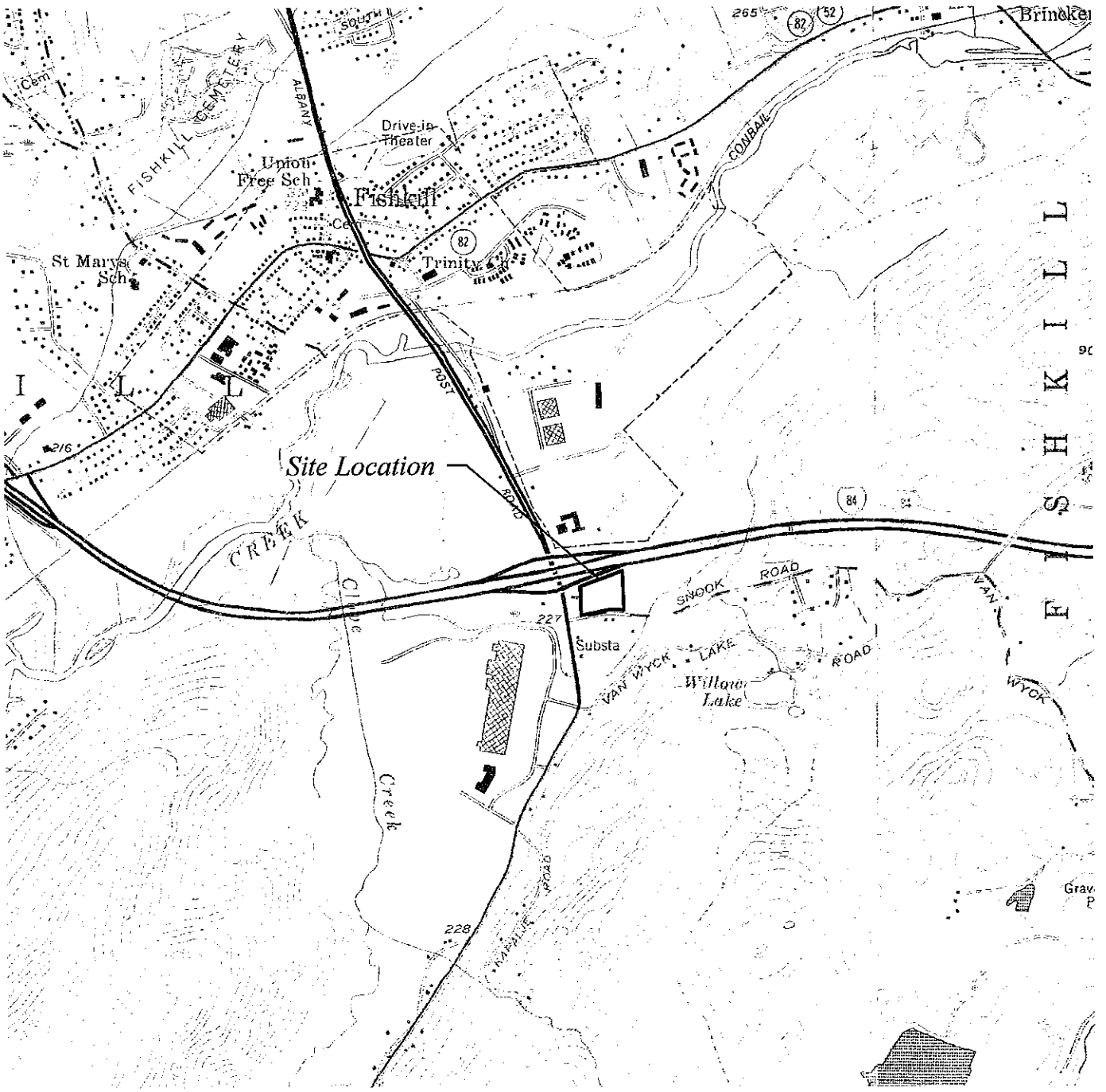
FIGURES



SOURCE: USGS TOPOGRAPHIC QUADRANGLES WAPPINGERS FALLS, NEW YORK (REVISED 1981) AND HOPEWELL JUNCTION, NEW YORK (REVISED 1981).

QUADRANGLE LOCATION

0 2000

SCALE IN FEET

SNOOK ROAD WELL FIELD
TOWN OF FISHKILL
DUTCHESS COUNTY, NEW YORK

SITE LOCATION MAP

DATE	REVISED

PREPARED BY: LEGGETTE, BRASHEARS & GRAHAM, INC.
Professional Groundwater and Environmental Engineering Services
4 Research Drive
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Shelton, Connecticut 06484
(203) 929-8555

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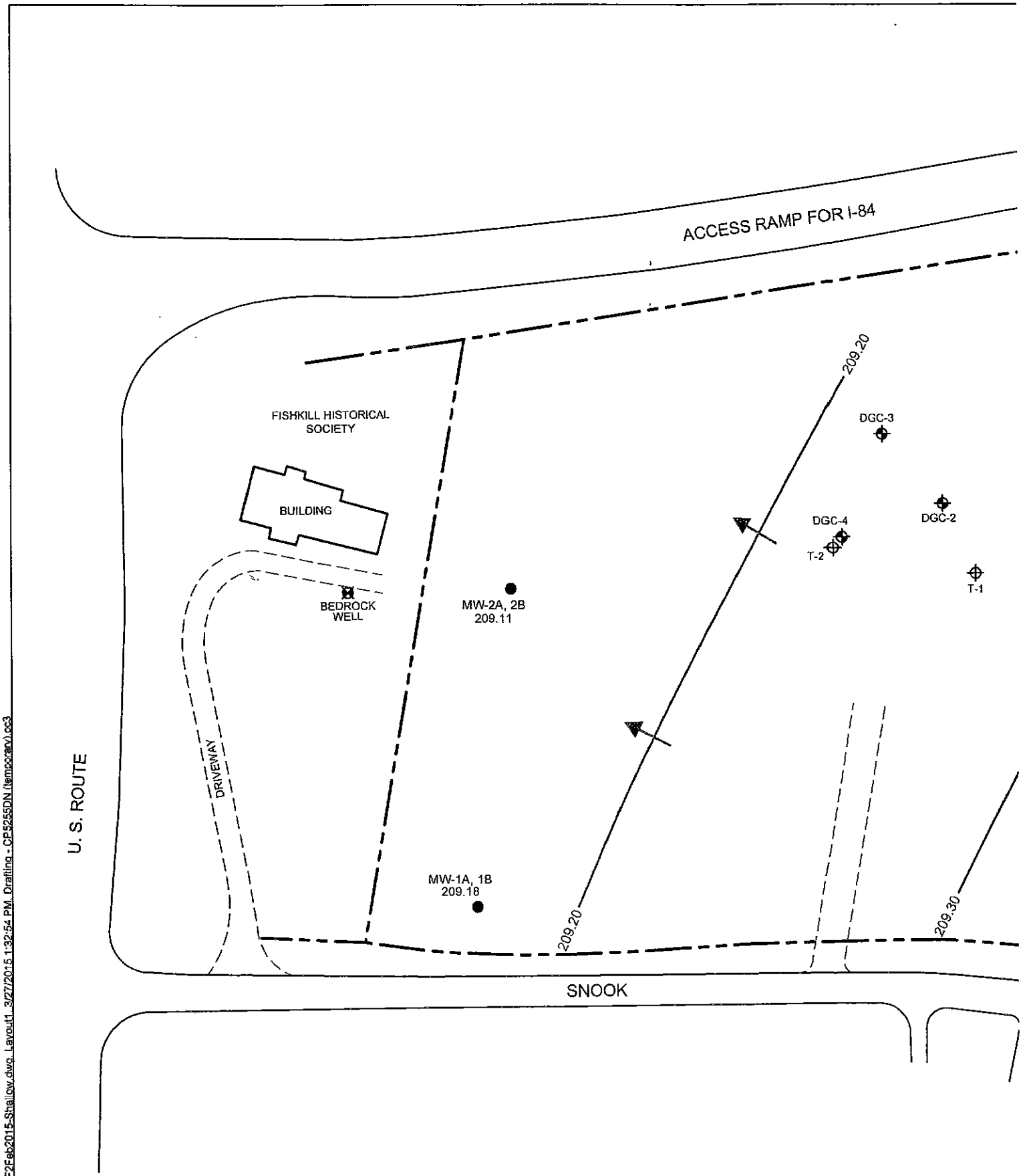

SOURCES:

- HYDROGEOLOGIC INVESTIGATION OF THE SNOOK ROAD SITE, DUNN 1990.
- SNOOK ROAD WATER IMPROVEMENT AREA "AS BUILT WELL PLAN" PREPARED BY ROHDE, SOYKA & ANDREWS CONSULTING ENGINEERS PC, DATED SEPTEMBER 1, 2009 SCALE 1"=60'.

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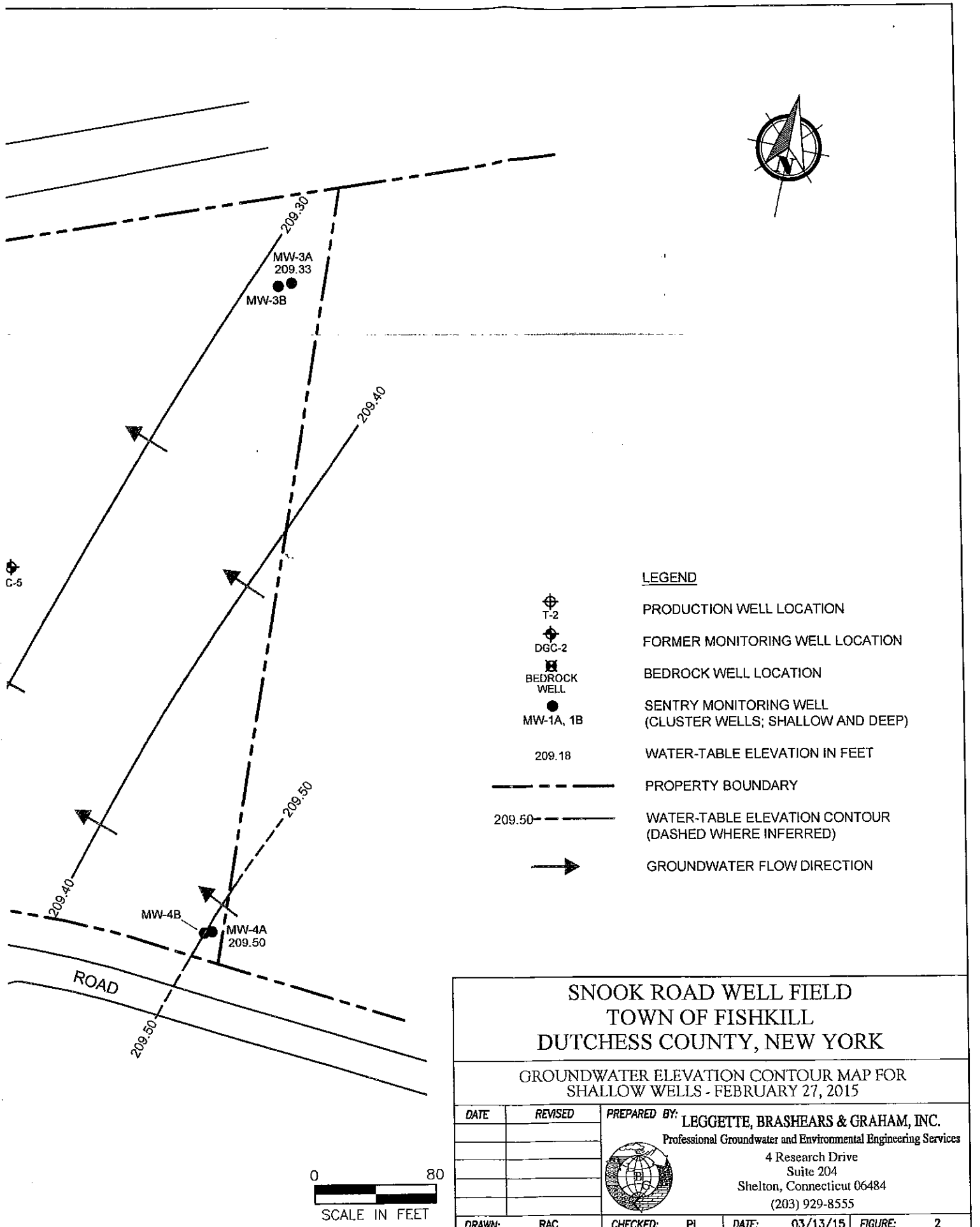

SNOOK ROAD WELL FIELD
TOWN OF FISHKILL
DUTCHESS COUNTY, NEW YORK

GROUNDWATER ELEVATION CONTOUR MAP FOR SHALLOW WELLS - FEBRUARY 27, 2015

DATE	REVISED

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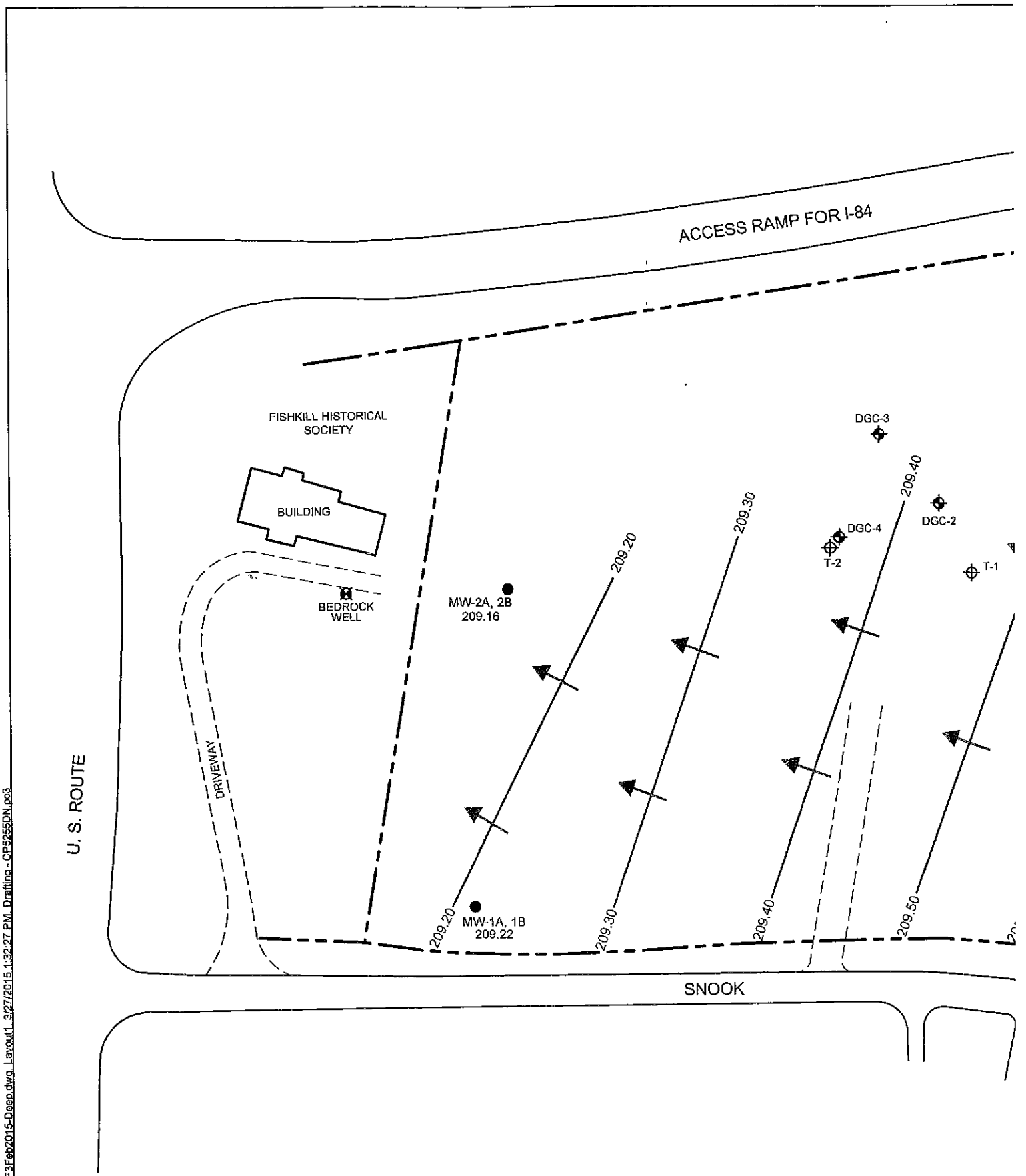

SOURCES:

- HYDROGEOLOGIC INVESTIGATION OF THE SNOOK ROAD SITE, DUNN 1990.
- SNOOK ROAD WATER IMPROVEMENT AREA "AS BUILT WELL PLAN" PREPARED BY ROHDE, SOYKA & ANDREWS CONSULTING ENGINEERS PC, DATED SEPTEMBER 1, 2009 SCALE 1"=60'.

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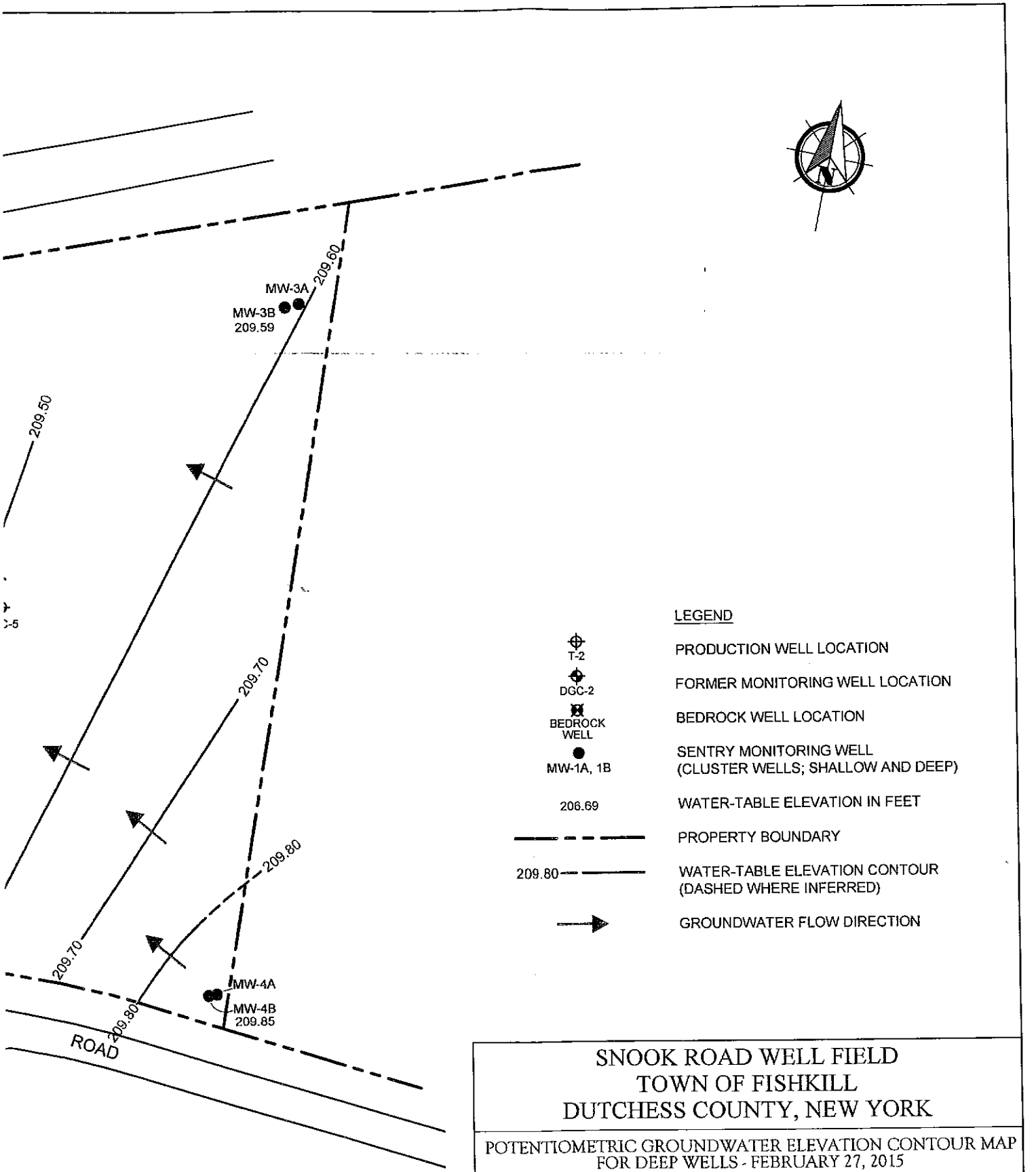

SNOOK ROAD WELL FIELD
TOWN OF FISHKILL
DUTCHESS COUNTY, NEW YORK

POTENTIOMETRIC GROUNDWATER ELEVATION CONTOUR MAP
FOR DEEP WELLS - FEBRUARY 27, 2015

DATE	REVISED

PREPARED BY: LEGGETTE, BRASHEARS & GRAHAM, INC.
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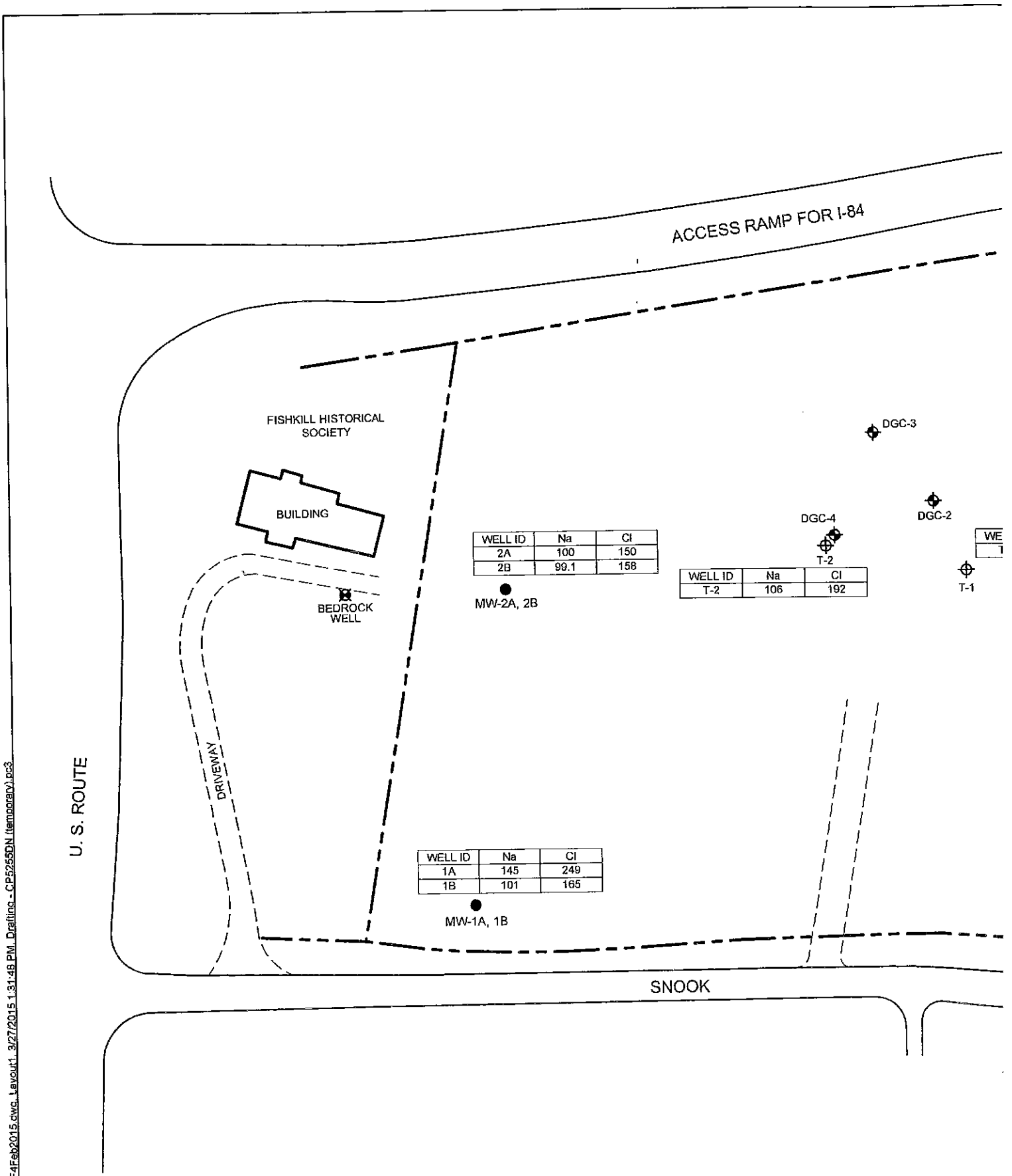

WELL ID	Na	Cl
2A	100	150
2B	99.1	158

WELL ID	Na	Cl
T-2	106	192

WELL ID	Na	Cl
1A	145	249
1B	101	165

SOURCES:

- HYDROGEOLOGIC INVESTIGATION OF THE SNOOK ROAD SITE, DUNN 1990.
- SNOOK ROAD WATER IMPROVEMENT AREA "AS BUILT WELL PLAN" PREPARED BY ROHDE, SOYKA & ANDREWS CONSULTING ENGINEERS PC, DATED SEPTEMBER 1, 2009 SCALE 1"=60'.

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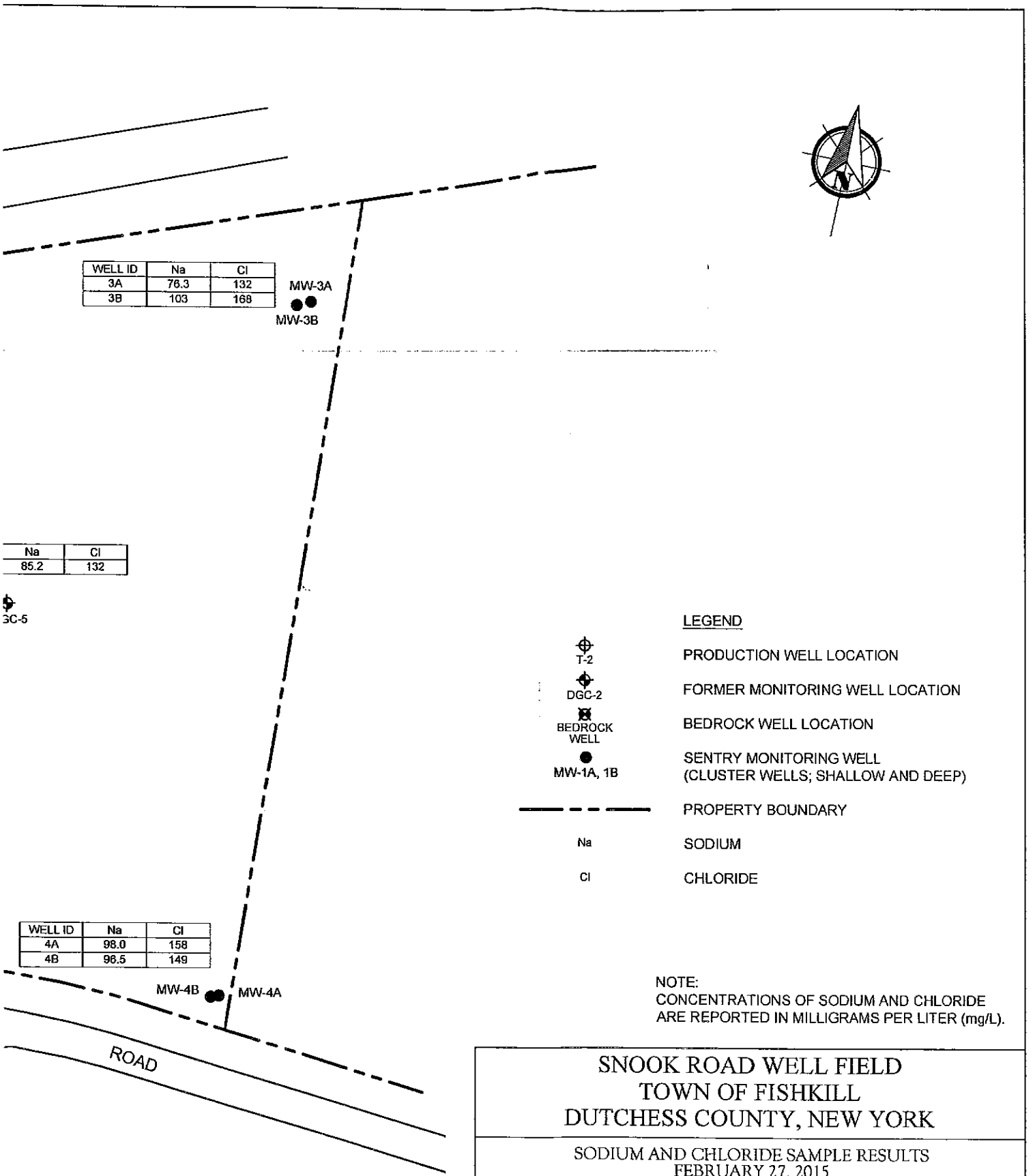

SNOOK ROAD WELL FIELD
TOWN OF FISHKILL
DUTCHESS COUNTY, NEW YORK

SODIUM AND CHLORIDE SAMPLE RESULTS
FEBRUARY 27, 2015

DATE	REVISED
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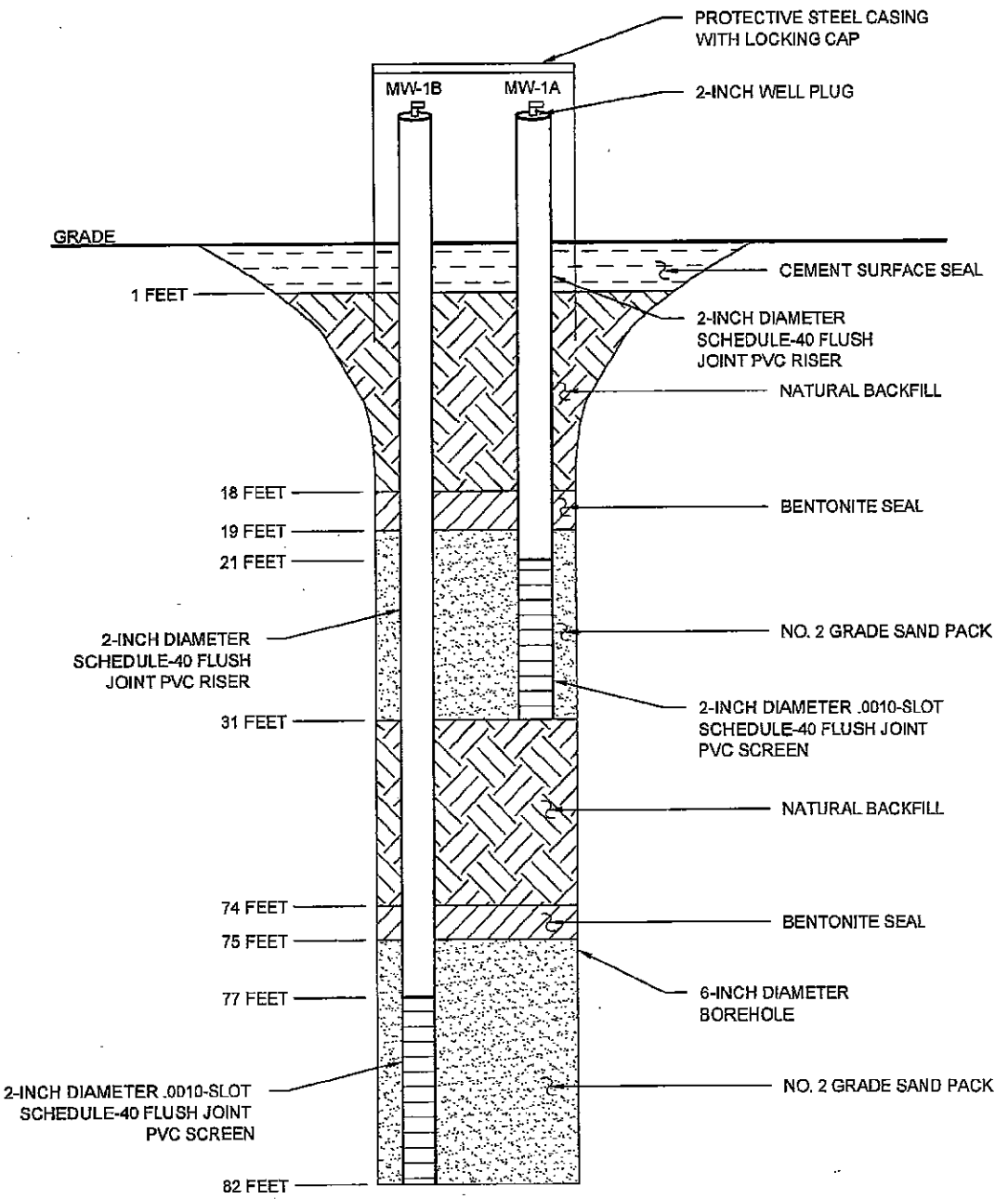
APPENDIX I



SNOOK ROAD WELL FIELD
TOWN OF FISHKILL
DUTCHESS COUNTY, NEW YORK

WELL CONSTRUCTION DIAGRAM OF MW-1A AND MW-1B

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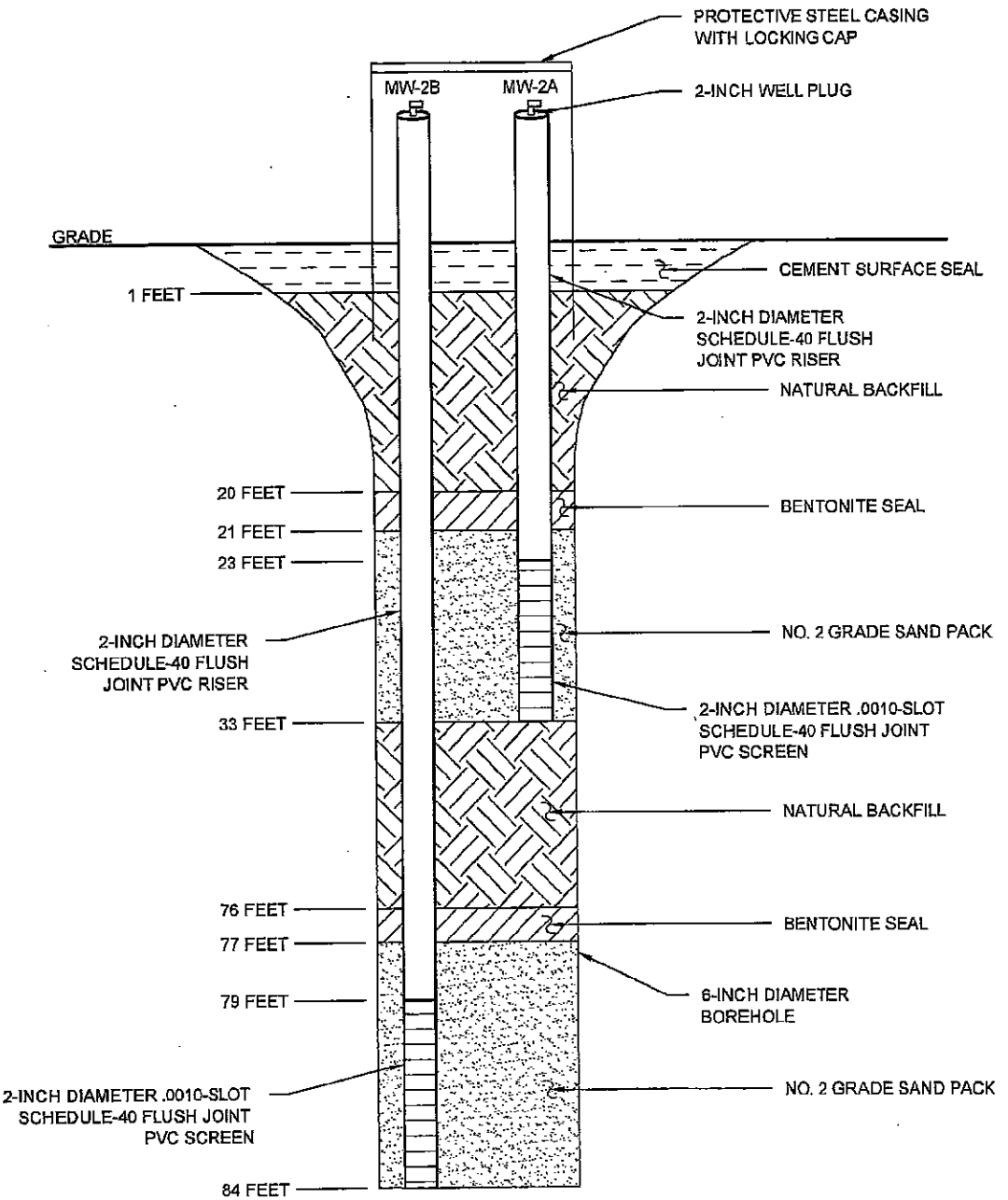

SNOOK ROAD WELL FIELD
TOWN OF FISHKILL
DUTCHESS COUNTY, NEW YORK

WELL CONSTRUCTION DIAGRAM OF MW-2A AND MW-2B

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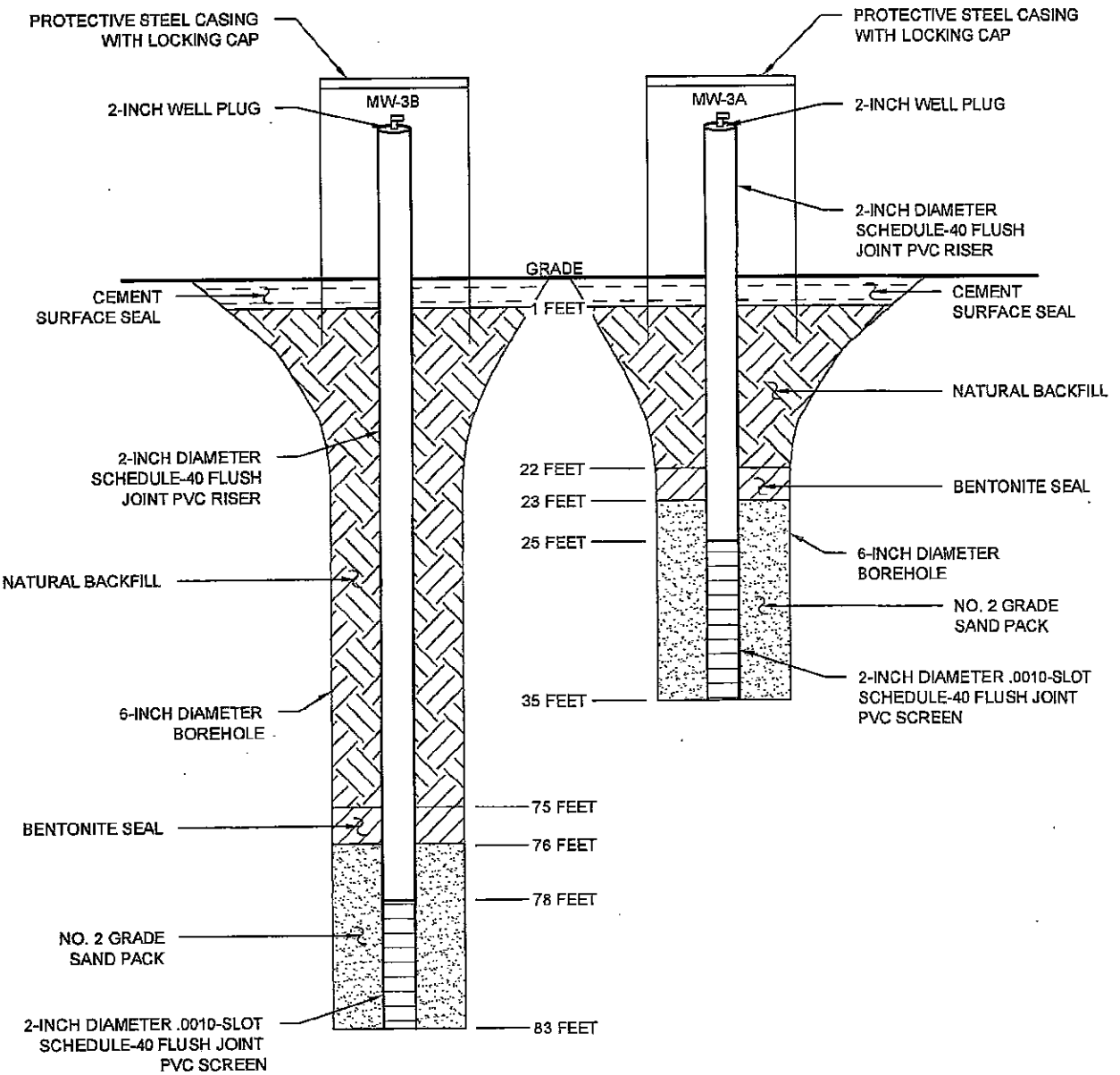

SNOOK ROAD WELL FIELD
TOWN OF FISHKILL
DUTCHESS COUNTY, NEW YORK

WELL CONSTRUCTION DIAGRAM OF MW-3A AND MW-3B

DATE	REVISED

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Shelton, Connecticut 06484
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NOT TO SCALE

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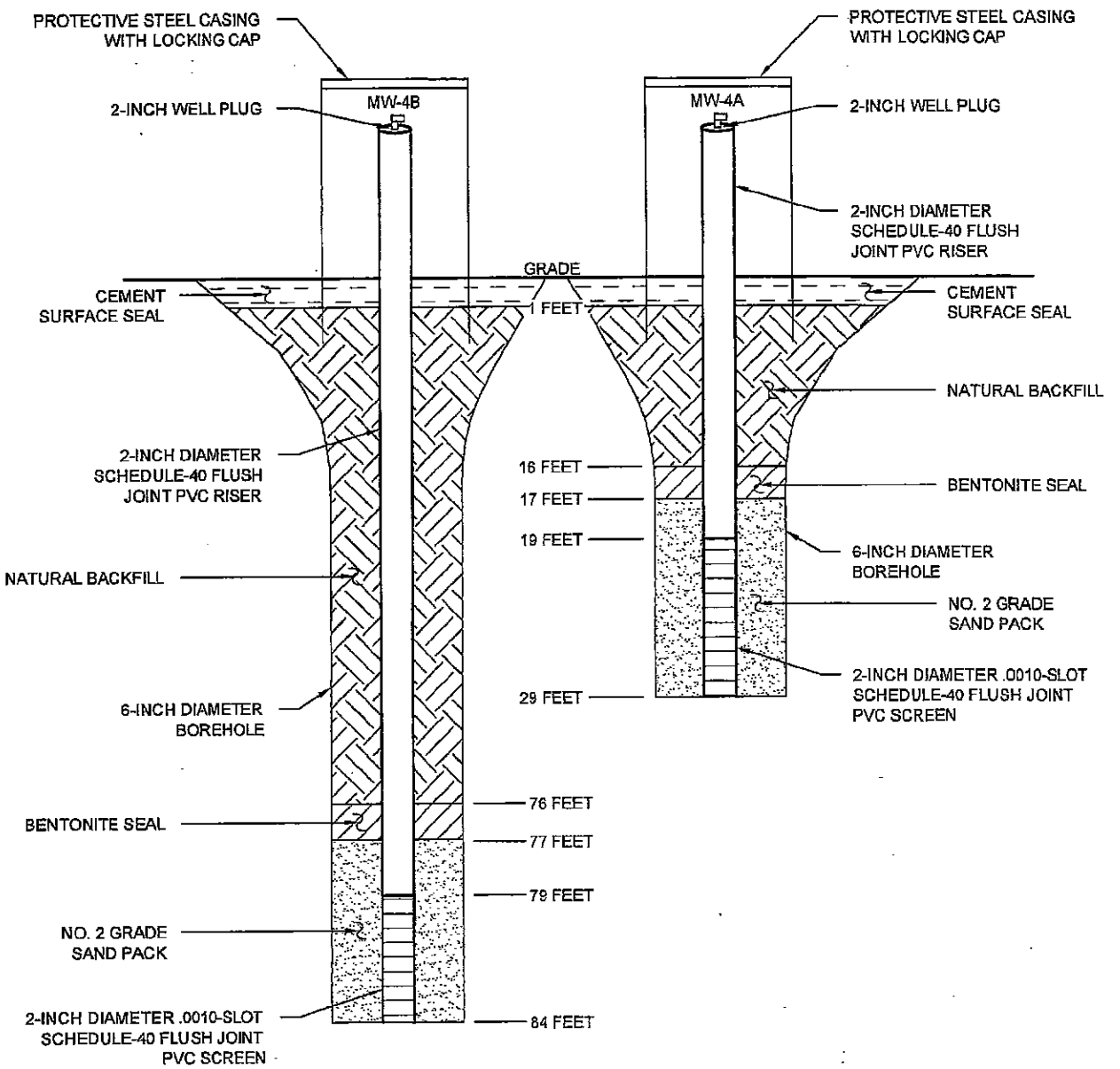

NOT TO SCALE

SNOOK ROAD WELL FIELD
TOWN OF FISHKILL
DUTCHESS COUNTY, NEW YORK

WELL CONSTRUCTION DIAGRAM OF MW-4A AND MW-4B

DATE	REVISED

PREPARED BY: LEGGETTE, BRASHEARS & GRAHAM, INC.
Professional Groundwater and Environmental Engineering Services
4 Research Drive
Suite 301
Shelton, Connecticut 06484
(203) 929-8555

DRAWN:	RAC	CHECKED:	SS	DATE:	04/19/10	FIGURE:	-

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APPENDIX II

Technical Report

prepared for:

Leggette Brashears & Graham Shelton Office
4 Research Drive, Suite 204
Shelton CT, 06484
Attention: Stacy Stieber

Report Date: 03/10/2015
Client Project ID: Snook Rd
York Project (SDG) No.: 15C0048

Report Date: 03/10/2015
Client Project ID: Snook Rd
York Project (SDG) No.: 15C0048

Leggette Brashears & Graham Shelton Office
4 Research Drive, Suite 204
Shelton CT, 06484
Attention: Stacy Stieber

Purpose and Results

This report contains the analytical data for the sample(s) identified on the attached chain-of-custody received in our laboratory on March 03, 2015 and listed below. The project was identified as your project: **Snook Rd**.

The analyses were conducted utilizing appropriate EPA, Standard Methods, and ASTM methods as detailed in the data summary tables.

All samples were received in proper condition meeting the customary acceptance requirements for environmental samples except those indicated under the Notes section of this report.

All analyses met the method and laboratory standard operating procedure requirements except as indicated by any data flags, the meaning of which are explained in the attachment to this report, and case narrative if applicable.

The results of the analyses, which are all reported on dry weight basis (soils) unless otherwise noted, are detailed in the following pages.

Please contact Client Services at 203.325.1371 with any questions regarding this report.

York Sample ID	Client Sample ID	Matrix	Date Collected	Date Received
15C0048-01	MW-1A	Water	02/27/2015	03/03/2015
15C0048-02	MW-1B	Water	02/27/2015	03/03/2015
15C0048-03	MW-2A	Water	02/27/2015	03/03/2015
15C0048-04	MW-2B	Water	02/27/2015	03/03/2015
15C0048-05	MW-3A	Water	02/27/2015	03/03/2015
15C0048-06	MW-3B	Water	02/27/2015	03/03/2015
15C0048-07	MW-4A	Water	02/27/2015	03/03/2015
15C0048-08	MW-4B	Water	02/27/2015	03/03/2015
15C0048-09	T-1	Water	02/27/2015	03/03/2015
15C0048-10	T-2	Water	02/27/2015	03/03/2015

General Notes for York Project (SDG) No.: 15C0048

1. The RLs and MDLs (Reporting Limit and Method Detection Limit respectively) reported are adjusted for any dilution necessary due to the levels of target and/or non-target analytes and matrix interference. The RL(REPORTING LIMIT) is based upon the lowest standard utilized for the calibration where applicable.
2. Samples are retained for a period of thirty days after submittal of report, unless other arrangements are made.
3. York's liability for the above data is limited to the dollar value paid to York for the referenced project.
4. This report shall not be reproduced without the written approval of York Analytical Laboratories, Inc.
5. All samples were received in proper condition for analysis with proper documentation, unless otherwise noted.
6. All analyses conducted met method or Laboratory SOP requirements. See the Qualifiers and/or Narrative sections for further information.
7. It is noted that no analyses reported herein were subcontracted to another laboratory, unless noted in the report.
8. This report reflects results that relate only to the samples submitted on the attached chain-of-custody form(s) received by York.

Approved By:

Benjamin Gulizia
Laboratory Director

Date: 03/10/2015

Sample Information

Client Sample ID: MW-1A

York Sample ID: 15C0048-01

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
15C0048	Snook Rd	Water	February 27, 2015 12:05 pm	03/03/2015

Volatile Organics, 502.2 + MTBE List

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
71-43-2	Benzene	ND		ug/L	0.2	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 13:55	SS
108-86-1	Bromobenzene	ND		ug/L	0.1	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 13:55	SS
74-97-5	Bromochloromethane	ND		ug/L	0.1	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 13:55	SS
75-27-4	Bromodichloromethane	ND		ug/L	0.06	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 13:55	SS
75-25-2	Bromoform	ND		ug/L	0.1	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 13:55	SS
74-83-9	Bromomethane	ND		ug/L	0.2	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 13:55	SS
135-98-8	sec-Butylbenzene	ND		ug/L	0.1	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 13:55	SS
104-51-8	n-Butylbenzene	ND		ug/L	0.09	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 13:55	SS
98-06-6	tert-Butylbenzene	ND		ug/L	0.1	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 13:55	SS
56-23-5	Carbon tetrachloride	ND		ug/L	0.1	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 13:55	SS
108-90-7	Chlorobenzene	ND		ug/L	0.1	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 13:55	SS
75-00-3	Chloroethane	ND		ug/L	0.2	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 13:55	SS
67-66-3	Chloroform	ND		ug/L	0.2	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 13:55	SS
74-87-3	Chloromethane	ND		ug/L	0.1	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 13:55	SS
106-43-4	4-Chlorotoluene	ND		ug/L	0.08	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 13:55	SS
95-49-8	2-Chlorotoluene	ND		ug/L	0.08	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 13:55	SS
96-12-8	* 1,2-Dibromo-3-chloropropane	ND		ug/L	0.3	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 13:55	SS
124-48-1	Dibromochloromethane	ND		ug/L	0.1	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 13:55	SS
106-93-4	* 1,2-Dibromoethane	ND		ug/L	0.09	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 13:55	SS
74-95-3	Dibromomethane	ND		ug/L	0.08	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 13:55	SS
106-46-7	1,4-Dichlorobenzene	ND		ug/L	0.05	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 13:55	SS
95-50-1	1,2-Dichlorobenzene	ND		ug/L	0.05	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 13:55	SS
541-73-1	1,3-Dichlorobenzene	ND		ug/L	0.08	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 13:55	SS
75-71-8	Dichlorodifluoromethane	ND		ug/L	0.1	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 13:55	SS
75-34-3	1,1-Dichloroethane	ND		ug/L	0.1	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 13:55	SS
107-06-2	1,2-Dichloroethane	ND		ug/L	0.2	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 13:55	SS
156-60-5	trans-1,2-Dichloroethylene	ND		ug/L	0.1	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 13:55	SS
75-35-4	1,1-Dichloroethylene	ND		ug/L	0.1	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 13:55	SS
156-59-2	cis-1,2-Dichloroethylene	ND		ug/L	0.2	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 13:55	SS
594-20-7	2,2-Dichloropropane	ND		ug/L	0.1	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 13:55	SS
142-28-9	1,3-Dichloropropane	ND		ug/L	0.1	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 13:55	SS
78-87-5	1,2-Dichloropropane	ND		ug/L	0.1	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 13:55	SS
10061-01-5	cis-1,3-Dichloropropylene	ND		ug/L	0.04	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 13:55	SS
563-58-6	1,1-Dichloropropylene	ND		ug/L	0.1	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 13:55	SS
10061-02-6	trans-1,3-Dichloropropylene	ND		ug/L	0.1	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 13:55	SS
100-41-4	Ethyl Benzene	ND		ug/L	0.09	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 13:55	SS
87-68-3	Hexachlorobutadiene	ND		ug/L	0.1	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 13:55	SS
98-82-8	Isopropylbenzene	ND		ug/L	0.08	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 13:55	SS

Sample Information

Client Sample ID: MW-1A

York Sample ID: 15C0048-01

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
15C0048	Snook Rd	Water	February 27, 2015 12:05 pm	03/03/2015

Volatile Organics, 502.2 + MTBE List

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
99-87-6	p-Isopropyltoluene	ND		ug/L	0.07	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 13:55	SS
75-09-2	Methylene chloride	ND		ug/L	0.2	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 13:55	SS
91-20-3	Naphthalene	ND		ug/L	0.06	2.0	1	EPA 524.2	03/10/2015 08:00	03/10/2015 13:55	SS
103-65-1	n-Propylbenzene	ND		ug/L	0.08	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 13:55	SS
100-42-5	Styrene	ND		ug/L	0.08	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 13:55	SS
630-20-6	1,1,1,2-Tetrachloroethane	ND		ug/L	0.1	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 13:55	SS
79-34-5	1,1,2,2-Tetrachloroethane	ND		ug/L	0.1	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 13:55	SS
127-18-4	Tetrachloroethylene	ND		ug/L	0.1	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 13:55	SS
108-88-3	Toluene	ND		ug/L	0.05	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 13:55	SS
87-61-6	1,2,3-Trichlorobenzene	ND		ug/L	0.1	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 13:55	SS
120-82-1	1,2,4-Trichlorobenzene	ND		ug/L	0.08	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 13:55	SS
71-55-6	1,1,1-Trichloroethane	ND		ug/L	0.2	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 13:55	SS
79-00-5	1,1,2-Trichloroethane	ND		ug/L	0.1	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 13:55	SS
79-01-6	Trichloroethylene	ND		ug/L	0.1	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 13:55	SS
75-69-4	Trichlorofluoromethane	ND		ug/L	0.1	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 13:55	SS
96-18-4	1,2,3-Trichloropropane	ND		ug/L	0.2	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 13:55	SS
108-67-8	1,3,5-Trimethylbenzene	ND		ug/L	0.07	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 13:55	SS
95-63-6	1,2,4-Trimethylbenzene	ND		ug/L	0.1	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 13:55	SS
75-01-4	Vinyl Chloride	ND		ug/L	0.1	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 13:55	SS
95-47-6	* o-Xylene	ND		ug/L	0.07	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 13:55	SS
179601-23-1	* p- & m- Xylenes	ND		ug/L	0.2	1.0	1	EPA 524.2	03/10/2015 08:00	03/10/2015 13:55	SS
1634-04-4	Methyl tert-butyl ether (MTBE)	ND		ug/L	0.2	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 13:55	SS
1330-20-7	Xylenes, Total	ND		ug/L	1.5	1.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 13:55	SS

	Surrogate Recoveries	Result	Acceptance Range
17060-07-0	*Surrogate: 1,2-Dichloroethane-d4*	*110 %*	*69-130*
460-00-4	*Surrogate: p-Bromofluorobenzene*	*102 %*	*79-122*
2037-26-5	*Surrogate: Toluene-d8*	*86.0 %*	*81-117*

Sample Information

Client Sample ID: MW-1A | **York Sample ID:** 15C0048-01

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
15C0048	Snook Rd	Water	February 27, 2015 12:05 pm	03/03/2015

Sodium by EPA 6010

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 3010A

CAS No.	Parameter	Result	Flag	Units	LOD/MDL	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
7440-23-5	Sodium	145		mg/L	0.100	0.100	1	EPA 6010C	03/04/2015 12:52	03/04/2015 19:13	MW

Chloride

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 300

CAS No.	Parameter	Result	Flag	Units	LOD/MDL	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
16887-00-6	Chloride	249		mg/L	0.690	5.00	10	EPA 300.0	03/03/2015 21:47	03/03/2015 21:47	SCA

Sample Information

Client Sample ID: MW-1B | **York Sample ID:** 15C0048-02

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
15C0048	Snook Rd	Water	February 27, 2015 12:30 pm	03/03/2015

Volatile Organics, 502.2 + MTBE List

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
71-43-2	Benzene	ND		ug/L	0.2	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 14:36	SS
108-86-1	Bromobenzene	ND		ug/L	0.1	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 14:36	SS
74-97-5	Bromochloromethane	ND		ug/L	0.1	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 14:36	SS
75-27-4	Bromodichloromethane	ND		ug/L	0.06	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 14:36	SS
75-25-2	Bromoform	ND		ug/L	0.1	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 14:36	SS
74-83-9	Bromomethane	ND		ug/L	0.2	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 14:36	SS
135-98-8	sec-Butylbenzene	ND		ug/L	0.1	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 14:36	SS
104-51-8	n-Butylbenzene	ND		ug/L	0.09	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 14:36	SS
98-06-6	tert-Butylbenzene	ND		ug/L	0.1	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 14:36	SS
56-23-5	Carbon tetrachloride	ND		ug/L	0.1	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 14:36	SS
108-90-7	Chlorobenzene	ND		ug/L	0.1	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 14:36	SS
75-00-3	Chloroethane	ND		ug/L	0.2	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 14:36	SS
67-66-3	Chloroform	ND		ug/L	0.2	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 14:36	SS
74-87-3	Chloromethane	ND		ug/L	0.1	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 14:36	SS
106-43-4	4-Chlorotoluene	ND		ug/L	0.08	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 14:36	SS
95-49-8	2-Chlorotoluene	ND		ug/L	0.08	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 14:36	SS
96-12-8	* 1,2-Dibromo-3-chloropropane	ND		ug/L	0.3	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 14:36	SS
124-48-1	Dibromochloromethane	ND		ug/L	0.1	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 14:36	SS

Sample Information

Client Sample ID: MW-1B

York Sample ID: 15C0048-02

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
15C0048	Snook Rd	Water	February 27, 2015 12:30 pm	03/03/2015

Volatile Organics, 502.2 + MTBE List

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
106-93-4	* 1,2-Dibromoethane	ND		ug/L	0.09	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 14:36	SS
74-95-3	Dibromomethane	ND		ug/L	0.08	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 14:36	SS
106-46-7	1,4-Dichlorobenzene	ND		ug/L	0.05	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 14:36	SS
95-50-1	1,2-Dichlorobenzene	ND		ug/L	0.05	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 14:36	SS
541-73-1	1,3-Dichlorobenzene	ND		ug/L	0.08	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 14:36	SS
75-71-8	Dichlorodifluoromethane	ND		ug/L	0.1	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 14:36	SS
75-34-3	1,1-Dichloroethane	ND		ug/L	0.1	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 14:36	SS
107-06-2	1,2-Dichloroethane	ND		ug/L	0.2	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 14:36	SS
156-60-5	trans-1,2-Dichloroethylene	ND		ug/L	0.1	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 14:36	SS
75-35-4	1,1-Dichloroethylene	ND		ug/L	0.1	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 14:36	SS
156-59-2	cis-1,2-Dichloroethylene	ND		ug/L	0.2	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 14:36	SS
594-20-7	2,2-Dichloropropane	ND		ug/L	0.1	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 14:36	SS
142-28-9	1,3-Dichloropropane	ND		ug/L	0.1	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 14:36	SS
78-87-5	1,2-Dichloropropane	ND		ug/L	0.1	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 14:36	SS
10061-01-5	cis-1,3-Dichloropropylene	ND		ug/L	0.04	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 14:36	SS
563-58-6	1,1-Dichloropropylene	ND		ug/L	0.1	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 14:36	SS
10061-02-6	trans-1,3-Dichloropropylene	ND		ug/L	0.1	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 14:36	SS
100-41-4	Ethyl Benzene	ND		ug/L	0.09	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 14:36	SS
87-68-3	Hexachlorobutadiene	ND		ug/L	0.1	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 14:36	SS
98-82-8	Isopropylbenzene	ND		ug/L	0.08	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 14:36	SS
99-87-6	p-Isopropyltoluene	ND		ug/L	0.07	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 14:36	SS
75-09-2	Methylene chloride	ND		ug/L	0.2	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 14:36	SS
91-20-3	Naphthalene	ND		ug/L	0.06	2.0	1	EPA 524.2	03/10/2015 08:00	03/10/2015 14:36	SS
103-65-1	n-Propylbenzene	ND		ug/L	0.08	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 14:36	SS
100-42-5	Styrene	ND		ug/L	0.08	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 14:36	SS
630-20-6	1,1,1,2-Tetrachloroethane	ND		ug/L	0.1	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 14:36	SS
79-34-5	1,1,2,2-Tetrachloroethane	ND		ug/L	0.1	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 14:36	SS
127-18-4	Tetrachloroethylene	ND		ug/L	0.1	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 14:36	SS
108-88-3	Toluene	ND		ug/L	0.05	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 14:36	SS
87-61-6	1,2,3-Trichlorobenzene	ND		ug/L	0.1	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 14:36	SS
120-82-1	1,2,4-Trichlorobenzene	ND		ug/L	0.08	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 14:36	SS
71-55-6	1,1,1-Trichloroethane	ND		ug/L	0.2	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 14:36	SS
79-00-5	1,1,2-Trichloroethane	ND		ug/L	0.1	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 14:36	SS
79-01-6	Trichloroethylene	ND		ug/L	0.1	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 14:36	SS
75-69-4	Trichlorofluoromethane	ND		ug/L	0.1	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 14:36	SS
96-18-4	1,2,3-Trichloropropane	ND		ug/L	0.2	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 14:36	SS
108-67-8	1,3,5-Trimethylbenzene	ND		ug/L	0.07	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 14:36	SS
95-63-6	1,2,4-Trimethylbenzene	ND		ug/L	0.1	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 14:36	SS
75-01-4	Vinyl Chloride	ND		ug/L	0.1	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 14:36	SS

Sample Information

Client Sample ID: MW-1B | **York Sample ID:** 15C0048-02

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
15C0048	Snook Rd	Water	February 27, 2015 12:30 pm	03/03/2015

Volatile Organics, 502.2 + MTBE List

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
95-47-6	* o-Xylene	ND		ug/L	0.07	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 14:36	SS
179601-23-1	* p- & m- Xylenes	ND		ug/L	0.2	1.0	1	EPA 524.2	03/10/2015 08:00	03/10/2015 14:36	SS
1634-04-4	Methyl tert-butyl ether (MTBE)	ND		ug/L	0.2	0.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 14:36	SS
1330-20-7	Xylenes, Total	ND		ug/L	1.5	1.5	1	EPA 524.2	03/10/2015 08:00	03/10/2015 14:36	SS

	Surrogate Recoveries	Result	Acceptance Range
17060-07-0	*Surrogate: 1,2-Dichloroethane-d4*	*114 %*	*69-130*
460-00-4	*Surrogate: p-Bromofluorobenzene*	*105 %*	*79-122*
2037-26-5	*Surrogate: Toluene-d8*	*87.3 %*	*81-117*

Sodium by EPA 6010

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 3010A

CAS No.	Parameter	Result	Flag	Units	LOD/MDL	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
7440-23-5	Sodium	101		mg/L	0.100	0.100	1	EPA 6010C	03/04/2015 12:52	03/04/2015 19:18	MW

Chloride

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 300

CAS No.	Parameter	Result	Flag	Units	LOD/MDL	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
16887-00-6	Chloride	165		mg/L	0.690	5.00	10	EPA 300.0	03/03/2015 22:49	03/03/2015 22:49	SCA

Sample Information

Client Sample ID: MW-2A | **York Sample ID:** 15C0048-03

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
15C0048	Snook Rd	Water	February 27, 2015 11:25 am	03/03/2015

Sodium by EPA 6010

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 3010A

CAS No.	Parameter	Result	Flag	Units	LOD/MDL	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
7440-23-5	Sodium	100		mg/L	0.100	0.100	1	EPA 6010C	03/04/2015 12:52	03/04/2015 19:23	MW

Chloride

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 300

CAS No.	Parameter	Result	Flag	Units	LOD/MDL	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst

Sample Information

Client Sample ID: MW-2A

York Sample ID: 15C0048-03

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
15C0048	Snook Rd	Water	February 27, 2015 11:25 am	03/03/2015

Chloride

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 300

CAS No.	Parameter	Result	Flag	Units	LOD/MDL	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
16887-00-6	Chloride	150		mg/L	0.690	5.00	10	EPA 300.0	03/03/2015 23:09	03/03/2015 23:09	SCA

Sample Information

Client Sample ID: MW-2B

York Sample ID: 15C0048-04

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
15C0048	Snook Rd	Water	February 27, 2015 11:45 am	03/03/2015

Sodium by EPA 6010

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 3010A

CAS No.	Parameter	Result	Flag	Units	LOD/MDL	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
7440-23-5	Sodium	99.1		mg/L	0.100	0.100	1	EPA 6010C	03/04/2015 12:52	03/04/2015 19:28	MW

Chloride

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 300

CAS No.	Parameter	Result	Flag	Units	LOD/MDL	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
16887-00-6	Chloride	158		mg/L	0.690	5.00	10	EPA 300.0	03/03/2015 23:29	03/03/2015 23:29	SCA

Sample Information

Client Sample ID: MW-3A

York Sample ID: 15C0048-05

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
15C0048	Snook Rd	Water	February 27, 2015 10:18 am	03/03/2015

Sodium by EPA 6010

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 3010A

CAS No.	Parameter	Result	Flag	Units	LOD/MDL	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
7440-23-5	Sodium	76.3		mg/L	0.100	0.100	1	EPA 6010C	03/04/2015 12:52	03/04/2015 19:33	MW

Chloride

Log-in Notes: **Sample Notes:**

Sample Information

Client Sample ID: MW-3A

York Sample ID: 15C0048-05

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
15C0048	Snook Rd	Water	February 27, 2015 10:18 am	03/03/2015

Sample Prepared by Method: EPA 300

CAS No.	Parameter	Result	Flag	Units	LOD/MDL	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
16887-00-6	Chloride	132		mg/L	0.690	5.00	10	EPA 300.0	03/03/2015 23:50	03/03/2015 23:50	SCA

Sample Information

Client Sample ID: MW-3B

York Sample ID: 15C0048-06

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
15C0048	Snook Rd	Water	February 27, 2015 10:35 am	03/03/2015

Sodium by EPA 6010

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 3010A

CAS No.	Parameter	Result	Flag	Units	LOD/MDL	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
7440-23-5	Sodium	103		mg/L	0.100	0.100	1	EPA 6010C	03/04/2015 12:52	03/04/2015 19:39	MW

Chloride

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 300

CAS No.	Parameter	Result	Flag	Units	LOD/MDL	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
16887-00-6	Chloride	168		mg/L	0.690	5.00	10	EPA 300.0	03/04/2015 00:10	03/04/2015 00:10	SCA

Sample Information

Client Sample ID: MW-4A

York Sample ID: 15C0048-07

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
15C0048	Snook Rd	Water	February 27, 2015 9:00 am	03/03/2015

Sodium by EPA 6010

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 3010A

CAS No.	Parameter	Result	Flag	Units	LOD/MDL	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
7440-23-5	Sodium	98.0		mg/L	0.100	0.100	1	EPA 6010C	03/04/2015 12:52	03/04/2015 19:44	MW

Chloride

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 300

CAS No.	Parameter	Result	Flag	Units	LOD/MDL	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
16887-00-6	Chloride	158		mg/L	0.690	5.00	10	EPA 300.0	03/04/2015 00:30	03/04/2015 00:30	SCA

Sample Information

Client Sample ID: MW-4A

York Sample ID: 15C0048-07

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
15C0048	Snook Rd	Water	February 27, 2015 9:00 am	03/03/2015

Sample Information

Client Sample ID: MW-4B

York Sample ID: 15C0048-08

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
15C0048	Snook Rd	Water	February 27, 2015 9:20 am	03/03/2015

Sodium by EPA 6010

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 3010A

CAS No.	Parameter	Result	Flag	Units	LOD/MDL	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
7440-23-5	Sodium	96.5		mg/L	0.100	0.100	1	EPA 6010C	03/04/2015 12:52	03/04/2015 19:48	MW

Chloride

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 300

CAS No.	Parameter	Result	Flag	Units	LOD/MDL	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
16887-00-6	Chloride	149		mg/L	0.690	5.00	10	EPA 300.0	03/04/2015 00:50	03/04/2015 00:50	SCA

Sample Information

Client Sample ID: T-1

York Sample ID: 15C0048-09

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
15C0048	Snook Rd	Water	February 27, 2015 9:30 am	03/03/2015

Sodium by EPA 6010

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 3010A

CAS No.	Parameter	Result	Flag	Units	LOD/MDL	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
7440-23-5	Sodium	85.2		mg/L	0.100	0.100	1	EPA 6010C	03/04/2015 12:52	03/04/2015 20:06	MW

Chloride

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 300

CAS No.	Parameter	Result	Flag	Units	LOD/MDL	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
16887-00-6	Chloride	132		mg/L	0.690	5.00	10	EPA 300.0	03/04/2015 01:11	03/04/2015 01:11	SCA

Sample Information

Client Sample ID: T-2 **York Sample ID:** 15C0048-10

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
15C0048	Snook Rd	Water	February 27, 2015 9:35 am	03/03/2015

Sodium by EPA 6010

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 3010A

CAS No.	Parameter	Result	Flag	Units	LOD/MDL	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
7440-23-5	Sodium	106		mg/L	0.100	0.100	1	EPA 6010C	03/04/2015 12:52	03/04/2015 20:12	MW

Chloride

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 300

CAS No.	Parameter	Result	Flag	Units	LOD/MDL	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
16887-00-6	Chloride	192		mg/L	0.690	5.00	10	EPA 300.0	03/04/2015 01:31	03/04/2015 01:31	SCA

Volatile Analysis Sample Containers

Lab ID	Client Sample ID	Volatile Sample Container
15C0048-01	MW-1A	40mL Clear Vial (pre-pres.) HCl; Cool to 4° C
15C0048-02	MW-1B	40mL Clear Vial (pre-pres.) HCl; Cool to 4° C

Notes and Definitions

QL-02	This LCS analyte is outside Laboratory Recovery limits due the analyte behavior using the referenced method. The reference method has certain limitations with respect to analytes of this nature.
M-ACCB	Analyte in CCB. Run is bracketed by acceptable CCBs.
B	Analyte is found in the associated analysis batch blank. For volatiles, methylene chloride and acetone are common lab contaminants. Data users should consider anything <10x the blank value as artifact.

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*	Analyte is not certified or the state of the samples origination does not offer certification for the Analyte.
ND	NOT DETECTED - the analyte is not detected at the Reported to level (LOQ/RL or LOD/MDL)
RL	REPORTING LIMIT - the minimum reportable value based upon the lowest point in the analyte calibration curve.
LOQ	LIMIT OF QUANTITATION - the minimum concentration of a target analyte that can be reported within a specified degree of confidence. This is the lowest point in an analyte calibration curve that has been subjected to all steps of the processing/analysis and verified to meet defined criteria. This is based upon NELAC 2009 Standards and applies to all analyses.
LOD	LIMIT OF DETECTION - a verified estimate of the minimum concentration of a substance in a given matrix that an analytical process can reliably detect. This is based upon NELAC 2009 Standards and applies to all analyses conducted under the auspices of EPA SW-846.
MDL	METHOD DETECTION LIMIT - a statistically derived estimate of the minimum amount of a substance an analytical system can reliably detect with a 99% confidence that the concentration of the substance is greater than zero. This is based upon 40 CFR Part 136 Appendix B and applies only to EPA 600 and 200 series methods.
Reported to	This indicates that the data for a particular analysis is reported to either the LOD/MDL, or the LOQ/RL. In cases where the "Reported to" is located above the LOD/MDL, any value between this and the LOQ represents an estimated value which is "J" flagged accordingly. This applies to volatile and semi-volatile target compounds only.
NR	Not reported
RPD	Relative Percent Difference
Wet	The data has been reported on an as-received (wet weight) basis
Low Bias	Low Bias flag indicates that the recovery of the flagged analyte is below the laboratory or regulatory lower control limit. The data user should take note that this analyte may be biased low but should evaluate multiple lines of evidence including the LCS and site-specific MS/MSD data to draw bias conclusions. In cases where no site-specific MS/MSD was requested, only the LCS data can be used to evaluate such bias.
High Bias	High Bias flag indicates that the recovery of the flagged analyte is above the laboratory or regulatory upper control limit. The data user should take note that this analyte may be biased high but should evaluate multiple lines of evidence including the LCS and site-specific MS/MSD data to draw bias conclusions. In cases where no site-specific MS/MSD was requested, only the LCS data can be used to evaluate such bias.
Non-Dir.	Non-dir. flag (Non-Directional Bias) indicates that the Relative Percent Difference (RPD) (a measure of precision) among the MS and MSD data is outside the laboratory or regulatory control limit. This alerts the data user where the MS and MSD are from site-specific samples that the RPD is high due to either non-homogeneous distribution of target analyte between the MS/MSD or indicates poor reproducibility for other reasons.

If EPA SW-846 method 8270 is included herein it is noted that the target compound N-nitrosodiphenylamine (NDPA) decomposes in the gas chromatographic inlet and cannot be separated from diphenylamine (DPA). These results could actually represent 100% DPA, 100% NDPA or some combination of the two.
For this reason, York reports the combined result for n-nitrosodiphenylamine and diphenylamine for either of these compounds as a combined concentration as Diphenylamine.

If Total PCBs are detected and the target aroclors reported are "Not detected", the Total PCB value is reported due to the presence of either or both Aroclors 1262 and 1268 which are non-target aroclors for some regulatory lists.

2-chloroethylvinyl ether readily breaks down under acidic conditions. Samples that are acid preserved, including standards will exhibit breakdown. The data user should take note.

Certification for pH is no longer offered by NYDOH ELAP.

Semi-Volatile and Volatile analyses are reported down to the LOD/MDL, with values between the LOD/MDL and the LOQ being "J" flagged as estimated results.

YORK
ANALYTICAL LABORATORIES, INC.
120 RESEARCH DR. STRATFORD, CT 06615
(203) 325-1371 FAX (203) 357-0166

Field Chain-of-Custody Record

NOTE: York's Std. Terms & Conditions are listed on the back side of this document.
This document serves as your written authorization to York to proceed with the analyses requested and your signature binds you to York's Std. Terms & Conditions unless superseded by written contract.

York Project No. 15C0048

Client Information		Report to:		Invoice To:		Client Project ID	Turn-Around Time		Report Type/Deliverables	
Company:	LBG Inc.	SAME	X	SAME		Snook Rd	RUSH Same Day		Summary	
Address:	4 Research Dr.	Name:		Name:	Town of Fishkill		RUSH Next Day		QA/QC Summary	
	Suite 204 Shelton, CT 06032	Company:		Company:			RUSH Two Day		CT RCP Pkg	
Phone no.:	2039448555	Address:		Address:	307 Rt 52	Purchase Order no.	RUSH Three Day		ASP A Pkg	
Contact Person	Stacy Stieber				Fishkill, NY 12524		RUSH Four Day		ASP B Pkg	
E-mail Addr.:	sstieber@lbgct.com	E-mail:		Attention:	Robert Lacolin		Standard (5-7 days)	X	Excel	X
FAX No.:	2039269140	Fax No.:		Fax No.:		Samples from: CT__ NY_X_ NJ_	OTHER		EDD	In excel format

Print Clearly and Legibly. All Information must be complete. Samples will NOT be logged in and the turn-around time clock will not begin until any questions by York are resolved.

Pamela Lind
Samples Collected/Authorized By (Signature)

Pamela Lind
Name (printed)

Matrix Codes	
S -	soil
Other -	specify (oil, etc.)
WW -	wastewater
GW -	groundwater
DW -	drinking water
Air-A -	ambient air
Air-SV -	soil vapor

Volatiles		Semi-Vols.	Pest/PCB/Herb	Metals	Misc. Org.	Full Lists	Miscellaneous Parameters		
8260 full	TICs	8270 or 625	8082PCB	RCRA8	TPH GRO	Pri.Poll.	Corrosivity	Nitrate	Color
624	Site Spec.	STARS	8081Pest	PP13	TPH DRO	TCL Organics	Reactivity	Nitrite	Phenols
STARS	SPLP or TCLP	BN Only	8151Herb	TAL	CT ETPH	TAL MetCN	Ignitability	TKN	Cyanide-T
BTEX	Benzene	Acids Only	CT RCP	CT15	NY 310-13	Full TCLP	Flash Point	Tot.Nitrogen	Cyanide-A
MTBE	Nassau Co.	PAH	App. IX	Total	TPH 418.1	Full App. IX	Sieve Anal.	Ammonia-N	BOD5
TCL list	Suffolk Co.	TAGM	Site Spec.	Dissolved	Air TO14A	Part360-Routine	Heterotrophs	Chloride	CBOD5
TAGM	Ketones	CT RCP	SPLP or TCLP	SPLP or TCLP	Air TO15	Part360-Baseline	TOX	Phosphate	BOD28
CT RCP	Oxygenates	TCL list	TCLP Pest	Indiv. Metals	Air STARS	Part360-[illegible]	BTU/lb.	Tot. Phos.	COD
Arom.	TCLP list	11Cs	TCLP Herb	Hg, Pb, As, Cd	Air VPH	Part360-[illegible]	Aquatic Tox.	Oil&Grease	TSS
Halog.	524.2	App. IX	Chlordane	Cr, Ni, Be, Fe,	Air TICs	NYCDEP Sewer	TOC	F.O.G.	Total Solids
App.IX	502.2	SPLP or TCLP	608 Pest	Se, Tl, Sb, Cu,	Methane	NYSDEC Sewer	Asbestos	pH	TDS
8021B list	5035	TCLP BNA	608 PCB	Na, Mo, Ag, etc.	Helium	TAGM	Silica	MBAS	TPH-IR

Special Instructions
Field Filtered ☐
Lab to Filter ☐

Sample Identification	Date Sampled	Sample Matrix	Choose Analyses Needed from the Menu Above and Enter Below	Container Description(s)
MW-1A	2/~~20~~ 27/15 @ 1205	GW	Na, Cl, 502.2, MTBE	3-40ml voas, 2-250 ml
MW-1B	2/~~20~~ 27/15 @ 1230	GW	Na, Cl, 502.2, MTBE	3-40ml voas, 2-250 ml
MW-2A	2/~~20~~ 27/15 @ 1125	GW	Na, Cl	2-250 ml
MW-2B	2/~~20~~ 27/15 @ 1145	GW	Na, Cl	2-250 ml
MW-3A	2/~~20~~ 27/15 @ 1018	GW	Na, Cl	2-250 ml
MW-3B	2/~~20~~ 27/15 @ 1035	GW	Na, Cl	2-250 ml
MW-4A	2/~~20~~ 27/15 @ 900	GW	Na, Cl	2-250 ml
MW-4B	2/~~20~~ 27/15 @ 920	GW	Na, Cl	2-250 ml
T-1	2/~~20~~ 27/15 @ 930	GW	Na, Cl	2-250 ml
T-2	2/~~20~~ 27/15 @ 935	GW	Na, Cl	2-250 ml

Comments

Preservation "X" those applicable: Cool 4°C ____ HNO3 ____ H2SO4 ____ NaOH ____ NONE ____ FROZEN ____

Kurt Williams 3/3/15
Samples Relinquished By Date/Time

Samples Relinquished By Date/Time

3/3/15 11:40
Samples Received By Date/Time

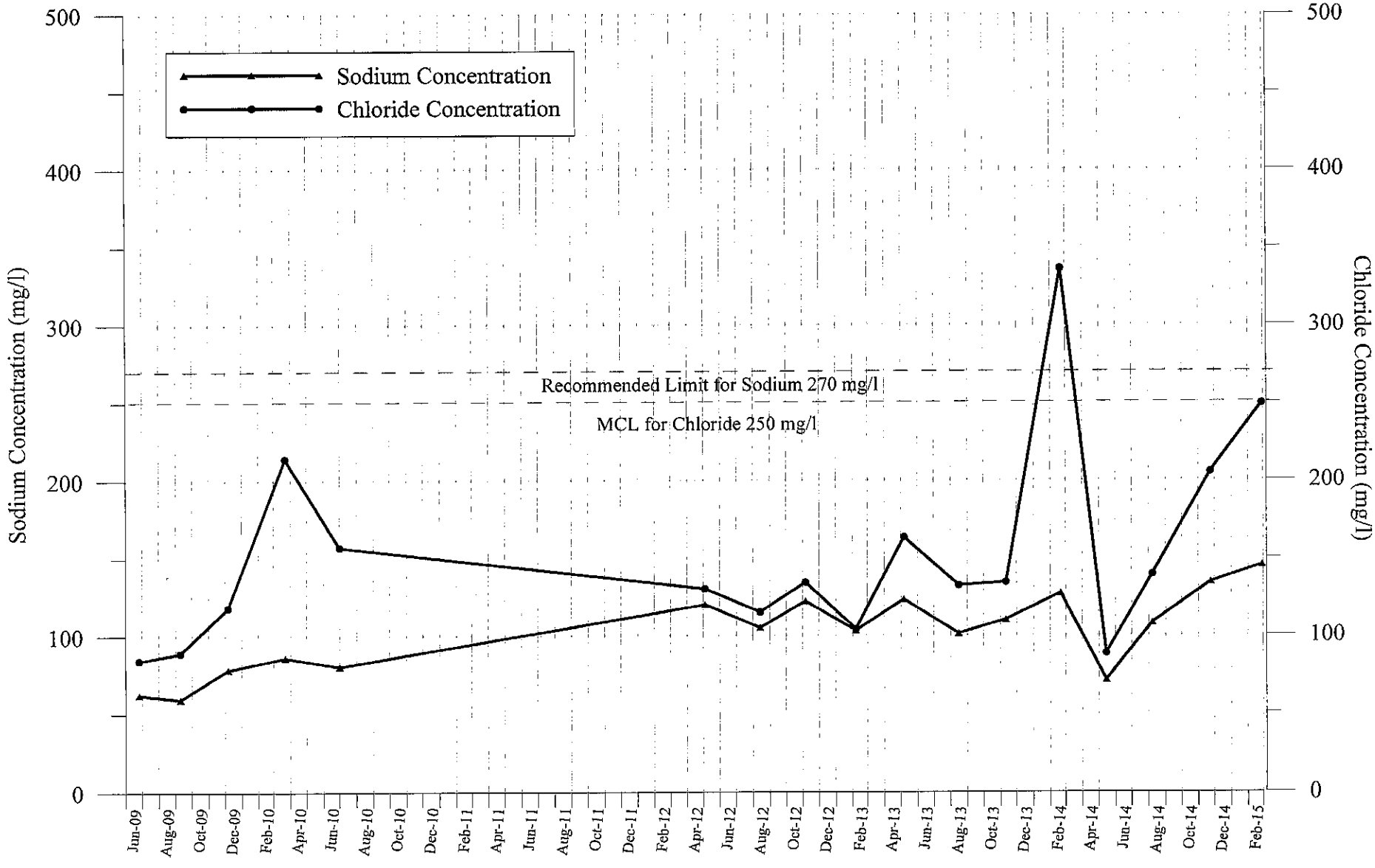
Place 3-3-15 1430
Samples Received in LAB by Date/Time

Temperature on Receipt 3.5 °C

APPENDIX III

SNOOK ROAD WELL FIELD
TOWN OF FISHKILL, NEW YORK

Summary of Sodium and Chloride Concentrations from Monitor Well MW-1A

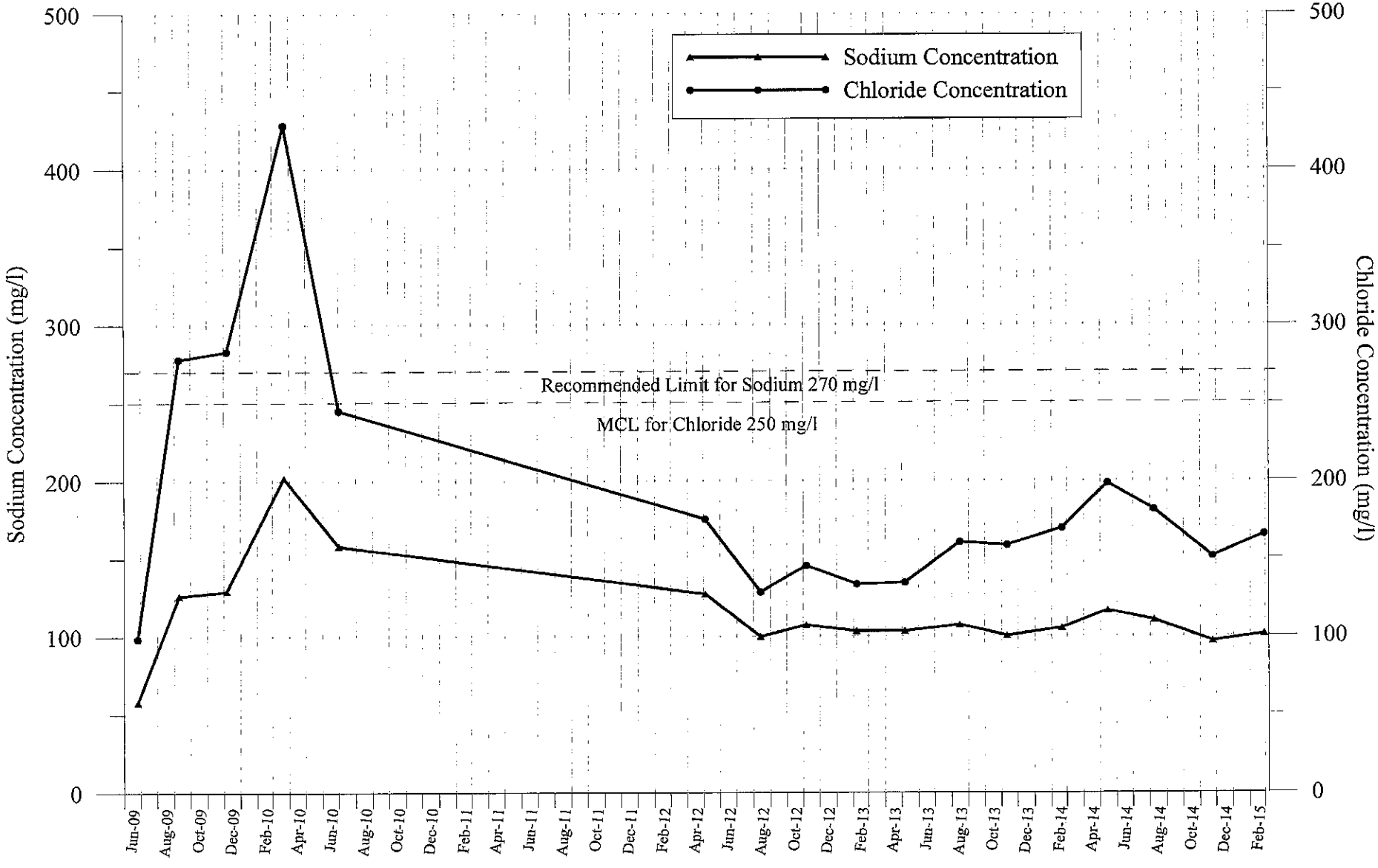


K:\Jobs\Town of Fishkill\Snook Road Well Field\2015\Feb 2015\MW-1A full graph.grf

LEGGETTE, BRASHEARS & GRAHAM, INC.

SNOOK ROAD WELL FIELD
TOWN OF FISHKILL, NEW YORK

Summary of Sodium and Chloride Concentrations from Monitor Well MW-1B



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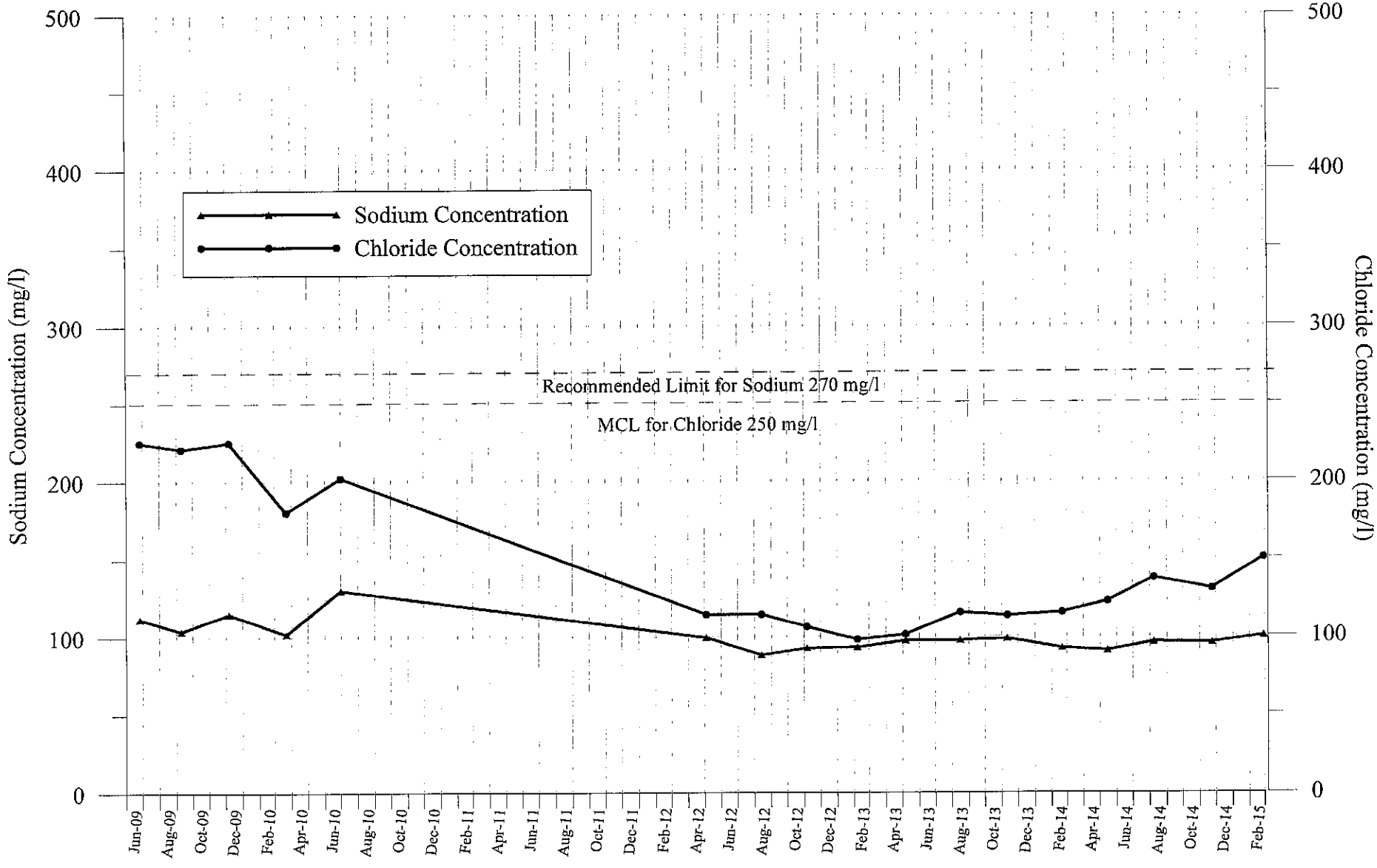
SNOOK ROAD WELL FIELD
TOWN OF FISHKILL, NEW YORK

Summary of Sodium and Chloride Concentrations from Monitor Well MW-2A



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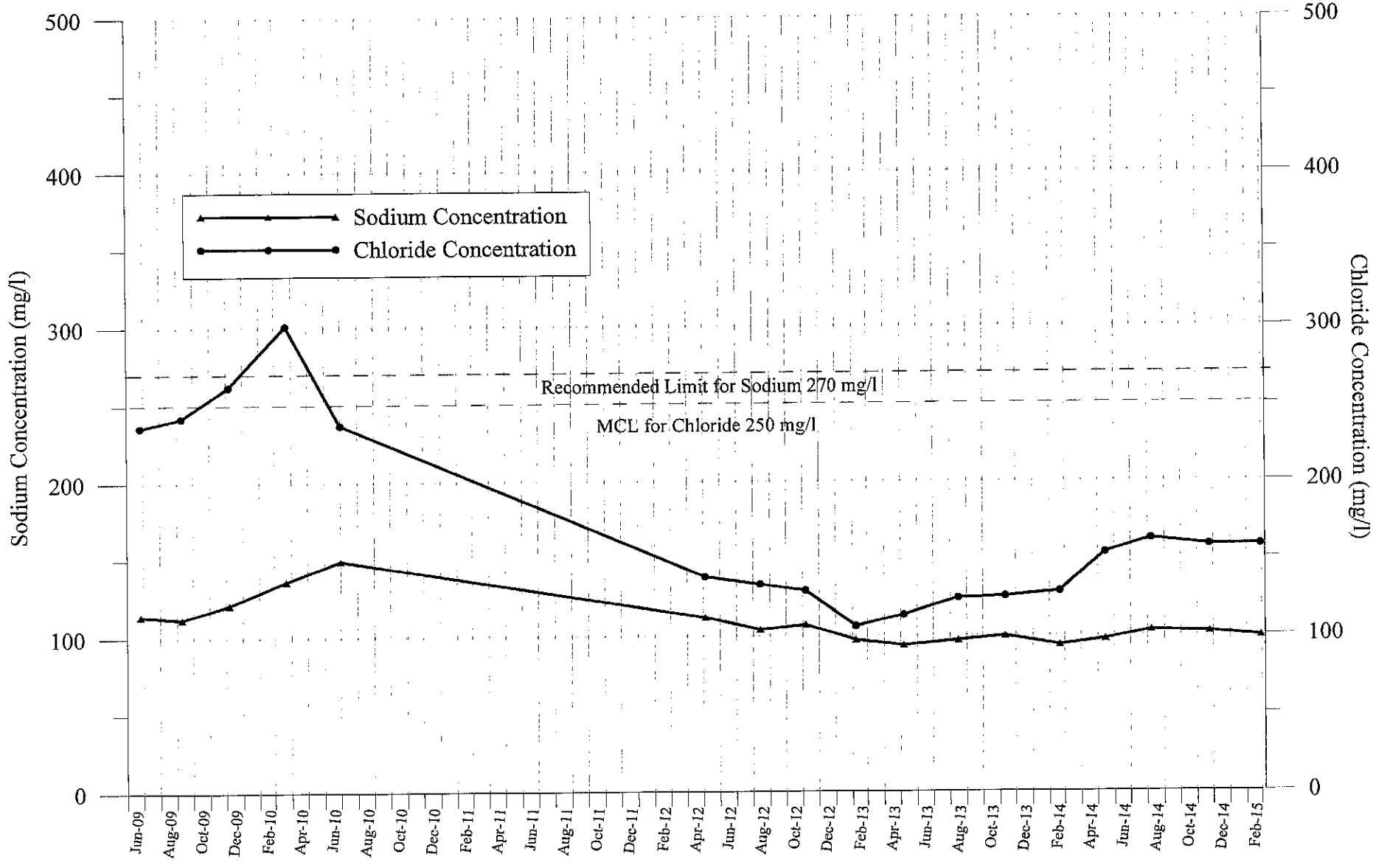
SNOOK ROAD WELL FIELD
TOWN OF FISHKILL, NEW YORK

Summary of Sodium and Chloride Concentrations from Monitor Well MW-2B



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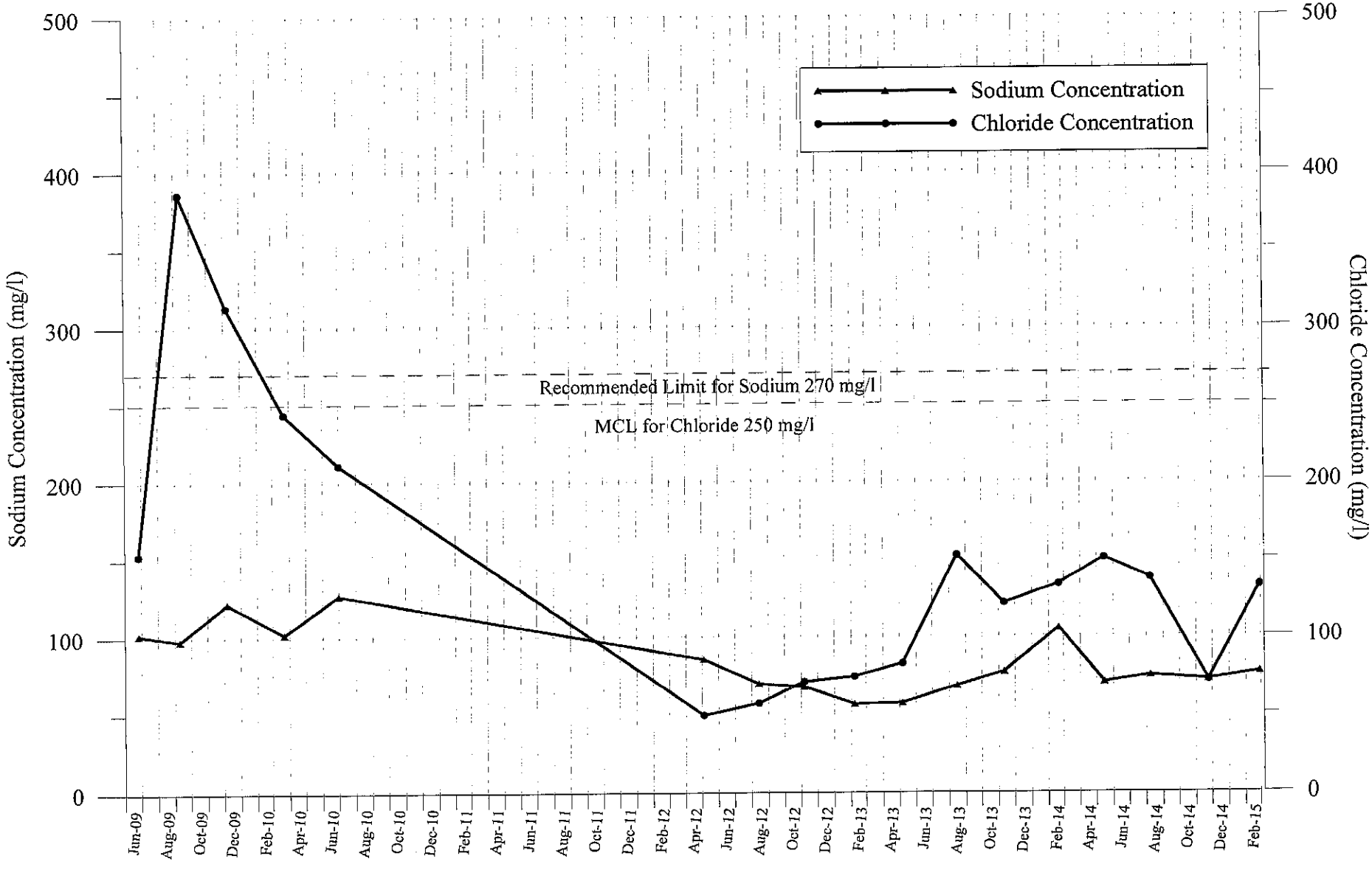
LEGGETTE, BRASHEARS & GRAHAM, INC.

SNOOK ROAD WELL FIELD
TOWN OF FISHKILL, NEW YORK

Summary of Sodium and Chloride Concentrations from Monitor Well MW-3A



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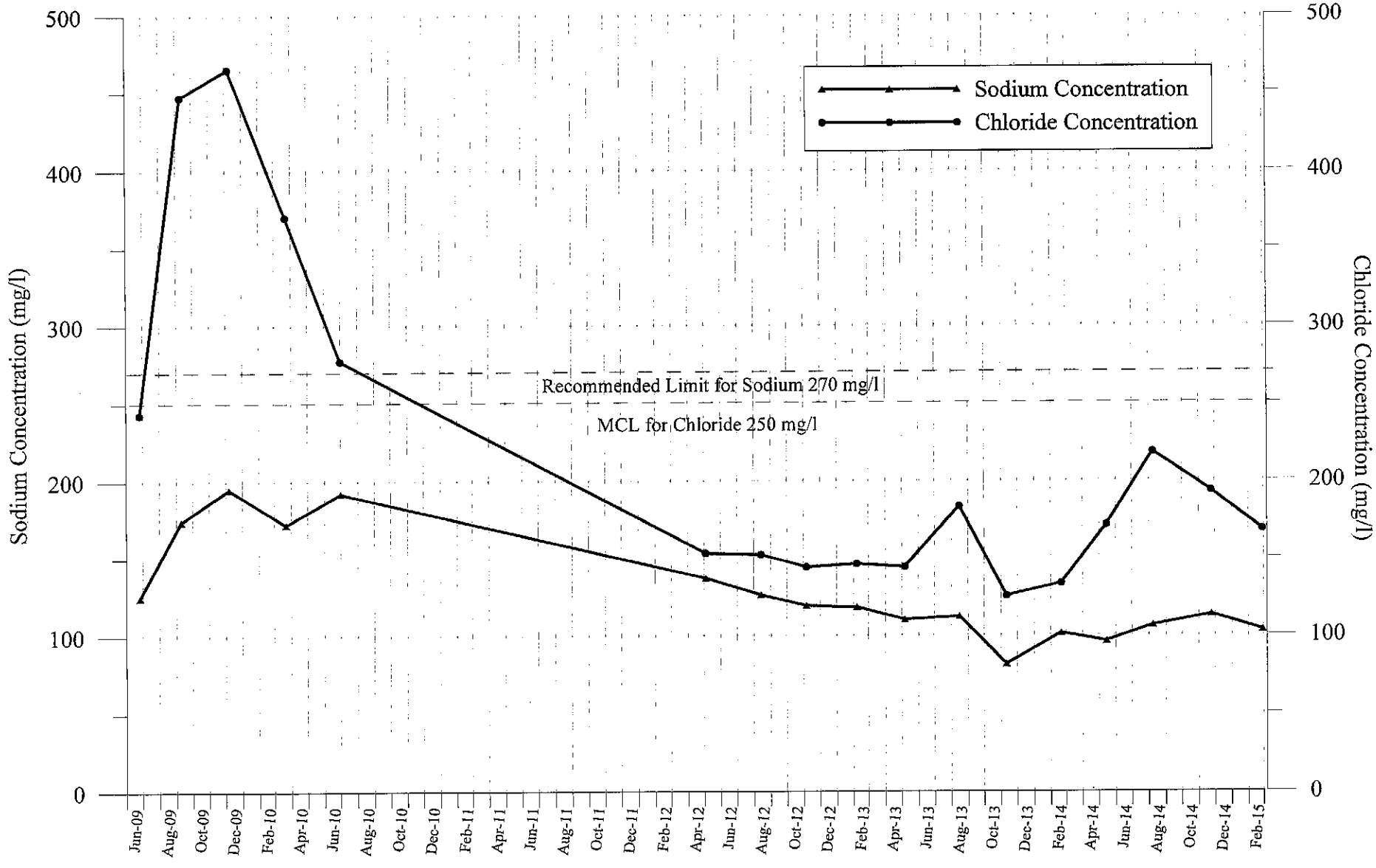
SNOOK ROAD WELL FIELD
TOWN OF FISHKILL, NEW YORK

Summary of Sodium and Chloride Concentrations from Monitor Well MW-3B



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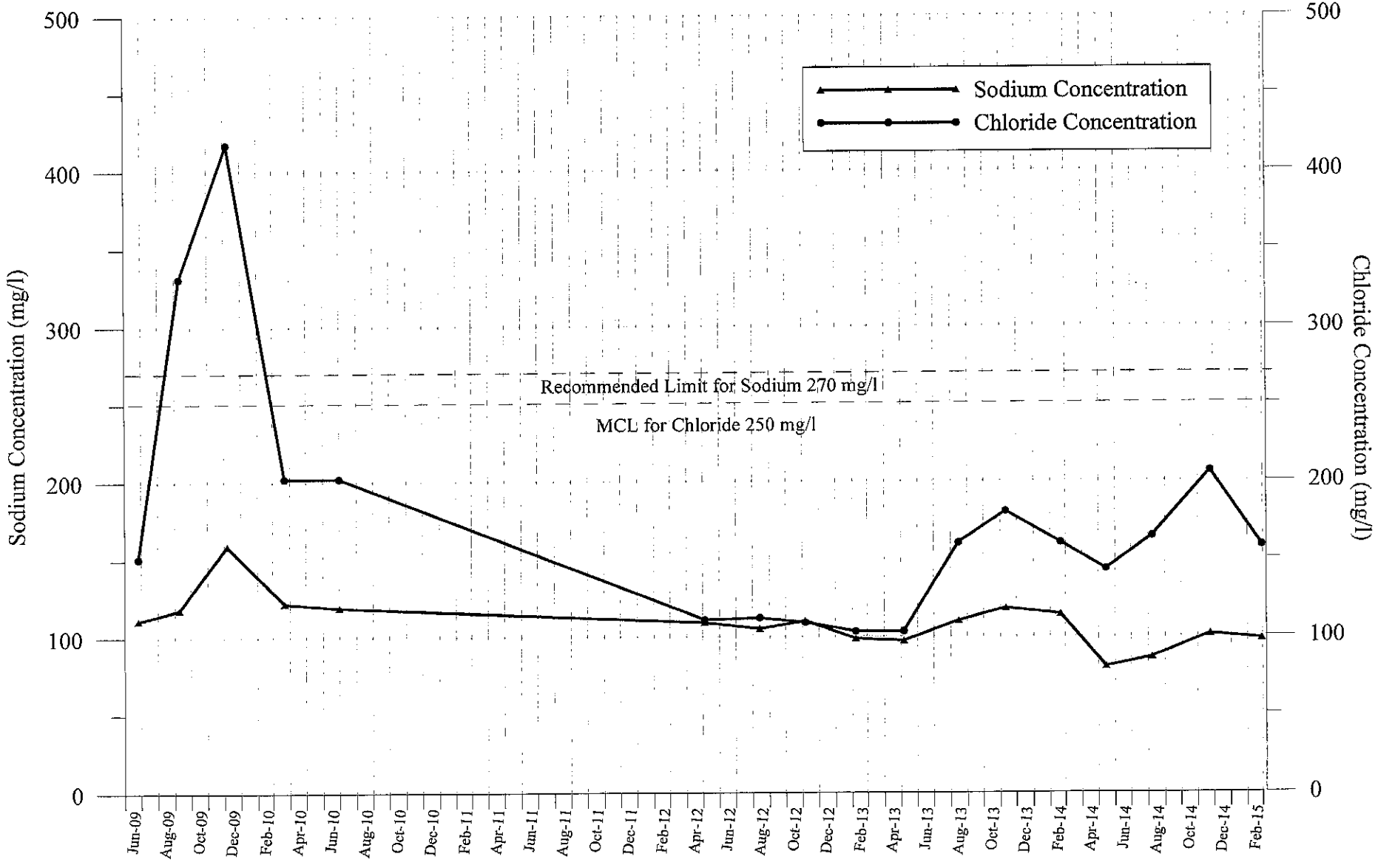
SNOOK ROAD WELL FIELD
TOWN OF FISHKILL, NEW YORK

Summary of Sodium and Chloride Concentrations from Monitor Well MW-4A



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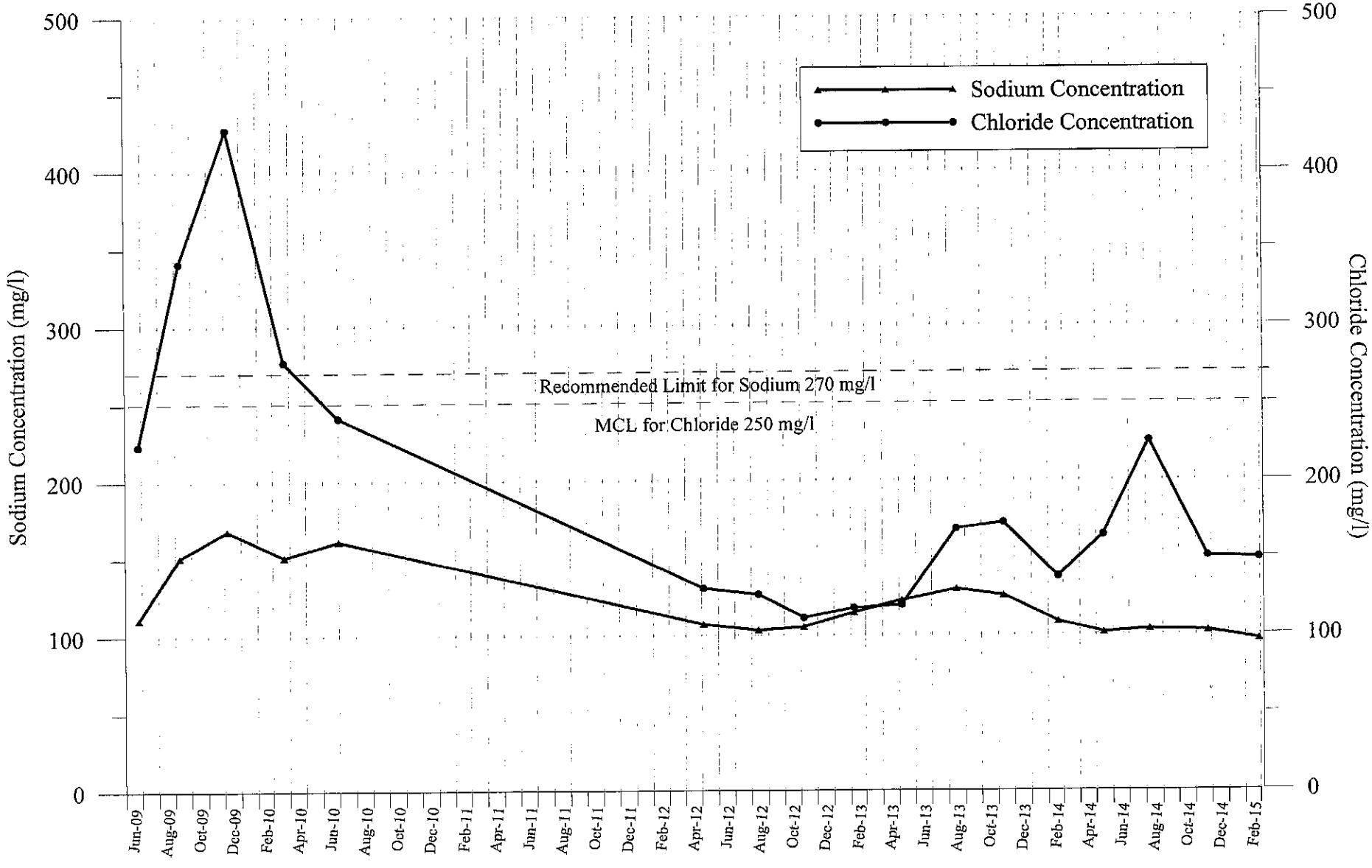
SNOOK ROAD WELL FIELD
TOWN OF FISHKILL, NEW YORK

Summary of Sodium and Chloride Concentrations from Monitor Well MW-4B



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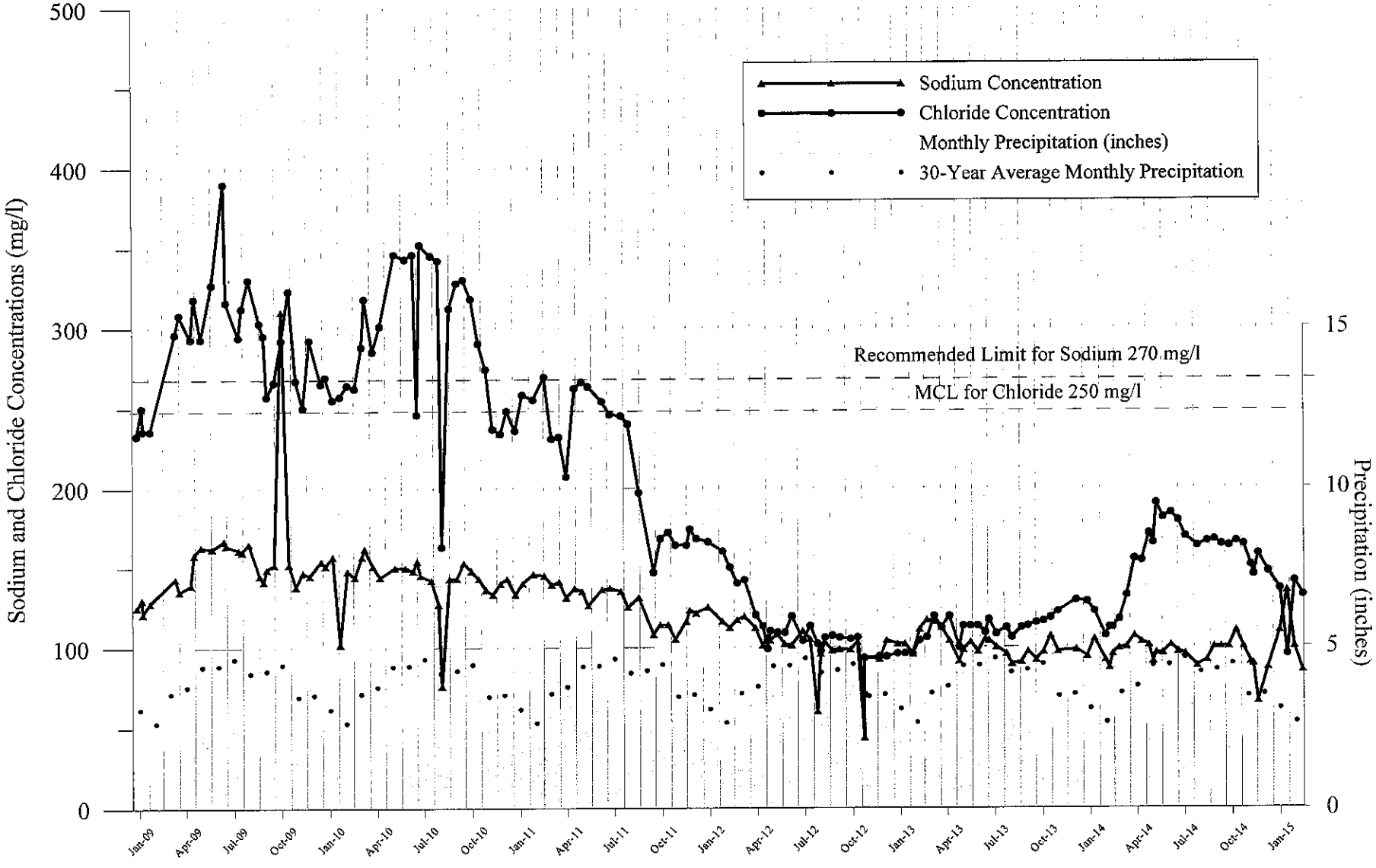
APPENDIX IV

SNOOK ROAD WELL FIELD
TOWN OF FISHKILL, NEW YORK

Summary of Sodium and Chloride Concentrations from Production Well T-1 Compared with Monthly Precipitation Totals



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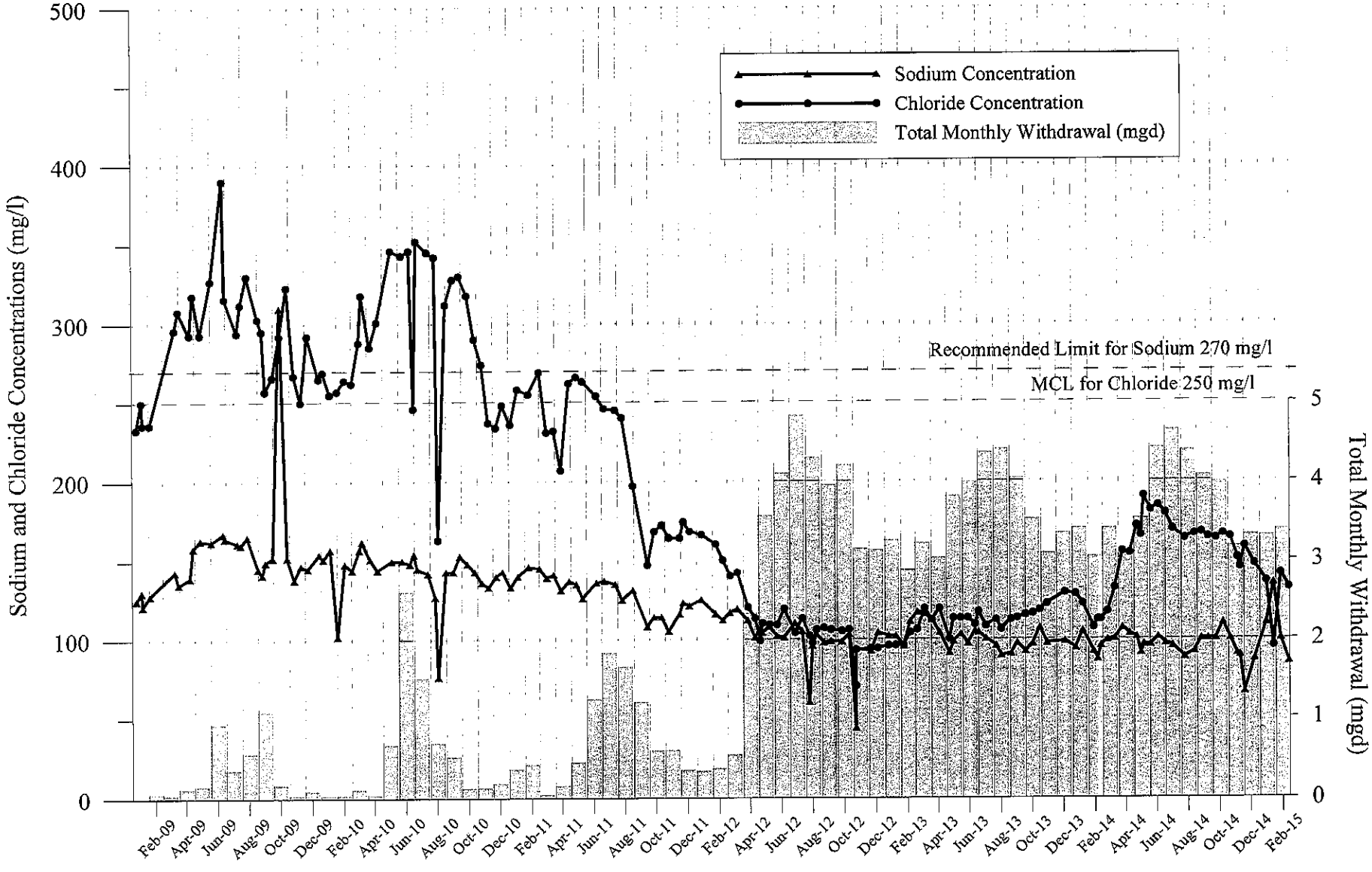
SNOOK ROAD WELL FIELD
TOWN OF FISHKILL, NEW YORK

Summary of Sodium and Chloride Concentrations from Production Well T-1 Compared with Monthly Pumping Withdrawal at the Well Field



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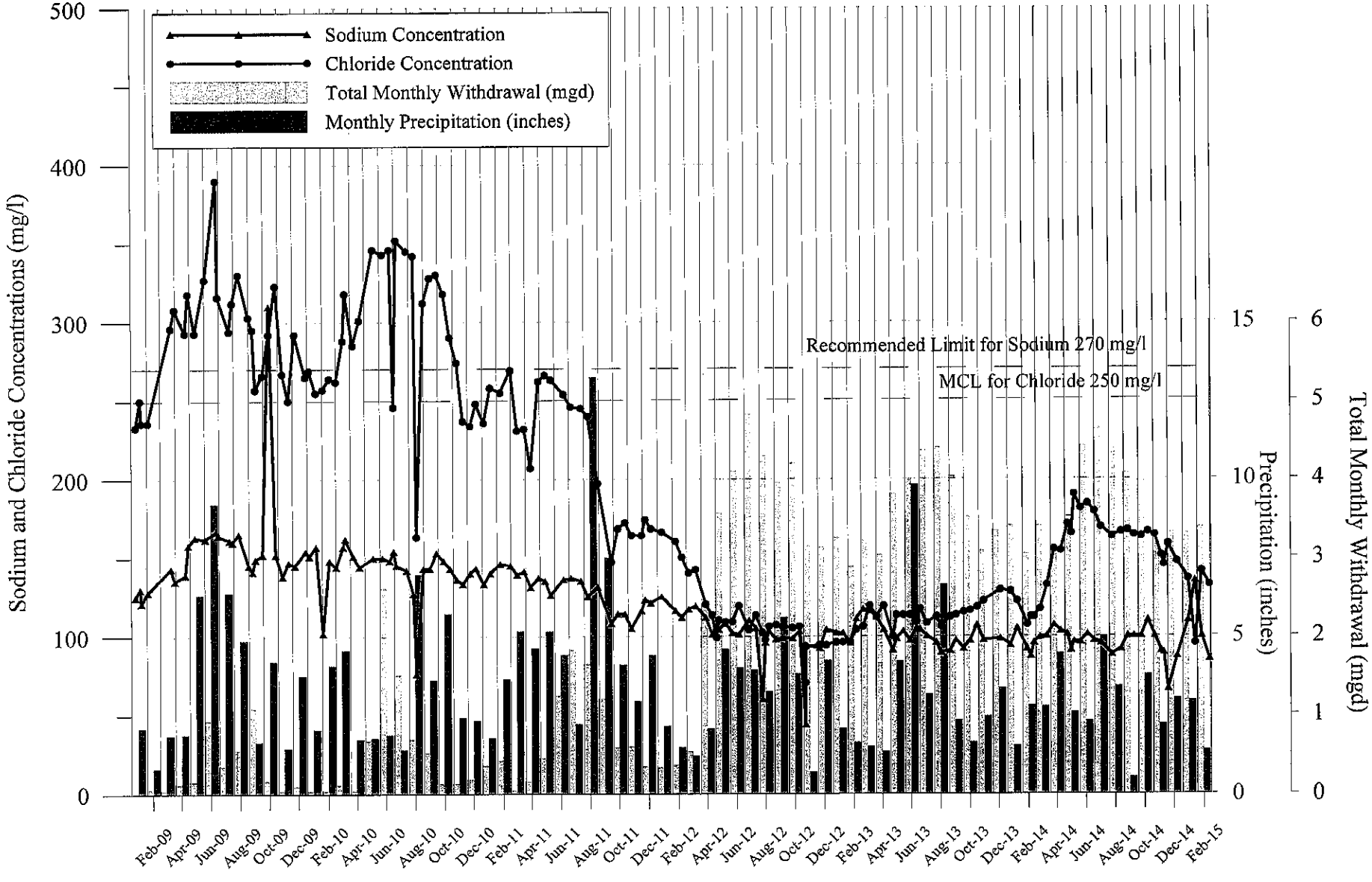
SNOOK ROAD WELL FIELD
TOWN OF FISHKILL, NEW YORK

Summary of Sodium and Chloride Concentrations from Production Well T-1 Compared with Monthly Precipitation and Pumping Withdrawal at the Well Field



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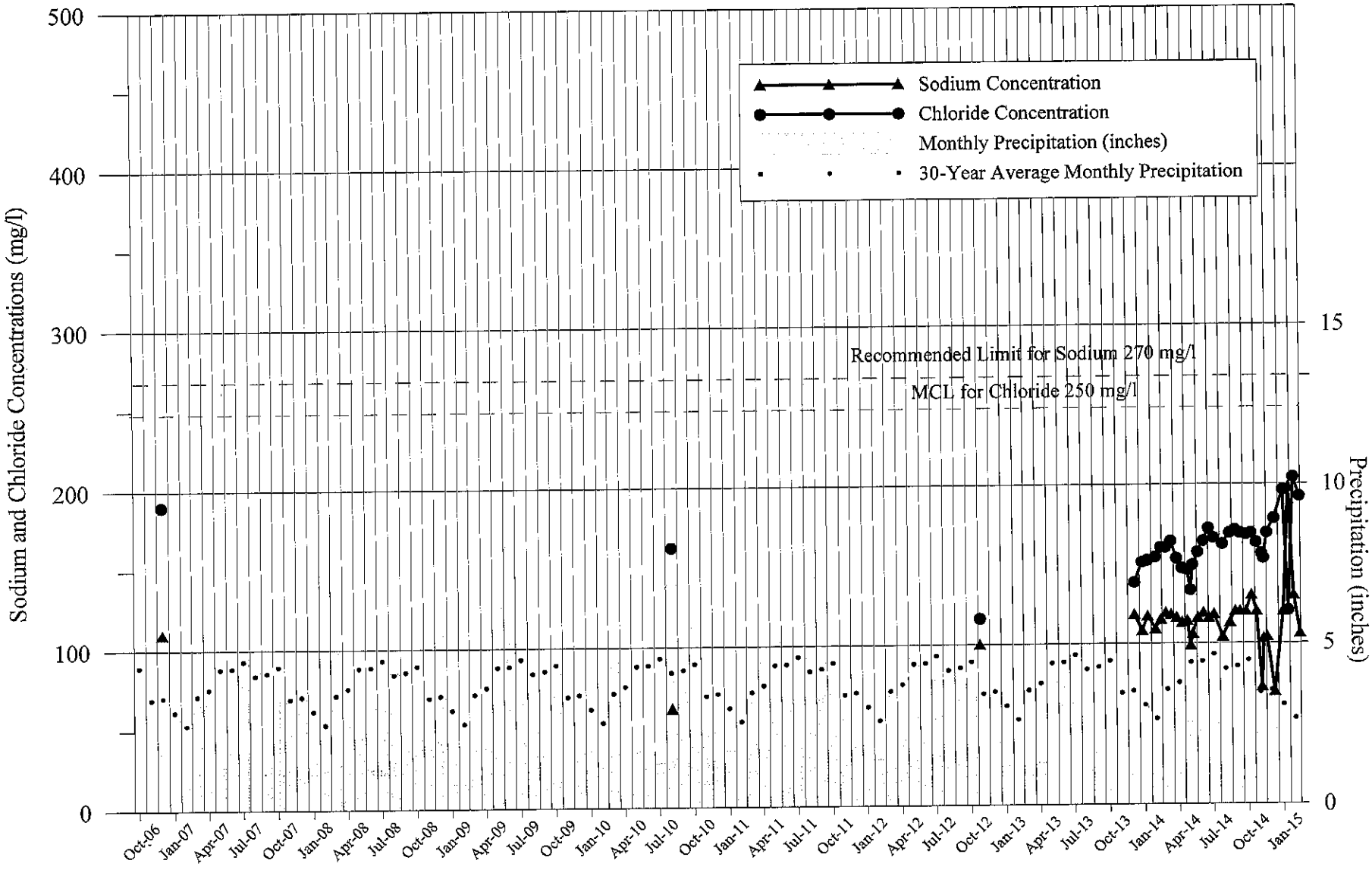
APPENDIX V

SNOOK ROAD WELL FIELD
TOWN OF FISHKILL, NEW YORK

Summary of Sodium and Chloride Concentrations from Production Well T-2 Compared with Monthly Precipitation Totals



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