

APPENDIX D

WELL CONSTRUCTION LOGS

GZA ENGINEER: Steve Kline
 CONTRACTOR: Solinst
 CONTRACTOR REP: Bruce Blackburn
 DATE START/END: 8/3/2006, 2/22/07, 3/16/07

DEPTH TO BOTTOM: 85.4 ft below top of casing
 DEPTH TO WATER: Refer to Table 6.1 ft below top of casing
 GROUND ELEVATION: 77.5 NGVD 29
 CASING ELEVATION: 75.66 NGVD 29

Transducers							
Zone	Serial #	Diaphragm Depth (ft below casing)	Diaphragm Elevation (m.s.l.)	Pressure Range (psi)	Linear Gage Factor (G)	Thermal Factor (K)	Accuracy (+/- ft H2O)
69	06-3131	68.8	6.9	10	0.003612	0.013585	0.023
71	06-3132	70.3	5.4	10	0.003603	0.012491	0.023
82	06-3134	81.8	-6.1	10	0.003799	0.014016	0.023
84	06-3135	83.3	-7.6	10	0.003241	0.004153	0.023

Factory Zero Transducer Readings					
Zone	Serial #	Date	Frequency Reading	Temp (°C)	Barometric Pressure (ft H2O)
69	06-3131	07/10/06	9246.0	25.2	33.2
71	06-3132	07/10/06	9318.0	25.6	33.2
82	06-3134	07/10/06	9111.0	24.6	33.2
84	06-3135	07/10/06	9294.0	25.2	33.2

Wellhead Zero Readings							
Zone	Serial #	Date	Time of Reading	Frequency Reading	Temp (°C)	Barometric Pressure (ft H2O)	Time of Baro Reading
69	06-3131	08/04/06	9:35	9212.2	22.7		
71	06-3132	08/04/06	10:15	9277.5	23.5		
82	06-3134	08/04/06	9:05	9080.1	22.8		
84	06-3135	08/04/06	9:10	9267.3	22.9		

Post-Installation (Pre-Inflation) Transducer Readings							
Zone	Serial #	Date	Time of Reading	Frequency Reading	Temp (°C)	Barometric Pressure (ft H2O)	Time of Baro Reading
69	06-3131	08/04/06	15:38	8472.5	24.3		
71	06-3132	08/04/06	15:40	8361.8	23.7		
82	06-3134	08/04/06	15:35	6905.5	23.1		
84	06-3135	08/04/06	15:37	6519.2	23.0		

- Notes**
- All depths and measurements referenced to the final top of well casing.
 - This log depicts adjustments made to original waterloo system installed on 8/3/06. Adjustments are listed below:
 - Steel well casing cut 2.39' on 2/22/06. Top 1 foot and 2 foot sections of PVC removed.
 - Manifold installed and an additional 2 foot section of pvc removed on 3/16/07.
 - On 3/7/07 DTW in PVC riser was 1.1 foot from top of steel casing.
 - On 3/7/07 DTW between steel casing and PVC riser was 30.76 feet from top of steel casing.
 - 2-foot by 2-foot by 2-foot well vault installed within concrete, flush with ground surface.

DEPTH to Top of Component (FT)	Distance Above Bottom (FT)	Elevation of Top of Component (FT)	Waterloo Component
0.3	85.1	75.4	1 ft casing
1.3	84.1	74.4	5 ft casing
6.3	79.1	69.4	5 ft casing
11.3	74.1	64.4	5 ft casing
16.3	69.1	59.4	5 ft casing
21.3	64.1	54.4	5 ft casing
26.3	59.1	49.4	5 ft casing
31.3	54.1	44.4	PACKER
34.3	51.1	41.4	PACKER
37.3	48.1	38.4	5 ft casing
42.3	43.1	33.4	PACKER
45.3	40.1	30.4	PACKER
48.3	37.1	27.4	2 ft casing
50.3	35.1	25.4	2 ft casing
52.3	33.1	23.4	PACKER
55.3	30.1	20.4	PACKER
58.3	27.1	17.4	1 ft casing
59.3	26.1	16.4	2 ft casing
61.3	24.1	14.4	PACKER
64.3	21.1	11.4	PACKER
67.3	18.1	8.4	2 ft casing
69.3	16.1	6.4	PORT 69
69.8	15.6	5.9	1 ft casing
70.8	14.6	4.9	PORT 71
71.3	14.1	4.4	PACKER
74.3	11.1	1.4	PACKER
77.3	8.1	-1.6	5 ft casing
82.3	3.1	-6.6	PORT 82
82.8	2.6	-7.1	1 ft casing
83.8	1.6	-8.1	PORT 84
84.3	1.1	-8.6	1 ft casing
85.3	0.1	-9.6	SS Plug

WATERLOO INSTALLATION LOG

GZA GEOENVIRONMENTAL OF NEW YORK
 440 NINTH AVENUE, 18th FLOOR
 NEW YORK, NEW YORK 10001
 SCIENTISTS AND ENGINEERS

Client

Entergy
 Indian Point Energy Center
 Buchanan, NY

WELL ID: MW-31
 SHEET: 1 of 1
 FILE NO: 41.0017869.01
 PROJECT LOCATION: Indian Point Energy Center

GZA ENGINEER: Steve Kline
 CONTRACTOR: Solinet
 CONTRACTOR REP: Bruce Blackburn
 DATE START/END: 9/21/2006

DEPTH TO BOTTOM: 85.40 ft below top of casing
 DEPTH TO WATER: Refer to Table 6.1 ft below top of casing
 GROUND ELEVATION: 77.45 NGVD 29
 CASING ELEVATION: 75.64 NGVD 29

Transducers							
Zone	Serial #	Diaphragm Depth (ft below casing)	Diaphragm Elevation (m.s.l.)	Pressure Range (psi)	Linear Gage Factor (G)	Thermal Factor (K)	Accuracy (+/- ft H2O)
49	06-4229	48.3	27.3	10	0.003704	0.013618	0.023
63	06-11472	63.0	12.6	50	0.015900	0.009250	0.115
85	06-11473	84.5	-8.9	50	0.014710	0.023900	0.115

Factory Zero Transducer Readings					
Zone	Serial #	Date	Frequency Reading	Temp (°C)	Barometric Pressure (ft H2O)
49	06-4229	08/04/06	9230.0	25.6	33.1
63	06-11472	08/04/06	9163.0	24.2	33.1
85	06-11473	08/04/06	9048.0	24.5	33.1

Wellhead Zero Readings							
Zone	Serial #	Date	Time of Reading	Frequency Reading	Temp (°C)	Barometric Pressure (ft H2O)	Time of Baro Reading
49	06-4229	09/21/06	7:55	9106.3	18.7		
63	06-11472	09/21/06	7:57	9149.0	18.4		
85	06-11473	09/21/06	7:56	9028.3	18.7		

Post-Installation (Pre-Inflation) Transducer Readings							
Zone	Serial #	Date	Time of Reading	Frequency Reading	Temp (°C)	Barometric Pressure (ft H2O)	Time of Baro Reading
49	06-4229	09/21/06	14:30	6757.0	18.4		
63	06-11472	09/21/06	14:25	8205.8	18.1		
85	06-11473	09/21/06	14:26	7376.5	17.7		

Notes

- All depths and measurements referenced to the final top of well casing.
- 2-foot by 2-foot by 2-foot well vault installed within concrete, flush with ground surface.

DEPTH to Top of Component (FT)	Distance Above Bottom (FT)	Elevation of Top of Component (FT)	Waterloo Component
-0.2	85.6	75.8	5 ft casing
4.8	80.6	70.8	5 ft casing
9.8	75.6	65.8	PACKER
12.8	72.6	62.8	2 ft casing
14.8	70.6	60.8	PACKER
17.8	67.6	57.8	1 ft casing
18.8	66.6	56.8	2 ft casing
20.8	64.6	54.8	5 ft casing
25.8	59.6	49.8	PACKER
28.8	56.6	46.8	PACKER
31.8	53.6	43.8	PACKER
34.8	50.6	40.8	2 ft casing
36.8	48.6	38.8	2 ft casing
38.8	46.6	36.8	5 ft casing
43.8	41.6	31.8	5 ft casing
48.8	36.6	26.8	PORT 49
49.3	36.1	26.3	PACKER
52.3	33.1	23.3	PACKER
55.3	30.1	20.3	1 ft casing
56.3	29.1	19.3	2 ft casing
58.3	27.1	17.3	5 ft casing
63.3	22.1	12.3	PORT 63
63.8	21.6	11.8	PACKER
66.8	18.6	8.8	PACKER
69.8	15.6	5.8	5 ft casing
74.8	10.6	0.8	5 ft casing
79.8	5.6	-4.2	5 ft casing
84.8	0.6	-9.2	PORT 85
85.3	0.1	-9.7	SS Plug

WATERLOO INSTALLATION LOG

GZA GEOENVIRONMENTAL OF NEW YORK
 440 NINTH AVENUE, 18th FLOOR
 NEW YORK, NEW YORK 10001
 SCIENTISTS AND ENGINEERS

Client
Entergy
 Indian Point Energy Center
 Buchanan, NY

WELL ID: MW-32
 SHEET: 1 of 1
 FILE NO: 41 0017869.01
 PROJECT LOCATION: Indian Point Energy Center

GZA ENGINEER: S. Kline
 CONTRACTOR: none
 CONTRACTOR REP: none
 DATE START/END: 9/10/2007 - 9/10/2007

DEPTH TO BOTTOM: 193.92 ft below top of casing
 DEPTH TO WATER: Refer to Table 6.1 ft below top of casing
 GROUND ELEVATION: 78.90 NGVD 29
 CASING ELEVATION: 77.13 NGVD 29

Transducers							
Zone	Serial #	Diaphragm Depth (ft below casing)	Diaphragm Elevation (m.s.l.)	Pressure Range (psi)	Linear Gage Factor (G)	Thermal Factor (K)	Accuracy (+/- ft H2O)
48	06-11474	48.0	29.1	50	0.016310	0.026440	0.115
59	06-11475	58.5	19.1	50	0.017020	0.022210	0.115
85	06-21926	85.0	-7.9	50	0.014980	-0.011570	0.115
131	06-11476	130.5	-53.4	50	0.017360	0.031670	0.115
149	07-13255	149.0	-71.9	50	0.015090	-0.017110	0.115
173	06-10514	172.5	-95.4	100	0.024000	0.043400	0.231
190	07-13830	190.0	-112.9	100	0.022570	-0.031020	0.231

Factory Zero Transducer Readings					
Zone	Serial #	Date	Frequency Reading	Temp (°C)	Barometric Pressure (ft H2O)
48	06-11474	08/04/06	9200.0	24.8	33.1
59	06-11475	08/04/06	9112.0	24.8	33.1
85	06-21926	11/29/06	8402.0	21.9	33.7
131	06-11476	08/04/06	9126.0	24.1	33.1
149	07-13255	07/16/07	8917.0	23.1	33.2
173	06-10514	08/04/06	8840.0	23.1	33.1
190	07-13830				

Wellhead Zero Readings							
Zone	Serial #	Date	Time of Reading	Frequency Reading	Temp (°C)	Barometric Pressure (ft H2O)	Time of Baro Reading
48	06-11474	09/05/07	9:01	9177.1	19.8	34.04	8:30
59	06-11475	09/05/07	9:03	9088.3	20.1	34.04	8:30
85	06-21926	09/05/07	9:02	8418.8	19.7	34.04	8:30
131	06-11476	09/05/07	8:59	9043.4	19.6	34.04	8:30
149	07-13255	09/05/07	9:05	8912.8	19.7	34.04	8:30
173	06-10514	09/05/07	9:00	8807.9	19.6	34.04	8:30
190	07-13830	09/05/07	9:04	8944.8	19.9	34.04	8:30

Post-Installation (Pre-Inflation) Transducer Readings							
Zone	Serial #	Date	Time of Reading	Frequency Reading	Temp (°C)	Barometric Pressure (ft H2O)	Time of Baro Reading
48	06-11474	09/10/07	14:20	8690.5	21.8	33.82	14:20
59	06-11475	09/10/07	14:19	8363.9	21.4	33.82	14:20
85	06-21926	09/10/07	14:18	6811.5	20.1	33.82	14:20
131	06-11476	09/10/07	14:17	6530.4	18.1	33.82	14:20
149	07-13255	09/10/07	14:15	5489.7	17.6	33.82	14:20
173	06-10514	09/10/07	14:16	6236.6	16.5	33.82	14:20
190	07-13830	09/10/07	14:21	5898.9	16.3	33.82	14:20

Notes
 1. All depths and measurements referenced to the final top of well casing.
 2. 2-foot by 2-foot by 2-foot well vault installed within concrete, flush with ground surface.

DEPTH to Top of Component (FT)	Distance Above Bottom (FT)	Elevation of Top of Component (FT)	Waterloo Component
-0.7	194.6	77.8	1 ft casing
0.3	193.6	76.8	2 ft casing
2.3	191.6	74.8	5 ft casing
7.3	186.6	69.8	5 ft casing
12.3	181.6	64.8	5 ft casing
17.3	176.6	59.8	5 ft casing
22.3	171.6	54.8	PACKER
25.3	168.6	51.8	PACKER
28.3	165.6	48.8	5 ft casing
33.3	160.6	43.8	5 ft casing
38.3	155.6	38.8	5 ft casing
43.3	150.6	33.8	5 ft casing
48.3	145.6	28.8	PORT 48
48.8	145.1	28.3	5 ft casing
53.8	140.1	23.3	5 ft casing
58.8	135.1	18.3	PORT 59
59.3	134.6	17.8	2 ft casing
61.3	132.6	15.8	PACKER
64.3	129.6	12.8	PACKER
67.3	126.6	9.8	PACKER
70.3	123.6	6.8	1 ft casing
71.3	122.6	5.8	2 ft casing
73.3	120.6	3.8	PACKER
76.3	117.6	0.8	PACKER
79.3	114.6	-2.2	1 ft casing
80.3	113.6	-3.2	5 ft casing
85.3	108.6	-8.2	PORT 85
85.8	108.1	-8.7	2 ft casing
87.8	106.1	-10.7	5 ft casing
92.8	101.1	-15.7	PACKER
95.8	98.1	-18.7	2 ft casing
97.8	96.1	-20.7	PACKER
100.8	93.1	-23.7	5 ft casing
105.8	88.1	-28.7	PACKER
108.8	85.1	-31.7	5 ft casing
113.8	80.1	-36.7	PACKER
116.8	77.1	-39.7	PACKER
119.8	74.1	-42.7	1 ft casing
120.8	73.1	-43.7	2 ft casing
122.8	71.1	-45.7	PACKER
125.8	68.1	-48.7	5 ft casing
130.8	63.1	-53.7	PORT 131
131.3	62.6	-54.2	2 ft casing
133.3	60.6	-56.2	5 ft casing
138.3	55.6	-61.2	PACKER
141.3	52.6	-64.2	PACKER
144.3	49.6	-67.2	PACKER
147.3	46.6	-70.2	2 ft casing
149.3	44.6	-72.2	PORT 149
149.8	44.1	-72.7	5 ft casing
154.8	39.1	-77.7	2 ft casing
156.8	37.1	-79.7	PACKER
159.8	34.1	-82.7	PACKER
162.8	31.1	-85.7	PACKER
165.8	28.1	-88.7	2 ft casing
167.8	26.1	-90.7	5 ft casing
172.8	21.1	-95.7	PORT 173
173.3	20.6	-96.2	1 ft casing
174.3	19.6	-97.2	PACKER
177.3	16.6	-100.2	PACKER
180.3	13.6	-103.2	5 ft casing
185.3	8.6	-108.2	5 ft casing
190.3	3.6	-113.2	PORT 190
190.8	3.1	-113.7	1 ft casing
191.8	2.1	-114.7	2 ft casing
193.8	0.1	-116.7	SS Plug

WATERLOO INSTALLATION LOG

GZA GEOENVIRONMENTAL OF NEW YORK
 440 NINTH AVENUE, 18th FLOOR
 NEW YORK, NEW YORK 10001
 SCIENTISTS AND ENGINEERS

Client
 Entergy
 Indian Point Energy Center
 Buchanan, NY

WELL ID: MW-39
 SHEET: 1 of 1
 FILE NO: 41 0017886 01
 PROJECT LOCATION: Indian Point Energy Center

GZA ENGINEER: Steve Kline
 CONTRACTOR: Sams
 CONTRACTOR REP: Bruce Blackburn
 DATE START/END: 4/23/07 - 4/24/07

DEPTH TO BOTTOM: 106.6 ft below top of casing
 DEPTH TO WATER: Refer to Table 6.1 ft below top of casing
 GROUND ELEVATION: 81.83 NGVD 29
 CASING ELEVATION: 79.99 NGVD 29

Transducers							
Zone	Serial #	Diaphragm Depth (ft below casing)	Diaphragm Elevation (m.s.l.)	Pressure Range (psi)	Linear Gage Factor (G)	Thermal Factor (K)	Accuracy (+/- ft H2O)
67	06-21925	66.7	13.3	50	0.014410	-0.011130	0.115
84	07-1143	83.0	-3.0	25	0.006901	0.001030	0.058
100	07-1144	99.5	-19.5	25	0.006780	0.004641	0.058
102	06-21920	101.2	-21.2	50	0.015610	-0.010340	0.115
124	07-6069	123.7	-43.7	50	0.015990	0.009080	0.115
183	07-6068	182.2	-102.2	50	0.014560	-0.020880	0.115
195	06-18344	194.7	-114.7	100	0.022620	0.004030	0.231

Factory Zero Transducer Readings					
Zone	Serial #	Date	Frequency Reading	Temp (°C)	Barometric Pressure (ft H2O)
67	06-21925	11/29/06	8263.0	23.1	33.7
84	07-1143	03/15/07	9674.0	23.2	33.0
100	07-1144	03/15/07	9554.0	23.1	33.0
102	06-21920	11/29/06	8107.0	23.7	33.7
124	07-6069	04/19/07	8724.0	23.1	33.2
183	07-6068	04/19/07	8834.0	23.0	33.2
195	06-18344	11/28/06	8825.0	22.2	33.7

Wellhead Zero Readings						
Zone	Serial #	Date	Time of Reading	Frequency Reading	Temp (°C)	Barometric Pressure (ft H2O)
67	06-21925	04/23/07	14.30	8280.3	15.0	33.70
84	07-1143	04/23/07	14.30	9645.0	14.6	33.70
100	07-1144	04/23/07	14.30	9515.1	14.5	33.70
102	06-21920	04/23/07	14.30	8117.6	14.7	33.70
124	07-6069	04/24/07	13.00	8728.5	15.2	33.76
183	07-6068	04/24/07	9.15	8844.2	14.5	33.76
195	06-18344	04/23/07	14.30	8839.7	14.7	33.70

Post-Installation (Pre-inflation) Transducer Readings						
Zone	Serial #	Date	Time of Reading	Frequency Reading	Temp (°C)	Barometric Pressure (ft H2O)
67	06-21925	04/25/07	14.45	7750.0	15.7	33.87
84	07-1143	04/25/07	14.45	7541.5	14.0	33.87
100	07-1144	04/25/07	14.45	6318.5	14.1	33.87
102	06-21920	04/25/07	14.45	6681.5	14.3	33.87
124	07-6069	04/25/07	14.45	6721.5	14.1	33.87
183	07-6068	04/25/07	14.45	4890.4	13.7	33.87
195	06-18344	04/25/07	14.45	6075.0	14.0	33.87

Notes
 1. All depths and measurements referenced to the final top of well casing.
 2. Wellhead zero times are approximate within 15 minutes of actual readings.
 3. 2-foot by 2-foot by 2-foot well vault installed within concrete, flush with ground surface.

DEPTH to Top of Component (FT)	Distance Above Bottom (FT)	Elevation of Top of Component (FT)	Waterloo Component
0.0	198.6	80.0	2 ft casing
2.0	196.6	78.0	5 ft casing
7.0	191.6	73.0	5 ft casing
12.0	186.6	68.0	5 ft casing
17.0	181.6	63.0	5 ft casing
22.0	176.6	58.0	5 ft casing
27.0	171.6	53.0	5 ft casing
32.0	166.6	48.0	5 ft casing
37.0	161.6	43.0	5 ft casing
42.0	156.6	38.0	5 ft casing
47.0	151.6	33.0	5 ft casing
52.0	146.6	28.0	5 ft casing
57.0	141.6	23.0	5 ft casing
62.0	136.6	18.0	PACKER
65.0	133.6	15.0	2 ft casing
67.0	131.6	13.0	PORT 67
67.5	131.1	12.5	1 ft casing
68.5	130.1	11.5	2 ft casing
70.5	128.1	9.5	PACKER
73.5	125.1	6.5	PACKER
76.5	122.1	3.5	5 ft casing
81.5	117.1	-1.5	2 ft casing
83.5	115.1	-3.5	PORT 84
84.0	114.6	-4.0	1 ft casing
85.0	113.6	-5.0	PACKER
88.0	110.6	-8.0	2 ft casing
90.0	108.6	-10.0	PACKER
93.0	105.6	-13.0	2 ft casing
95.0	103.6	-15.0	5 ft casing
100.0	98.6	-20.0	PORT 100
100.5	98.1	-20.5	1 ft casing
101.5	97.1	-21.5	PORT 102
102.0	96.6	-22.0	1 ft casing
103.0	95.6	-23.0	PACKER
106.0	92.6	-26.0	PACKER
109.0	89.6	-29.0	2 ft casing
111.0	87.6	-31.0	1 ft casing
112.0	86.6	-32.0	PACKER
115.0	83.6	-35.0	5 ft casing
120.0	78.6	-40.0	2 ft casing
122.0	76.6	-42.0	2 ft casing
124.0	74.6	-44.0	PORT 124
124.5	74.1	-44.5	2 ft casing
126.5	72.1	-46.5	PACKER
129.5	69.1	-49.5	2 ft casing
131.5	67.1	-51.5	2 ft casing
133.5	65.1	-53.5	PACKER
136.5	62.1	-56.5	2 ft casing
138.5	60.1	-58.5	5 ft casing
143.5	55.1	-63.5	5 ft casing
148.5	50.1	-68.5	PACKER
151.5	47.1	-71.5	5 ft casing
156.5	42.1	-76.5	5 ft casing
161.5	37.1	-81.5	PACKER
164.5	34.1	-84.5	2 ft casing
166.5	32.1	-86.5	PACKER
169.5	29.1	-89.5	1 ft casing
170.5	28.1	-90.5	2 ft casing
172.5	26.1	-92.5	5 ft casing
177.5	21.1	-97.5	5 ft casing
182.5	16.1	-102.5	PORT 183
183.0	15.6	-103.0	2 ft casing
185.0	13.6	-105.0	1 ft casing
186.0	12.6	-106.0	PACKER
189.0	9.6	-109.0	1 ft casing
190.0	8.6	-110.0	PACKER
193.0	5.6	-113.0	2 ft casing
195.0	3.6	-115.0	PORT 195
195.5	3.1	-115.5	2 ft casing
197.5	1.1	-117.5	1 ft casing
198.5	0.1	-118.5	SS Plug

WATERLOO INSTALLATION LOG

GZA GEOENVIRONMENTAL OF NEW YORK
440 NINTH AVENUE, 18TH FLOOR
NEW YORK, NEW YORK 10001
SCIENTISTS AND ENGINEERS

Client

Entergy
Indian Point Energy Center
Buchanan, NY

WELL ID MW-40
SHEET 1 of 1
FILE NO 41 0017869.01
PROJECT LOCATION Indian Point Energy Center

GZA ENGINEER S. Kline
CONTRACTOR Solmet
CONTRACTOR REP Bruce Blackburn
DATE START/END 4/29/07 - 4/30/07

DEPTH TO BOTTOM 190.3 ft below top of casing
DEPTH TO WATER Refer to Table 6.1 ft below top of casing
CASING ELEVATION 74.95 NGVD 29
GROUND ELEVATION 73.16 NGVD 29

Transducers							
Zone	Serial #	Diaphragm Depth (ft below casing)	Diaphragm Elevation (m.s.l.)	Pressure Range (psi)	Linear Gage Factor (G)	Thermal Factor (K)	Accuracy (+/- ft H2O)
24	07-6072	23.9	49.3	50	0.017040	-0.009960	0.115
27	07-1780	26.2	47.0	10	0.002963	0.007921	0.023
46	07-1139	45.7	27.5	25	0.006850	0.001030	0.058
81	07-1140	80.2	-7.0	25	0.006912	0.001779	0.058
100	07-6070	99.9	-26.7	50	0.017250	-0.013870	0.115
127	07-6064	126.9	-53.7	50	0.015580	-0.015750	0.115
162	06-11953	161.4	-88.2	100	0.025060	-0.001410	0.231

Factory Zero Transducer Readings					
Zone	Serial #	Date	Frequency Reading	Temp (°C)	Barometric Pressure (ft H2O)
24	07-6072	04/19/07	8715.0	23.1	33.2
27	07-1780	03/29/07	9255.0	24.1	33.7
46	07-1139	03/15/07	9812.0	23.2	33.0
81	07-1140	03/15/07	9800.0	23.2	33.0
100	07-6070	04/19/07	8868.0	23.2	33.2
127	07-6064	04/19/07	8826.0	22.7	33.2
162	06-11953	09/13/06	8916.0	24.2	33.3

Wellhead Zero Readings							
Zone	Serial #	Date	Time of Reading	Frequency Reading	Temp (°C)	Barometric Pressure (ft H2O)	Time of Baro Reading
24	07-6072	04/26/07	11:36	8712.2	12.1	34.10	11:40
27	07-1780	04/27/07	7:50	9218.4	11.4	33.82	8:00
46	07-1139	04/26/07	11:25	9754.7	12.2	34.10	11:40
81	07-1140	04/26/07	11:43	9782.4	11.0	34.10	11:40
100	07-6070	04/27/07	7:55	8877.1	11.4	33.82	8:00
127	07-6064	04/26/07	11:40	8833.0	12.1	34.10	11:40
162	06-11953	04/26/07	11:32	8913.9	12.2	34.10	11:40

Post-Installation (Pre-Inflation) Transducer Readings							
Zone	Serial #	Date	Time of Reading	Frequency Reading	Temp (°C)	Barometric Pressure (ft H2O)	Time of Baro Reading
24	07-6072	04/30/07	13:45	8401.1	12.8	33.48	14:00
27	07-1780	04/30/07	13:44	7080.8	13.0	33.48	14:00
46	07-1139	04/30/07	13:46	7825.3	13.6	33.48	14:00
81	07-1140	04/30/07	13:43	5440.8	13.3	33.48	14:00
100	07-6070	04/30/07	13:41	6659.6	13.3	33.48	14:00
127	07-6064	04/30/07	13:40	5634.9	12.2	33.48	14:00
162	06-11953	04/30/07	13:39	6341.4	12.1	33.48	14:00

Notes

1. All depths and measurements referenced to the final top of well casing.
2. 2-foot by 2-foot by 2-foot well vault installed within concrete, flush with ground surface.

DEPTH to Top of Component (F.T.)	Distance Above Bottom (F.T.)	Elevation of Top of Component (F.T.)	Waterloo Component
-0.8	191.1	73.2	1 ft casing
0.2	190.1	73.0	5 ft casing
5.2	185.1	68.0	5 ft casing
10.2	180.1	63.0	5 ft casing
15.2	175.1	58.0	PACKER
18.2	172.1	55.0	1 ft casing
19.2	171.1	54.0	5 ft casing
24.2	166.1	49.0	PORT 24
24.7	165.6	48.5	2 ft casing
26.7	163.6	46.5	PORT 27
27.2	163.1	46.0	1 ft casing
28.2	162.1	45.0	2 ft casing
30.2	160.1	43.0	5 ft casing
35.2	155.1	38.0	PACKER
38.2	152.1	35.0	1 ft casing
39.2	151.1	34.0	2 ft casing
41.2	149.1	32.0	PACKER
44.2	146.1	29.0	2 ft casing
46.2	144.1	27.0	PORT 46
46.7	143.6	26.5	2 ft casing
48.7	141.6	24.5	5 ft casing
53.7	136.6	19.5	PACKER
56.7	133.6	16.5	5 ft casing
61.7	128.6	11.5	PACKER
64.7	125.6	8.5	1 ft casing
65.7	124.6	7.5	5 ft casing
70.7	119.6	2.5	5 ft casing
75.7	114.6	-2.5	5 ft casing
80.7	109.6	-7.5	PORT 81
81.2	109.1	-8.0	1 ft casing
82.2	108.1	-9.0	2 ft casing
84.2	106.1	-11.0	PACKER
87.2	103.1	-14.0	1 ft casing
88.2	102.1	-15.0	2 ft casing
90.2	100.1	-17.0	PACKER
93.2	97.1	-20.0	2 ft casing
95.2	95.1	-22.0	5 ft casing
100.2	90.1	-27.0	PORT 100
100.7	89.6	-27.5	1 ft casing
101.7	88.6	-28.5	5 ft casing
106.7	83.6	-33.5	PACKER
109.7	80.6	-36.5	1 ft casing
110.7	79.6	-37.5	PACKER
113.7	76.6	-40.5	1 ft casing
114.7	75.6	-41.5	2 ft casing
116.7	73.6	-43.5	PACKER
119.7	70.6	-46.5	0.5 ft casing
120.2	70.1	-47.0	2 ft casing
122.2	68.1	-49.0	PACKER
125.2	65.1	-52.0	2 ft casing
127.2	63.1	-54.0	PORT 127
127.7	62.6	-54.5	2 ft casing
129.7	60.6	-56.5	2 ft casing
131.7	58.6	-58.5	5 ft casing
136.7	53.6	-63.5	PACKER
139.7	50.6	-66.5	2 ft casing
141.7	48.6	-68.5	2 ft casing
143.7	46.6	-70.5	PACKER
146.7	43.6	-73.5	1 ft casing
147.7	42.6	-74.5	2 ft casing
149.7	40.6	-76.5	PACKER
152.7	37.6	-79.5	1 ft casing
153.7	36.6	-80.5	2 ft casing
155.7	34.6	-82.5	PACKER
158.7	31.6	-85.5	1 ft casing
159.7	30.6	-86.5	2 ft casing
161.7	28.6	-88.5	PORT 162
162.2	28.1	-89.0	1 ft casing
163.2	27.1	-90.0	2 ft casing
165.2	25.1	-92.0	5 ft casing
170.2	20.1	-97.0	5 ft casing
175.2	15.1	-102.0	5 ft casing
180.2	10.1	-107.0	5 ft casing
185.2	5.1	-112.0	5 ft casing
190.2	0.1	-117.0	SS Plug

WATERLOO INSTALLATION LOG

GZA GEONVIRONMENTAL OF NEW YORK
 440 NINTH AVENUE, 18th FLOOR
 NEW YORK, NEW YORK 10001
 SCIENTISTS AND ENGINEERS

Client
Entergy
 Indian Point Energy Center
 Buchanan, NY

WELL ID: MW-51
 SHEET: 1 of 1
 FILE NO.: 41.0017869.01
 PROJECT LOCATION: Indian Point Energy Center

GZA ENGINEER: Steve Kline
 CONTRACTOR: Spolint
 CONTRACTOR REP: Bruce Blackburn
 DATE START/END: 5/12/07 - 5/22/07

DEPTH TO BOTTOM: 197.8 ft below top of casing
 DEPTH TO WATER: Refer to Table 6.1 ft below top of casing
 GROUND ELEVATION: 89.84 NOVD 29
 CASING ELEVATION: 67.72 NOVD 29

Transducers							
Zone	Serial #	Diaphragm Depth (ft below casing)	Diaphragm Elevation (m.s.l.)	Pressure Range (psi)	Linear Gage Factor (G)	Thermal Factor (K)	Accuracy (+/- ft H2O)
40	07-6074	39.4	28.3	50	0.014270	-0.023440	0.115
79	07-1138	78.2	-10.5	25	0.006531	0.006556	0.058
102	07-6066	101.9	-34.2	50	0.014060	-0.029010	0.115
104	07-7334	103.4	-35.7	50	0.015510	-0.014410	0.115
135	07-7333	134.9	-67.2	50	0.014990	-0.018580	0.115
163	07-5859	162.4	-94.7	100	0.026690	-0.005080	0.231
189	07-5860	188.9	-121.2	100	0.026820	0.006180	0.231

Factory Zero Transducer Readings					
Zone	Serial #	Date	Frequency Reading	Temp (°C)	Barometric Pressure (ft H2O)
40	07-6074	04/19/07	8843.0	23.4	33.2
79	07-1138	03/15/07	9668.0	22.9	33.0
102	07-6066	04/19/07	8720.0	22.5	33.2
104	07-7334	04/27/07	8682.0	22.4	33.2
135	07-7333	04/27/07	8630.0	22.5	33.2
163	07-5859	04/27/07	8929.0	21.0	33.2
189	07-5860	04/27/07	8567.0	21.2	33.2

Wellhead Zero Readings							
Zone	Serial #	Date	Time of Reading	Frequency Reading	Temp (°C)	Barometric Pressure (ft H2O)	Time of Baro Reading
40	07-6074	05/01/07	10:10	8855.0	11.6	33.82	10:10
79	07-1138	05/01/07	10:10	9612.0	11.1	33.82	10:10
102	07-6066	05/01/07	13:00	8734.7	12.7	33.87	13:00
104	07-7334	05/01/07	10:10	8688.9	11.1	33.82	10:10
135	07-7333	05/01/07	10:10	8640.9	11.3	33.82	10:10
163	07-5859	05/01/07	10:10	8930.1	11.3	33.82	10:10
189	07-5860	05/01/07	10:10	8562.6	11.1	33.82	10:10

Post-Installation (Pre-Inflation) Transducer Readings							
Zone	Serial #	Date	Time of Reading	Frequency Reading	Temp (°C)	Barometric Pressure (ft H2O)	Time of Baro Reading
40	07-6074	05/02/07	9:41	8308.7	11.9	33.76	9:45
79	07-1138	05/02/07	9:42	5851.9	11.9	33.76	9:45
102	07-6066	05/02/07	9:40	6248.0	12.1	33.76	9:45
104	07-7334	05/02/07	9:37	6396.5	11.9	33.76	9:45
135	07-7333	05/02/07	9:38	5361.0	11.8	33.76	9:45
163	07-5859	05/02/07	9:44	6660.2	11.5	33.76	9:45
189	07-5860	05/02/07	9:43	5866.1	11.4	33.76	9:45

Notes
 1. All depths and measurements referenced to the final top of well casing.
 2. Wellhead zero times are approximate within 15 minutes of actual readings.
 3. 2-foot by 2-foot by 2-foot well vault installed within concrete, flush with ground surface.

DEPTH to Top of Component (FT)	Distance Above Bottom (FT)	Elevation of Top of Component (FT)	Waterloo Component
-0.1	197.9	67.8	2 ft casing
1.7	196.1	66.0	5 ft casing
6.7	191.1	61.0	5 ft casing
11.7	186.1	56.0	5 ft casing
16.7	181.1	51.0	5 ft casing
21.7	176.1	46.0	5 ft casing
26.7	171.1	41.0	PACKER
29.7	168.1	38.0	5 ft casing
34.7	163.1	33.0	5 ft casing
39.7	158.1	28.0	PORT 40
40.2	157.6	27.5	2 ft casing
42.2	155.6	25.5	2 ft casing
44.2	153.6	23.5	PACKER
47.2	150.6	20.5	2 ft casing
49.2	148.6	18.5	2 ft casing
51.2	146.6	16.5	PACKER
54.2	143.6	13.5	1 ft casing
55.2	142.6	12.5	5 ft casing
60.2	137.6	7.5	PACKER
63.2	134.6	4.5	0.5 ft casing
63.7	134.1	4.0	5 ft casing
66.7	129.1	-1.0	5 ft casing
73.7	124.1	-6.0	5 ft casing
78.7	119.1	-11.0	PORT 79
79.2	118.6	-11.5	2 ft casing
81.2	116.6	-13.5	PACKER
84.2	113.6	-16.5	2 ft casing
86.2	111.6	-18.5	2 ft casing
88.2	109.6	-20.5	PACKER
91.2	106.6	-23.5	2 ft casing
93.2	104.6	-25.5	2 ft casing
95.2	102.6	-27.5	PACKER
98.2	99.6	-30.5	PACKER
101.2	96.6	-33.5	1 ft casing
102.2	95.6	-34.5	PORT 102
102.7	95.1	-35.0	1 ft casing
103.7	94.1	-36.0	PORT 104
104.2	93.6	-36.5	2 ft casing
106.2	91.6	-38.5	5 ft casing
111.2	86.6	-43.5	PACKER
114.2	83.6	-46.5	PACKER
117.2	80.6	-49.5	2 ft casing
119.2	78.6	-51.5	1 ft casing
120.2	77.6	-52.5	PACKER
123.2	74.6	-55.5	2 ft casing
125.2	72.6	-57.5	2 ft casing
127.2	70.6	-59.5	PACKER
130.2	67.6	-62.5	5 ft casing
135.2	62.6	-67.5	PORT 135
135.7	62.1	-68.0	1 ft casing
136.7	61.1	-69.0	2 ft casing
138.7	59.1	-71.0	5 ft casing
143.7	54.1	-76.0	PACKER
146.7	51.1	-79.0	PACKER
149.7	48.1	-82.0	2 ft casing
151.7	46.1	-84.0	PACKER
154.7	43.1	-87.0	1 ft casing
155.7	42.1	-88.0	2 ft casing
157.7	40.1	-90.0	5 ft casing
162.7	35.1	-95.0	PORT 163
163.2	34.6	-95.5	2 ft casing
165.2	32.6	-97.5	1 ft casing
166.2	31.6	-98.5	PACKER
169.2	28.6	-101.5	2 ft casing
171.2	26.6	-103.5	1 ft casing
172.2	25.6	-104.5	PACKER
175.2	22.6	-107.5	2 ft casing
177.2	20.6	-109.5	1 ft casing
178.2	19.6	-110.5	PACKER
181.2	16.6	-113.5	PACKER
184.2	13.6	-116.5	5 ft casing
189.2	8.6	-121.5	PORT 189
189.7	8.1	-122.0	1 ft casing
190.7	7.1	-123.0	2 ft casing
192.7	5.1	-125.0	5 ft casing
197.7	0.1	-130.0	SS Plug

WATERLOO INSTALLATION LOG

GZA GEOENVIRONMENTAL OF NEW YORK
 440 NINTH AVENUE, 18th FLOOR
 NEW YORK, NEW YORK 10001
 SCIENTISTS AND ENGINEERS

Client

Entergy
 Indian Point Energy Center
 Buchanan, NY

WELL ID: MW-52
 SHEET: 1 of 1
 FILE NO: 41.0017899.01
 PROJECT LOCATION: Indian Point Energy Center

GZA ENGINEER: Steve Kline
 CONTRACTOR: Solmit
 CONTRACTOR REP: Bruce Blackburn
 DATE START/END: 5/9/2007 - 5/4/2007

DEPTH TO BOTTOM: 156.1 ft below top of casing
 DEPTH TO WATER: Refer to Table 6.1 ft below top of casing
 GROUND ELEVATION: 16.77 NGVD 29
 CASING ELEVATION: 14.92 NGVD 29

Transducers							
Zone	Serial #	Diaphragm Depth (ft below casing)	Diaphragm Elevation (m.s.l.)	Pressure Range (psi)	Linear Gage Factor (G)	Thermal Factor (K)	Accuracy (+/- ft H2O)
18	07-6071	17.2	-2.3	50	0.014290	-0.017510	0.115
48	07-1145	47.5	-32.6	25	0.006677	0.003201	0.058
64	07-6073	63.7	-48.8	50	0.016140	-0.017960	0.115
118	06-16304	117.2	-102.3	50	0.013620	-0.014710	0.115
122	07-6065	121.7	-106.8	50	0.015720	-0.007590	0.115
162	07-5862	161.2	-146.3	100	0.026460	0.000490	0.231
181	07-5861	180.7	-165.8	100	0.026080	0.000450	0.231

Factory Zero Transducer Readings					
Zone	Serial #	Date	Frequency Reading	Temp (°C)	Barometric Pressure (ft H2O)
18	07-6071	04/19/07	8853.0	23.3	33.2
48	07-1145	03/15/07	9508.0	23.4	33.0
64	07-6073	04/19/07	8519.0	23.0	33.2
118	06-16304	09/13/06	8741.0	23.2	33.4
122	07-6065	04/19/07	8947.0	22.7	33.2
162	07-5862	04/27/07	8662.0	21.3	33.2
181	07-5861	04/27/07	8682.0	21.3	33.2

Wellhead Zero Readings							
Zone	Serial #	Date	Time of Reading	Frequency Reading	Temp (°C)	Barometric Pressure (ft H2O)	Time of Baro Reading
18	07-6071	05/03/07	8:15	8844.3	14.9	34.21	8:37
48	07-1145	05/03/07	8:15	9438.0	14.7	34.21	8:37
64	07-6073	05/03/07	8:15	8516.9	14.0	34.21	8:37
118	06-16304	05/03/07	8:15	8734.9	15.3	34.21	8:37
122	07-6065	05/03/07	8:15	8938.4	15.2	34.21	8:37
162	07-5862	05/03/07	8:15	8653.6	14.6	34.21	8:37
181	07-5861	05/03/07	8:15	8671.5	14.8	34.21	8:37

Post-Installation (Pre-inflation) Transducer Readings							
Zone	Serial #	Date	Time of Reading	Frequency Reading	Temp (°C)	Barometric Pressure (ft H2O)	Time of Baro Reading
18	07-6071	05/04/07	10:00	8574.3	14.4	34.27	10:00
48	07-1145	05/04/07	10:00	6850.9	16.1	34.27	10:00
64	07-6073	05/04/07	10:00	7025.7	16.0	34.27	10:00
118	06-16304	05/04/07	10:00	5277.5	15.0	34.27	10:00
122	07-6065	05/04/07	10:00	5821.0	14.6	34.27	10:00
162	07-5862	05/04/07	10:00	6163.5	13.9	34.27	10:00
181	07-5861	05/04/07	10:00	5821.4	13.7	34.27	10:00

Notes

- All depths and measurements referenced to top of well casing.
- Wellhead zero times and Post-Installation reading times are approximate within 15 minutes of actual readings.
- 2-foot by 2-foot by 2-foot well vault installed within concrete, flush with ground surface.

DEPTH to Top of Component (FT)	Distance Above Bottom (FT)	Elevation of Top of Component (FT)	Waterloo Component
0.0	198.1	14.9	0.5 ft casing
0.5	197.6	14.4	2 ft casing
2.5	195.6	12.4	5 ft casing
7.5	190.6	7.4	5 ft casing
12.5	185.6	2.4	5 ft casing
17.5	180.6	-2.6	PORT 18
18.0	180.1	-3.1	2 ft casing
20.0	178.1	-5.1	5 ft casing
25.0	173.1	-10.1	5 ft casing
30.0	5.1	-15.1	PACKER
33.0	5.1	-18.1	PACKER
36.0	162.1	-21.1	2 ft casing
38.0	160.1	-23.1	2 ft casing
40.0	5.1	-25.1	PACKER
43.0	155.1	-28.1	2 ft casing
45.0	5.1	-30.1	PACKER
48.0	150.1	-33.1	PORT 48
48.5	149.6	-33.6	0.5 ft casing
49.0	149.1	-34.1	2 ft casing
51.0	147.1	-36.1	5 ft casing
56.0	5.1	-41.1	PACKER
59.0	139.1	-44.1	5 ft casing
64.0	134.1	-49.1	PORT 64
64.5	133.6	-49.6	2 ft casing
66.5	131.6	-51.6	5 ft casing
71.5	5.1	-56.6	PACKER
74.5	123.6	-59.6	5 ft casing
79.5	118.6	-64.6	5 ft casing
84.5	5.1	-69.6	PACKER
87.5	110.6	-72.6	2 ft casing
89.5	108.6	-74.6	2 ft casing
91.5	5.1	-76.6	PACKER
94.5	103.6	-79.6	5 ft casing
99.5	5.1	-84.6	PACKER
102.5	95.6	-87.6	1 ft casing
103.5	5.1	-88.6	PACKER
106.5	91.6	-91.6	1 ft casing
107.5	5.1	-92.6	PACKER
110.5	87.6	-95.6	2 ft casing
112.5	85.6	-97.6	5 ft casing
117.5	80.6	-102.6	PORT 118
118.0	80.1	-103.1	2 ft casing
120.0	78.1	-105.1	2 ft casing
122.0	76.1	-107.1	PORT 122
122.5	75.6	-107.6	1 ft casing
123.5	5.1	-108.6	PACKER
126.5	71.6	-111.6	2 ft casing
128.5	5.1	-113.6	PACKER
131.5	66.6	-116.6	5 ft casing
136.5	5.1	-121.6	PACKER
139.5	58.6	-124.6	2 ft casing
141.5	56.6	-126.6	2 ft casing
143.5	5.1	-128.6	PACKER
146.5	51.6	-131.6	5 ft casing
151.5	5.1	-136.6	PACKER
154.5	43.6	-139.6	2 ft casing
156.5	41.6	-141.6	5 ft casing
161.5	36.6	-146.6	PORT 162
162.0	36.1	-147.1	2 ft casing
164.0	5.1	-149.1	PACKER
167.0	31.1	-152.1	1 ft casing
168.0	5.1	-153.1	PACKER
171.0	27.1	-156.1	5 ft casing
176.0	22.1	-161.1	5 ft casing
181.0	17.1	-166.1	PORT 181
181.5	16.6	-166.6	0.5 ft casing
182.0	16.1	-167.1	1 ft casing
183.0	15.1	-168.1	5 ft casing
188.0	10.1	-173.1	5 ft casing
193.0	5.1	-178.1	5 ft casing
198.0	0.1	-183.1	SS Plug

WATERLOO INSTALLATION LOG

GZA GEONVIRONMENTAL OF NEW YORK
440 NINTH AVENUE, 18th FLOOR
NEW YORK, NEW YORK 10001
SCIENTISTS AND ENGINEERS

Client: Entergy
Indian Point Energy Center
Buchanan, NY

WELL ID: MW-54
SHEET: 1 of 1
FILE NO.: 41.0017869.D1
PROJECT LOCATION: Indian Point Energy Center

GZA ENGINEER: Steve Kline
CONTRACTOR: Solinst
CONTRACTOR REP: Bruce Blackburn
DATE START/END: 4/11/07 - 4/12/07

DEPTH TO BOTTOM: 203.4 ft below top of casing
DEPTH TO WATER: Refer to Table # 1
GROUND ELEVATION: 14.99 NGVD 29
CASING ELEVATION: 13.09 NGVD 29

Table with 8 columns: Zone, Serial #, Diaphragm Depth (ft below casing), Diaphragm Elevation (m.s.l.), Pressure Range (psi), Linear Gage Factor (G), Thermal Factor (K), Accuracy (+/- ft H2O). Rows include zones 35, 37, 58, 123, 144, 173, 190.

Table with 5 columns: Zone, Serial #, Date, Frequency Reading, Temp (°C), Barometric Pressure (ft H2O). Rows include zones 35, 37, 58, 123, 144, 173, 190.

Table with 8 columns: Zone, Serial #, Date, Time of Reading, Frequency Reading, Temp (°C), Barometric Pressure (ft H2O), Time of Baro Reading. Rows include zones 35, 37, 58, 123, 144, 173, 190.

Table with 8 columns: Zone, Serial #, Date, Time of Reading, Frequency Reading, Temp (°C), Barometric Pressure (ft H2O), Time of Baro Reading. Rows include zones 35, 37, 58, 123, 144, 173, 190.

Notes: 1. All depths and measurements referenced to the final top of well casing. 2. 2-foot by 2-foot by 2-foot well vault installed within concrete, flush with ground surface.

Large table with 5 columns: DEPTH to Top of Component (FT), Distance Above Bottom (FT), Elevation of Top of Component (FT), Waterloo Component. Rows list depths from 0.0 to 203.5 ft with corresponding elevations and component types like '1 ft casing', 'PORT 35', 'PACKER', etc.

OPEN ROCK WELL INSTALLATION LOG

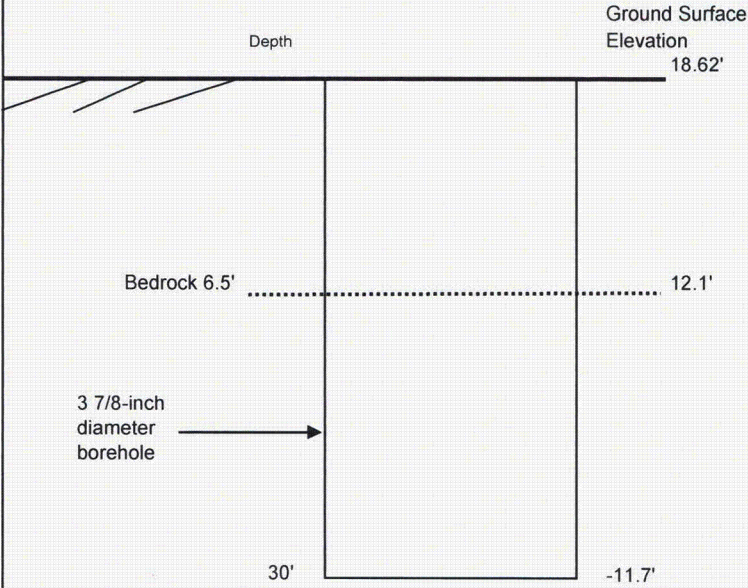
GZA GEOENVIRONMENTAL OF NEW YORK
 440 NINTH AVENUE, 18TH FLOOR
 NEW YORK, NEW YORK 10001
 ENGINEERS AND SCIENTISTS

ENERGY
 Indian Point Energy Center
 Buchanan, New York

REPORT OF BORING NO.	MW-33
SHEET	1 of 1
FILE NO.	41.0017869.10
CHKD BY	DW

BORING CO.	<u>Aquifer Drilling & Testing</u>	BORING LOCATION	<u>See Exploration Location Plan</u>		
FOREMAN	<u>Doug Wood</u>	GROUND SURFACE ELEV.	<u>18.88'</u>	DATUM	<u>NGVD 29</u>
GZA ENG.	<u>Anton Gallas</u>	DATE START	<u>12/7/06</u>	DATE END	<u>12/12/06</u>

AS-BUILT



Notes:

1. No equipment installed. Boring left as an open borehole monitoring point.
2. Borehole above 13 feet is 4.5 inches in diameter.

OPEN ROCK WELL INSTALLATION LOG

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 440 NINTH AVENUE, 18TH FLOOR
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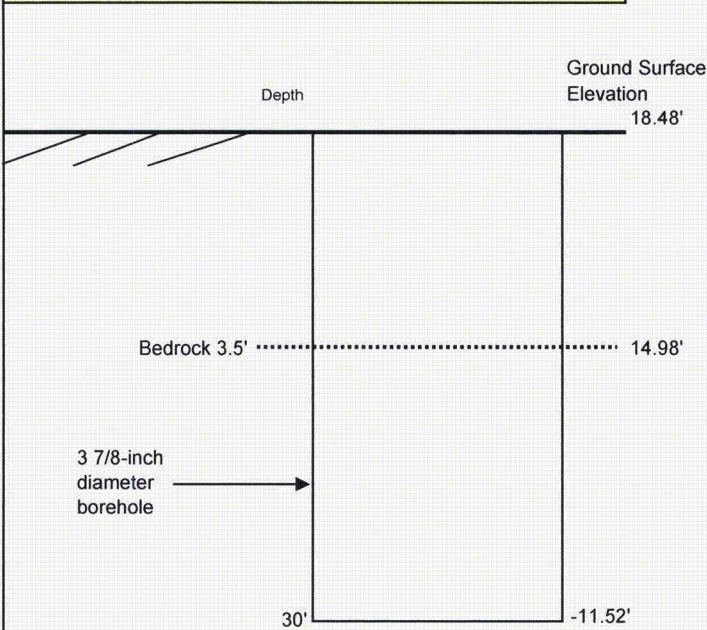
REPORT OF BORING NO. MW-34
 SHEET 1 of 1
 FILE NO. 41.0017869.10
 CHKD BY DW

BORING CO. Aquifer Drilling & Testing
 FOREMAN Doug Wood
 GZA ENG. Anton Gallas

BORING LOCATION See Exploration Location Plan
 GROUND SURFACE ELEV. 18.48'
 DATE START 12/7/06

DATUM NGVD 29
 DATE END 12/8/06

AS-BUILT



Notes:

1. No equipment installed. Boring left as an open borehole monitoring point.
2. Borehole above 7 feet is 4.5 inches in diameter.

OPEN ROCK WELL INSTALLATION LOG

GZA GEOENVIRONMENTAL OF NEW YORK

440 NINTH AVENUE, 18TH FLOOR
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 Indian Point Energy Center
 Buchanan, New York

REPORT OF BORING NO. MW-35

SHEET 1 of 1

FILE NO. 41.0017869.10

CHKD BY DW

BORING CO. Aquifer Drilling & Testing

BORING LOCATION

See Exploration Location Plan

FOREMAN Doug Wood

GROUND SURFACE ELEV. 18.60'

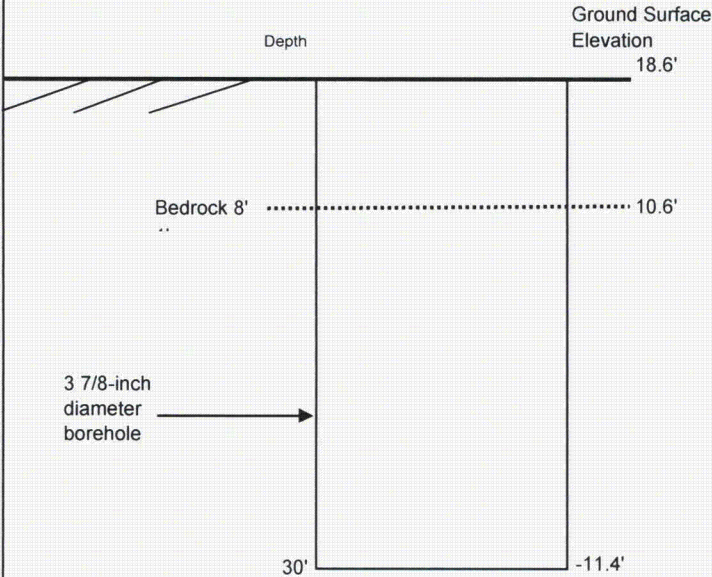
DATUM NGVD 29

GZA ENG. Anton Gallas

DATE START 12/5/06

DATE END 12/6/06

AS-BUILT



Notes:

1. No equipment installed. Boring left as an open borehole monitoring point.
2. Borehole above 8 feet is 4.5 inches in diameter.

GROUNDWATER OBSERVATION WELL INSTALLATION LOG

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 440 NINTH AVENUE, 18TH FLOOR
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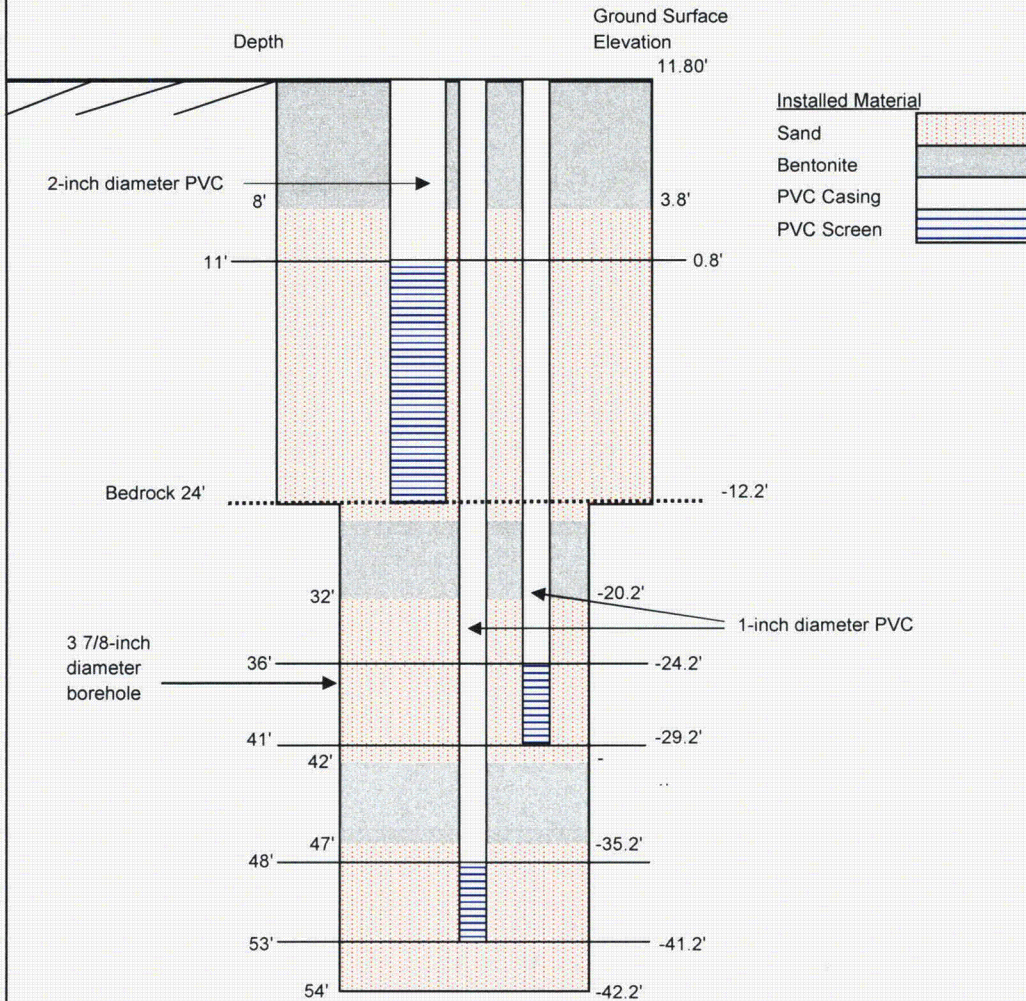
REPORT OF BORING NO. MW-36
 SHEET 1 of 1
 FILE NO. 41.0017869.10
 CHKD BY DW

BORING CO. Aquifer Drilling & Testing
 FOREMAN Doug Wood
 GZA ENG. Anton Gallas

BORING LOCATION See Exploration Location Plan
 GROUND SURFACE ELEV. 11.80'
 DATE START 1/30/06

DATUM NGVD 29
 DATE END 1/30/06

AS-BUILT



Notes:

1. Borehole above 24 feet is 6.5 inches in diameter.

GROUNDWATER OBSERVATION WELL INSTALLATION LOG

GZA GEOENVIRONMENTAL OF NEW YORK

440 NINTH AVENUE, 18TH FLOOR
NEW YORK, NEW YORK 10001
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Buchanan, New York

REPORT OF BORING NO. MW-37

SHEET 1 of 1

FILE NO. 41.0017869.10

CHKD BY DW

BORING CO. Aquifer Drilling & Testing

BORING LOCATION See Exploration Location Plan

FOREMAN Dave Carter

GROUND SURFACE ELEV. 15.02

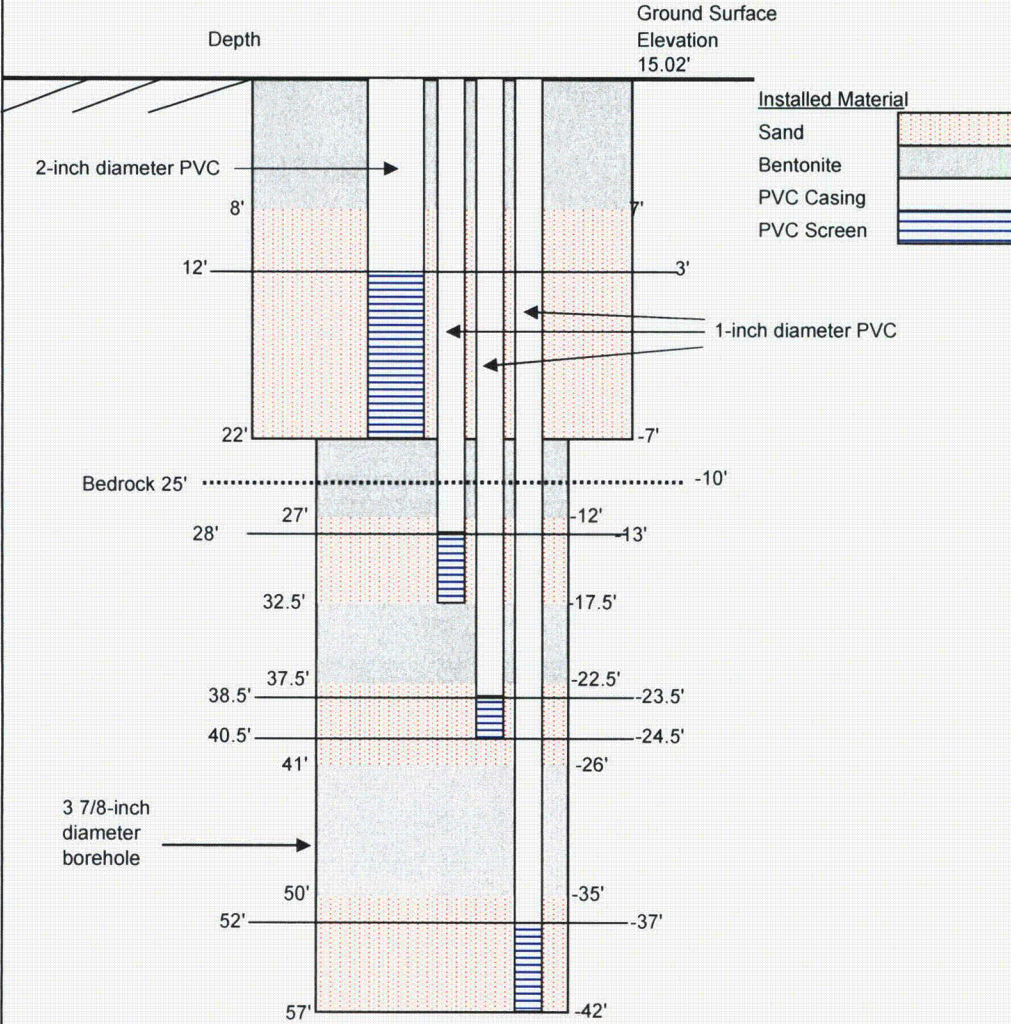
DATUM NGVD 29

GZA ENG. Anton Gallas

DATE START 2/9/06

DATE END 2/9/06

AS-BUILT



Notes:

1. Borehole above 25 feet is 6.5 inches in diameter.

GROUNDWATER OBSERVATION WELL INSTALLATION LOG

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 440 NINTH AVENUE, 18TH FLOOR
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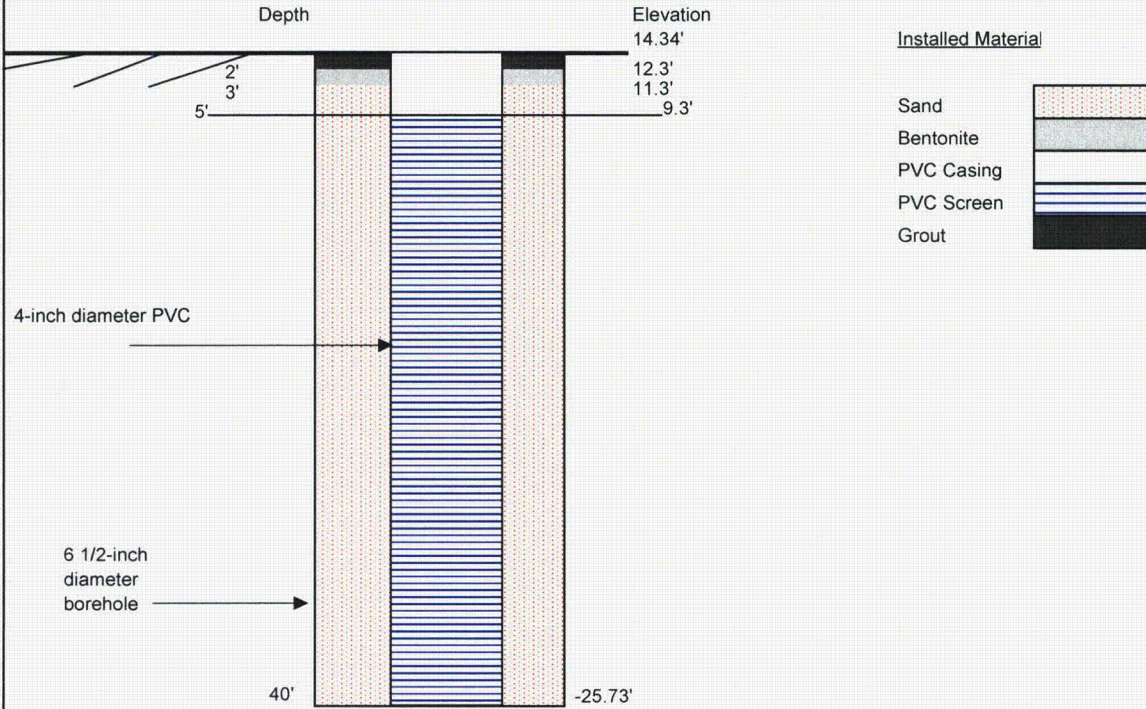
REPORT OF BORING NO.	MW-38
SHEET	1 of 1
FILE NO.	41.0017869.10
CHKD BY	DW

BORING CO.	<u>Aquifer Drilling & Testing</u>
FOREMAN	<u>Doug Wood</u>
GZA ENG.	<u>Anton Gallas</u>

BORING LOCATION	<u>See Exploration Location Plan</u>
GROUND SURFACE ELEV.	<u>14.34'</u>
DATE START	<u>11/30/05</u>

DATUM	<u>NGVD 29</u>
DATE END	<u>12/1/05</u>

AS-BUILT



Notes:

1. Bedrock not encountered.

GROUNDWATER OBSERVATION WELL INSTALLATION LOG

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 440 NINTH AVENUE, 18TH FLOOR
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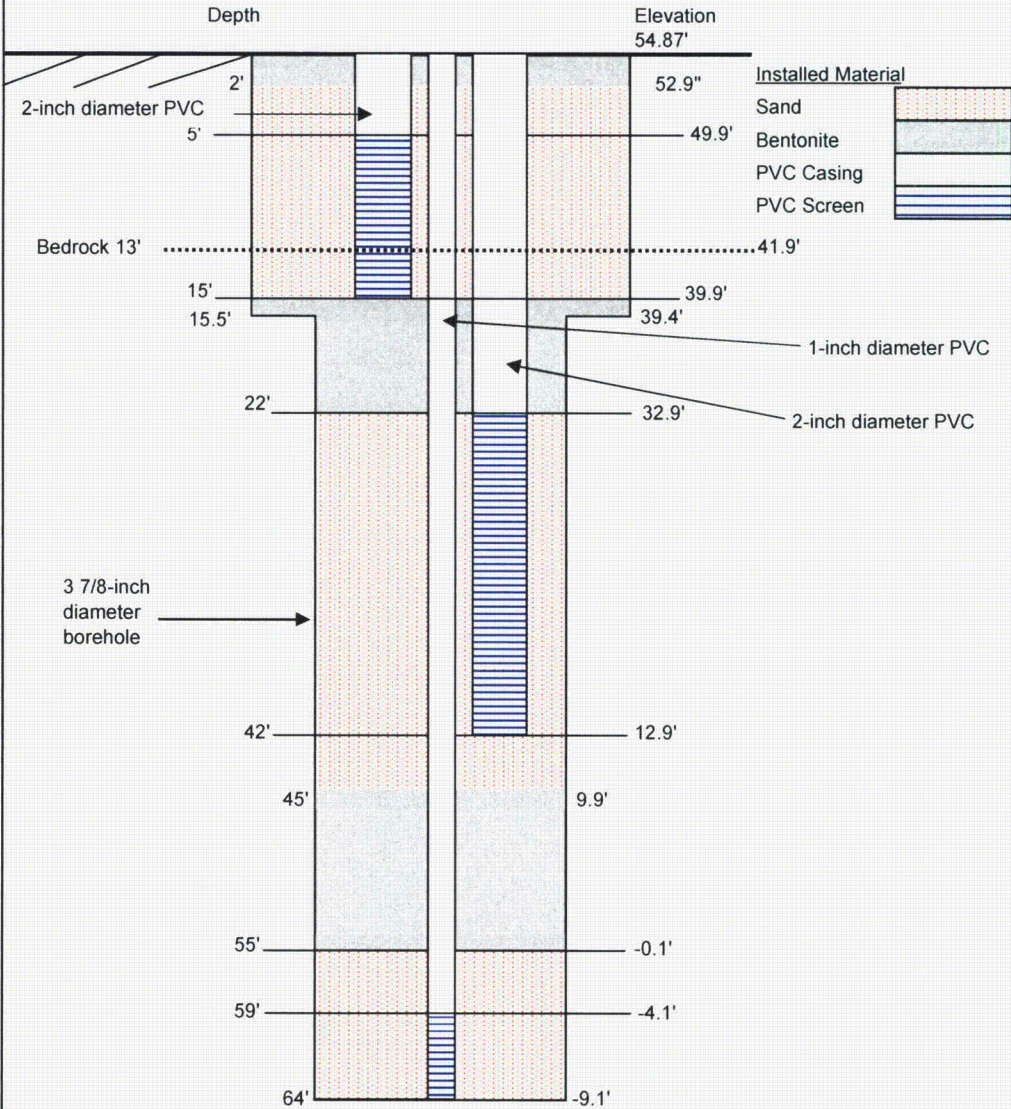
REPORT OF BORING NO. MW-41
 SHEET 1 of 1
 FILE NO. 41.0017869.10
 CHKD BY DW

BORING CO. Aquifer Drilling & Testing
 FOREMAN Doug Wood
 GZA ENG. Anton Gallas

BORING LOCATION See Exploration Location Plan
 GROUND SURFACE ELEV. 54.87'
 DATE START 2/23/06

DATUM NGVD 29
 DATE END 2/23/06

AS-BUILT



Notes:

1. Borehole above 15.5 feet is 4.5 inches in diameter.

GROUNDWATER OBSERVATION WELL INSTALLATION LOG

GZA GEOENVIRONMENTAL OF NEW YORK

440 NINTH AVENUE, 18TH FLOOR
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REPORT OF BORING NO. MW-42

SHEET 1 of 1

FILE NO. 41.0017869.10

CHKD BY DW

BORING CO. Aquifer Drilling & Testing

BORING LOCATION See Exploration Location Plan

FOREMAN Doug Wood

GROUND SURFACE ELEV. 69.71'

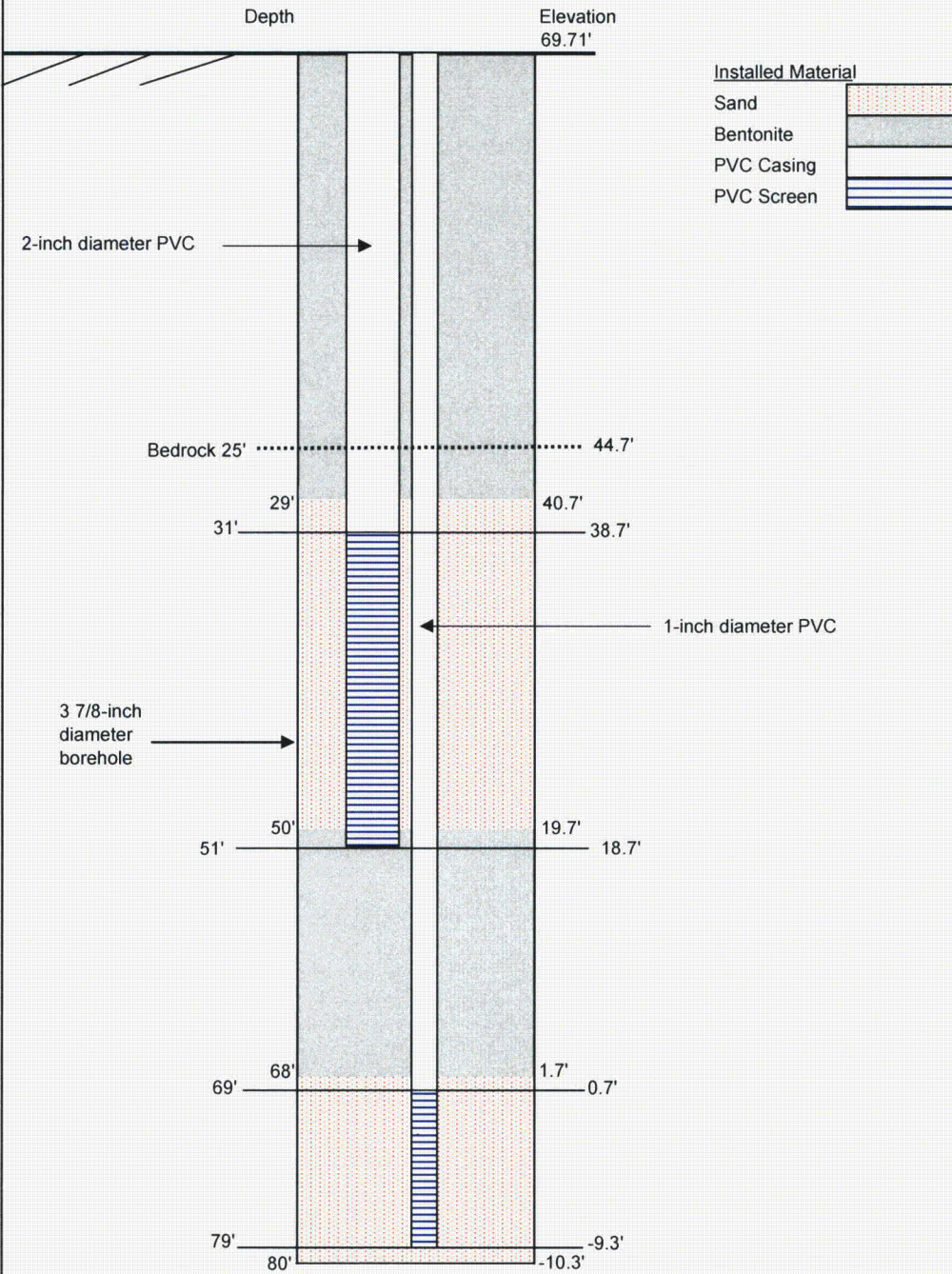
DATUM NGVD 29

GZA ENG. Anton Gallas

DATE START 3/17/06

DATE END 3/17/06

AS-BUILT



Notes:

1. Borehole above 26 feet is 4.5 inches in diameter.

GROUNDWATER OBSERVATION WELL INSTALLATION LOG

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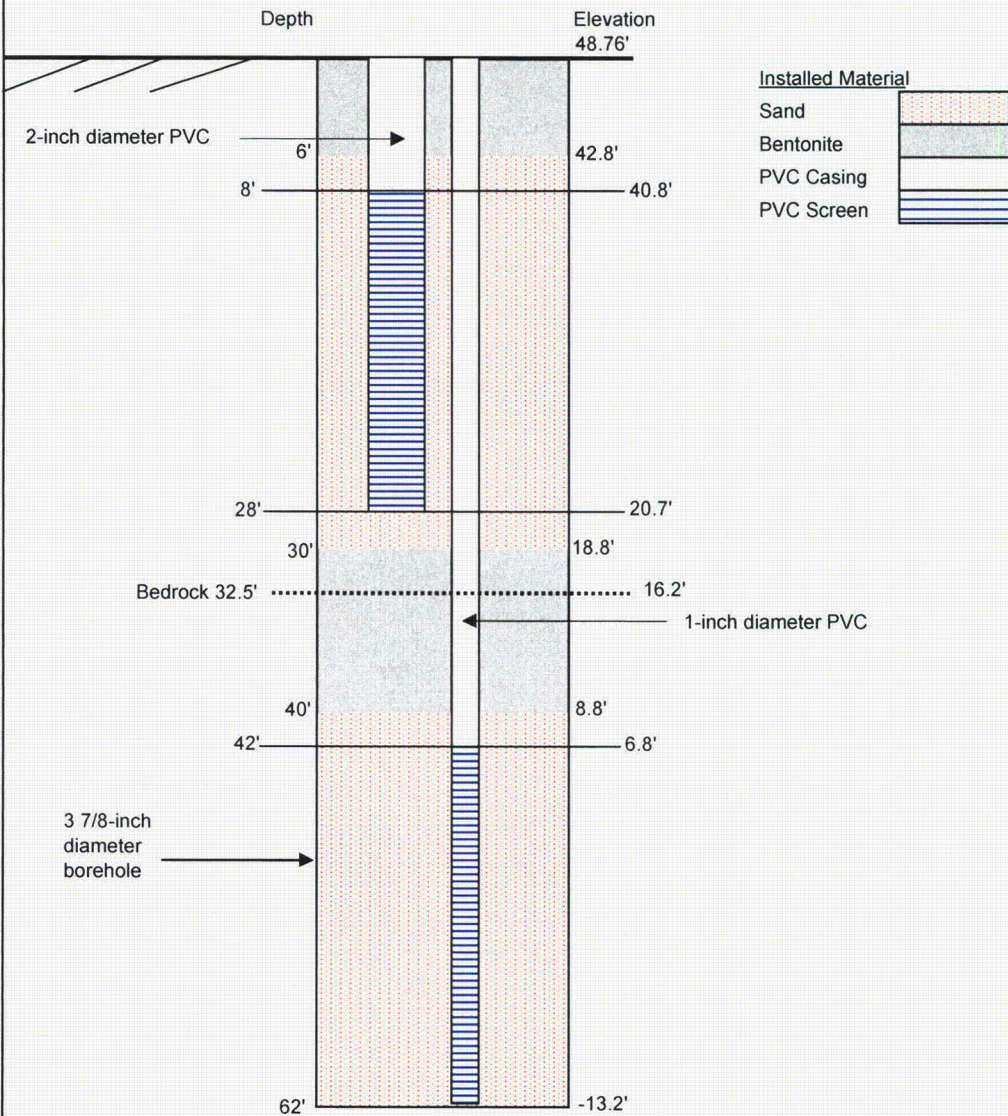
REPORT OF BORING NO. MW-43
 SHEET 1 of 1
 FILE NO. 41.0017869.10
 CHKD BY DW

BORING CO. Aquifer Drilling & Testing
 FOREMAN Dave Carter
 GZA ENG. Anton Gallas

BORING LOCATION See Exploration Location Plan
 GROUND SURFACE ELEV. 48.76'
 DATE START 3/1/06

DATUM NGVD 29
 DATE END 3/1/06

AS-BUILT



Notes:

1. Borehole above 37.5 feet is 4.5 inches in diameter.

GROUNDWATER OBSERVATION WELL INSTALLATION LOG

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 440 NINTH AVENUE, 18TH FLOOR
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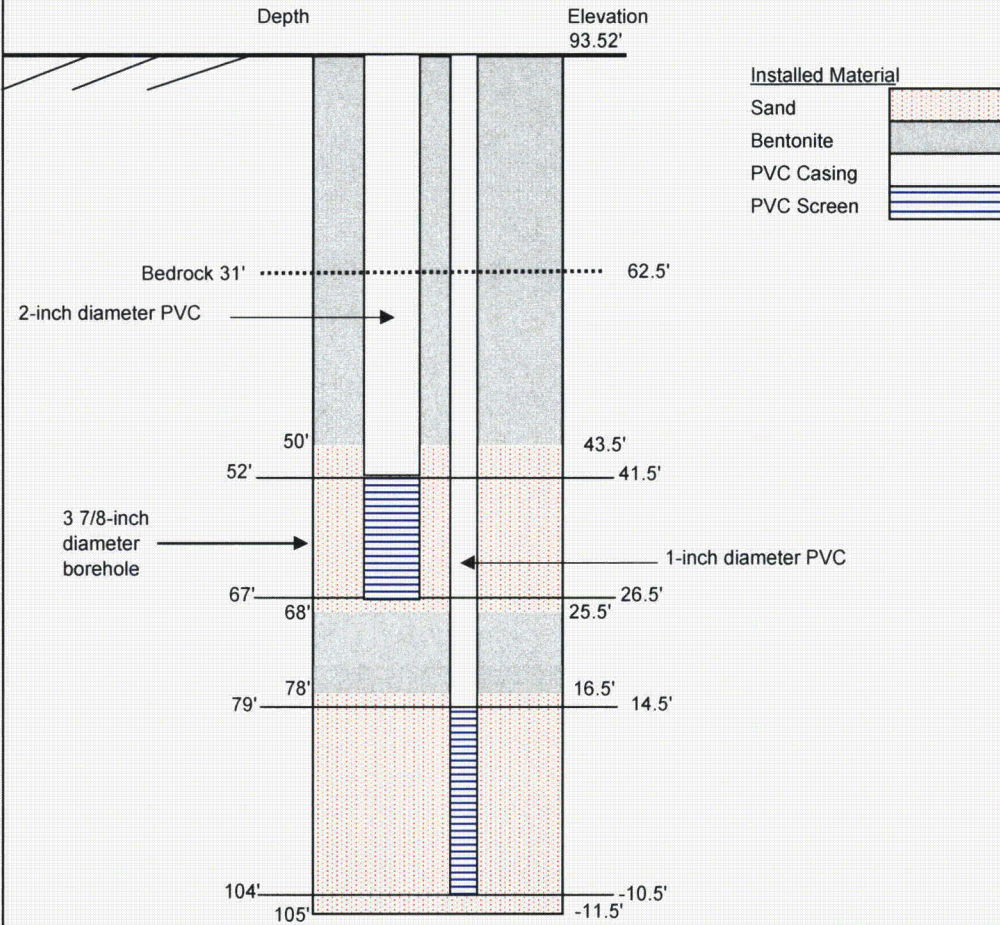
REPORT OF BORING NO. MW-44
 SHEET 1 of 1
 FILE NO. 41.0017869.10
 CHKD BY DW

BORING CO. Aquifer Drilling & Testing
 FOREMAN Ed Borner
 GZA ENG. Anton Gallas

BORING LOCATION See Exploration Location Plan
 GROUND SURFACE ELEV. 93.52'
 DATE START 3/10/06

DATUM NGVD 29
 DATE END 3/10/06

AS-BUILT



Notes:

1. Borehole above 34 feet is 4.5 inches in diameter.

GROUNDWATER OBSERVATION WELL INSTALLATION LOG

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 440 NINTH AVENUE, 18TH FLOOR
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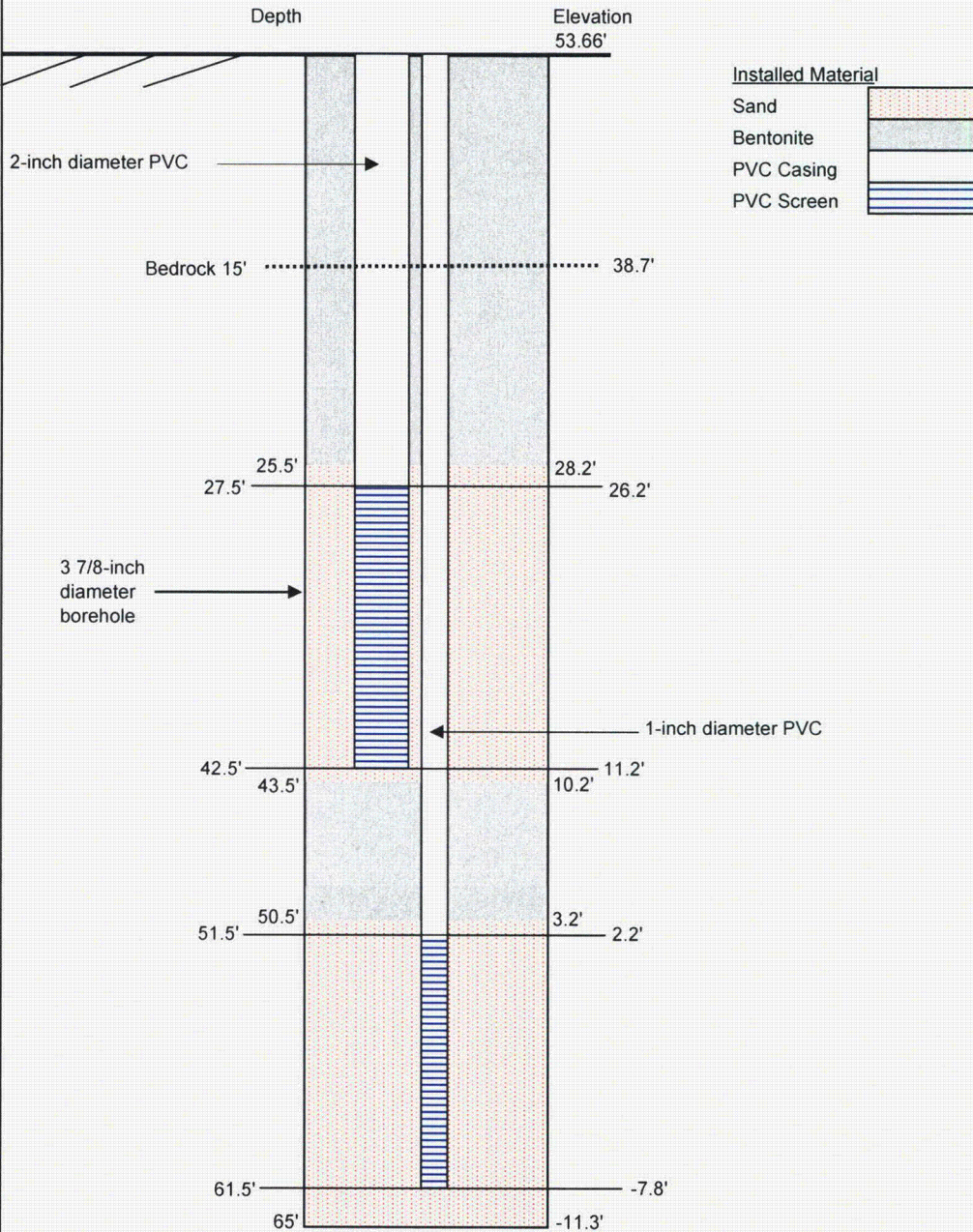
REPORT OF BORING NO. MW-45
 SHEET 1 of 1
 FILE NO. 41.0017869.10
 CHKD BY DW

BORING CO. Aquifer Drilling & Testing
 FOREMAN David Carter
 GZA ENG. Anton Gallas

BORING LOCATION See Exploration Location Plan
 GROUND SURFACE ELEV. 53.66'
 DATE START 3/23/06

DATUM NGVD 29
 DATE END 3/23/06

AS-BUILT



Notes:
 1. Borehole above 16.5 feet is 4.5 inches in diameter.

OPEN ROCK WELL INSTALLATION LOG

GZA GEOENVIRONMENTAL OF NEW YORK

440 NINTH AVENUE, 18TH FLOOR
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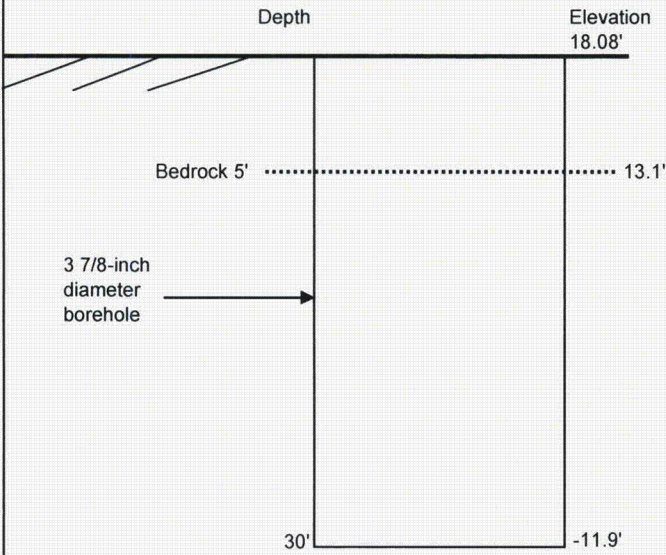
REPORT OF BORING NO.	MW-46
SHEET	1 of 1
FILE NO.	41.0017869.10
CHKD BY	DW

BORING CO.	<u>Aquifer Drilling & Testing</u>
FOREMAN	<u>David Carter</u>
GZA ENG.	<u>Anton Gallas</u>

BORING LOCATION	<u>See Exploration Location Plan</u>
GROUND SURFACE ELEV.	<u>18.08'</u>
DATE START	<u>2/14/06</u>

DATUM	<u>NGVD 29</u>
DATE END	<u>2/17/06</u>

AS-BUILT



Notes:

1. No equipment installed. Boring left as an open borehole monitoring point.
2. Borehole above 6.5 feet is 4.5 inches in diameter.

GROUNDWATER OBSERVATION WELL INSTALLATION LOG

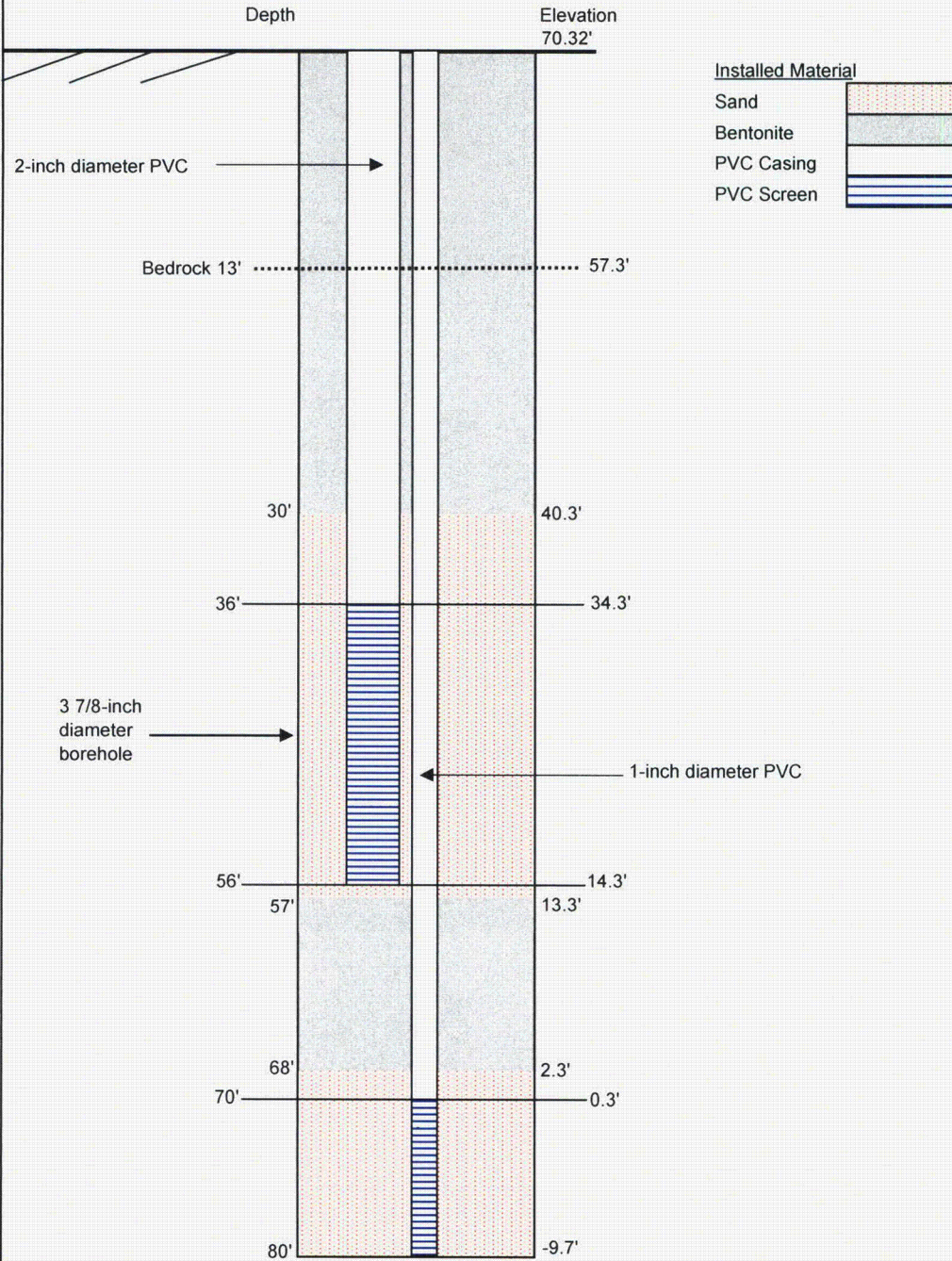
GZA GEOENVIRONMENTAL OF NEW YORK
 440 NINTH AVENUE, 18TH FLOOR
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REPORT OF BORING NO.	MW-47
SHEET	1 of 1
FILE NO.	41.0017869.10
CHKD BY	DW

BORING CO.	<u>Aquifer Drilling & Testing</u>	BORING LOCATION	<u>See Exploration Location Plan</u>		
FOREMAN	<u>Dave Carter</u>	GROUND SURFACE ELEV.	<u>70.32'</u>	DATUM	<u>NGVD 29</u>
GZA ENG.	<u>Anton Gallas</u>	DATE START	<u>3/6/06</u>	DATE END	<u>3/6/06</u>

AS-BUILT



Notes:
 1. Borehole above 14 feet is 6.5 inches in diameter.

GROUNDWATER OBSERVATION WELL INSTALLATION LOG

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 440 NINTH AVENUE, 18TH FLOOR
 NEW YORK, NEW YORK 10001
 ENGINEERS AND SCIENTISTS

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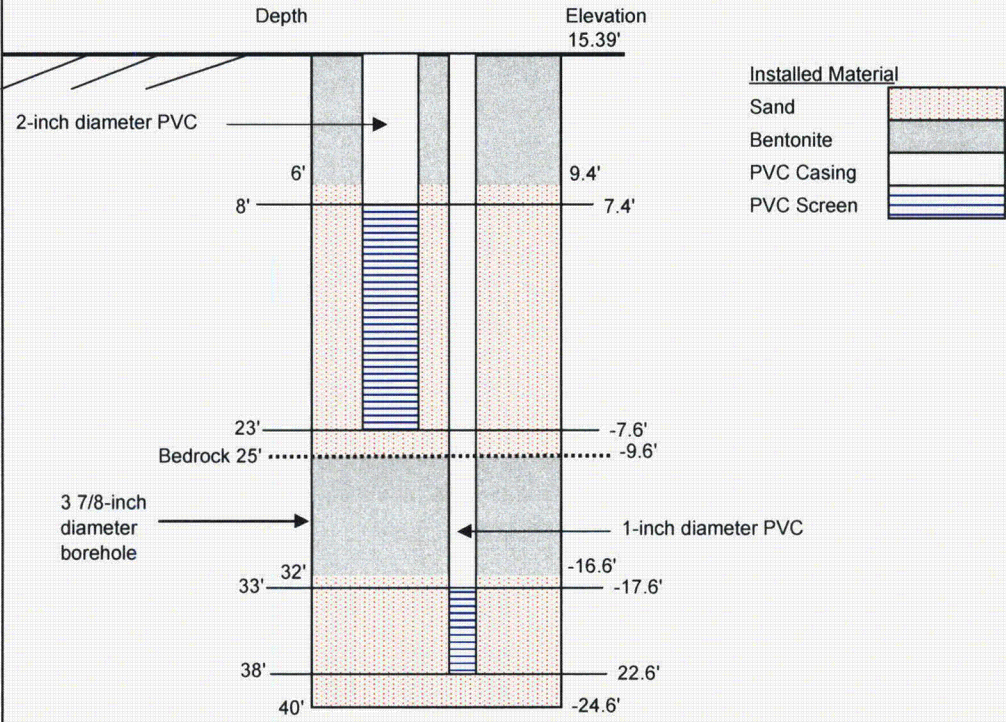
REPORT OF BORING NO. MW-48
 SHEET 1 of 1
 FILE NO. 41.0017869.10
 CHKD BY DW

BORING CO. Aquifer Drilling & Testing
 FOREMAN Doug Wood
 GZA ENG. Anton Gallas

BORING LOCATION See Exploration Location Plan
 GROUND SURFACE ELEV. 15.39'
 DATE START 1/27/07

DATUM NGVD 29
 DATE END 1/27/07

AS-BUILT



Notes:
 1. Borehole above 25 feet is 4.5 inches in diameter.

GROUNDWATER OBSERVATION WELL INSTALLATION LOG

GZA GEOENVIRONMENTAL OF NEW YORK
 440 NINTH AVENUE, 18TH FLOOR
 NEW YORK, NEW YORK 10001
 ENGINEERS AND SCIENTISTS

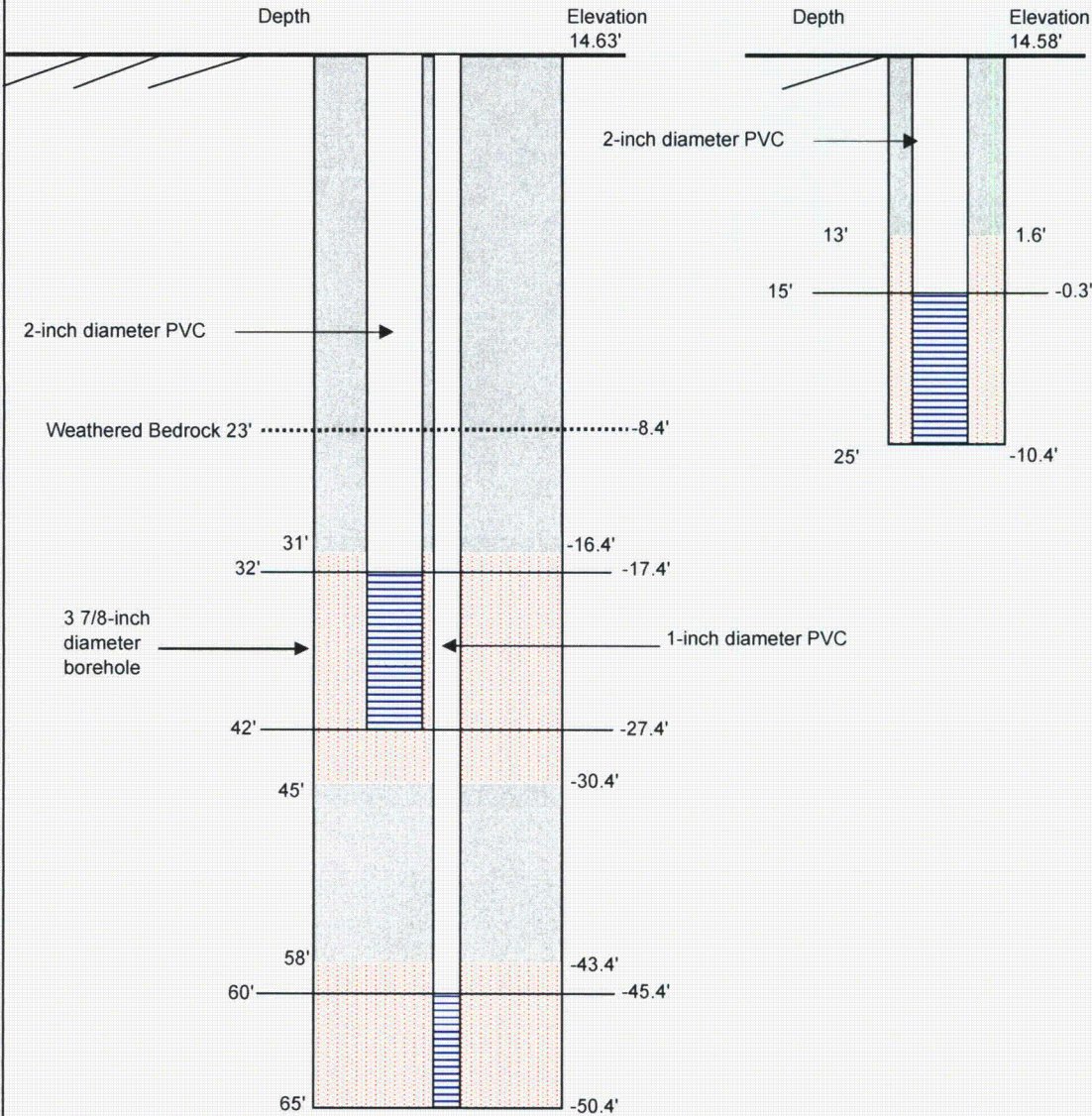
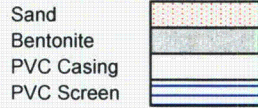
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 Indian Point Energy Center
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REPORT OF BORING NO. MW-49
 SHEET 1 of 1
 FILE NO. 41.0017869.10
 CHKD BY DW

BORING CO. <u>Aquifer Drilling & Testing</u>	BORING LOCATION <u>See Exploration Location Plan</u>	
FOREMAN <u>Dave Carter</u>	GROUND SURFACE ELEV. <u>14.63'</u>	DATUM <u>NGVD 29</u>
GZA ENG. <u>Anton Gallas</u>	DATE START <u>3/17/06</u>	DATE END <u>3/17/06</u>

AS-BUILT

Installed Material



Notes:

1. Boreholes above 30 feet are 4.5 inches in diameter.
2. The 25-foot-deep well was installed adjacent to the nested wells.

GROUNDWATER OBSERVATION WELL INSTALLATION LOG

GZA GEOENVIRONMENTAL OF NEW YORK
 440 NINTH AVENUE, 18TH FLOOR
 NEW YORK, NEW YORK 10001
 ENGINEERS AND SCIENTISTS

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 Indian Point Energy Center
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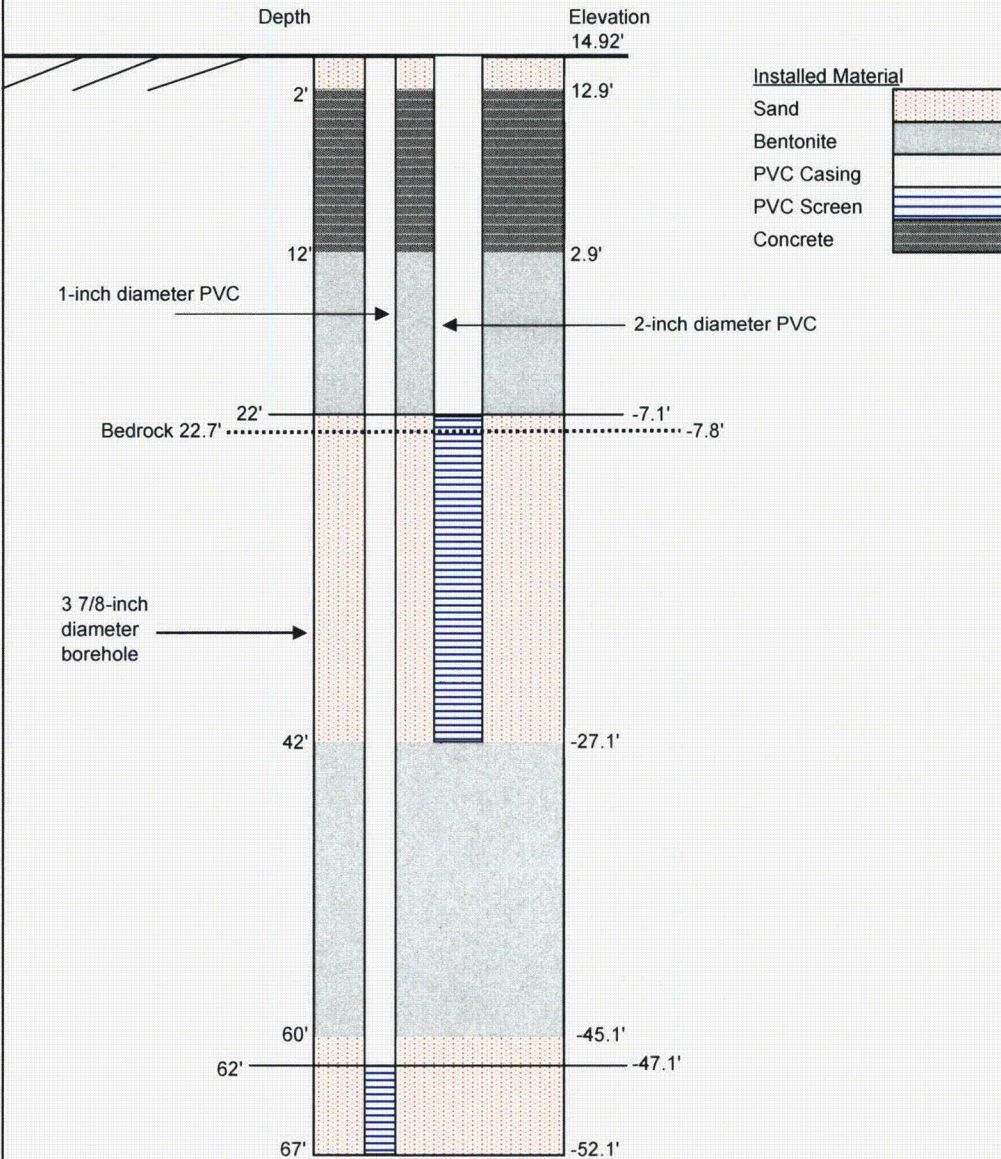
REPORT OF BORING NO. MW-50
 SHEET 1 of 1
 FILE NO. 41.0017869.10
 CHKD BY DW

BORING CO. Aquifer Drilling & Testing
 FOREMAN Dave Carter
 GZA ENG. Anton Gallas

BORING LOCATION See Exploration Location Plan
 GROUND SURFACE ELEV. 14.92'
 DATE START 3/13/06

DATUM NGVD 29
 DATE END 3/13/06

AS-BUILT



Notes:

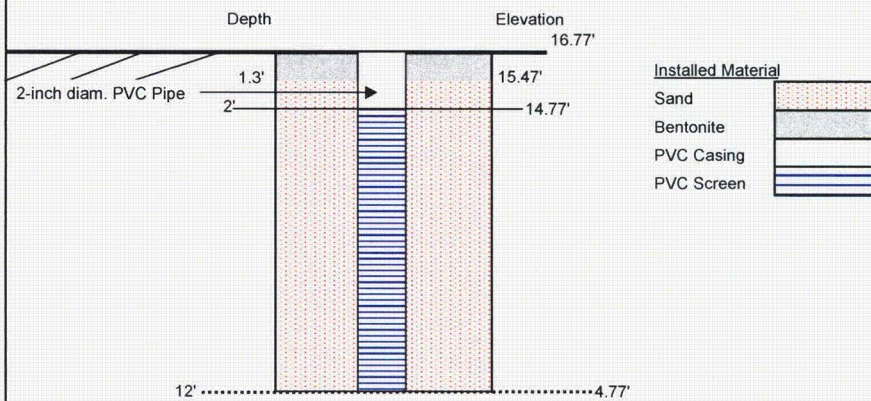
1. Borehole above 6 feet is 4.5 inches in diameter.

GROUNDWATER OBSERVATION WELL INSTALLATION LOG

GZA GEOENVIRONMENTAL OF NEW YORK		REPORT OF BORING NO.	MW-52
440 NINTH AVENUE, 18TH FLOOR		SHEET	1 of 1
NEW YORK, NEW YORK 10001		FILE NO.	41.0017869.1C
ENGINEERS AND SCIENTISTS		CHKD BY	DW
		ENTERGY	
		Indian Point Energy Center	
		Buchanan, New York	

BORING C.O.	Aquifer Drilling & Testing	BORING LOCATION	See Exploration Location Plan
FOREMAN	Dave Carter	GROUND SURFACE ELEV.	16.77'
GZA ENG.	Anton Gallas/ Daniela Bastos	DATE START	3/21/06
		DATE END	3/21/06

AS-BUILT



Notes:

1. Monitoring well is installed within the backfill of the trench excavated into rock for storm drain, fire and service water pipes

GROUNDWATER OBSERVATION WELL INSTALLATION LOG

GZA GEOENVIRONMENTAL OF NEW YORK

440 NINTH AVENUE, 18TH FLOOR
NEW YORK, NEW YORK 10001
ENGINEERS AND SCIENTISTS

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Indian Point Energy Center
Buchanan, New York

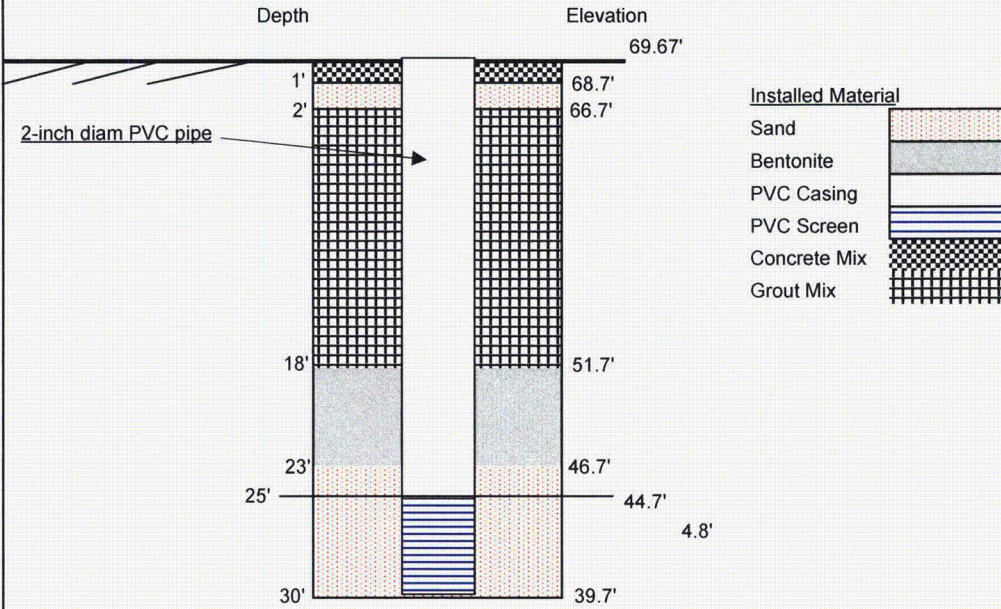
REPORT OF BORING NO.	T1-U1-1
SHEET	1 of 1
FILE NO.	41.0017869.10
CHKD BY	DW

BORING CO.	Aquifer Drilling & Testing
FOREMAN	Ed Borner
GZA ENG.	Anton Gallas

BORING LOCATION	See Exploration Location Plan
GROUND SURFACE ELEV.	69.67'
DATE START	6/16/06

DATUM	NGVD 29
DATE END	6/16/06

AS-BUILT



Notes:

GROUNDWATER OBSERVATION WELL INSTALLATION LOG

GZA GEOENVIRONMENTAL OF NEW YORK

440 NINTH AVENUE, 18TH FLOOR
NEW YORK, NEW YORK 10001
ENGINEERS AND SCIENTISTS

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Indian Point Energy Center
Buchanan, New York

REPORT OF BORING NO.

MW-53

SHEET

1 of 1

FILE NO.

41.0017869.1C

CHKD BY

DW

BORING CO.

Aquifer Drilling & Testing

BORING LOCATION

See Exploration Location Plan

FOREMAN

Ed Borner

GROUND SURFACE ELEV.

70.26'

DATUM

NGVD 29

GZA ENG.

Anton Gallas

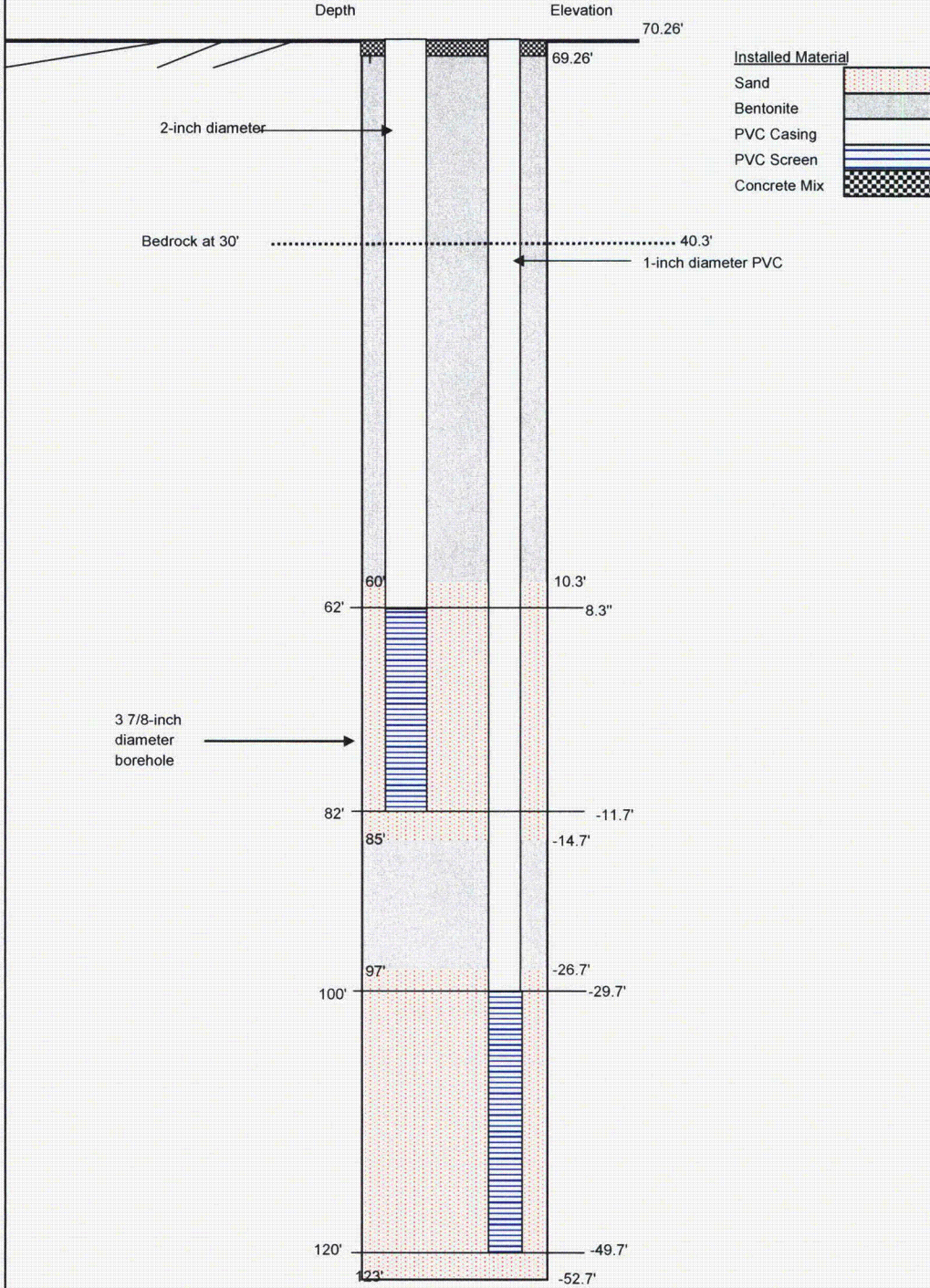
DATE START

8/7/06

DATE END

8/7/06

AS-BUILT



Notes:

1. Borehole above 37.5 feet is 5 1/2 inches in diameter

GROUNDWATER OBSERVATION WELL INSTALLATION LOG

GZA GEOENVIRONMENTAL OF NEW YORK
 440 NINTH AVENUE, 18TH FLOOR
 NEW YORK, NEW YORK 10001
 ENGINEERS AND SCIENTISTS

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 Indian Point Energy Center
 Buchanan, New York

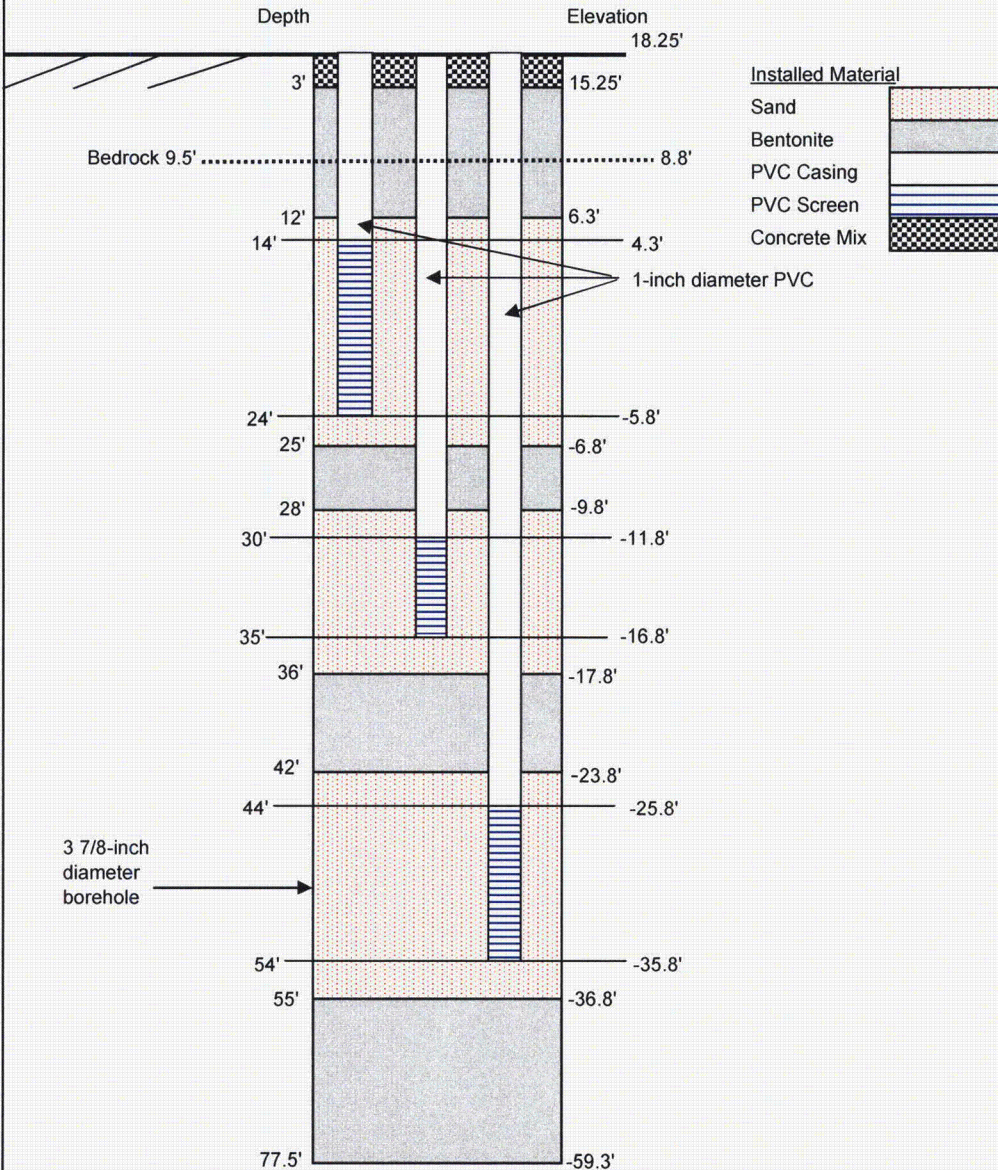
REPORT OF BORING NO. MW-55
 SHEET 1 of 1
 FILE NO. 41.0017869.10
 CHKD BY DW

BORING CO. Aquifer Drilling & Testing
 FOREMAN Ed Borner
 GZA ENG. Anton Gallas

BORING LOCATION See Exploration Location Plan
 GROUND SURFACE ELEV. 18.25'
 DATE START 9/22/06

DATUM NGVD 29
 DATE END 9/22/06

AS-BUILT



Notes:

1. Borehole above 11.5 feet is 4 1/2 inches in diameter.

GROUNDWATER OBSERVATION WELL INSTALLATION LOG

GZA GEOENVIRONMENTAL OF NEW YORK

440 NINTH AVENUE, 18TH FLOOR
NEW YORK, NEW YORK 10001
ENGINEERS AND SCIENTISTS

ENTERGY

Indian Point Energy Center
Buchanan, New York

REPORT OF BORING NO.

MW-56

SHEET

1 of 1

FILE NO.

41.0017869.10

CHKD BY

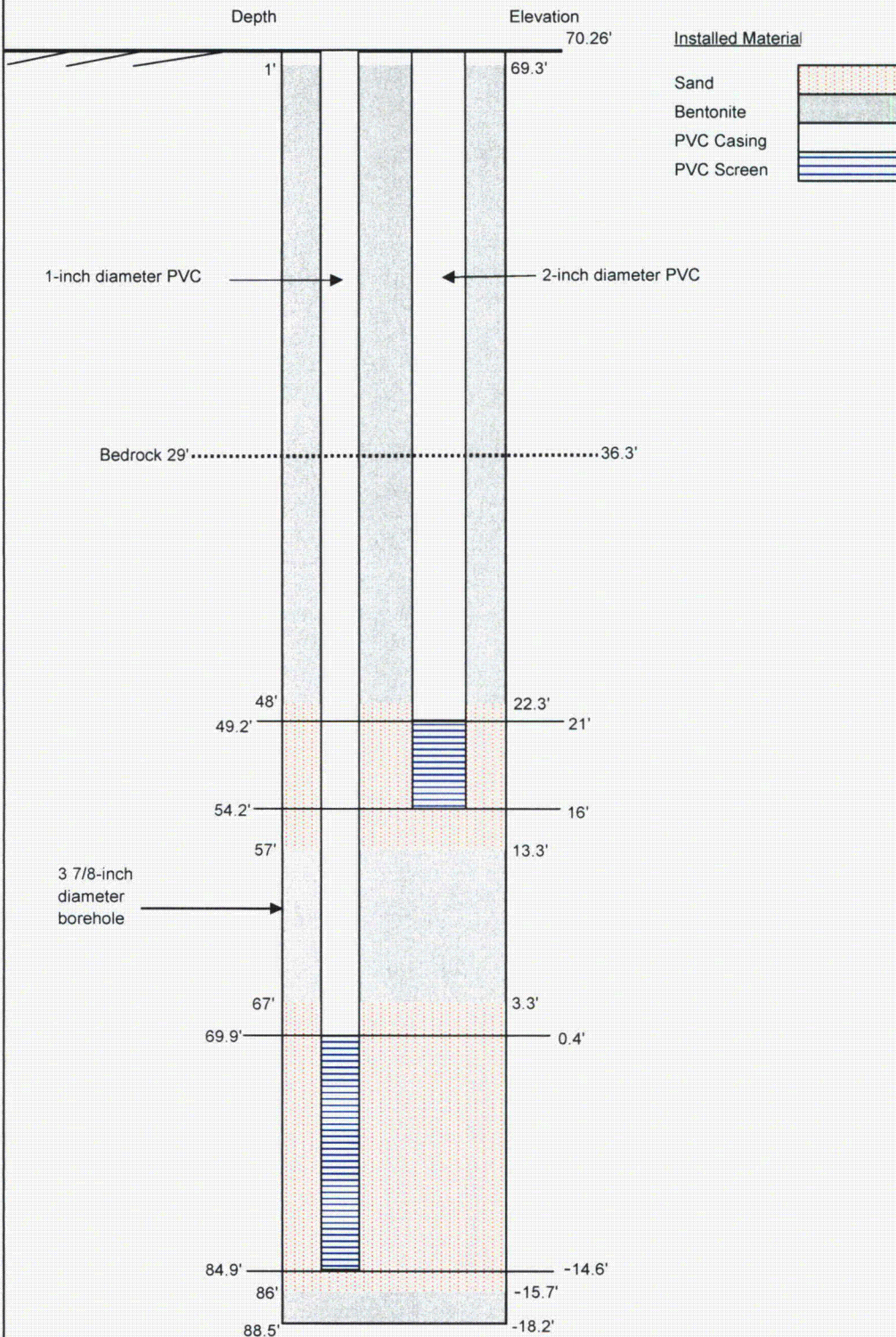
DW

BORING CO. Aquifer Drilling & Testing
FOREMAN Ed Borner
GZA ENG. Maurice Ponti

BORING LOCATION See Exploration Location Plan
GROUND SURFACE ELEV. 70.26'
DATE START 12/11/06

DATUM NGVD 29
DATE END 12/11/06

AS-BUILT



Notes:

- Borehole above 31 feet is 4 1/2 inches in diameter.
- 2-foot by 2-foot by 2-foot well vault installed within concrete, flush with ground surface.

GROUNDWATER OBSERVATION WELL INSTALLATION LOG

GZA GEOENVIRONMENTAL OF NEW YORK
 440 NINTH AVENUE, 18TH FLOOR
 NEW YORK, NEW YORK 10001
 ENGINEERS AND SCIENTISTS

ENTERGY
 Indian Point Energy Center
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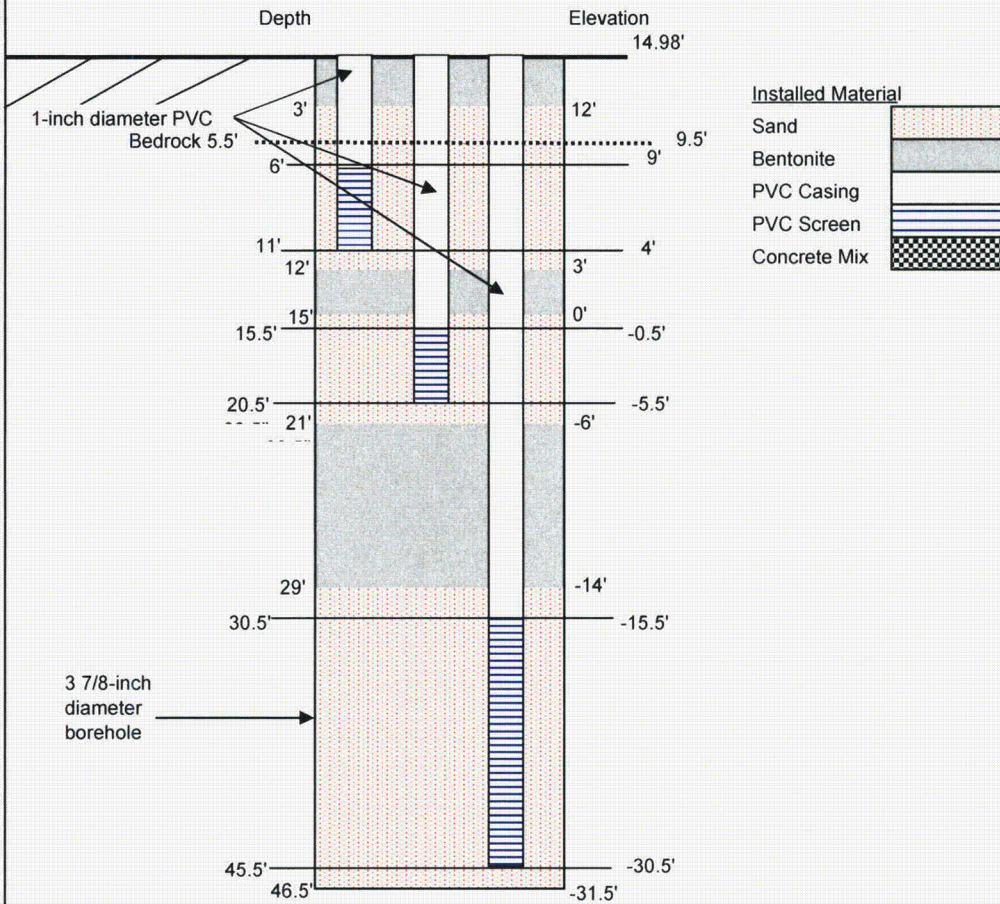
REPORT OF BORING NO. MW-57
 SHEET 1 of 1
 FILE NO. 41.0017869.10
 CHKD BY DW

BORING CO. Aquifer Drilling & Testing
 FOREMAN Dave Carter
 GZA ENG. Maurcie Ponti

BORING LOCATION See Exploration Location Plan
 GROUND SURFACE ELEV. 14.98'
 DATE START 8/31/06

DATUM NGVD 29
 DATE END 8/31/06

AS-BUILT



Notes:
 1. Borehole above 7 feet is 4 1/2 inches in diameter.

GROUNDWATER OBSERVATION WELL INSTALLATION LOG

GZA GEOENVIRONMENTAL OF NEW YORK
 440 NINTH AVENUE, 18TH FLOOR
 NEW YORK, NEW YORK 10001
 ENGINEERS AND SCIENTISTS

ENERGY
 Indian Point Energy Center
 Buchanan, New York

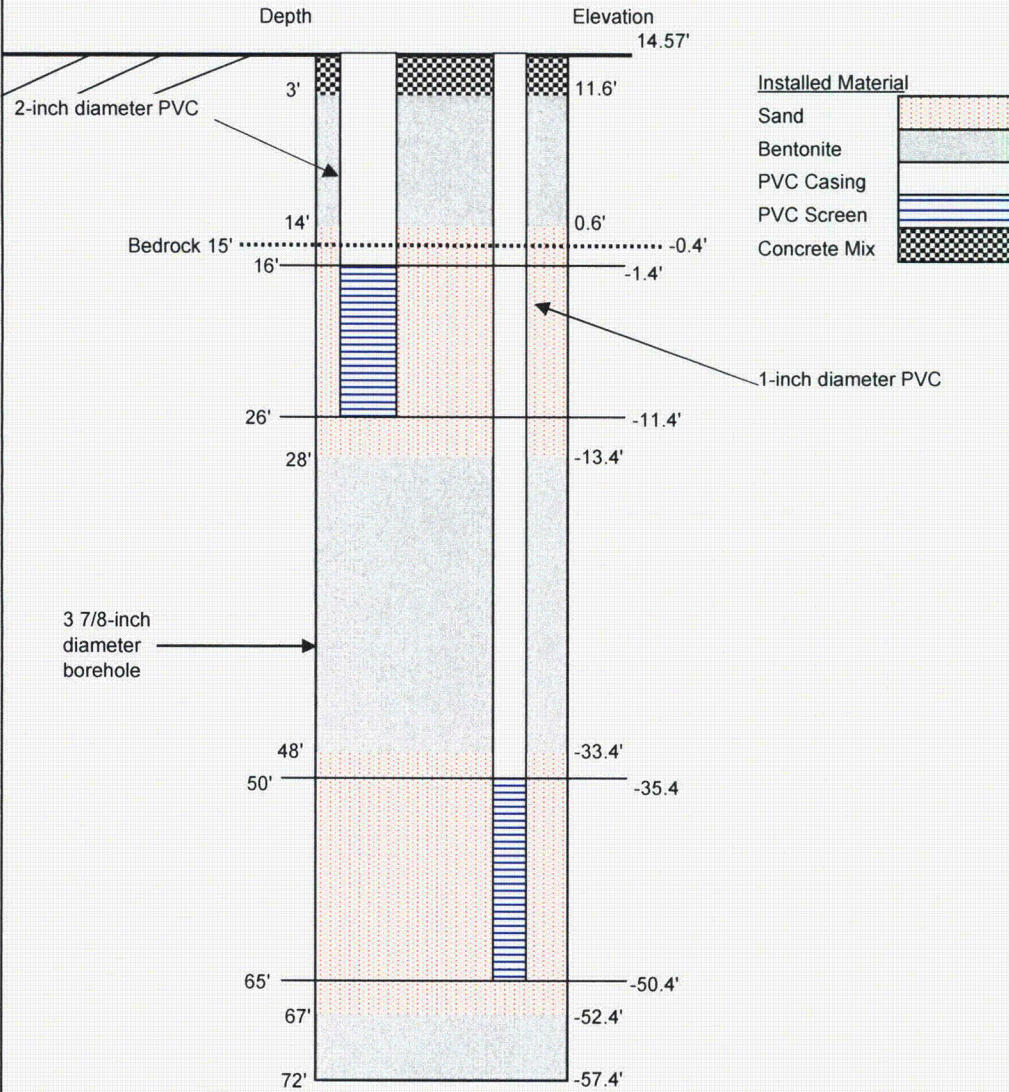
REPORT OF BORING NO. MW-58
 SHEET 1 of 1
 FILE NO. 41.0017869.10
 CHKD BY DW

BORING CO. Aquifer Drilling & Testing
 FOREMAN Ed Borner
 GZA ENG. Anton Gallas

BORING LOCATION See Exploration Location Plan
 GROUND SURFACE ELEV. 14.57'
 DATE START 9/25/06

DATUM NGVD 29
 DATE END 9/25/06

AS-BUILT



- Notes:
- Borehole above 16.5 feet is 4 1/2 inches in diameter.
 - 2-foot by 2-foot by 2-foot well vault installed within concrete, flush with ground surface.

GROUNDWATER OBSERVATION WELL INSTALLATION LOG

GZA GEOENVIRONMENTAL OF NEW YORK

440 NINTH AVENUE, 18TH FLOOR
 NEW YORK, NEW YORK 10001
 ENGINEERS AND SCIENTISTS

ENTERGY

Indian Point Energy Center
 Buchanan, New York

REPORT OF BORING NO. MW-59

SHEET 1 of 1

FILE NO. 41.0017869.10

CHKD BY DW

BORING CO. Aquifer Drilling & Testing

BORING LOCATION See Exploration Location Plan

FOREMAN Ed Borner

GROUND SURFACE ELEV. 14.52'

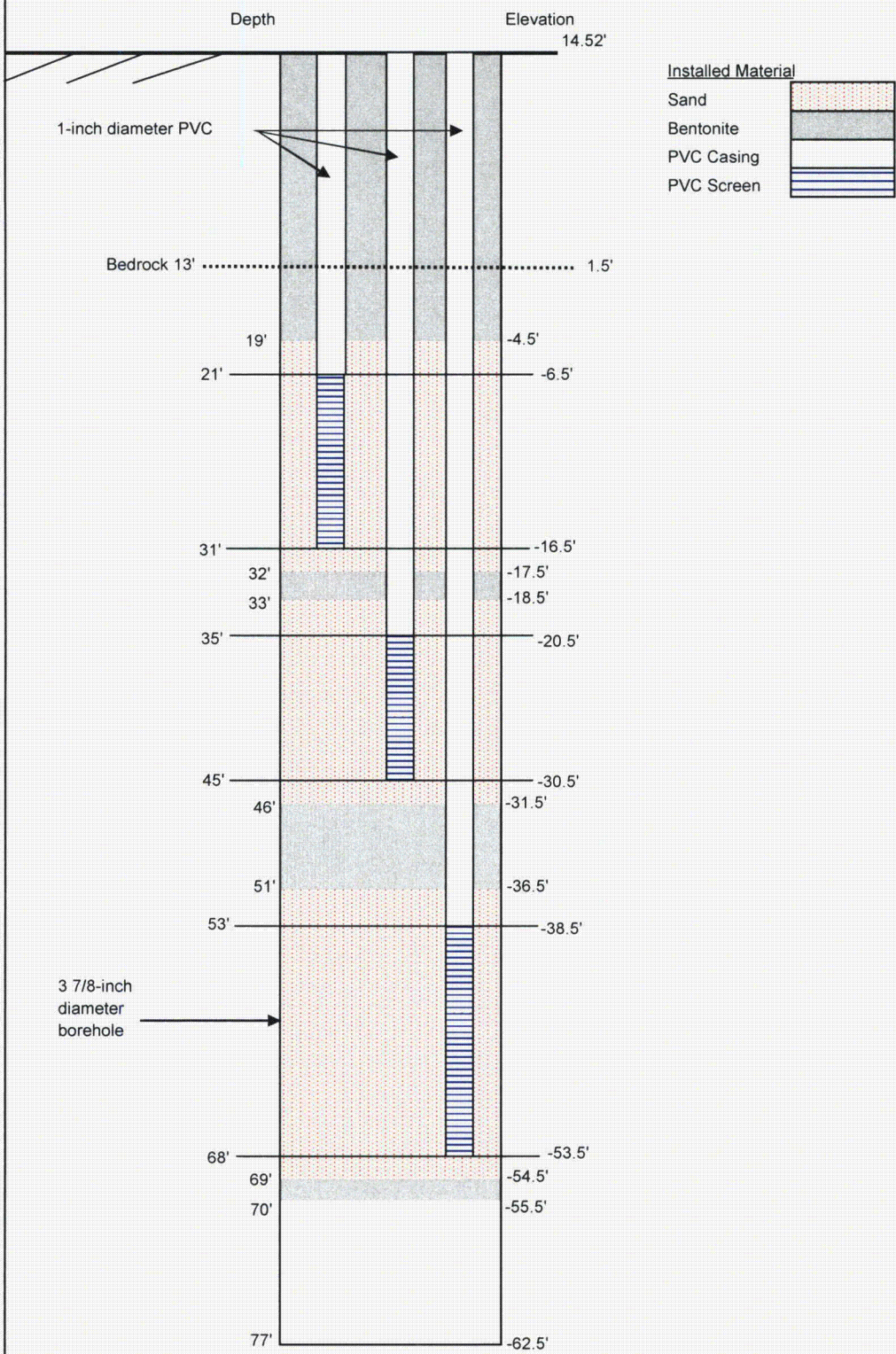
DATUM NGVD 29

GZA ENG. Anton Gallas

DATE START 10/4/07

DATE END 10/4/07

AS-BUILT



Notes:

1. Borehole above 18 feet is 4 1/2 inches in diameter.
2. 2-foot by 2-foot by 2-foot well vault installed within concrete, flush with ground surface.

GROUNDWATER OBSERVATION WELL INSTALLATION LOG

GZA GEOENVIRONMENTAL OF NEW YORK

440 NINTH AVENUE, 18TH FLOOR
 NEW YORK, NEW YORK 10001
 ENGINEERS AND SCIENTISTS

ENTERGY
 Indian Point Energy Center
 Buchanan, New York

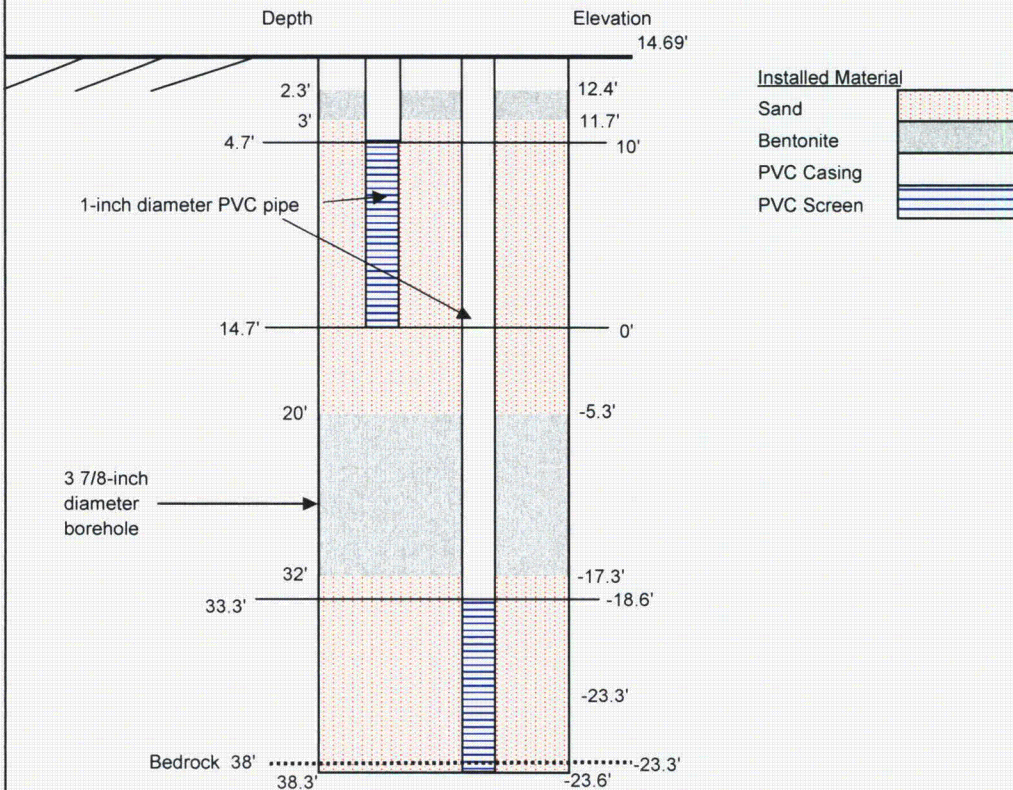
REPORT OF BORING NO.	MW-62
SHEET	1 of 1
FILE NO.	41.0017869.10
CHKD BY	DW

BORING CO.	<u>Aquifer Drilling & Testing</u>
FOREMAN	<u>Ed Borner</u>
GZA ENG.	<u>Anton Gallas</u>

BORING LOCATION	<u>See Exploration Location Plan</u>
GROUND SURFACE ELEV.	<u>14.69'</u>
DATE START	<u>10/12/07</u>

DATUM	<u>NGVD 29</u>
DATE END	<u>10/12/07</u>

AS-BUILT



Installed Material

Sand	
Bentonite	
PVC Casing	
PVC Screen	

- Notes:**
1. 2-foot by 2-foot by 2-foot well vault installed within concrete, flush with ground surface.
 2. Monitoring wells installed in the overburden soils adjacent to the 201-foot boring.

GROUNDWATER OBSERVATION WELL INSTALLATION LOG

GZA GEOENVIRONMENTAL OF NEW YORK

440 NINTH AVENUE, 18TH FLOOR
NEW YORK, NEW YORK 10001
ENGINEERS AND SCIENTISTS

ENERGY
Indian Point Energy Center
Buchanan, New York

REPORT OF BORING NO. MW-63

SHEET 1 of 1

FILE NO. 41.0017869.10

CHKD BY DW

BORING CO. Aquifer Drilling & Testing

BORING LOCATION

See Exploration Location Plan

FOREMAN Ed Borner

GROUND SURFACE ELEV. 14.18'

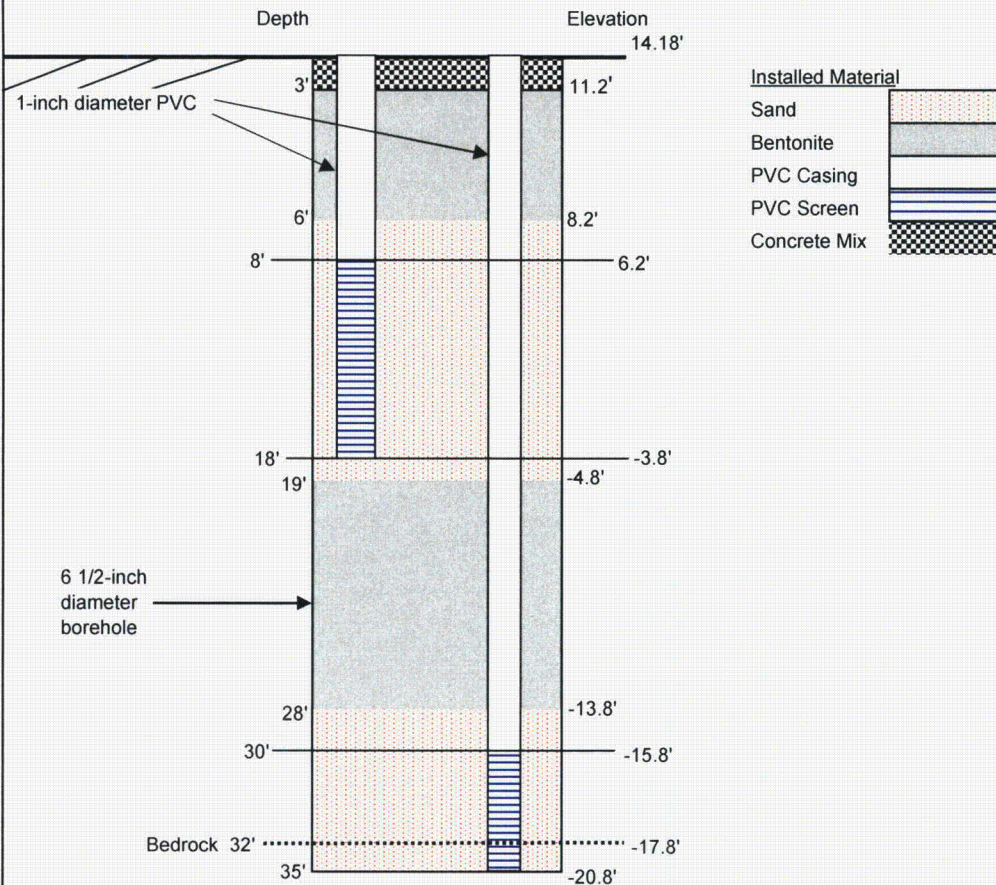
DATUM NGVD 29

GZA ENG. Anton Gallas

DATE START 9/20/06

DATE END 9/20/06

AS-BUILT



Notes:

1. 2-foot by 2-foot well vault installed within concrete, flush with ground surface.
2. Monitoring wells installed in the overburden soils adjacent to the 193-foot boring.

GROUNDWATER OBSERVATION WELL INSTALLATION LOG

GZA GEOENVIRONMENTAL OF NEW YORK

440 NINTH AVENUE, 18TH FLOOR
NEW YORK, NEW YORK 10001
ENGINEERS AND SCIENTISTS

ENTERGY
Indian Point Energy Center
Buchanan, New York

REPORT OF BORING NO. MW-65

SHEET 1 of 1

FILE NO. 41.0017869.10

CHKD BY DW

BORING CO. Aquifer Drilling & Testing

BORING LOCATION See Exploration Location Plan

FOREMAN Ed Borner

GROUND SURFACE ELEV. 69.72'

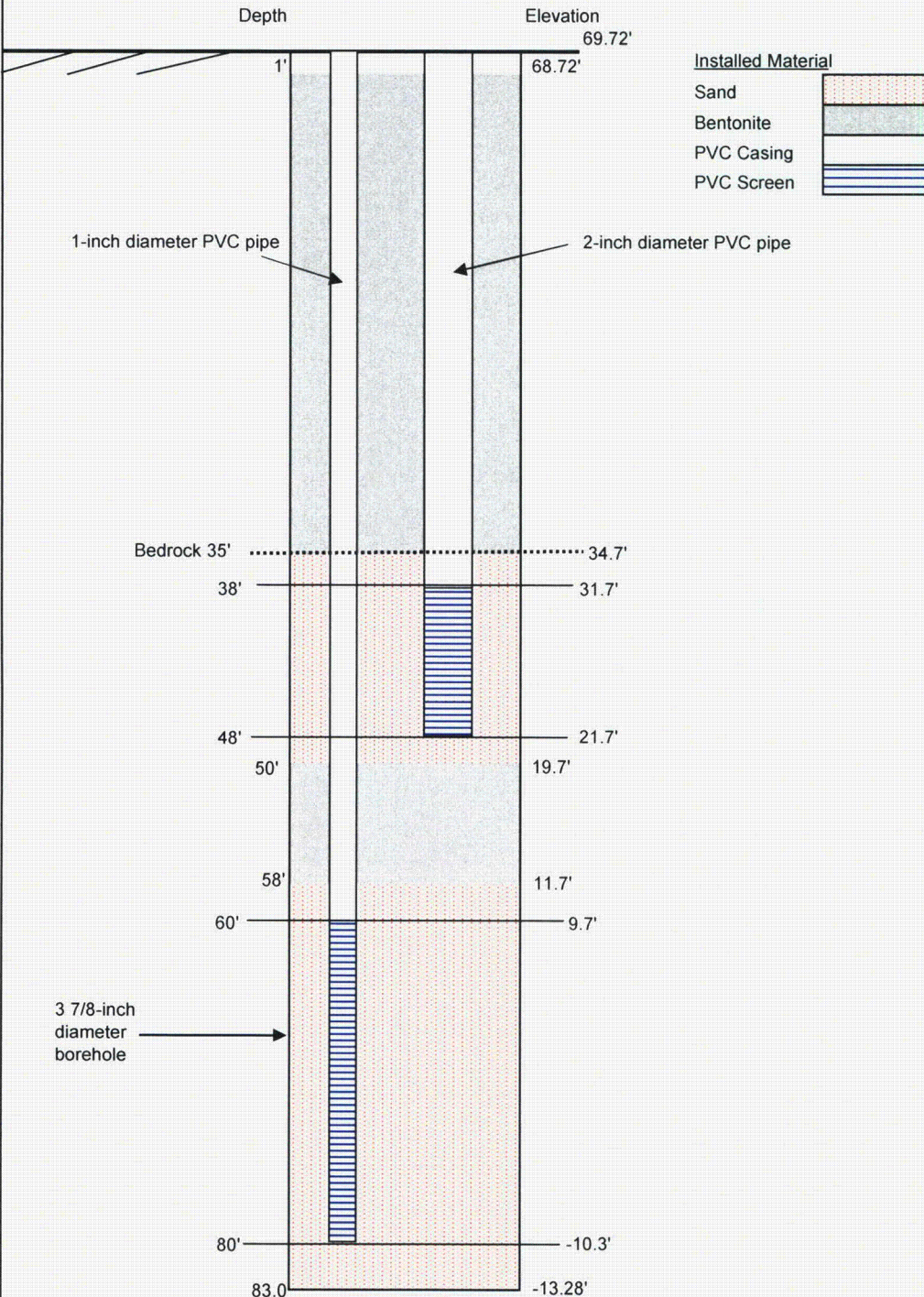
DATUM NGVD 29

GZA ENG. Angela Hough

DATE START 12/12/06

DATE END 12/12/06

AS-BUILT



Notes:

1. Borehole above 38 feet is 4 1/2-inches in diameter.
2. 2-foot by 2-foot by 2-foot well vault installed within concrete, flush with ground surface.

GROUNDWATER OBSERVATION WELL INSTALLATION LOG

GZA GEOENVIRONMENTAL OF NEW YORK
 440 NINTH AVENUE, 18TH FLOOR
 NEW YORK, NEW YORK 10001
 ENGINEERS AND SCIENTISTS

ENTERGY
 Indian Point Energy Center
 Buchanan, New York

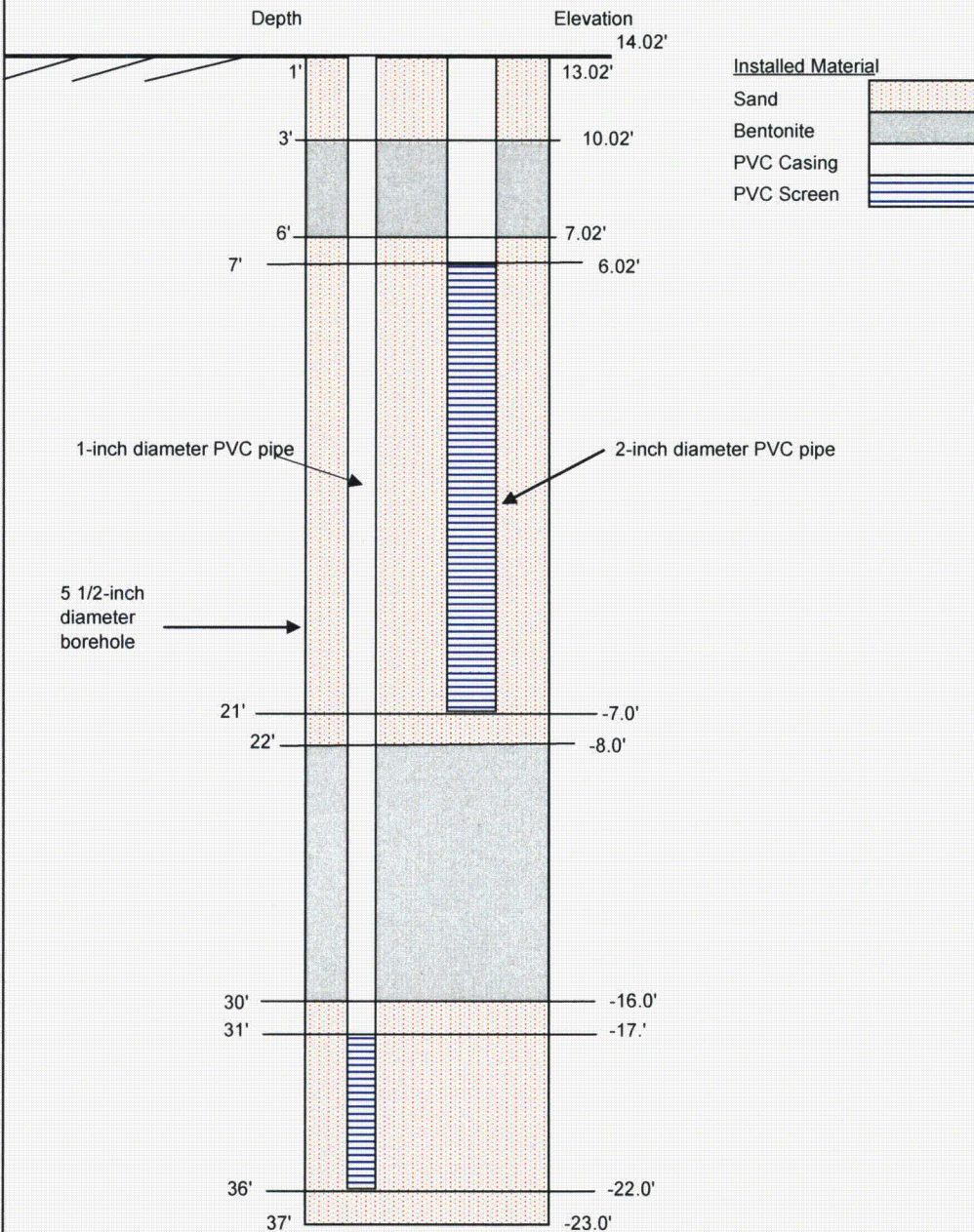
REPORT OF BORING NO.	MW-66
SHEET	1 of 1
FILE NO.	41.0017869.10
CHKD BY	DW

BORING CO.	Aquifer Drilling & Testing
FOREMAN	
GZA ENG.	Neils Jensen

BORING LOCATION	
GROUND SURFACE ELEV.	14.02 feet
DATE START	07/05/07

See Exploration Location Plan	
DATUM	NGVD 29
DATE END	07/05/07

AS-BUILT



Notes:

1. Top of bedrock is at 37 feet.
2. 2-foot by 2-foot by 2-foot well vault installed within concrete, flush with ground surface.

APPENDIX E
SURVEY RESULTS

DECEMBER 2005

B&W	---	AS ORIGINALLY DELIVERED			
PNT#	NORTH	EAST	ELEV	REMARKS	
5602	462505.7	603810.2	14	MW-38	
5603	462778.3	604293.1	14.6	U3-3	
5604	462772.3	604262.3	14.1	U3-2	
5605	462762.5	604197.3	13.5	U3-1	
5606	462723.8	604167.7	14.5	U3-40	
5607	462711.1	604158.9	13.9	U3-45	
5609	462860.9	604396.9	14.2	MW-109	
5610	462819.6	604454.1	14.2	MW-108	
5611	462962.2	604744.2	18.4	MW-35	
5612	462976.8	604755.3	18.1	MW-34	
5613	462995.5	604767.9	18.6	MW-33	
5614	463023.6	604735.2	19.4	MW-11	
5615	462969.8	604924.2	79.6	MW-31	
5616	462953.5	604876	78.3	MW-32	
5617	461922.7	605014.2	142.8	MW-107	
5618	461923.1	605014	140.1	GROUND AT MW-107	
5619	461578.5	604888.1	136.8	MW-112 PVC BROKEN AT GROUND LEVEL	

THE FOLLOWING IS PROVIDED WITH THE CAVEAT THAT THE PRECISION INDICATED IS GREATER THAN THE ACTUAL PRECISION OF THE SURVEY DATA.

B&W	---	AS COMPUTED TO 4 DECIMAL PLACES			
PNT#	NORTH	EAST	ELEV	REMARKS	
5602	462505.7	603810.2	13.99	MW-38	
5603	462778.3	604293.1	14.599	U3-3	
5604	462772.3	604262.3	14.114	U3-2	
5605	462762.5	604197.3	13.495	U3-1	
5606	462723.8	604167.7	14.519	U3-40	
5607	462711.1	604158.9	13.943	U3-45	
5608	462973.1	604270.5	14.217	B_PK-OL (BENCHMARK)	
5609	462860.9	604396.9	14.254	MW-109	
5610	462819.6	604454.1	14.23	MW-108	
5611	462962.2	604744.2	18.444	MW-35	
5612	462976.8	604755.3	18.071	MW-34	
5613	462995.5	604767.9	18.619	MW-33	
5614	463023.6	604735.2	19.385	MW-11	
5615	462969.8	604924.2	79.593	MW-31	
5616	462953.5	604876	78.339	MW-32	
5617	461922.7	605014.2	142.757	MW-107	
5618	461923.1	605014	140.061	GROUND AT MW-107	
5619	461578.5	604888.1	136.773	MW-112	

MARCH 2006

PNT#	NORTH	EAST	ELEV	REMARKS
4513	463090.6	604657.6	11.393	MW-36-S
4514	463090.4	604657.5	11.604	MW-36-I
4515	463090.4	604657.5	11.492	MW-36D
4516	463075.2	604604.8	14.725	MW-37-S
4517	463075.3	604604.6	14.79	MW-37-I
4518	463075.1	604604.7	14.723	MW-37-D
4519	463075.4	604604.9	14.784	MW-37-22
4520	462555	604133	8.518	U3-T1
4521	462555	604133	3.267	GROUND AT U3-T1
4522	462673.8	604240.6	8.512	U3-T2
4523	462673.8	604240.6	3.259	GROUND AT U3-T2
4524	463140.2	604709.6	12.707	MH-4A
4525	463219	604772.6	16.949	MH-4
4526	463305.5	604663.9	14.847	MH-3
4527	462425.5	604676.9	81.452	MW-39
4528	462425.8	604676.4	81.864	GROUND AT MW-39
4530	462192.6	604429.7	47.821	MW-43-D
4531	462192.6	604429.8	48.021	MW-43-S
4532	462192.3	604430.1	48.761	GROUND AT MW43
4533	462015.7	603473.8	14.765	MW-48-D
4534	462015.7	603473.8	14.762	MW-48-S
4535	462016	603473.5	15.394	GROUND AT MW48
4536	461950.5	603899.3	74.758	MW-40
4537	461950.9	603899.5	74.987	GROUND AT MW40

APRIL 2006 #1

PNT#	NORTH	EAST	ELEV	REMARKS
4538	462750.3	604857.5	69.42	MW42
4539	462750	604858	69.71	GROUND AT MW42
4542	463078.8	604446.7	14.13	MW49
4543	463079.4	604447.3	14.65	GROUND AT MW49
4544	463039.2	604494.3	14.41	MW50
4545	463038.7	604493.8	14.92	GROUND AT MW50
4546	462431.3	604328.7	16.97	MW46
4547	462430.9	604328.2	18.08	GROUND AT MW46
4548	463254.1	604733	16.33	MW52
4549	463253.8	604732.7	16.77	GROUND AT MW52
4550	462499.9	604516.2	92.96	MW44-102
4551	462499.9	604516.4	93.02	MW44-66
4552	462499.9	604517.1	93.52	GROUND AT MW44
4553	462663.6	604651.4	69.8	MW47
4554	462663.9	604651	70.32	GROUND AT MW47
4555	462385.9	604471.5	52.94	MW45
4556	462386.3	604471.1	53.66	GROUND AT MW45
4557	462318.7	604531.1	54.13	MW41
4558	462318.5	604531.6	54.87	GROUND AT MW41
4559	461822.4	604275.3	69.34	MW51
4560	461821.9	604275.3	69.62	GROUND MW51

APRIL 2006 #2

PNT#	NORTH	EAST	ELEV	REMARKS
4565	462385.6	604472.1	53.1	MW45-62
4566	462385.5	604472	53.2	MW45-43
4556	462386.3	604471.1	53.66	GROUND AT MW45
4562	462664.1	604651.1	69.81	MW47-57
4563	462663.9	604650.9	69.74	MW47-80
4554	462663.9	604651	70.32	GROUND AT MW47
4573	463039.2	604494.3	14.43	MW50-42
4574	463039.3	604494.2	14.61	MW50-67
4545	463038.7	604493.8	14.92	GROUND AT MW50
4576	463080.2	604445.6	14.19	MW49-26
4577	463079	604446.4	14.37	ME49-66
4578	463078.8	604446.6	14.13	MW49-42
4543	463079.4	604447.3	14.65	GROUND AT MW49
4568	463253.9	604733	16.37	MW52-200
4569	463254.3	604733.5	16.28	MW52-13
4549	463253.8	604732.7	16.77	GROUND AT MW52
4571	462164.1	603420.5	11.91	OUT-1
4572	463079.2	604642.4	15.05	U2-C1
4561	463122.6	604280.7	18.52	HR-1

NOVEMBER 2006

PNT#	NORTH	EAST	ELEV	REMARKS
4581	462864	604399.9	14.23	MW58-D
4582	462863.8	604399.7	14.14	MW58-S
4583	462864.3	604400.3	14.57	GROUND AT MW59
4584	462912.1	604329.1	13.93	MW59-45
4585	462912	604329	14.31	MW59-31
4586	462911.9	604329	14.15	MW59-68
4587	462912.9	604330.1	14.52	GROUND AT MW59
4588	463087.4	604349.9	12.82	MW62
4589	463086.8	604350.8	14.69	GROUND AT MW62
4590	463382.5	604586.5	12.48	MW60
4591	463381.3	604585.6	14.31	GROUND AT MW 60
4592	463023.8	604735.2	18.38	MW111
4593	463023.8	604735.9	18.93	GROUND AT MW111
4594	462997.2	604636.5	17.67	MW55-24
4595	462997.2	604636.5	17.67	MW55-35
4596	462997	604636.5	17.68	MW55-54
4597	462996.4	604636	18.25	GROUND AT MW55
4598	462707.7	604658.9	68.56	MW56
4599	462708.5	604658.1	70.26	GROUND AT MW56
4601	462490.2	604850.7	67.92	MW65
4602	462489.7	604852	69.72	GROUND AT MW65
4604	462741.1	604858.1	69.32	T1-U1-1
4605	462741.8	604858	69.67	GROUND AT T1-U1-1
4606	462821.5	604732.1	69.93	MW53-D
4607	462821.7	604732.3	70.06	MW53-S
4608	462822.2	604732.6	70.26	GROUND AT MW53
4611	462935.7	604551.9	14.76	MW54
4612	462935.6	604554.2	14.99	GROUND AT MW54
4613	462888.7	604562.9	14.63	MW57-11
4614	462888.7	604562.8	14.61	MW57-45
4615	462888.9	604562.9	14.64	MW57-20
4616	462888.6	604562.4	14.98	GROUND AT MW57
4618	463012.4	604885.1	78.47	MW30
4619	463006.7	604879.2	81.28	RW-1
4620	462996.8	604885.3	72.69	GROUND AT MW30 AND RW-1
4622	463188.4	604790.3	18.54	MH5
4623	463189.6	604790.6	18.53	GROUND AT MH5
4624	463220.6	605072.2	82.23	I-2
4625	463218.2	605072.4	80.92	GROUND AT I-2

JANUARY 2007

PNT#	NORTH	EAST	ELEV	REMARKS
5621	462490.2	604850.6	68.856	MW65-48
5622	462490.2	604850.8	68.841	MW65-80
5623	462489.6	604851.7	69.723	GROUND AT MW65
5624	462707.5	604658.9	69.207	MW56-85
5625	462707.4	604659.1	69.322	MW56-54
5626	462708.2	604658.1	70.258	GROUND AT MW56
5627	462425.6	604677	79.992	MW39
5628	462424.9	604675.8	81.827	GROUND AT MW39
5629	463147.4	604409.2	12.155	MW66
5630	463150.3	604409.2	14.021	GROUND AT MW66
5631	462970.4	604251.3	12.315	MW63-200
5632	462969.3	604251.1	13.059	MW63-35
5633	462969.2	604251.2	13.059	MW63-18
5634	462968.9	604252.1	14.178	GROUND AT MW63
5635	462714.4	604134.8	18.069	U3-C1
5636	462713.2	604135.3	14.981	GROUND AT U3-C1
5637	461822.3	604275.2	67.723	MW51
5638	461821.3	604274.9	69.639	GROUND AT MW51
5639	461823.4	604274.9	67.511	MW51-DRAINAGE
5640	461950.3	603899.2	73.164	MW40
5641	461950	603898	74.948	GROUND AT MW40
5642	462164	603420.6	11.901	OUT1
5643	462164.5	603421.9	8.188	CATWALK AT OUT1

FEBRUARY 2007

PNT# NORTH EAST ELEV REMARKS

4655	463006.8	604879.2	76.518	RW1
4657	463012.5	604885.1	78.057	MW30

MARCH 2007

PNT# NORTH EAST ELEV REMARKS

4687 463006.8 604879.2 75.822 RW1
4688 463012.5 604885.1 75.66 MW30

MAY 2007

PNT#	NORTH	EAST	ELEV	REMARKS
4802	462969.9	604924.3	76.002	MW31
4803	462969.7	604924.4	75.641	MW31
4804	462969.4	604925.5	77.447	GROUND AT MW31
4805	462953.9	604876	77.126	MW32
4806	462952.7	604875.4	78.898	GROUND AT MW32
4807	463080.2	604445.8	14.171	MW49-26
4808	463078.9	604446.8	14.223	MW49-42
4810	463079	604446.5	14.457	MW49-65
4811	463079.8	604445.1	14.582	GROUND AT MW49-26
4812	463078.4	604446.1	14.628	GROUND AT MW49-42 AND MW49-65
4814	463075.8	604604.5	14.852	MW37-22
4815	463075.6	604604.2	14.962	MW37-40
4816	463075.5	604604.4	14.788	MW37-57
4817	463075.5	604604.5	14.791	MW37-32
4818	463075.3	604604.2	15.021	GROUND AT MW37
4819	463090.8	604657.4	11.598	MW36-26
4820	463090.6	604657.3	11.67	MW36-53
4821	463090.5	604657.4	11.754	MW36-41
4822	463091.2	604657.2	11.799	GROUND AT MW36
4823	463079.5	604642.2	15.054	U2C1
4824	463079.5	604643	12.031	GROUND AT U2C1
4832	462826.6	604631.4	20.073	U1CSS
4833	462827.3	604631.1	15.088	GROUND AT U1CSS
4835	463122.8	604280.5	18.496	HR1
4836	463122.6	604280.8	14.994	GROUND AT HR1
4837	462712.9	604135.4	15.003	GROUND AT U3C1
4838	462714.3	604134.8	18.06	U3C1
4839	462512.5	603824.5	14.315	ASPHALT NEAR MW38
4840	462515.1	603823.2	14.443	GROUND ON NORTH SIDE OF CONCRETE PAD
4843	462512.4	603820.6	14.47	GROUND ON SOUTH SIDE OF CONCRETE PAD
4844	462505.7	603810.5	13.999	MW38
4845	462505.5	603810.7	14.346	MW38RIM
4846	462505.3	603810.9	14.342	GROUND AT MW38
4848	462164.1	603420.5	11.891	OUT1
4849	462164.1	603421.4	8.204	CATWALK AT OUT1
4850	462015.8	603473.8	14.759	MW48-23
4851	462015.6	603473.9	15.069	MW48-38
4852	462016.1	603473.7	15.389	MW48RIM
4853	462016.2	603473.9	15.387	GROUND AT MW48

SEPTEMBER 2007

STATE GRID

PNT#	NORTH	EAST	ELEV	REMARKS
4856	463146.3	604408.8	13.364	MW66-D
4857	463146.3	604408.6	13.407	MW66-S
4858	463145.9	604408.5	14.122	GROUND AT MW66
4861	463127.1	604426.7	12.865	MW67
4862	463126.1	604426.3	14.342	MW67-RIM
4863	463125.5	604428.7	14.356	GROUND AT MW67

PLANT GRID

PNT#	NORTH	EAST	ELEV	REMARKS
4856	6494.518	1103.66	13.364	MW66-D
4857	6494.377	1103.604	13.407	MW66-S
4858	6494.051	1103.746	14.122	GROUND AT MW66
4861	6490.477	1129.653	12.865	MW67
4862	6489.49	1129.928	14.342	MW67-RIM
4863	6490.526	1132.2	14.356	GROUND AT MW67

INDIAN POINT ENERGY CENTER
MASTER ELEVATION LIST

WELL ID	Date of Survey (*date of alteration)	Top of Casing Elevation	Ground Surface Elevation	Distance from Ground Surface to Top of Casing (as surveyed)	Measured Distance from Ground Surface to Top of Casing	NOTES
MW-30	Jan 2006		51.7 (NS)			
	Nov 2006	78.470	72.690	5.780		
	Jan 31 2007					casing cut
	Feb 2007	78.057	NA			
	Mar 2007 (Feb 15 2007*)	75.660	77.5 (NS)			2.39' casing cut
MW-31	Dec 2005	79.593	79.743 (NS)		-0.15	
	Sept 12 2006*					casing cut for well vault installation
	May 16 2007	75.641	77.447	-1.806		
MW-32	Dec 2005	78.339	78.939	-0.600	-0.6	
	Sept 13 2006*					casing cut for well vault installation
	May 16 2007	77.126	78.898	-1.772		
MW-33	Dec 2005	18.619	18.879		-0.26	ground surface measurements taken from top of manhole
MW-34	Dec 2005	18.071	18.481		-0.41	ground surface measurements taken from top of manhole
MW-35	Dec 2005	18.444	18.604		-0.16	ground surface measurements taken from top of manhole
MW-36-24	Mar 2006	11.393			-0.33	
	May 16 2007 (May 9 2007*)	11.598	11.799	-0.201		pvc coupling attached for pneumatic slug testing
MW-36-35	Mar 2006	11.604	NS			
	May 16 2007 (Jan 3 2007*)	11.754	11.799	-0.045	-0.19	pvc coupling attached for pneumatic slug testing
MW-36-52	Mar 2006	11.492	NS			
	May 16 2007 (Jan 3 2007*)	11.670	11.799	-0.129	-0.06	pvc coupling attached for pneumatic slug testing
MW-37-22	Mar 2006	14.784	NS			
	May 16 2007	14.852	15.021	-0.169	-0.18	
MW-37-32	Mar 2006	14.725	NS			
	May 16 2007 (Jan 3 2007*)	14.791	15.021	-0.230	-0.24	pvc coupling attached for pneumatic slug testing
MW-37-40	Mar 2006	14.790	NS			
	May 16 2007 (Jan 3 2007*)	14.962	15.021	-0.059	-0.06	pvc coupling attached for pneumatic slug testing
	(June 12 2007*)	14.852	15.021	-0.169		pvc coupling removed
MW-37-57	Mar 2006	14.723	NS			
	May 16 2007 (Jan 3 2007*)	14.788	15.021	-0.233	-0.25	pvc coupling attached for pneumatic slug testing
MW-38	Dec 2005	13.990	14.350		-0.36	
	May 16 2007	13.999	14.342	-0.343		

NS - Not Surveyed

41.0017869.10

INDIAN POINT ENERGY CENTER
MASTER ELEVATION LIST

WELL ID	Date of Survey (*date of alteration)	Top of Casing Elevation	Ground Surface Elevation	Distance from Ground Surface to Top of Casing (as surveyed)	Measured Distance from Ground Surface to Top of Casing	NOTES
MW-39	Mar 2006	81.452	81.864	-0.412		
	(Sep 19 2006*) Jan 2007	79.992	81.827	-1.835		casing cut for well vault installation
MW-40	Mar 2006	74.758	74.987	-0.229		
	(Nov 8 2006*) Jan 2007	73.164	74.948	-1.784	-1.83	casing cut for well vault installation
MW-41-13	Apr 2006	NS	54.870			
MW-41-40	Apr 2006	54.130	54.870	-0.740		
MW-41-63	Apr 2006	54.130	54.870	-0.740		
MW-42-49	Apr 2006	69.419	69.714	-0.295	-0.22	
MW-42-78	Apr 2006	69.524	69.714		-0.19	
MW-43-28	Mar 2006	48.021	48.761	-0.740		
MW-43-62	Mar 2006	47.821	48.761	-0.940		
MW-44-67	Apr 2006	93.020	93.520	-0.500		
MW-44-102	Apr 2006	92.960	93.520	-0.560		
	May 7 2007*	93.090	93.520		-0.43	pvc coupling attached for pneumatic slug testing
MW-45-42	Apr 2006	53.196	53.662	-0.466	-0.46	
MW-45-61	Apr 2006	53.097	53.662	-0.565		
	May 7 2007*	53.217	53.662		-0.445	pvc coupling attached for pneumatic slug testing
MW-46	Apr 2006	16.970	18.080	-1.110	-1.1	
MW-47-56	Apr 2006	69.805	70.321	-0.516	-0.5	
MW-47-80	Apr 2006	69.742	70.321	-0.579	-0.57	
MW-48-23	Mar 2006	14.762	15.394	-0.632	-0.63	
	May 17 2007	14.759	15.387	-0.628		
MW-48-37	Mar 2006	14.765	15.394	-0.629	-0.33	surveyor error
	May 17 2007	15.069	15.387	-0.318		
	May 25 2007*	15.189	15.387		-0.198	pvc coupling attached for pneumatic slug testing
MW-49-26	Apr 2006	14.191	14.655	-0.464	-0.42	
	May 16 2007	14.171	14.582	-0.411		
MW-49-42	Apr 2006	14.133	14.655	-0.522	-0.54	
	May 16 2007 (May 9 2007*)	14.223	14.628	-0.405		pvc coupling attached for pneumatic slug testing

NS - Not Surveyed

41.0017869.10

9.13.07

INDIAN POINT ENERGY CENTER
MASTER ELEVATION LIST

WELL ID	Date of Survey (*date of alteration)	Top of Casing Elevation	Ground Surface Elevation	Distance from Ground Surface to Top of Casing (as surveyed)	Measured Distance from Ground Surface to Top of Casing	NOTES
MW-49-65	Apr 2006	14.372	14.655	-0.283	-0.26	
	May 16 2007 (May 4, 2007)	14.457	14.628	-0.171	-0.17	pvc coupling attached for pneumatic slug testing
MW-50-42	Apr 2006	14.432	14.923	-0.491	-0.59	
	May 7 2007*	14.453	14.923		-0.47	pvc coupling attached for pneumatic slug testing
MW-50-66	Apr 2006	14.614	14.923	-0.309	-0.32	
MW-51	Apr 2006	69.340	69.620	-0.280		
	(Nov 9 2006*) Jan 2007	67.723	69.639	-1.916	-1.83	casing cut for well vault installation
MW-52	Apr 2006	16.370	16.766	-0.396		
	Oct 17 2006*	14.916	16.766		-1.85	casing cut for well vault installation
MW-52-11	Apr 2006	16.283	16.766	-0.483	-1.8	
MW-53-82	Nov 2006	69.930	70.260	-0.330	-0.32	
MW-53-120	Nov 2006	70.060	70.260	-0.200		
	Dec 28 2006*	70.190	70.260		-0.13	pvc coupling attached for pneumatic slug testing
MW-54	Nov 2006	14.760	14.990	-0.230		
	?	13.090	14.990		-1.9	casing cut
MW-55-24	Nov 2006	17.670	18.250	-0.580		ground surface measurements taken from top of manhole
	Dec 27 2006*	17.770	18.250		-0.48	pvc coupling attached for pneumatic slug testing
MW-55-35	Nov 2006	17.670	18.250	-0.580		ground surface measurements taken from top of manhole
	Dec 27 2006*	17.770	18.250		-0.48	pvc coupling attached for pneumatic slug testing
MW-55-54	Nov 2006	17.680	18.250	-0.570		ground surface measurements taken from top of manhole
	Dec 27 2006*	17.770	18.250		-0.48	pvc coupling attached for pneumatic slug testing
MW-56	Nov 2006	68.560	70.260	-1.700	-1.76	elevation for 4" well casing prior to pvc riser installation
MW-56-53	Jan 2007	69.322	70.258	-0.936	-0.97	
MW-56-83	Jan 2007	69.207	70.258	-1.051	-1.09	
MW-57-11	Nov 2006	14.630	14.980	-0.350		
	Dec 26 2006*	14.730	14.980		-0.25	pvc coupling attached for pneumatic slug testing
MW-57-20	Nov 2006	14.610	14.980	-0.370		
	Dec 26 2006*	14.750	14.980		-0.23	pvc coupling attached for pneumatic slug testing

NS - Not Surveyed

41.0017869.10

INDIAN POINT ENERGY CENTER
MASTER ELEVATION LIST

WELL ID	Date of Survey (*date of alteration)	Top of Casing Elevation	Ground Surface Elevation	Distance from Ground Surface to Top of Casing (as surveyed)	Measured Distance from Ground Surface to Top of Casing	NOTES
MW-57-45	Nov 2006 Dec 26 2006*	14.640 14.810	14.980 14.980	-0.340	-0.17	pvc coupling attached for pneumatic slug testing
MW-58-26	Nov 2006	14.230	14.570	-0.340	-0.35	
MW-58-65	Nov 2006 Jan 2 2007*	14.140 14.250	14.570 14.570	-0.430	-0.32	pvc coupling attached for pneumatic slug testing
MW-59-32	Nov 2006 Dec 26 2006*	14.310 14.410	14.520 14.520	-0.210	-0.11	pvc coupling attached for pneumatic slug testing
MW-59-45	Nov 2006 Dec 26 2006*	13.930 13.900	14.520 14.520	-0.590	-0.62	pvc coupling attached for pneumatic slug testing
MW-59-68	Nov 2006 Dec 26 2006*	14.150 14.230	14.520 14.520	-0.370	-0.29	pvc coupling attached for pneumatic slug testing
MW-60	Nov 2006	12.480	14.310	-1.830	-1.85	
MW-62	Nov 2006	12.820	14.690	-1.870	-1.86	
MW-62-18	Nov 2006	12.810	14.690		-1.88	
MW-62-37	Nov 2006	12.810	14.690		-1.88	
MW-63	Jan 2007	12.315	14.178	-1.863	-1.85	
MW-63-18	Jan 2007	13.059	14.178	-1.119	-1.16	
MW-63-34	Jan 2007	13.059	14.178	-1.119	-1.16	
MW-65	Nov 2006	69.720	70.260	-0.540		elevation for 4" well casing prior to pvc riser installation
MW-65-48	Jan 2007	68.856	69.723	-0.867	-0.93	
MW-65-80	(Dec 28 2006*) Jan 2007	68.841	69.723	-0.882		pvc coupling attached for pneumatic slug testing
MW-66	Jan 2007 Feb 21 2007*	12.155	14.021 14.021	-1.866		casing cut for well vault installation
MW-66-21	Sept 26 2007	13.407	14.122	-0.715		
MW-66-36	Sept 26 2007	13.364	14.122	-0.758		
MW-67 waterloo	Sept 26 2007	12.865	14.356	-1.491		top of pvc was surveyed (no manifold installed yet)
MW-67	Sept 26 2007	12.511	14.356	-1.845		top of steel casing elevation derived from top of pvc elev.
T1-U1-1	Nov 2006	69.320	69.670	-0.350		
T1-U1-2		NA	NA			
MW-107	Dec 2005	142.757	140.061	2.696		
MW-108	Dec 2005	14.230	14.480		-0.25	
MW-109	Dec 2005	14.254	14.554		-0.3	

NS - Not Surveyed

41.0017869.10

INDIAN POINT ENERGY CENTER
MASTER ELEVATION LIST

WELL ID	Date of Survey (*date of alteration)	Top of Casing Elevation	Ground Surface Elevation	Distance from Ground Surface to Top of Casing (as surveyed)	Measured Distance from Ground Surface to Top of Casing	NOTES
MW-111	Dec 2005	19.385	NS			
	Mar 20 2006					casing cut approx 1 ft
	Nov 2006	18.380	18.930	-0.550	-0.59	casing cut and new manhole installed
MW-112	Dec 2005	36.773	NS			
U3-1	Dec 2005	13.495	NA		NA	road box in sinkhole/ ground surface unclear
U3-2	Dec 2005	14.114	14.164		-0.05	
U3-3	Dec 2005	14.599	14.849		-0.25	
U3-4D	Dec 2005	14.519	14.819		-0.3	
U3-4S	Dec 2005	13.943	14.653		-0.71	
U3-T1	Mar 2006	8.518	3.267	5.251	5.15	
U3-T2	Mar 2006	8.512	3.259	5.253	5.15	
I-2	Nov 2006	82.230	80.920	1.310		
HR-1	Apr 2006	18.517	NS			
	May 16 2007	18.496	14.994	3.502		
OUT-1	Apr 2006	11.910	NS			
	Jan 2007	11.901	8.188	3.713	3.65	
	May 17 2007	11.891	8.204	3.687		
U3-C1	Jan 2007	18.069	14.981	3.088		
	May 17 2007	18.060	15.003	3.057		
U2-C1	Apr 2006	15.054	12.054	3.000	3	
	May 16 2007	15.054	12.031	3.023		
RW-1	Nov 2006	81.280	72.690	8.590		
	(Jan 31 2007*) Feb 2007	76.518	NS		3.78	casing cut 4.3'
	(Feb 15 2007*) Mar 2007	75.822	77.5 (NS)			casing cut 0.69'
U1CSS	May 16 2007	20.073	15.088	4.985	5	
MH-3	Mar 2006	14.847	NA	NA	NA	
MH-4	Mar 2006	16.949	NA	NA	NA	
MH-4A	Mar 2006	12.707	NA	NA	NA	
MH-5	Nov 2006	18.540	NA	NA	NA	
N Curtain Drain	NA	36.000	33.000		3.000	
Sphere Found. Sump	NA	17.020	14.000		3.020	

NS - Not Surveyed

APPENDIX F

SPECIFIC CAPACITY TEST LOGS

GZA GEOENVIRONMENTAL OF NY 440 NINTH AVENUE, 18TH FLOOR NEW YORK, NY 10001 ENGINEERS AND SCIENTISTS	PROJECT:		WELL ID	MW-38
	Indian Point Energy Center, Buchanan, NY		SHEET	1 of 1
			FILE NO.	41.0017869.10
			CHECKED BY	S. Covelli

COLUMN OF WATER IN WELL:

Depth to Bottom (ft) - Static Water Level (ft)		PUMP DEPTH (ft):	38
= 39.02 - 10.67		STATIC WATER LEVEL (ft):	10.67
Water Column (T):	28.35 (ft)	ENGINEER:	A. Hough
Well Diameter:	4 (inches)	WEATHER:	sunny, 80's F
Well Volume:	18.5 (gal)	TEST DATE:	5/24/2007

Specific Capacity Test

Time	Elapsed Time (min)	Depth to Water (ft)	Drawdown (ft) (s)	Transducer Reading (ft)	Pumping Rate (gpm) (Q)	Specific Capacity (gpm/ft) (Q/s)	Notes
8:45	--	10.67	--	27.874	--	--	
8:47	0	--	--	--	--	--	pump on
8:51	4	10.76	0.09	27.819	1.94	21.5	
8:54	7	10.78	0.11	27.790	2.22	20.2	
8:58	11	10.81	0.14	27.756	2.22	15.9	
9:01	14	10.83	0.16	27.731	2.22	13.9	
9:05	18	10.86	0.19	27.702	2.40	12.6	
9:11	22	10.90	0.23	27.655	2.40	10.4	
9:15	26	10.94	0.27	27.616	2.40	8.9	
9:20	31	11.00	0.33	27.549	2.40	7.3	
9:25	36	11.07	0.40	27.498	2.40	6.0	
9:29	40	11.10	0.43	27.467	2.50	5.8	
9:34	45	11.14	0.47	27.414	2.50	5.3	
9:39	49	11.17	0.50	27.377	2.50	5.0	
9:44	54	11.23	0.56	27.328	2.50	4.5	
9:45	55	--	--	--	--	--	pump off

NOTES AND OBSERVATIONS:

Pumping rate could not be increased above 2.5 gpm due to limited power supply.

GZA GEOENVIRONMENTAL OF NY 440 NINTH AVENUE, 18TH FLOOR NEW YORK, NY 10001 ENGINEERS AND SCIENTISTS	PROJECT:	WELL ID	MW 42-49
	Indian Point Energy Center, Buchanan, NY	SHEET	1 of 1
		FILE NO.	41.0017869.1
		CHECKED BY	S. Cavelli

COLUMN OF WATER IN WELL:

Depth to Bottom (ft) - Static Water Level (ft)		PUMP DEPTH (ft):	48
= 49.18 - 34.81		STATIC WATER LEVEL (ft):	34.81
Water Column (T):	14.37 (ft)	ENGINEER:	A. Gallas
Well Diameter:	2 (inches)	WEATHER:	Sunny Mid 80's
Well Volume:	2.3 (gal)	TEST DATE:	5/30/2006

Specific Capacity Test

Time	Elapsed Time	Depth to Water (ft)	GW Elevation (ft msl)	Drawdown (ft) (s)	Pumping Rate (gpm) (Q)	Specific Capacity (gpm/ft) (Q/s)	Notes
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Sustained Yield Test

7:52	0	34.81	34.868	0.00	--	--	
7:53	1	36.01	33.672	1.20	--	--	
7:56	4	36.10	33.578	1.29	--	--	
8:00	8	36.22	33.462	1.41	0.417	0.296	137.5 Hz
8:01	9	36.22	33.460	1.41	--	--	
8:02	10	36.23	33.446	1.42	--	--	136.3 Hz
8:08	16	35.95	33.730	1.14	0.230	0.202	136.3 Hz
8:10	18	35.95	33.733	1.14	0.230	0.203	136.3 Hz
8:11	19	35.95	33.733	1.14	0.230	0.203	136.3 Hz
8:13	21	35.93	33.749	1.12	0.230	0.205	136.3 Hz
8:19	27	35.93	33.744	1.12	0.280	0.249	136.3 Hz
8:20	28	35.97	33.710	--	--	--	
8:25	33	35.95	33.724	1.14	--	--	
8:30	38	35.90	33.774	--	--	--	
8:42	50	35.87	33.810	14.37	0.254	0.018	170.0 Hz
8:44	52	37.31	32.370	--	--	--	
8:45	53	38.41	31.266	3.60	4.286	1.190	170.8 Hz
8:46	54	43.26	26.418	8.45	--	--	Dry

Rising Head Test

8:49	0	41.76	27.921	6.95	--	--	
8:51	2	39.40	30.282	4.59	--	--	
9:05	16	35.19	34.485	0.38	--	--	
9:10	21	35.11	34.573	0.29	--	--	

NOTES AND OBSERVATIONS:

Pressure transducer was referenced to elevation 34.34' msl.
 At 8:45, water flow ceased.
 At 8:47, pump was turned off to allow recovery. Water levels were recorded as a rising head test.

GZA GEOENVIRONMENTAL OF NY 440 NINTH AVENUE, 18TH FLOOR NEW YORK, NY 10001 ENGINEERS AND SCIENTISTS	PROJECT:	WELL ID	MW43-62
	Indian Point Energy Center, Buchanan, NY	SHEET	1 of 2
		FILE NO.	41:0017869-1
		CHECKED BY	S. Covelli

COLUMN OF WATER IN WELL:

Depth to Bottom (ft) - Static Water Level (ft)		PUMP DEPTH (ft):	55'
= 61.92 - 15.52		STATIC WATER LEVEL (ft):	15.52
Water Column (T):	46.4 (ft)	ENGINEER:	A. Gallas
Well Diameter:	2 (inches)	WEATHER:	Sunny
Well Volume:	7.6 (gal)	TEST DATE:	5/22/2006

Specific Capacity Test

Time	Elapsed Time	Depth to Water (ft)	GW Elevation (ft msl)	Drawdown (ft) (s)	Pumping Rate (gpm) (Q)	Specific Capacity (gpm/ft) (Q/s)	Notes
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Sustained Yield Test

11:42	--	16.14	31.677	0.00	--	--	
11:54	0	--	--	0.00	--	--	Pump ON
11:57	15	16.56	31.257	0.42	--	--	111.6 Hz
12:01	19	20.12	27.701	3.98	--	--	111.6 Hz
12:02	20	20.18	27.644	4.03	--	--	111.6 Hz
12:03	21	20.20	27.621	4.06	--	--	111.6 Hz
12:04	22	20.21	27.607	4.07	0.1	0.026	111.6 Hz
12:08	26	20.25	27.573	4.10	--	--	111.6 Hz
12:09	27	20.22	27.605	4.07	--	--	111.6 Hz
12:10	28	20.73	27.088	4.59	--	--	111.6 Hz
12:13	31	21.24	26.578	5.10	--	--	116.1 Hz
12:18	36	20.47	27.352	4.33	0.1	0.025	112.6 Hz
12:20	38	--	--	--	--	--	112.6 Hz
12:26	44	20.66	27.159	4.52	--	--	113.1 Hz
12:27	45	20.79	27.030	4.65	--	--	113.1 Hz
12:32	50	20.96	26.861	4.82	--	--	112.3 Hz
12:39	57	20.89	26.931	4.75	--	--	
12:42	60	20.21	27.607	4.07	--	--	increased flow rate
12:44	62	31.17	16.650	15.03	--	--	216 Hz
12:45	63	35.00	12.824	18.85	1.5	0.080	216 Hz
12:46	64	42.12	5.697	25.98	--	--	216 Hz
12:47	65	46.77	1.048	30.63	--	--	
12:48	66	47.19	0.630	31.05	1.0	0.032	

Rising Head Test

12:54	0	49.72	-1.894	33.57	--	--	Pump OFF
12:59	5	42.94	4.880	26.80	--	--	
13:00	10	40.03	7.795	23.88	--	--	
14:01	66	17.10	30.718	0.96	--	--	

NOTES AND OBSERVATIONS:

Transducer depth approximately 50 feet below ground surface.
 Top of casing elevation: 47.821 ft
 Sustained yield test started at 11:50.
 At 12:42, pumping rate was increased in order to lower water level for rising head test.

GZA GEOENVIRONMENTAL OF NY 440 NINTH AVENUE, 18TH FLOOR NEW YORK, NY 10001 ENGINEERS AND SCIENTISTS	PROJECT:	WELL ID:	MW 44-67
	Indian Point Energy Center, Buchanan, NY	SHEET:	1 of 1
		FILE NO.:	41.0017869.1
		CHECKED BY:	S. Covelli

COLUMN OF WATER IN WELL:

Depth to Bottom (ft) - Static Water Level (ft)		PUMP DEPTH (ft):	67
= 67.41 - 58.41		STATIC WATER LEVEL (ft):	58.41
Water Column (T):	9.0 (ft)	ENGINEER:	A. Gallas
Well Diameter:	2 (inches)	WEATHER:	Overcast
Well Volume:	1.5 (gal)	TEST DATE:	6/2/2006

Specific Capacity Test

Time	Elapsed Time	Depth to Water (ft)	GW Elevation (ft msl)	Drawdown (ft) (s)	Pumping Rate (gpm) (Q)	Specific Capacity (gpm/ft) (Q/s)	Notes
Sustained Yield Test							
9:35	0	58.41	34.617	0.00	--	--	
9:45	10	60.11	32.921	1.70	--	--	178.0 Hz
9:46	11	60.19	32.835	1.78	--	--	178.0 Hz
9:47	12	60.33	32.700	1.92	--	--	178.0 Hz
9:48	13	60.39	32.639	1.98	--	--	178.0 Hz
9:49	14	60.44	32.589	2.03	0.1	0.065	(1)
9:50	15	60.61	32.418	2.20	--	--	(2)
9:52	17	60.70	32.331	2.29	--	--	178.0 Hz
9:53	18	60.73	32.296	2.32	0.1	0.035	(1)
9:55	20	60.12	32.905	1.71	--	--	
9:58	23	--	--	--	--	--	(3)
9:59	24	61.66	31.370	3.25	1.2	0.375	(4)

Rising Head Test

10:00	0	61.66	31.370	3.25	--	--	
10:06	6	61.95	--	3.54	--	--	(5)
10:11	11	61.91	--	3.50	--	--	
10:17	17	61.66	31.372	3.24	--	--	
10:31	31	61.50	31.528	3.09	--	--	
10:45	45	61.20	31.832	2.78	--	--	
11:00	60	60.93	32.099	2.52	--	--	
11:15	75	60.66	32.371	2.25	--	--	

NOTES AND OBSERVATIONS:

- (1) Water flow ceased.
- (2) Pumping resumed.
- (3) Pumping resumed. Rate increased to 1.2 gpm to draw down water level for rising head test.
- (4) Water flow ceased. Pump OFF to allow recovery.
- (5) At 10:08, depth to water in MW 44-104 was 68.4'.

GZA GEOENVIRONMENTAL OF NY 440 NINTH AVENUE, 18TH FLOOR NEW YORK, NY 10001 ENGINEERS AND SCIENTISTS	PROJECT:	WELL ID	MW 45-43
	Indian Point Energy Center, Buchanan, NY	SHEET	1 of 2
		FILE NO.	41.0017869.1
		CHECKED BY	S. Covelli

COLUMN OF WATER IN WELL:

Depth to Bottom (ft) - Static Water Level (ft)		PUMP DEPTH (ft):	42
= 43.6 - 23.76		STATIC WATER LEVEL (ft):	23.76
Water Column (T):	19.84 (ft)	ENGINEER:	A. Gallas/ D. Bastos
Well Diameter:	2 (inches)	WEATHER:	Sunny
Well Volume:	3.2 (gal)	TEST DATE:	5/24/2006

Specific Capacity Test

Time	Elapsed Time	Depth to Water (ft)	Transducer Reading (ft water)	Drawdown (ft) (s)	Pumping Rate (gpm) (Q)	Specific Capacity (gpm/ft) (Q/s)	Notes
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Sustained Yield Test

8:48	0	23.33	29.449	0.00	--	--	
8:55	7	--	--	--	--	--	117.2 Hz
8:58	10	--	27.003	2.45	--	--	
8:59	11	--	25.891	3.56	--	--	
9:02	14	--	26.435	3.01	--	--	118.7 Hz
9:06	18	--	26.176	3.27	--	--	
9:08	20	--	25.810	3.64	--	--	
9:09	21	--	25.710	3.74	--	--	
9:10	22	--	25.634	3.82	0.1	0.028	
9:11	23	--	25.574	3.88	--	--	
9:12	24	--	25.559	3.89	--	--	
9:14	26	--	25.528	3.92	--	--	
9:15	27	--	25.499	3.95	--	--	
9:22	34	--	25.433	4.02	--	--	
9:29	41	--	25.754	3.70	--	--	
9:30	42	--	24.445	5.00	--	--	
9:34	46	--	23.475	5.97	--	--	
9:35	47	--	23.446	6.00	--	--	
9:37	49	29.54	23.391	6.06	--	--	
9:40	52	29.53	23.437	6.01	0.03	0.005	
9:44	56	--	23.421	6.03	--	--	
9:46	58	--	23.255	6.19	--	--	
9:47	59	--	23.215	6.23	--	--	
9:48	60	29.80	23.222	6.23	--	--	
9:51	63	--	23.077	6.37	0.05	0.007	

NOTES AND OBSERVATIONS:

GZA GEOENVIRONMENTAL OF NY 440 NINTH AVENUE, 18TH FLOOR NEW YORK, NY 10001 ENGINEERS AND SCIENTISTS	PROJECT:	WELL ID	MW 45-43
	Indian Point Energy Center, Buchanan, NY	SHEET	2 of 2
		FILE NO.	41.0017869.1
		CHECKED BY	S. Covelli

COLUMN OF WATER IN WELL:

Depth to Bottom (ft) - Static Water Level (ft)		PUMP DEPTH (ft):	42
= 43.6 - 23.76		STATIC WATER LEVEL (ft):	23.76
Water Column (T):	19.84 (ft)	ENGINEER:	A. Gallas/ D. Bastos
Well Diameter:	2 (inches)	WEATHER:	Sunny
Well Volume:	3.2 (gal)	TEST DATE:	5/24/2006

Specific Capacity Test

Time	Elapsed Time	Depth to Water (ft)	Transducer Reading (ft water)	Drawdown (ft) (s)	Pumping Rate (gpm) (Q)	Specific Capacity (gpm/ft) (Q/s)	Notes
Sustained Yield Test							
9:51	0	29.70	23.077	6.37	--	--	125.5 Hz
9:53	2	29.81	22.985	6.48	--	--	
9:54	3	29.83	22.967	6.50	--	--	
9:56	5	29.85	22.950	6.52	--	--	
9:57	6	29.84	22.959	6.51	--	--	
9:58	7	29.85	22.943	6.52	--	--	
10:00	9	29.85	22.950	6.52	--	--	
10:03	12	29.81	22.984	6.48	--	--	
10:06	15	29.91	22.884	6.58	0.01	0.002	
10:09	18	29.98	22.821	6.65	--	--	
10:12	21	30.03	22.772	6.70	--	--	
10:13	22	30.03	22.766	6.70	0.03	0.004	
10:14	23	--	--	--	--	--	(1)
10:15	24	32.48	20.316	9.15	--	--	
10:16	25	34.99	17.806	11.66	--	--	
10:17	26	36.96	15.836	13.63	--	--	
10:18	27	38.07	14.731	14.74	--	--	
10:19	28	39.63	13.169	16.30	3.0	0.184	
10:20	29	40.32	--	--	0.3	--	(2)
Rising Head Test							
10:22	29	38.75	14.051	15.42	--	--	
10:25	3	38.66	14.142	15.33	--	--	
10:26	4	38.64	14.153	15.31	--	--	
11:12	50	37.84	14.955	14.51	--	--	

NOTES AND OBSERVATIONS:

- (1) Increased pumping rate to draw down water level for rising head test.
- (2) Pump OFF to allow for recovery.

GZA GEOENVIRONMENTAL OF NY 440 NINTH AVENUE, 18TH FLOOR NEW YORK, NY 10001 ENGINEERS AND SCIENTISTS	PROJECT:	WELL ID:	MW-48-23
	Indian Point Energy Center, Buchanan, NY	SHEET:	1 of 1
		FILE NO.:	41.0017869.10
		CHECKED BY:	S. Covelli

COLUMN OF WATER IN WELL:

Depth to Bottom (ft) - Static Water Level (ft)		PUMP DEPTH (ft):	22
= 22.69	15.21	STATIC WATER LEVEL (ft):	10.67
Water Column (T):	7.48 (ft)	ENGINEER:	A. Hough
Well Diameter:	2 (inches)	WEATHER:	sun, 80's F
Well Volume:	1.2 (gal)	TEST DATE:	5/24/2007

Specific Capacity Test

Time	Elapsed Time (min)	Depth to Water (ft)	Drawdown (ft) (s)	Transducer Reading (ft water)	Pumping Rate (gpm) (Q)	Specific Capacity (gpm/ft) (Q/s)	Notes
13:23	--	15.21	--	5.700	--	--	
13:28	0	--	--	--	--	--	pump on
13:30	2	16.05	0.84	4.507	1.76	2.1	
13:35	7	16.83	1.62	2.275	2.07	1.3	
13:39	11	17.89	2.68	2.720	2.22	0.8	
13:44	16	17.83	2.62	2.558	2.22	0.8	
13:50	22	17.18	1.97	2.170	2.22	1.1	
13:57	29	17.44	2.23	--	2.14	1.0	
14:04	36	17.20	1.99	2.678	2.14	1.1	
14:08	40	--	3.11	2.590	2.22	0.7	
14:12	44	--	3.00	2.702	2.22	0.7	
14:16	48	--	2.89	2.813	2.22	0.8	
14:19	51	--	2.84	2.860	2.22	0.8	
14:20	52	--	--	--	--	--	pump off

NOTES AND OBSERVATIONS:

Pumping rate could not be increased above 2.25 gpm due to limited power supply.

GZA GEOENVIRONMENTAL OF NY 440 NINTH AVENUE, 18TH FLOOR NEW YORK, NY 10001 ENGINEERS AND SCIENTISTS	PROJECT:	WELL ID	MW-50-67
	Indian Point Energy Center, Buchanan, NY	SHEET	1 of 1
		FILE NO.	41.0017869.1
		CHECKED BY	S. Covelli

COLUMN OF WATER IN WELL:

Depth to Bottom (ft) - Static Water Level (ft)	<u> </u>	PUMP DEPTH (ft):	<u> </u> 25
= <u>66.75</u> - <u>11.42</u>		STATIC WATER LEVEL (ft):	<u> </u> 11.42
Water Column (T):	<u> </u> 55.33 (ft)	ENGINEER:	<u> </u> T. Bohlen
Well Diameter:	<u> </u> 1 (inches)	WEATHER:	<u> </u> sunny, low 30s
Well Volume:	<u> </u> 2.2 (gal)	TEST DATE:	<u> </u> 3/17/2006

Specific Capacity Test

Time	Elapsed Time	Depth to Water (ft)	Drawdown (ft) (s)	Pumping Rate (gpm) (Q)	Specific Capacity (gpm/ft) (Q/s)	Notes
1020	0	15.88	4.46	0.03	0.01	
1025	5	15.88	4.46	0.03	0.01	
1030	10	15.88	4.46	0.03	0.01	
1035	15	15.88	4.46	0.03	0.01	
1040	20	15.88	4.46	0.03	0.01	
1045	25	15.88	4.46	0.03	0.01	
1050	30	15.88	4.46	0.03	0.01	

NOTES AND OBSERVATIONS:

Purge water appears clear.

GZA GEOENVIRONMENTAL OF NY 440 NINTH AVENUE, 18TH FLOOR NEW YORK, NY 10001 ENGINEERS AND SCIENTISTS	PROJECT:	WELL ID	MW-51
	Indian Point Energy Center, Buchanan, NY	SHEET	1 of 1
		FILE NO.	41.0017869.1
		CHECKED BY	S. Covelli

COLUMN OF WATER IN WELL:

Depth to Bottom (ft) - Static Water Level (ft)			
= 195.9	-	27.6	
Water Column (T):		168.3 (ft)	STATIC WATER LEVEL (ft): 27.6
Well Diameter:		4 (inches)	ENGINEER: B. Dagostino
Well Volume:		109.9 (gal)	WEATHER:
			TEST DATE: 3/31 - 4/3/2006

Specific Capacity Test

Time	Elapsed Time	Depth to Water (ft)	Drawdown (ft) (s)	Pumping Rate (gpm) (Q)	Specific Capacity (gpm/ft) (Q/s)	Pumping Depth (ft) below ground surface)
11:00	0	27.60	0.00	1	--	190
11:10	10	35.10	7.50	1	0.13	190
11:20	20	36.68	9.08	1	0.11	190
11:30	30	37.47	9.87	1	0.10	190
11:40	40	38.65	11.05	1	0.09	--
11:50	50	40.12	12.52	1	0.08	170
12:00	60	42.01	14.41	1	0.07	--
12:10	70	43.61	16.01	1	0.06	100
12:45	105	41.28	13.68	1	0.07	--

NOTES AND OBSERVATIONS:

GZA GEOENVIRONMENTAL OF NY 440 NINTH AVENUE, 18TH FLOOR NEW YORK, NY 10001 ENGINEERS AND SCIENTISTS	PROJECT:	WELL ID	MW-52-200
	Indian Point Energy Center, Buchanan, NY	SHEET	1 of 1
		FILE NO.	41.0017869.1
		CHECKED BY	S. Covelli

COLUMN OF WATER IN WELL:

Depth to Bottom (ft) - Static Water Level (ft)		PUMP DEPTH (ft):	~30'
= 200 - 10.6		STATIC WATER LEVEL (ft):	10.6
Water Column (T):	189.4 (ft)	ENGINEER:	D. Kirkiland
Well Diameter:	4 (inches)	WEATHER:	Sunny 50's
Well Volume:	123.7 (gal)	TEST DATE:	3/28/2006

Specific Capacity Test

Time	Elapsed Time	Depth to Water (ft)	Drawdown (ft) (s)	Pumping Rate (gpm) (Q)	Specific Capacity (gpm/ft) (Q/s)	Notes
9:40	0	10.43	0.00	0.04	--	
9:50	10	11.10	0.67	0.04	0.06	
9:55	15	11.90	1.47	0.04	0.03	
10:00	20	12.64	2.21	0.04	0.02	
10:04	24	13.05	2.62	0.04	0.02	
10:10	30	13.23	2.80	0.04	0.01	
10:15	35	13.34	2.91	0.04	0.01	
10:20	40	13.24	2.81	0.04	0.01	
10:25	45	13.20	2.77	0.04	0.01	
10:30	50	13.20	2.77	0.04	0.01	
10:35	55	13.22	2.79	0.04	0.01	
10:40	60	13.26	2.83	0.04	0.01	

NOTES AND OBSERVATIONS:

GZA GEOENVIRONMENTAL OF NY 440 NINTH AVENUE, 18TH FLOOR NEW YORK, NY 10001 ENGINEERS AND SCIENTISTS	PROJECT: Indian Point Energy Center, Buchanan, NY	WELL ID	MW-53-80
		SHEET	1 of 1
		FILE NO.	41.0017869.10
		CHECKED BY	S. Covelli

COLUMN OF WATER IN WELL:

Depth to Bottom (ft) - Static Water Level (ft)		PUMP DEPTH (ft):	78
= 80 - 60.90		STATIC WATER LEVEL (ft):	60.90
Water Column (T):	19.1 (ft)	ENGINEER:	A. Hough
Well Diameter:	2 (inches)	WEATHER:	sun, 40's F
Well Volume:	3.1 (gal)	TEST DATE:	12/19/2006

Specific Capacity Test

Time	Elapsed Time	Depth to Water (ft)	Drawdown (ft) (s)	Pumping Rate (gpm) (Q)	Specific Capacity (gpm/ft) (Q/s)	Notes
1032	0	62.89	1.99	0.50	--	
1035	3	63.58	2.68	0.50	0.19	
1038	6	64.22	3.32	0.50	0.15	
1041	9	64.12	3.22	0.50	0.16	
1044	12	64.28	3.38	0.50	0.15	
1047	15	64.33	3.43	0.50	0.15	
1050	18	64.41	3.51	0.50	0.14	
1053	21	64.98	4.08	0.70	0.17	
1056	24	65.57	4.67	0.60	0.13	
1059	27	65.68	4.78	0.60	0.13	
1102	30	65.58	4.68	0.60	0.13	
1105	33	65.59	4.69	0.60	0.13	
1108	36	65.60	4.70	0.60	0.13	
1111	39	65.58	4.68	0.60	0.13	

NOTES AND OBSERVATIONS:

GZA GEOENVIRONMENTAL OF NY 440 NINTH AVENUE, 18TH FLOOR NEW YORK, NY 10001 ENGINEERS AND SCIENTISTS	PROJECT:	WELL ID	MW-58-25
	Indian Point Energy Center, Buchanan, NY	SHEET	1 of 1
		FILE NO.	41.0017869.10
		CHECKED BY	S. Covelli

COLUMN OF WATER IN WELL:

Depth to Bottom (ft) - Static Water Level (ft)		PUMP DEPTH (ft):	23
= 25 - 14.90		STATIC WATER LEVEL (ft):	14.90
Water Column (T):	10.10 (ft)	ENGINEER:	A. Hough
Well Diameter:	2 (inches)	WEATHER:	sun, 40's F
Well Volume:	2.7 (gal)	TEST DATE:	12/19/2006

Specific Capacity Test

Time	Elapsed Time	Depth to Water (ft)	Drawdown (ft) (s)	Pumping Rate (gpm) (Q)	Specific Capacity (gpm/ft) (Q/s)	Notes
1327	0	14.90	0.00	0.50	--	
1329	2	15.83	0.93	0.50	0.54	
1332	5	14.92	0.02	0.40	20.00	
1334	7	15.87	0.97	0.40	0.41	
1336	9	16.10	1.20	0.40	0.33	
1339	12	15.89	0.99	0.30	0.30	
1342	15	15.72	0.82	0.20	0.24	
1344	17	15.04	0.14	0.25	1.79	
1347	20	14.97	0.07	0.30	4.29	
1350	23	15.11	0.21	0.30	1.43	
1352	25	14.94	0.04	0.30	7.50	
1355	28	14.91	0.01	0.35	35.00	
1357	30	15.03	0.13	0.35	2.69	
1359	32	15.25	0.35	0.35	1.00	
1401	34	14.99	0.09	0.25	2.78	

NOTES AND OBSERVATIONS:

GZA GEOENVIRONMENTAL OF NY 440 NINTH AVENUE, 18TH FLOOR NEW YORK, NY 10001 ENGINEERS AND SCIENTISTS	PROJECT:	WELL ID:	MW-65-48
	Indian Point Energy Center, Buchanan, NY	SHEET:	1 of 1
		FILE NO:	41.0017869.10
		CHECKED BY:	S. Covelli

COLUMN OF WATER IN WELL:

Depth to Bottom (ft) - Static Water Level (ft)		PUMP DEPTH (ft):	46
= 48 - 38.11		STATIC WATER LEVEL (ft):	38.11
Water Column (T):	9.89 (ft)	ENGINEER:	A. Hough
Well Diameter:	2 (inches)	WEATHER:	cloudy, 40's F
Well Volume:	1.6 (gal)	TEST DATE:	12/18/2006

Specific Capacity Test

Time	Elapsed Time	Depth to Water (ft)	Drawdown (ft) (s)	Pumping Rate (gpm) (Q)	Specific Capacity (gpm/ft) (Q/s)	Notes
1100	0	40.10	1.99	0.60	--	
1102	2	40.49	2.38	0.60	0.25	
1104	4	40.52	2.41	0.60	0.25	
1106	6	39.52	1.41	0.55	0.39	
1110	10	41.10	2.99	0.35	0.12	
1112	12	42.49	4.38	0.35	0.08	
1114	14	42.61	4.50	0.20	0.04	
1116	16	42.78	4.67	0.15	0.03	
1119	19	42.18	4.07	0.15	0.04	
1121	21	42.48	4.37	0.25	0.06	
1123	23	44.02	5.91	0.25	0.04	
1125	25	43.07	4.96	0.10	0.02	
1128	28	42.26	4.15	0.10	0.02	
1130	30	41.40	3.29	0.10	0.03	
1136	36	41.08	2.97	0.10	0.03	
1138	38	40.98	2.87	0.10	0.03	
1140	40	41.00	2.89	0.10	0.03	
1143	43	40.97	2.86	0.10	0.03	
1145	45	41.03	2.92	0.10	0.03	
1148	48	43.71	5.60	0.90	0.16	
1150	50	46.27	8.16	0.90	0.11	

NOTES AND OBSERVATIONS:

GZA GEOENVIRONMENTAL OF NY 440 NINTH AVENUE, 18TH FLOOR NEW YORK, NY 10001 ENGINEERS AND SCIENTISTS	PROJECT:	WELL ID	MW-109
	Indian Point Energy Center, Buchanan, NY	SHEET	1 of 1
		FILE NO.	41-0017869-1
		CHECKED BY	S. Covelli

COLUMN OF WATER IN WELL:

Depth to Bottom (ft) - Static Water Level (ft)		PUMP DEPTH (ft):	11.0
= 11.8 - 7.3		STATIC WATER LEVEL (ft):	7.3
Water Column (T):	4.5 (ft)	ENGINEER:	S. Covelli
Well Diameter:	2 (inches)	WEATHER:	70's overcast
Well Volume:	0.734 (gal)	TEST DATE:	5/10/2007

Specific Capacity Test

Time	Elapsed Time (min)	Depth to Water (ft)	Drawdown (ft) (s)	Pumping Rate (gpm) (Q)	Specific Capacity (gpm/ft) (Q/s)	Notes
10:30	0	7.30		0.0	--	static depth to water
10:32	0	7.30	0.00	5.3	--	pump on
10:34	2	7.42	0.12	5.3	44.2	
10:39	7	7.45	0.15	5.4	36.0	
10:52	20	7.57	0.27	5.4	20.0	
11:02	30	7.62	0.32	5.4	16.9	
11:18	46	7.72	0.42	5.4	12.9	
11:28	56	7.74	0.44	5.4	12.3	
11:29	57	--	--	--	--	pump off
11:49	77	7.61	--	0.0	--	recovery

NOTES AND OBSERVATIONS:
 Water was pumped using Grundfos Readiflo II submersible pump with maximum pumping capability of approximately 5.5 gpm. No more than 0.44' drawdown could be achieved.
 Water is cloudy and grayish brown throughout test.
 Drawdown depicted may actually be normal response to tidal influence.

GZA GEOENVIRONMENTAL OF NY 440 NINTH AVENUE, 18TH FLOOR NEW YORK, NY 10001 ENGINEERS AND SCIENTISTS	PROJECT:	WELL ID:	U3-3
	Indian Point Energy Center, Buchanan, NY	SHEET:	1 of 1
		FILE NO.:	41.0017869.1
		CHECKED BY:	S. Covelli

COLUMN OF WATER IN WELL:

Depth to Bottom (ft) - Static Water Level (ft)		PUMP DEPTH (ft):	14
= 15 - 8.55		STATIC WATER LEVEL (ft):	8.55
Water Column (T):	6.45 (ft)	ENGINEER:	S. Covelli
Well Diameter:	6 (inches)	WEATHER:	70's light rain
Well Volume:	9.5 (gal)	TEST DATE:	5/11/2007

Specific Capacity Test

Time	Elapsed Time (min)	Depth to Water (ft)	Drawdown (ft) (s)	Pumping Rate (gpm) (Q)	Specific Capacity (gpm/ft) (Q/s)	Notes
13:54	0	8.55	--	0.00	--	static depth to water
13:58	0	8.55	0.00	1.30	--	pump on
14:00	2	9.32	0.77	1.30	1.7	
14:03	5	10.31	1.76	1.20	0.7	
14:07	9	11.12	2.57	1.20	0.5	
14:09	11	11.69	3.14	1.20	0.4	
14:12	14	11.53	2.98	0.50	0.2	lowered pumping rate
14:14	16	11.50	2.95	0.50	0.2	increased pumping rate
14:17	19	11.54	2.99	0.70	0.2	
14:25	27	11.69	3.14	0.70	0.2	
14:31	33	11.78	3.23	0.70	0.2	
14:36	38	11.81	3.26	0.65	0.2	
14:37	39	--	--	0.65	--	raining hard
15:05	67	--	--	0.65	--	rain stops
15:12	74	12.00	3.45	0.65	0.2	
15:16	78	12.04	3.49	0.65	0.2	
15:20	82	12.05	3.50	0.65	0.2	
15:22	84	12.04	3.49	0.60	0.2	
15:29	91	11.90	3.35	0.60	0.2	
15:33	95	11.87	3.32	0.60	0.2	
15:51	113	11.87	3.32	0.60	0.2	
15:55	117	11.91	3.36	0.60	0.2	
15:59	121	11.93	3.38	0.60	0.2	
16:03	125	11.96	3.41	0.60	0.2	
16:04	126	--	--	0.00	--	pump off

NOTES AND OBSERVATIONS:

GZA GEOENVIRONMENTAL OF NY 440 NINTH AVENUE, 18TH FLOOR NEW YORK, NY 10001 ENGINEERS AND SCIENTISTS	PROJECT:	WELL ID	U3-4S
	Indian Point Energy Center,	SHEET	1 of 1
	Buchanan, NY	FILE NO.	41.0017869.1
		CHECKED BY	S. Covelli

COLUMN OF WATER IN WELL:

Depth to Bottom (ft) - Static Water Level (ft)		PUMP DEPTH (ft):	13
= 14 - 9.38		STATIC WATER LEVEL (ft):	9.38
Water Column (T):	4.62 (ft)	ENGINEER:	S. Covelli
Well Diameter:	4 (inches)	WEATHER:	low 70's
Well Volume:	3.0 (gal)	TEST DATE:	5/14/2007

Specific Capacity Test

Time	Elapsed Time (min)	Depth to Water (ft)	Drawdown (ft) (s)	Pumping Rate (gpm) (Q)	Specific Capacity (gpm/ft) (Q/s)	Notes
10:10	0	9.36	--	--	--	static depth to water
10:11	0	--	--	4.9	--	pump on
10:17	6	10.94	1.58	4.9	3.1	
10:20	9	10.90	1.54	4.9	3.2	
10:23	12	10.89	1.53	5.0	3.3	
10:28	17	--	--	--	--	generator stops- off
10:39	28	--	--	--	--	pump on
10:40	29	10.83	1.47	5.0	3.4	
10:43	32	10.91	1.55	5.0	3.2	
10:52	41	11.00	1.64	5.0	3.0	
11:01	50	11.05	1.69	5.0	3.0	
11:02	51	--	--	--	--	pump off

NOTES AND OBSERVATIONS:

GZA GEOENVIRONMENTAL OF NY 440 NINTH AVENUE, 18TH FLOOR NEW YORK, NY 10001 ENGINEERS AND SCIENTISTS	PROJECT: Indian Point Energy Center, Buchanan, NY	WELL ID: U3-4D SHEET: 1 of 1 FILE NO.: 41-0017869.1 CHECKED BY: S. Covelli
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COLUMN OF WATER IN WELL:

Depth to Bottom (ft) - Static Water Level (ft)		PUMP DEPTH (ft):	15
= 27.1 - 10.61		STATIC WATER LEVEL (ft)	10.61
Water Column (T):	16.49 (ft)	ENGINEER:	A. Gallas
Well Diameter:	4 (inches)	WEATHER:	Sunny
Well Volume:	10.8 (gal)	TEST DATE:	5/1/2006

Specific Capacity Test

Time	Elapsed Time (min)	Depth to Water (ft)	Drawdown (ft) (s)	Pumping Rate (gpm) (Q)	Specific Capacity (gpm/ft) (Q/s)	Notes
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Sustained Yield Test

9:20	0	10.61	0.00			
9:22	2	13.43	2.82			
9:25	5	14.23	3.62	0.225	0.1	
9:31	11	16.19	5.58			
9:36	16	16.56	5.95			
9:37	17	16.91	6.30			(1)
9:44	24	17.01	6.40			
9:49	29	17.11	6.50			(2)

Rising Head Test

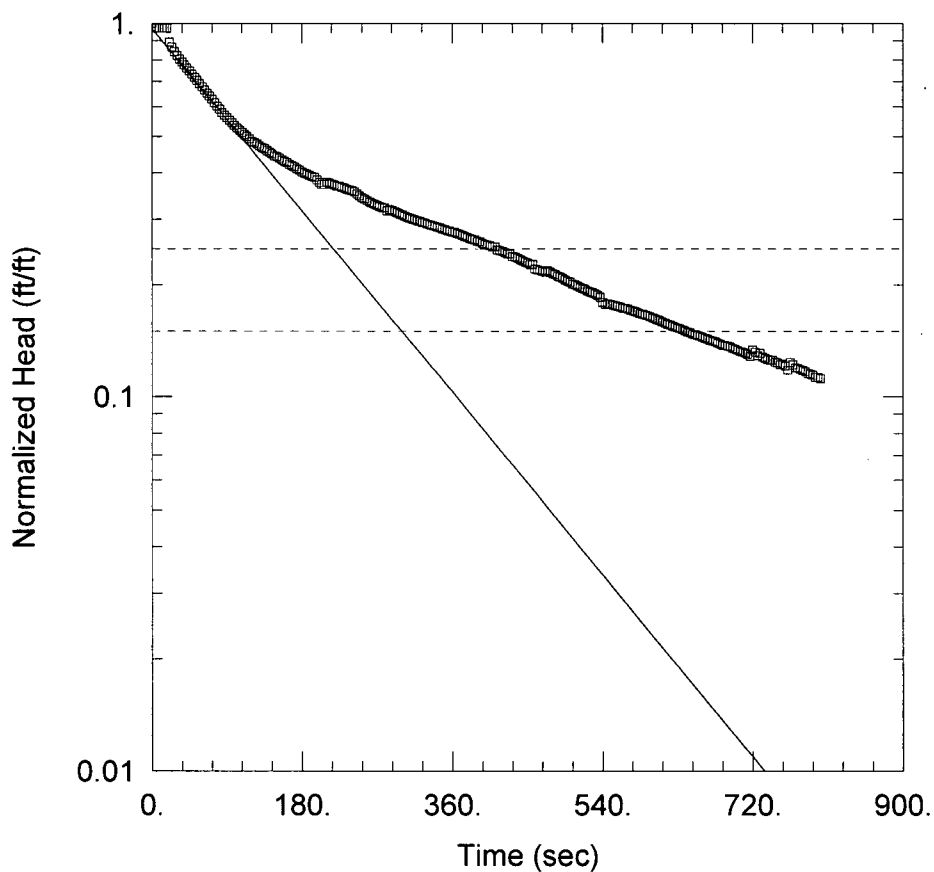
9:50	0	17.11	6.50			Pump OFF
10:00	10	17.01	6.40			
10:15	25	16.72	6.11			
10:23	33	16.64	6.03			
10:28	38	16.57	5.96			
10:32	42	16.48	5.87			
10:40	50	16.46	5.85			
10:50	60	16.31	5.70			
11:15	85	16.04	5.43			
11:50	120	15.69	5.08			
13:07	197	14.86	4.25			
13:22	212	14.78	4.17			
13:30	220	14.72	4.11			
13:45	235	14.59	3.98			

NOTES AND OBSERVATIONS:

- (1) Pumping rate lowered to minimum capability.
- (2) Extracted approximately 3.5 gallons of water.

APPENDIX G

HYDRAULIC CONDUCTIVITY CALCULATIONS



MW-30 TEST 4

Data Set: J:\...MW-30 test 4.aqt

Date: 09/10/07

Time: 16:39:28

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchana, New York

Test Well: MW-30 (41.5-46.3)

Test Date: 11/22/05

AQUIFER DATA

Saturated Thickness: 300 ft

Anisotropy Ratio (K_z/K_r): 0.1

WELL DATA (MW-30)

Initial Displacement: 7 ft

Static Water Column Height: 21.72 ft

Total Well Penetration Depth: 21.72 ft

Screen Length: 4.8 ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

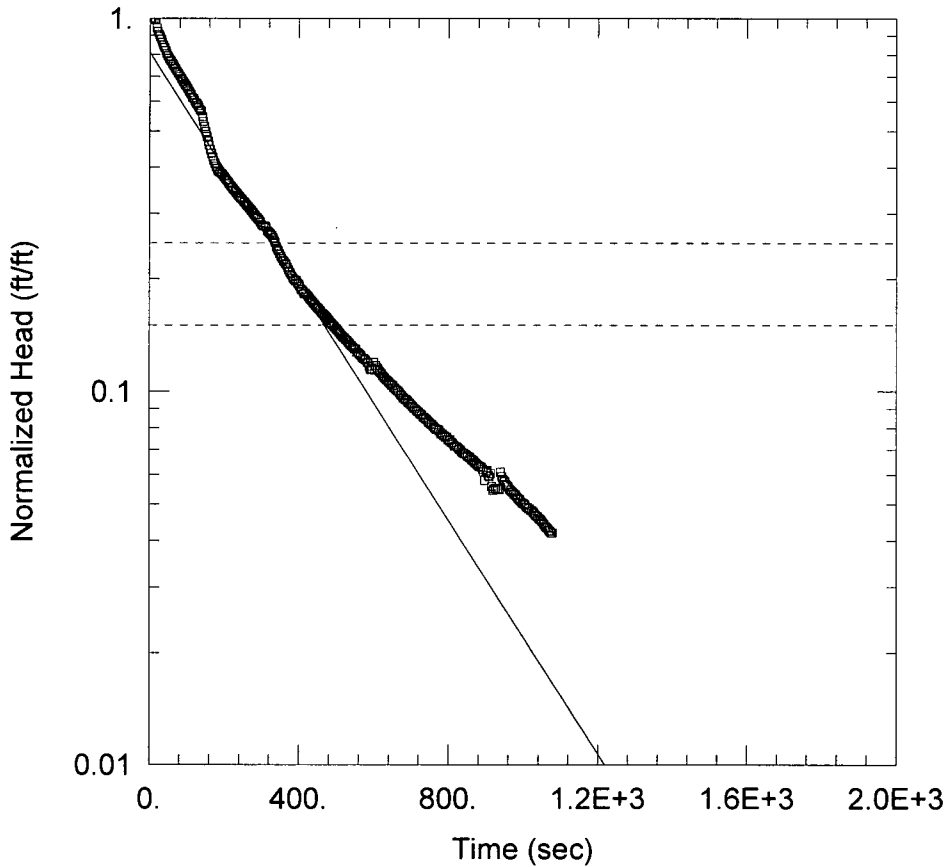
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

$K = 1.775$ ft/day

$y_0 = 6.793$ ft



MW-30 TEST 3

Data Set: J:\...MW-30 test 3.aqt

Date: 04/26/07

Time: 23:10:04

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-30 (45.0-49.8)

Test Date: 11/22/05

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-30 Test 3)

Initial Displacement: 10. ft

Static Water Column Height: 21.73 ft

Total Well Penetration Depth: 21.73 ft

Screen Length: 4.8 ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

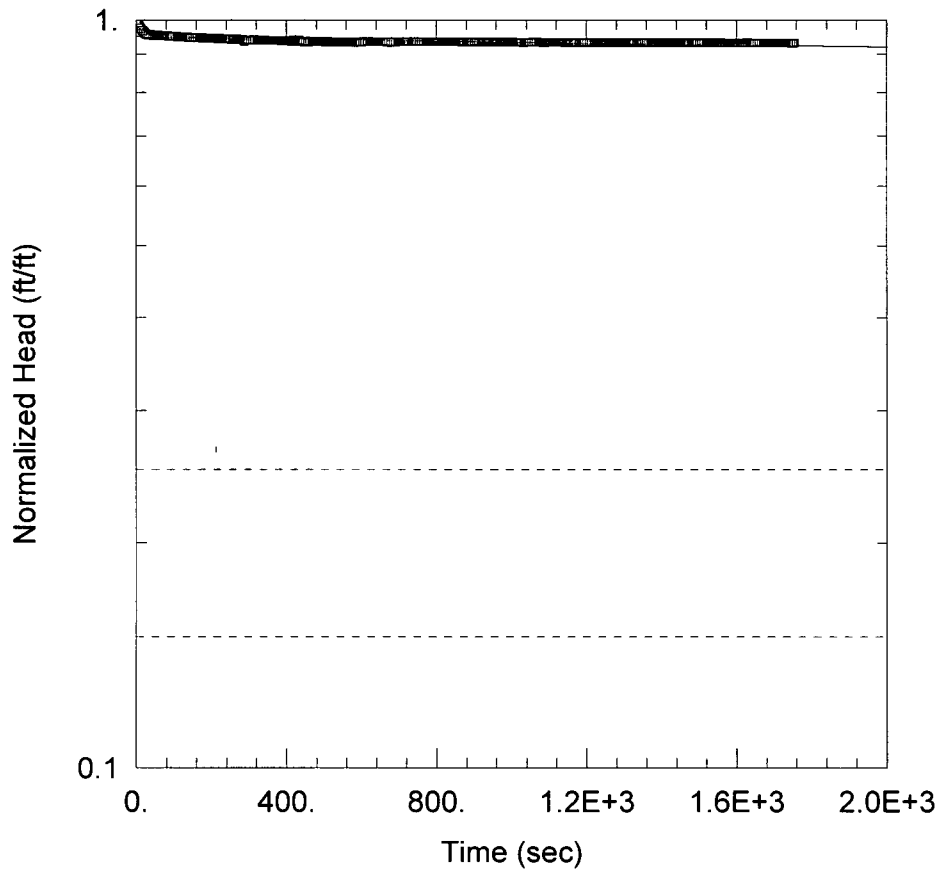
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 1.029 ft/day

y0 = 8.115 ft



MW-30 TEST 2

Data Set: J:\...MW-30 test 2.aqt
 Date: 04/26/07

Time: 23:10:12

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-30 (48.2-53.0)
 Test Date: 11/22/05

AQUIFER DATA

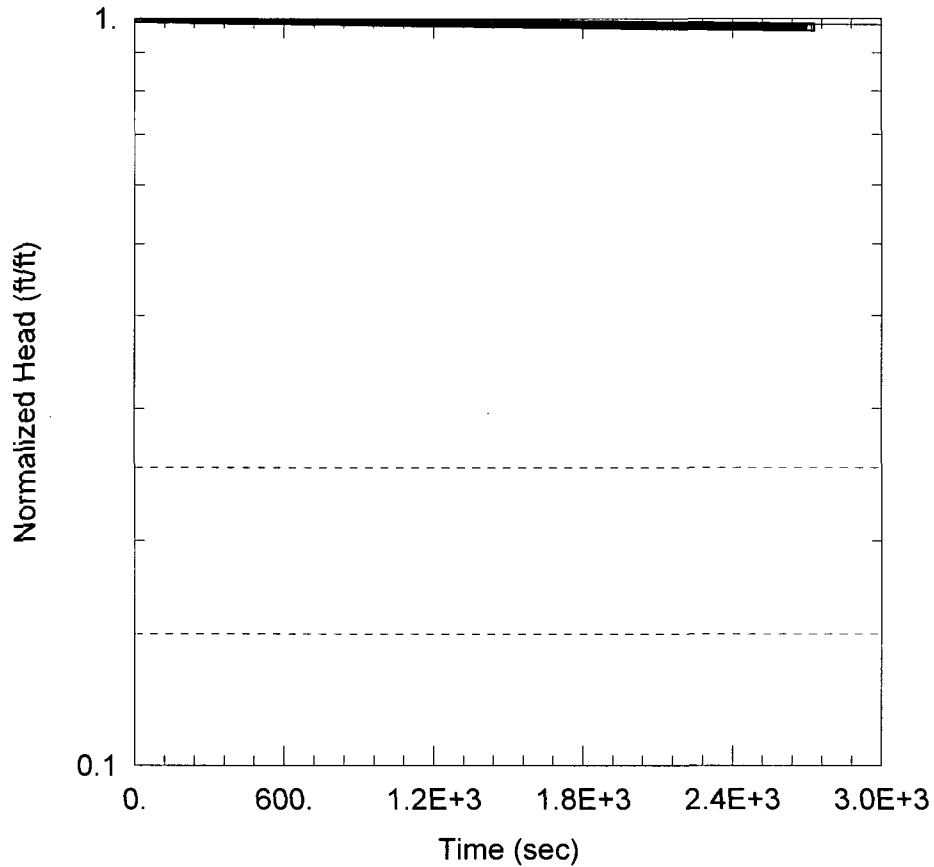
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-30 Test 2)

Initial Displacement: 15. ft Static Water Column Height: 25.53 ft
 Total Well Penetration Depth: 25.53 ft Screen Length: 4.8 ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 0.004766 ft/day y0 = 14.27 ft



MW-30 TEST 1

Data Set: J:\...MW-30 test 1.aqt

Date: 04/26/07

Time: 23:10:19

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-30 (52.3-61.7)

Test Date: 11/22/05

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-30 Test 1)

Initial Displacement: 19.9 ft

Static Water Column Height: 21.15 ft

Total Well Penetration Depth: 21.15 ft

Screen Length: 9.6 ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

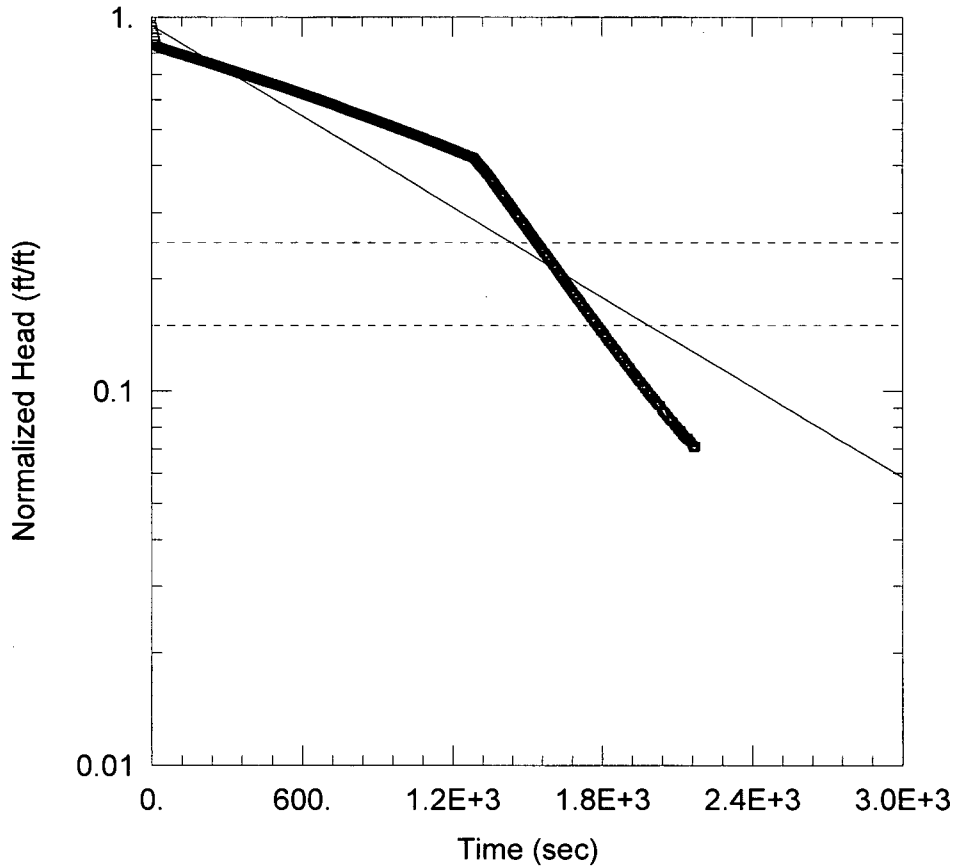
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.0007118 ft/day

y0 = 19.78 ft



MW-31 TEST 7

Data Set: J:\...MW-31 test 7.aqt

Date: 04/19/07

Time: 14:04:02

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-31 (34.5-43.1)

Test Date: 01/18/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-31 Test 7)

Initial Displacement: 10. ft

Static Water Column Height: 10.45 ft

Total Well Penetration Depth: 10.45 ft

Screen Length: 8.6 ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

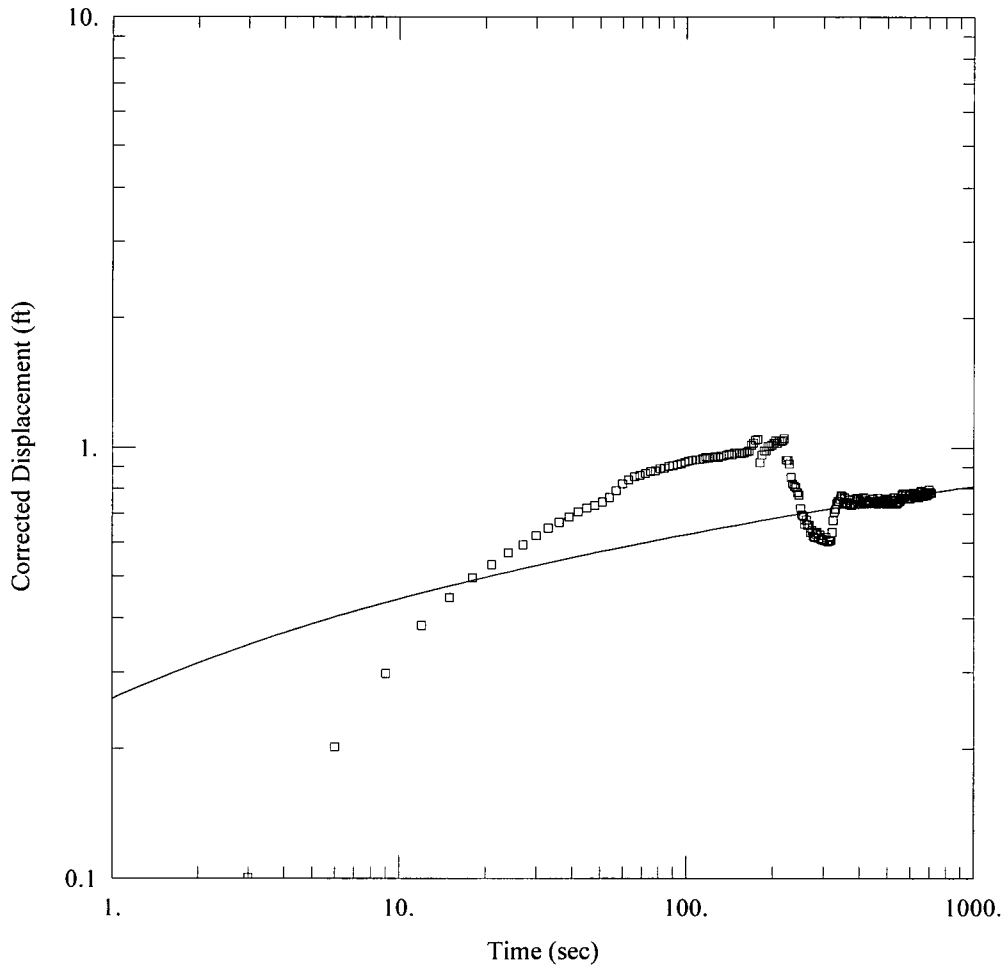
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.1665 ft/day

y0 = 9.491 ft



MW-31 PACKERED EXTRACTION (TEST 6)

Data Set: J:\...MW-31 test 6theis.aqt

Date: 09/10/07

Time: 16:42:33

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, NY

Test Well: MW-31 (42.9-51.5)

Test Date: 1/18/06

WELL DATA

Pumping Wells

Observation Wells

Well Name	X (ft)	Y (ft)
MW-31	0	0

Well Name	X (ft)	Y (ft)
□ MW-31 test6	0	0

SOLUTION

Aquifer Model: Unconfined

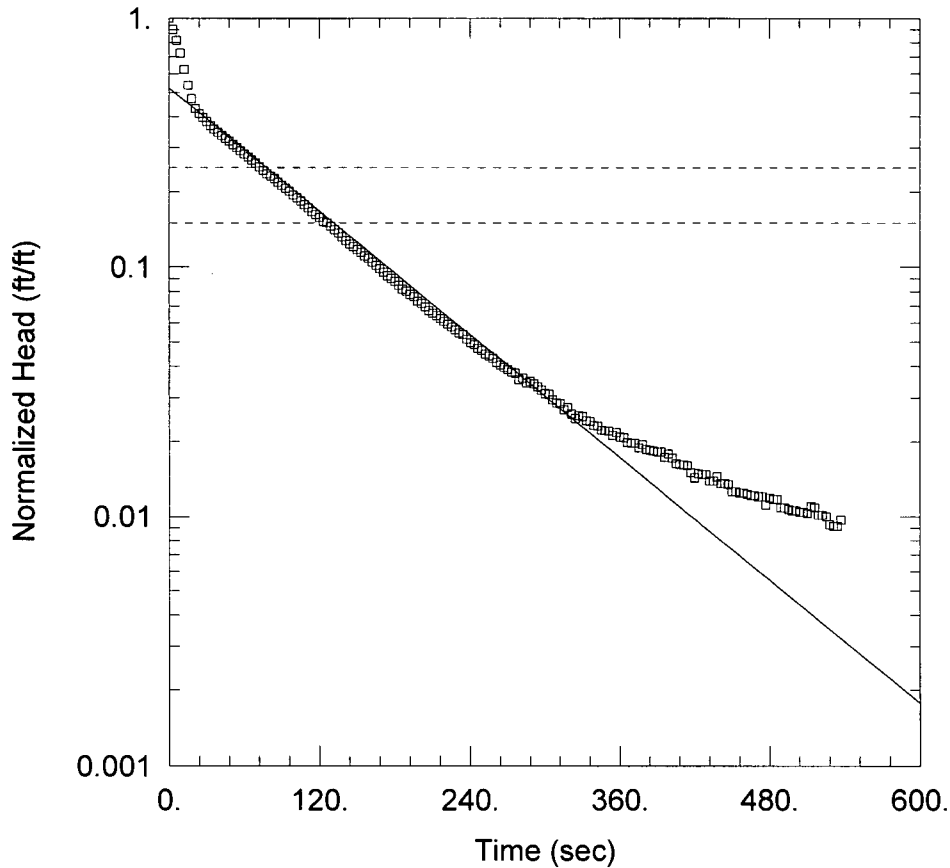
Solution Method: Theis

T = 249.6 ft²/day

S = 0.009958

Kz/Kr = 1.

b = 50. ft



MW-31 TEST 5

Data Set: J:\...MW-31 test 5.aqt

Date: 04/19/07

Time: 14:02:08

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-31 (50.9-59.5)

Test Date: 01/18/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-31 Test 5)

Initial Displacement: 7. ft

Static Water Column Height: 19.5 ft

Total Well Penetration Depth: 19.5 ft

Screen Length: 8.6 ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

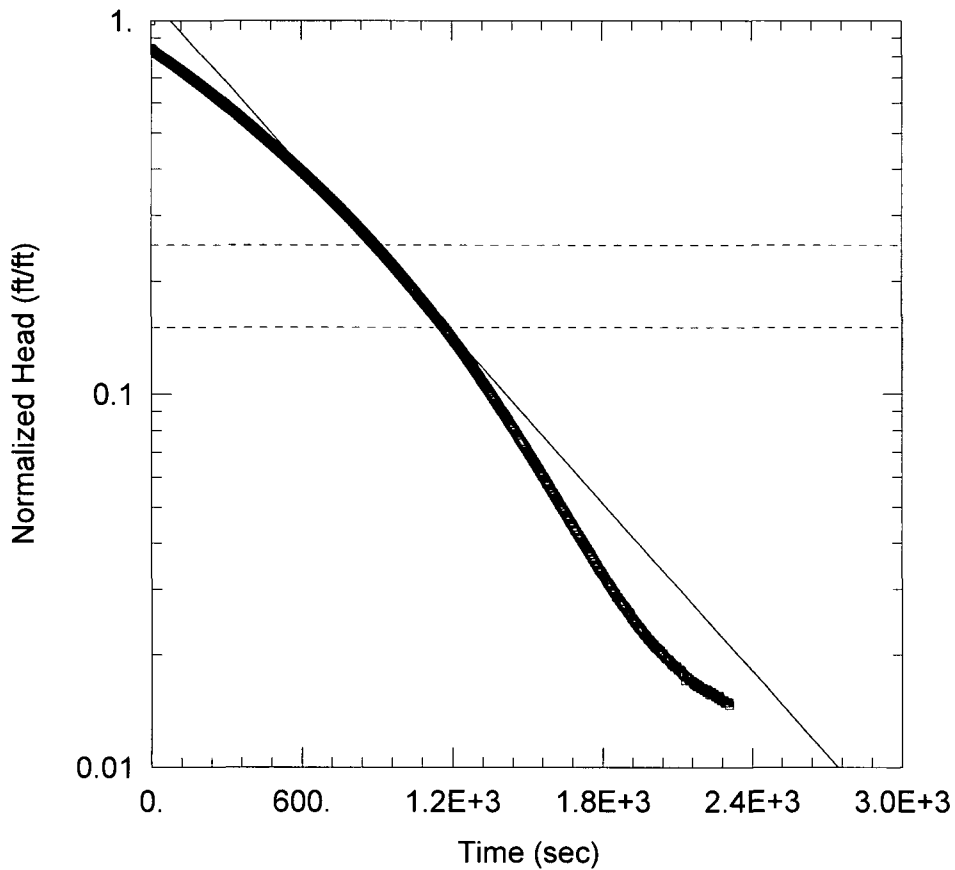
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 1.699 ft/day

y0 = 3.654 ft



MW-31 TEST 3

Data Set: J:\...\MW-31 test 3.aqt

Date: 04/19/07

Time: 13:59:41

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-31 (65.4-74.0)

Test Date: 01/18/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-31 Test 3)

Initial Displacement: 27. ft

Static Water Column Height: 41.3 ft

Total Well Penetration Depth: 41.3 ft

Screen Length: 8.6 ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

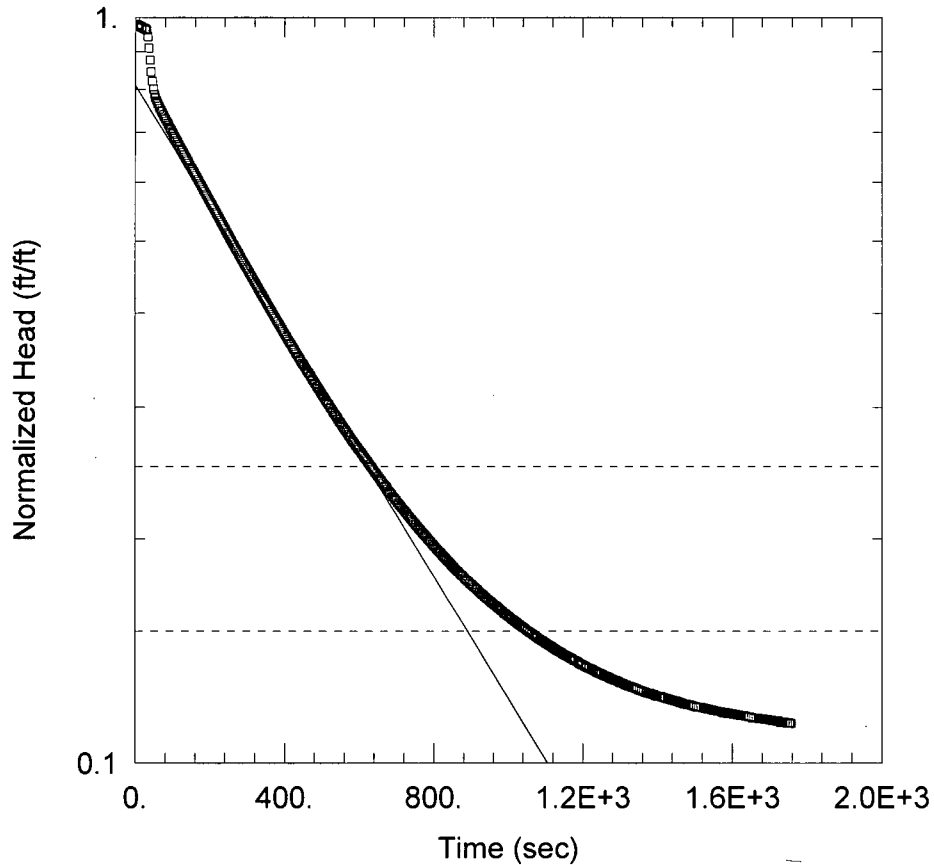
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.3098 ft/day

y0 = 30.91 ft



MW-31 TEST 2

Data Set: J:\...\MW-31 test 2.aqt

Date: 04/19/07

Time: 13:59:09

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-31 (73.4-82.0)

Test Date: 01/17/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-31 Test 2)

Initial Displacement: 21. ft

Static Water Column Height: 48.2 ft

Total Well Penetration Depth: 48.2 ft

Screen Length: 8.6 ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

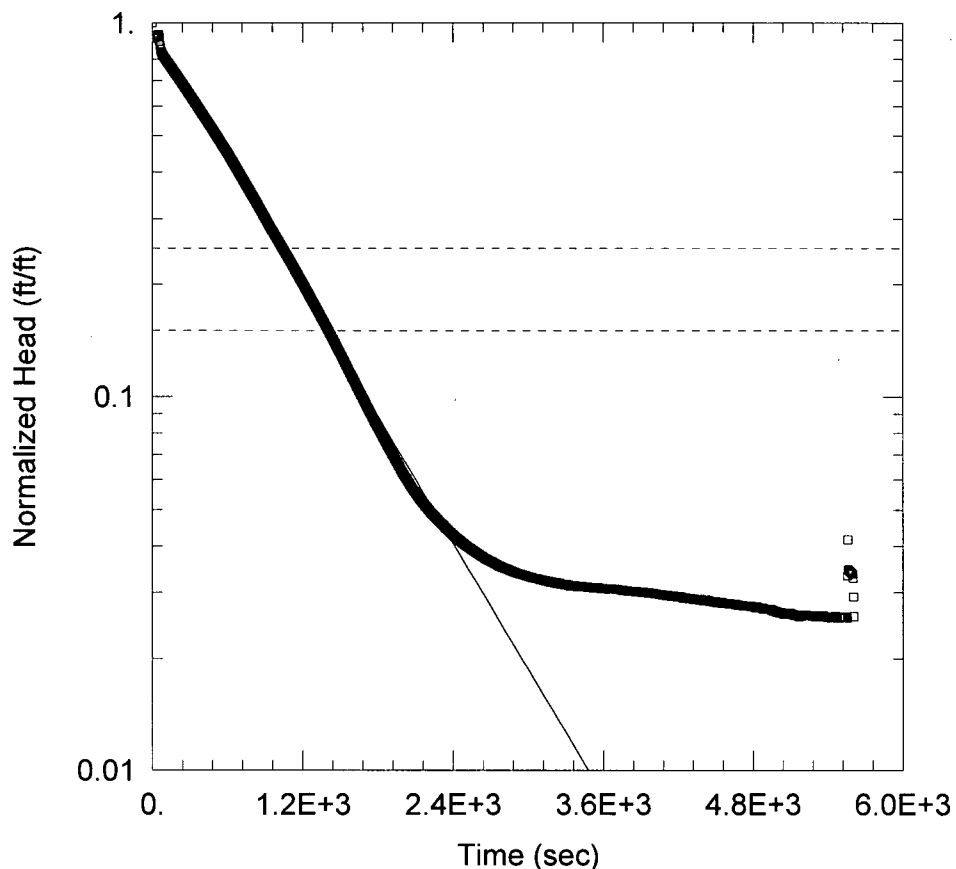
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.3396 ft/day

y0 = 17.02 ft



MW-31 TEST 1

Data Set: J:\...\MW-31 test 1.aqt

Date: 04/19/07

Time: 13:58:30

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-31 (79.9-90.0)

Test Date: 01/16/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-31 Test 1)

Initial Displacement: 39.9 ft

Static Water Column Height: 57.2 ft

Total Well Penetration Depth: 57.2 ft

Screen Length: 10.1 ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

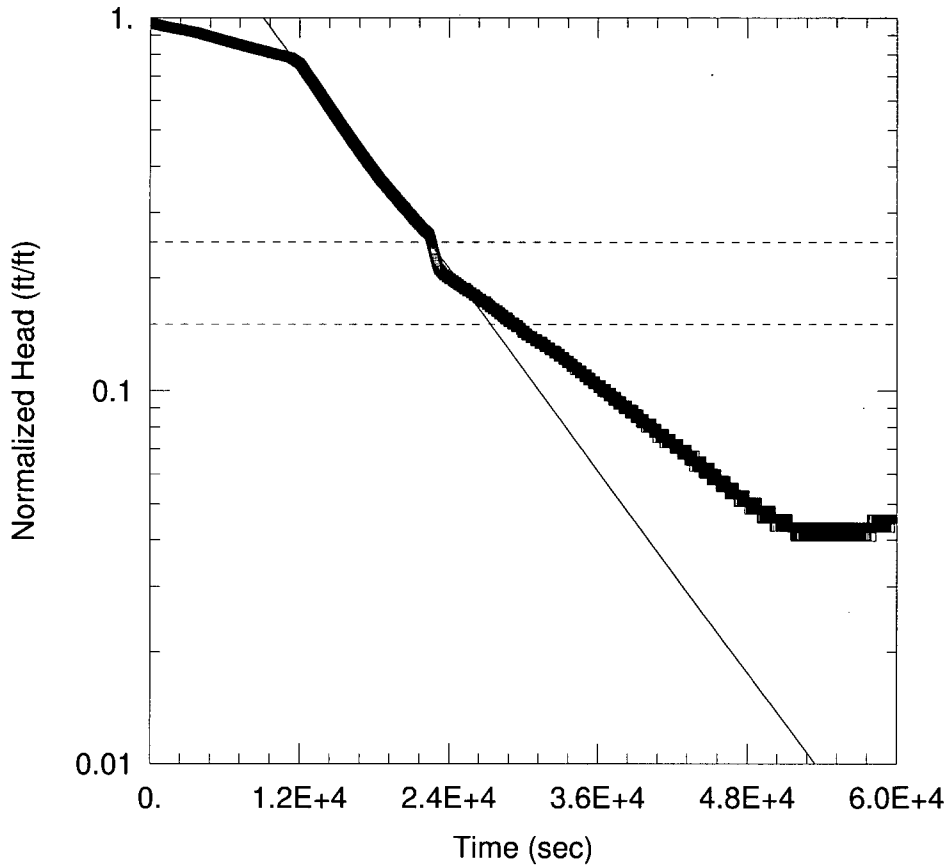
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.2045 ft/day

y0 = 36.58 ft



MW-32 TEST 8

Data Set: J:\...MW-32 test 8(70-80).aqt

Date: 01/03/08

Time: 15:09:23

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-32 (69.4-79.4)

Test Date: 03/30/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-32 Test 8)

Initial Displacement: 9. ft

Static Water Column Height: 11.29 ft

Total Well Penetration Depth: 11.29 ft

Screen Length: 10. ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

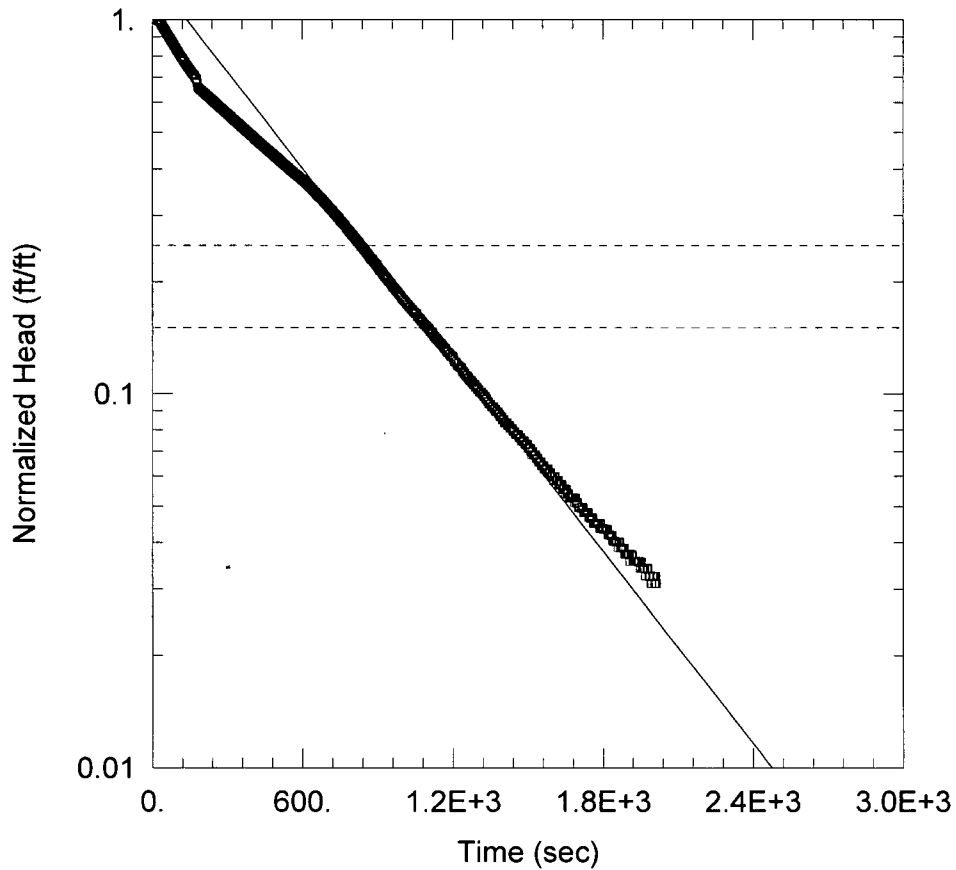
SOLUTION

Aquifer Model: Confined

Solution Method: Hvorslev

K = 0.01648 ft/day

y0 = 23.09 ft



MW-32 TEST 7

Data Set: J:\...MW-32 test 7(80-90).aqt

Date: 04/19/07

Time: 14:16:09

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-32 (79.4-89.4)

Test Date: 03/29/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-32 Test 7)

Initial Displacement: 15. ft

Static Water Column Height: 21.29 ft

Total Well Penetration Depth: 21.29 ft

Screen Length: 10. ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

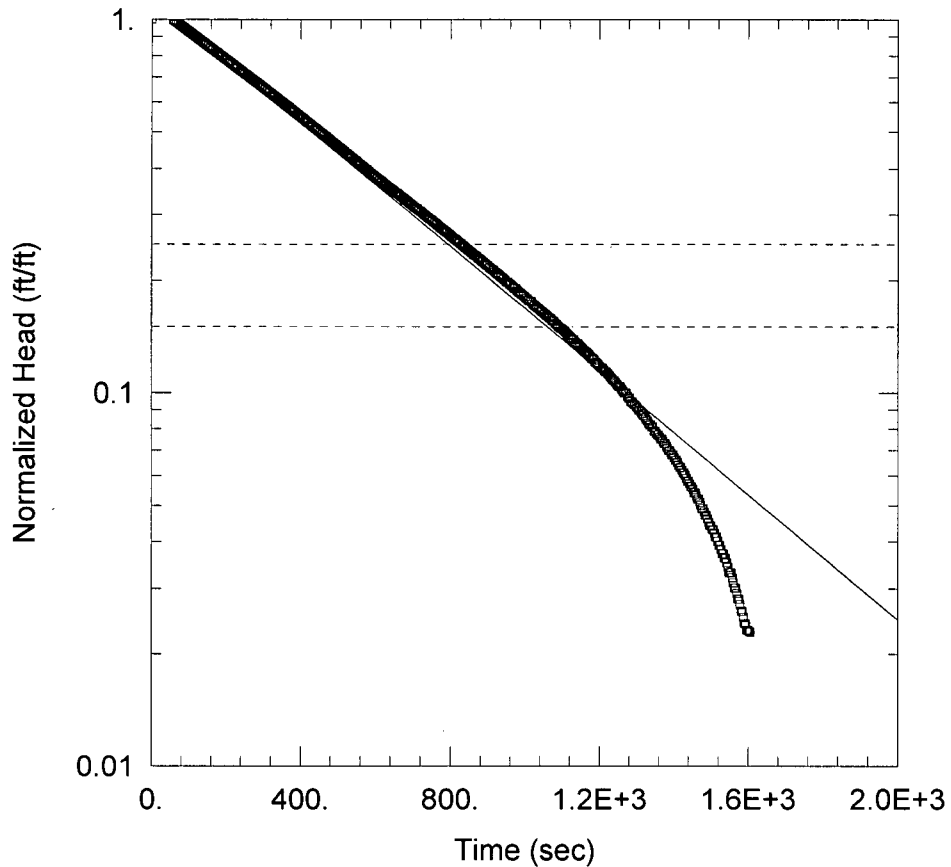
SOLUTION

Aquifer Model: Confined

Solution Method: Hvorslev

K = 0.3127 ft/day

y0 = 19.68 ft



MW-32 TEST 6

Data Set: J:\...\MW-32 test 6(117-127).aqt

Date: 04/19/07

Time: 14:15:22

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-32 (116.4-126.4)

Test Date: 03/29/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-32 Test 6)

Initial Displacement: 22. ft

Static Water Column Height: 58.29 ft

Total Well Penetration Depth: 58.29 ft

Screen Length: 10. ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

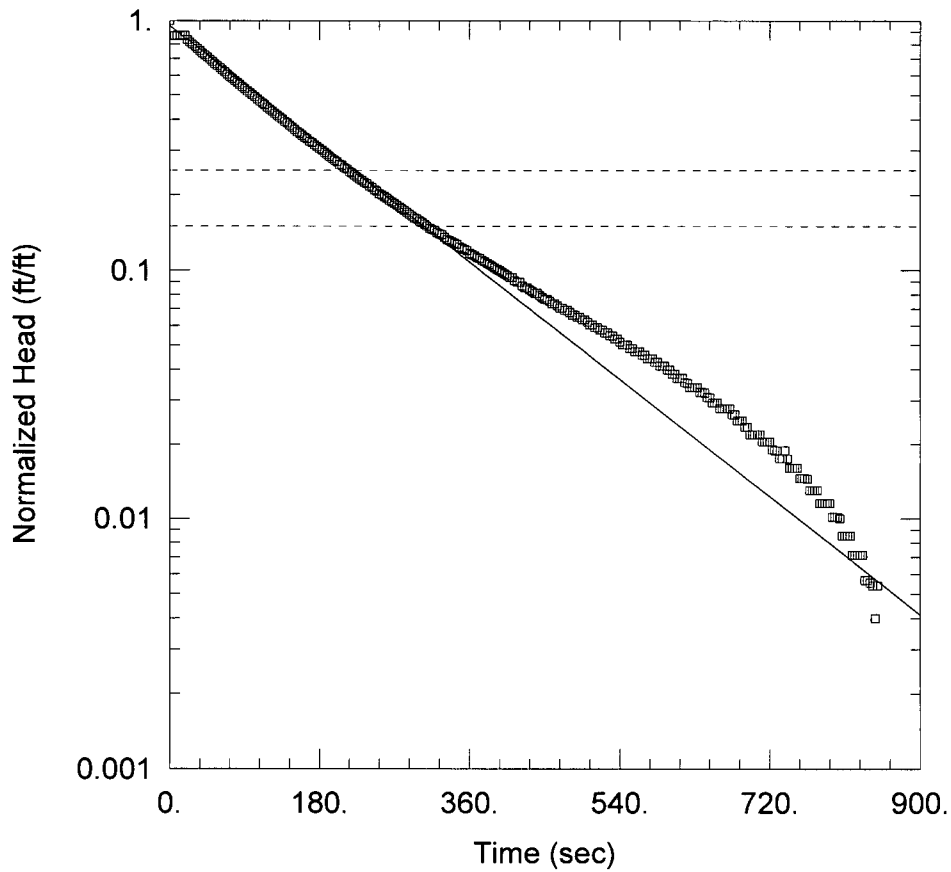
SOLUTION

Aquifer Model: Confined

Solution Method: Hvorslev

K = 0.3043 ft/day

y0 = 25.18 ft



MW-32 TEST 5

Data Set: J:\...MW-32 test 5(131-141).aqt

Date: 04/19/07

Time: 14:14:52

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-32 (130.4-140.4)

Test Date: 03/29/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-32 Test 5)

Initial Displacement: 15. ft

Static Water Column Height: 72.3 ft

Total Well Penetration Depth: 72.3 ft

Screen Length: 10. ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

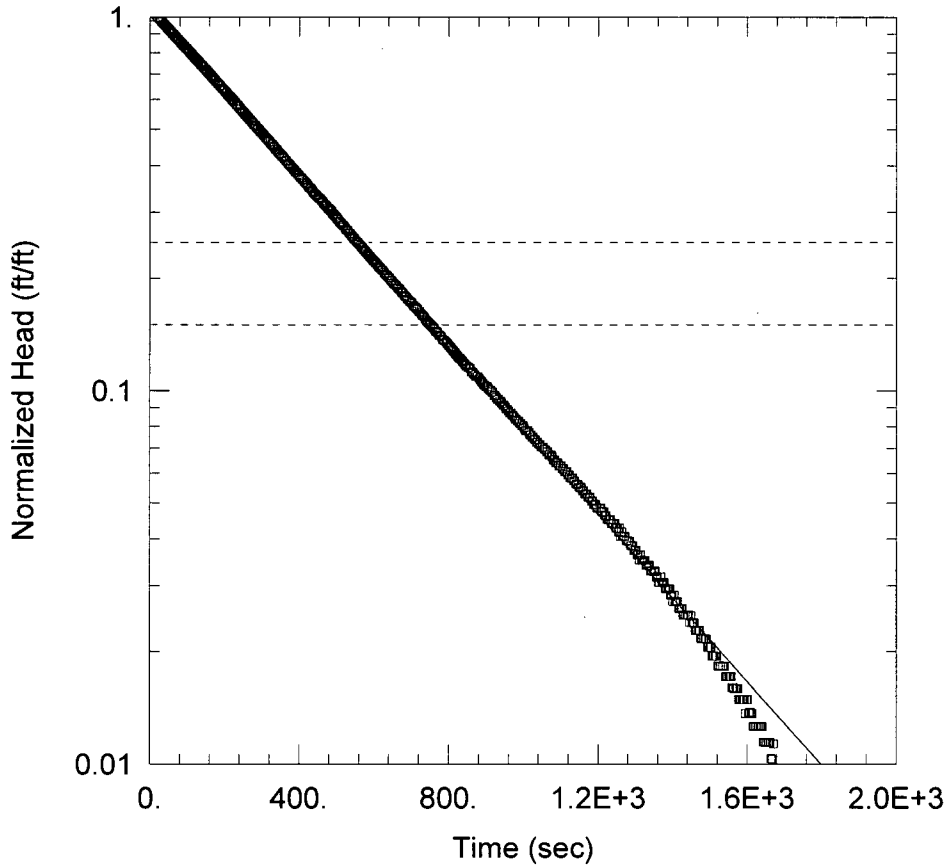
SOLUTION

Aquifer Model: Confined

Solution Method: Hvorslev

K = 0.9598 ft/day

y0 = 14.3 ft



MW-32 TEST 4

Data Set: J:\...MW-32 test 4(148-158).aqt

Date: 04/19/07

Time: 14:14:21

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-32 (147.4-157.4)

Test Date: 03/28/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-32 Test 4)

Initial Displacement: 20. ft

Static Water Column Height: 89.29 ft

Total Well Penetration Depth: 89.29 ft

Screen Length: 10. ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

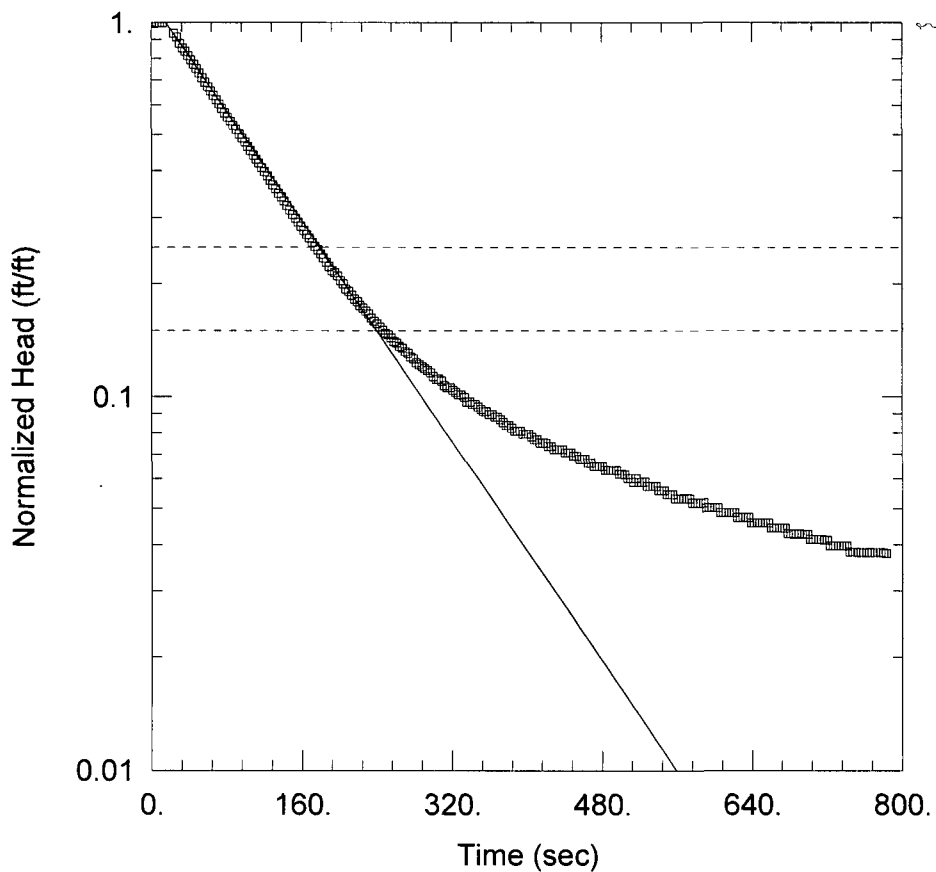
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.407 ft/day

y0 = 20.14 ft



MW-32 TEST 3

Data Set: J:\...MW-32 test 3(170-180).aqt

Date: 04/19/07

Time: 14:13:43

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-32 (169.4-179.4)

Test Date: 03/27/06

AQUIFER DATA

Saturated Thickness: 50. ft

Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-32 Test 3)

Initial Displacement: 15. ft

Static Water Column Height: 111.3 ft

Total Well Penetration Depth: 111.3 ft

Screen Length: 10. ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

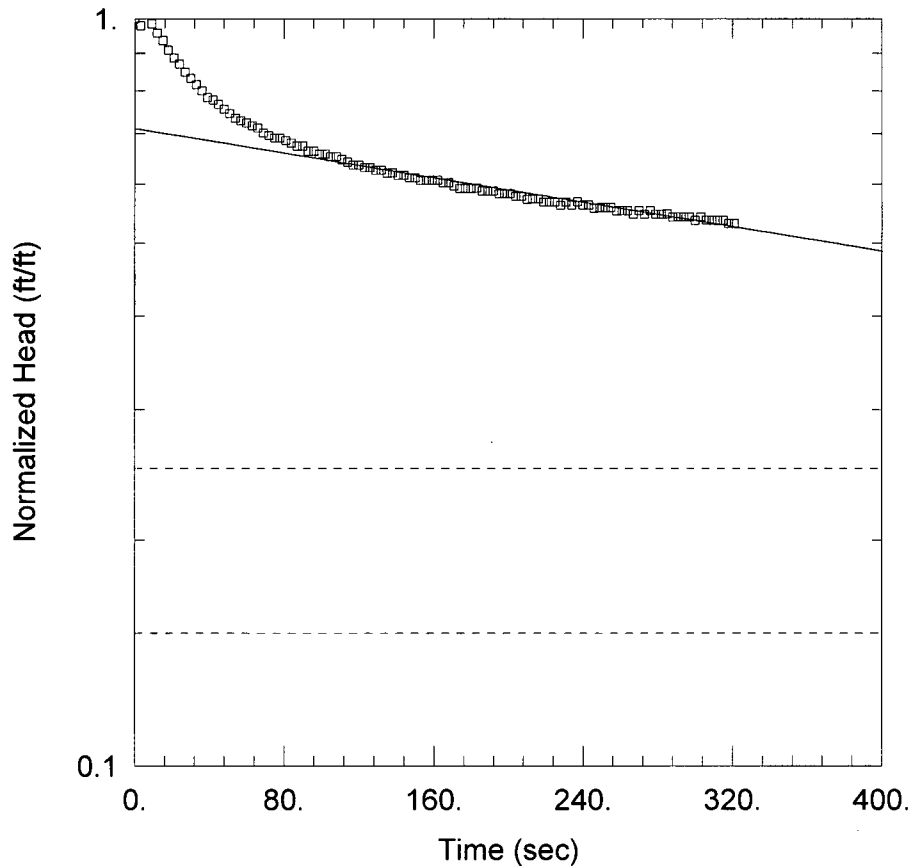
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 1.052 ft/day

y0 = 17.1 ft



MW-32 TEST 2

Data Set: J:\...MW-32 test 2(175-185).aqt

Date: 04/19/07

Time: 14:13:15

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-32 (184.4-174.4)

Test Date: 03/27/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-32 Test 2)

Initial Displacement: 4. ft

Static Water Column Height: 116.3 ft

Total Well Penetration Depth: 116.3 ft

Screen Length: 10. ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

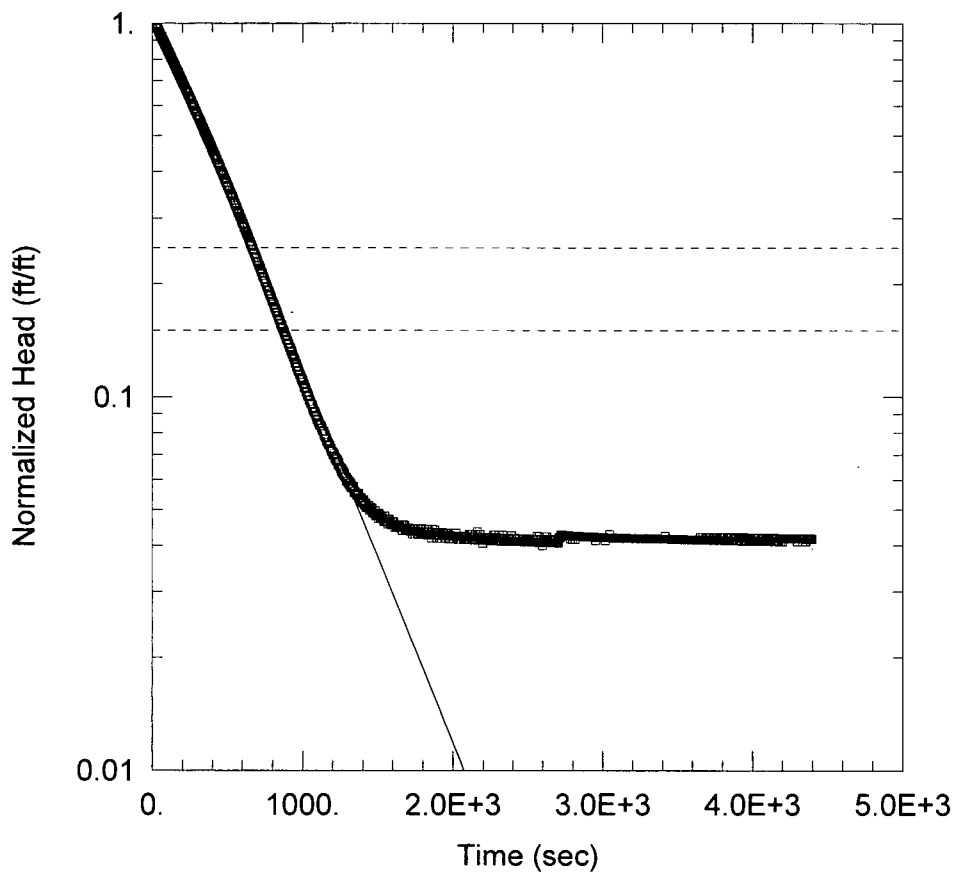
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.1493 ft/day

y0 = 2.846 ft



MW-32 TEST 1

Data Set: J:\...MW-32 test 1(195-185).aqt

Date: 04/19/07

Time: 14:12:28

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-32 (184.4-194.4)

Test Date: 03/27/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-32 Test 1)

Initial Displacement: 28. ft

Static Water Column Height: 126.3 ft

Total Well Penetration Depth: 126.3 ft

Screen Length: 10. ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

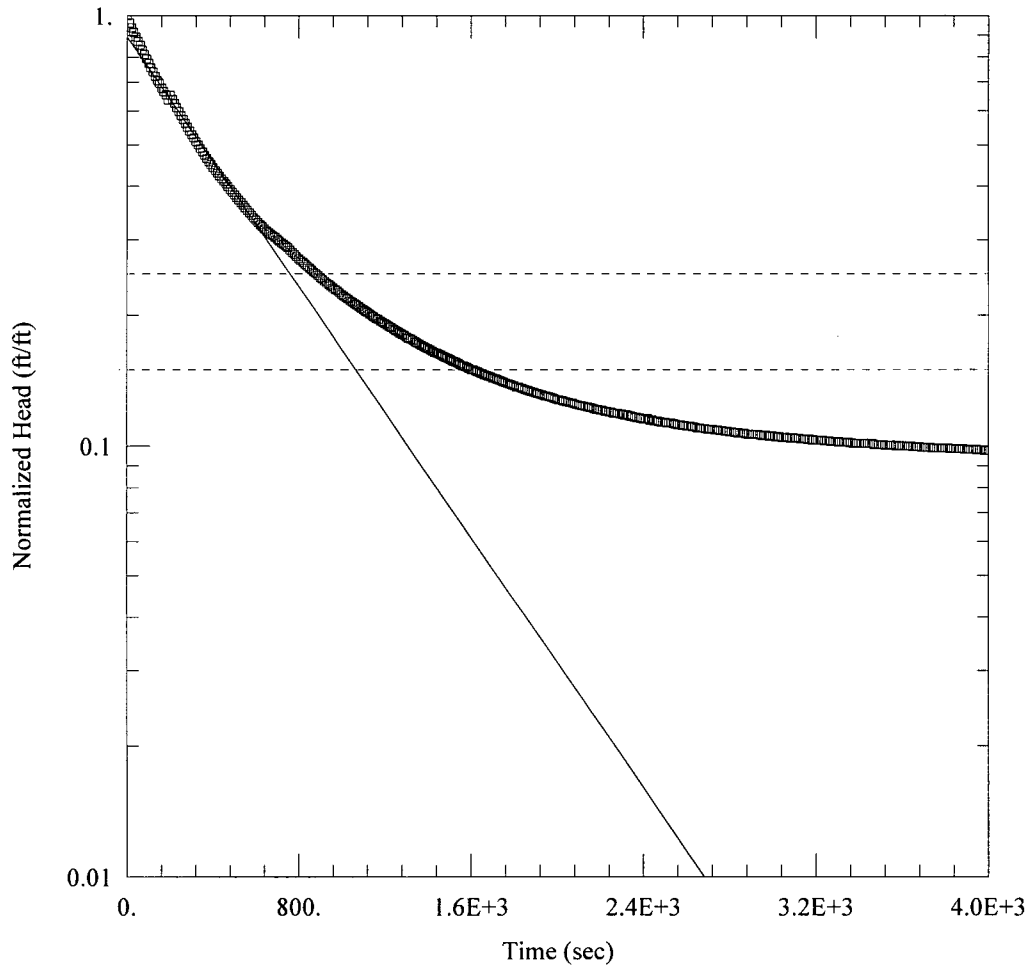
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.3628 ft/day

y0 = 32.07 ft



MW-33 EXTRACTION TEST

Data Set: J:\...sy33 MW33.aqt
 Date: 09/11/07

Time: 18:39:06

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, NY
 Test Well: MW-33
 Test Date: 3/8/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-33)

Initial Displacement: 7.155 ft
 Total Well Penetration Depth: 20. ft
 Casing Radius: 0.159 ft

Static Water Column Height: 21. ft
 Screen Length: 20. ft
 Wellbore Radius: 0.159 ft

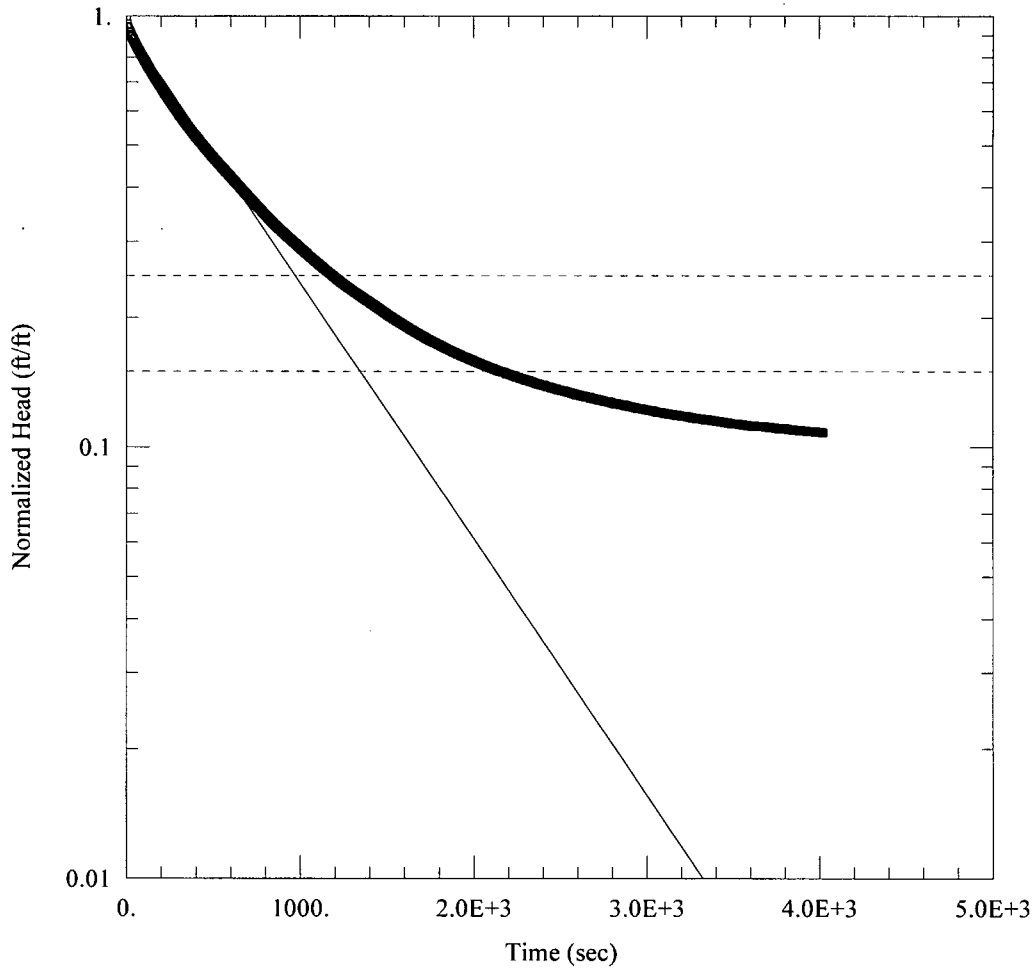
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.5475 ft/day

y0 = 6.382 ft



MW-34 EXTRACTION TEST

Data Set: J:\...sy34 MW34.aqt
 Date: 09/11/07

Time: 18:39:25

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, NY
 Test Well: MW-34
 Test Date: 3/8/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-34)

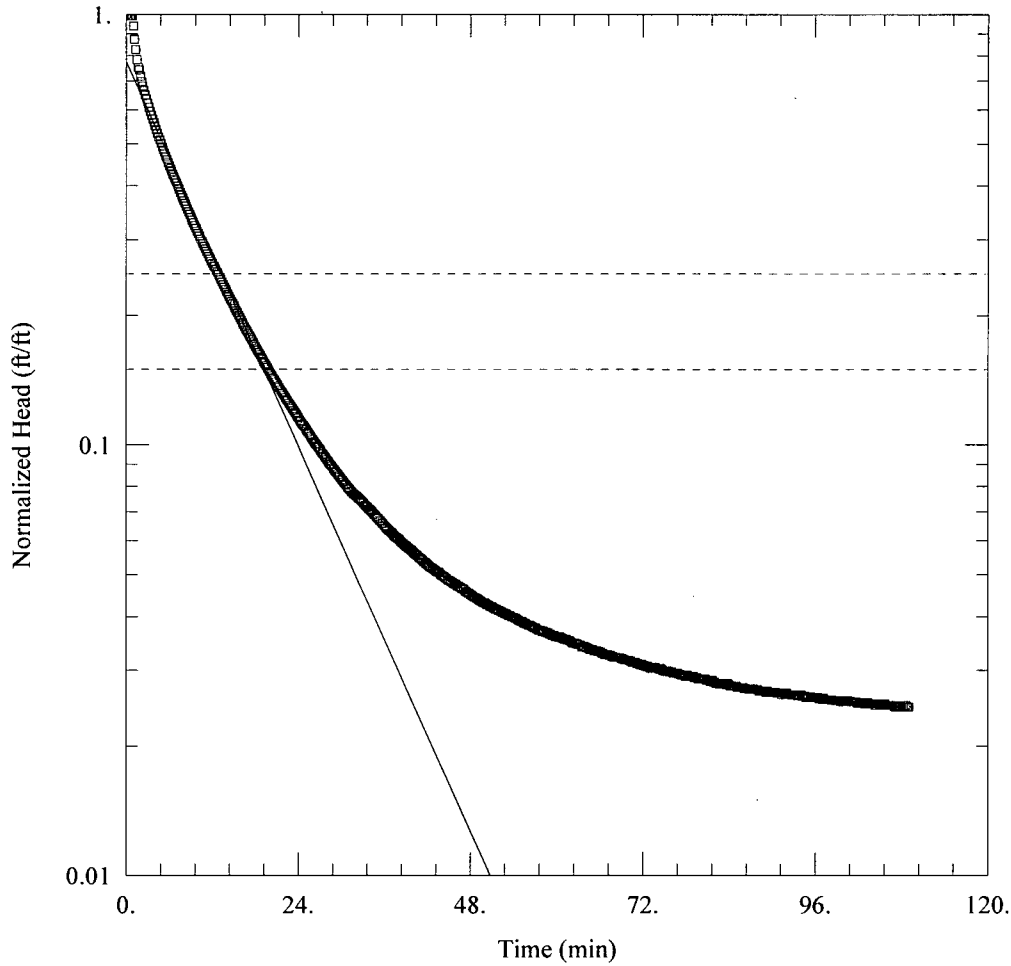
Initial Displacement: 5.7 ft
 Total Well Penetration Depth: 20. ft
 Casing Radius: 0.159 ft

Static Water Column Height: 21. ft
 Screen Length: 20. ft
 Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined
 K = 0.4468 ft/day

Solution Method: Hvorslev
 y0 = 5.364 ft



MW-35 EXTRACTION TEST

Data Set: J:\...\sy35 MW35.aqt
 Date: 09/11/07

Time: 18:39:56

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, NY
 Test Well: MW-35
 Test Date: 1/24/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-35)

Initial Displacement: 10. ft
 Total Well Penetration Depth: 20. ft
 Casing Radius: 0.159 ft

Static Water Column Height: 23. ft
 Screen Length: 20. ft
 Wellbore Radius: 0.159 ft

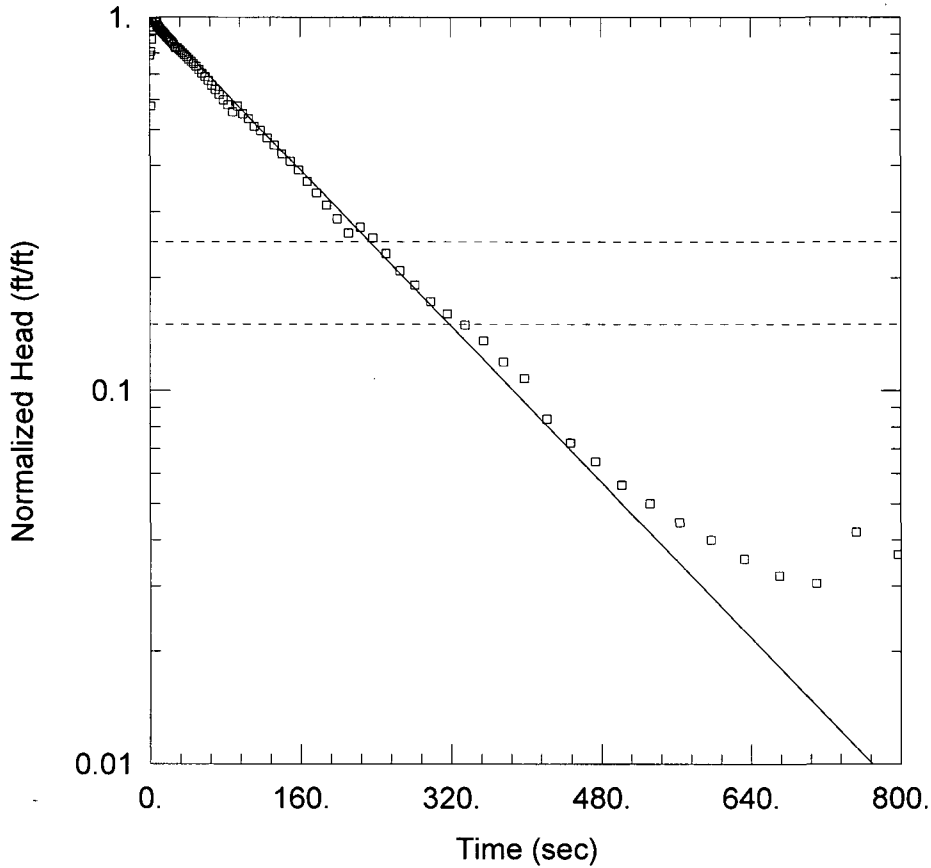
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.467 ft/day

y0 = 7.757 ft



MW-36-41 SLUG TEST (RISING)

Data Set: J:\...MW-36-41rising.aqt

Date: 04/20/07

Time: 16:43:31

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-36-41

Test Date: 4/4/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-36-41)

Initial Displacement: 2. ft

Static Water Column Height: 36. ft

Total Well Penetration Depth: 36. ft

Screen Length: 10. ft

Casing Radius: 0.04167 ft

Wellbore Radius: 0.159 ft

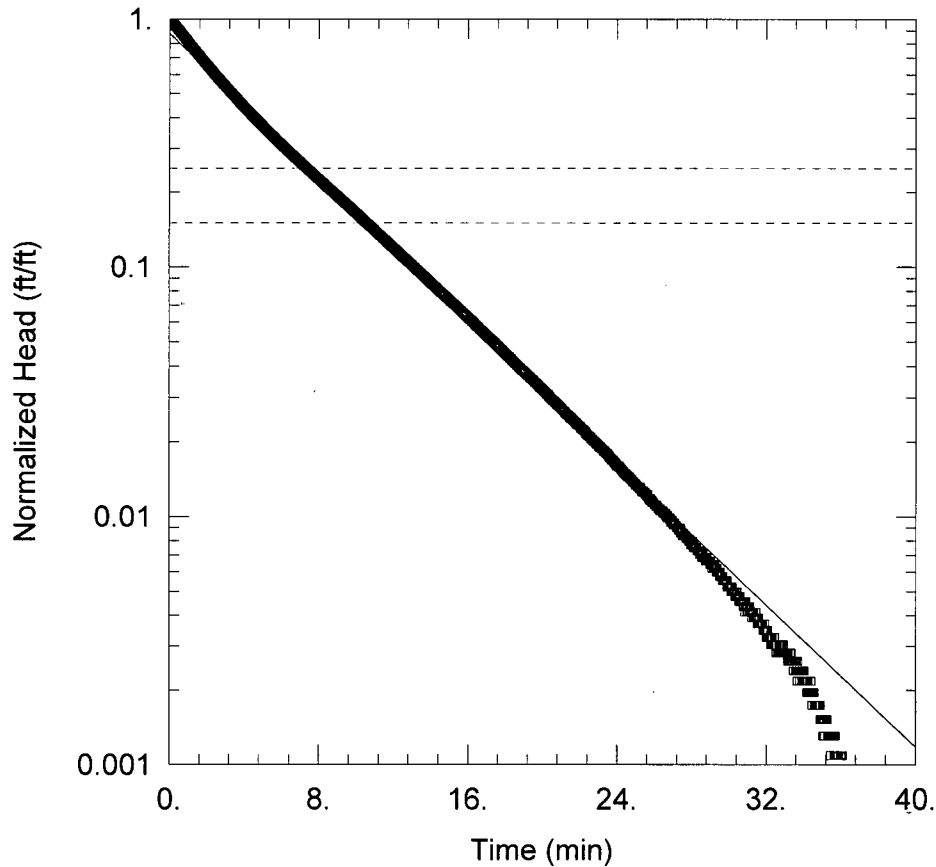
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.2385 ft/day

y0 = 2.035 ft



MW-36-41 SLUG TEST

Data Set: J:\...MW-36-41Jan07.aqt

Date: 04/20/07

Time: 16:43:58

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-36-41

Test Date: 1/3/07

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (K_z/K_r): 0.1

WELL DATA (MW-36-41)

Initial Displacement: 9.2 ft

Static Water Column Height: 37. ft

Total Well Penetration Depth: 36. ft

Screen Length: 10. ft

Casing Radius: 0.04167 ft

Wellbore Radius: 0.159 ft

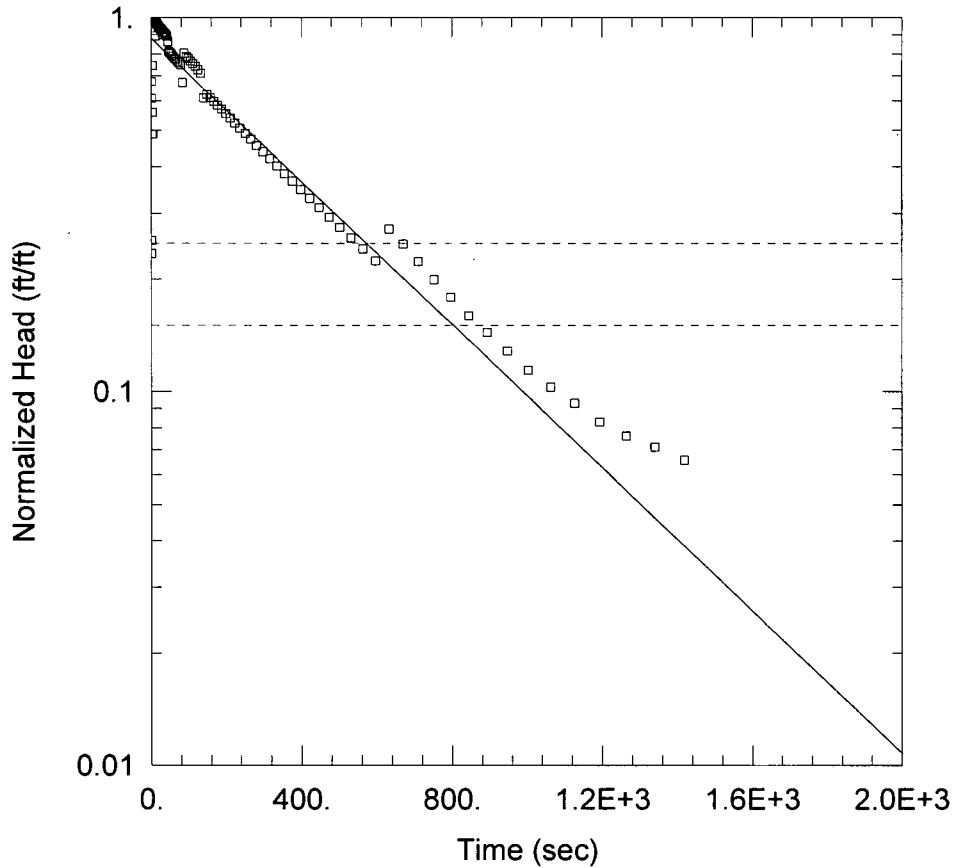
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

$K = 0.1094$ ft/day

$y_0 = 8.072$ ft



MW-36-53 SLUG TEST (RISING)

Data Set: J:\...MW-36-53rising.aqt

Date: 04/20/07

Time: 16:44:50

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-36-53

Test Date: 4/15/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-36-53)

Initial Displacement: 2. ft

Static Water Column Height: 47. ft

Total Well Penetration Depth: 47. ft

Screen Length: 7. ft

Casing Radius: 0.04167 ft

Wellbore Radius: 0.159 ft

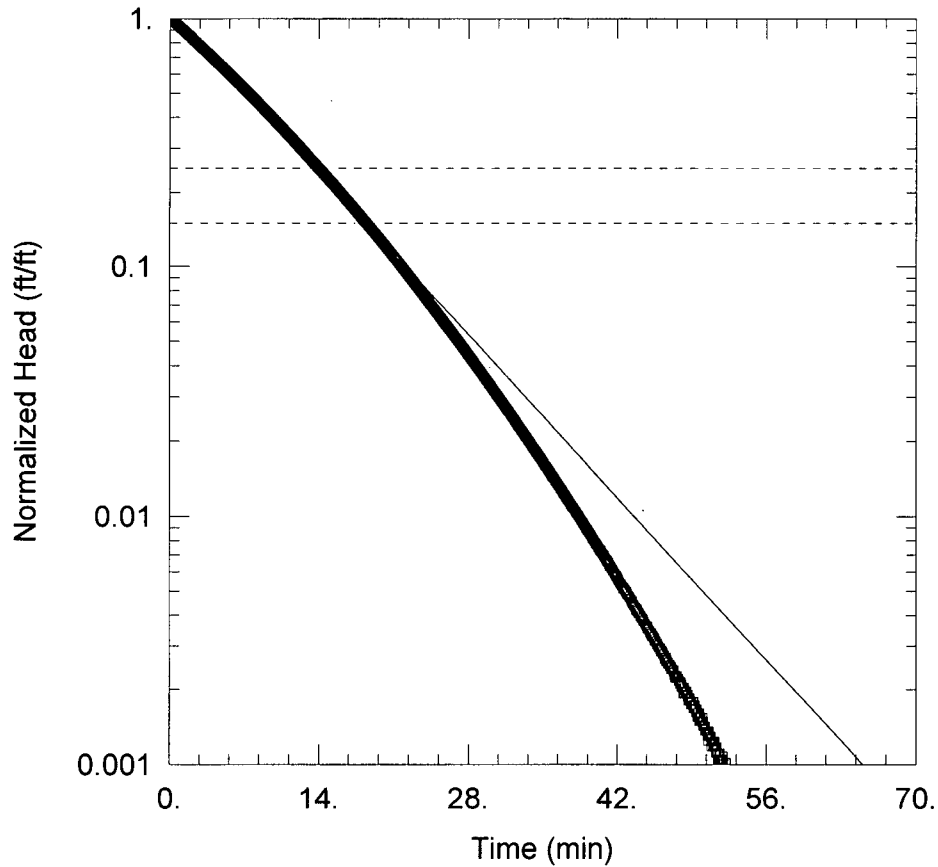
SOLUTION

Aquifer Model: Unconfined

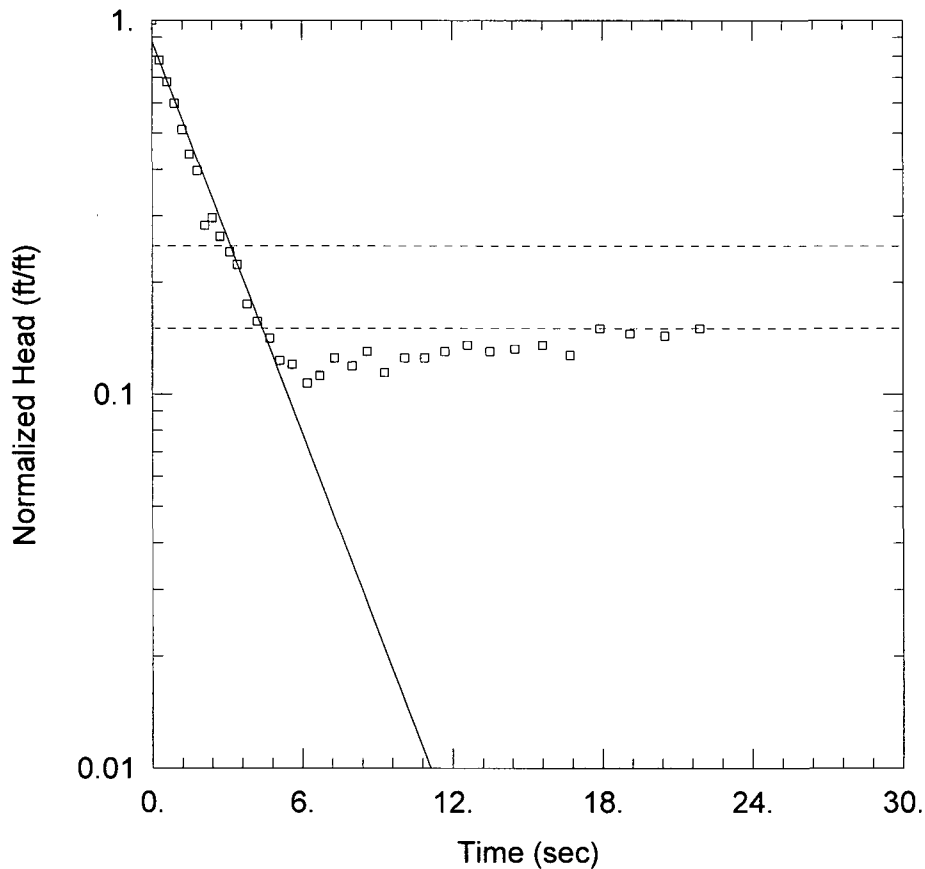
Solution Method: Hvorslev

K = 0.1165 ft/day

y0 = 1.762 ft



<u>MW-36-53 SLUG TEST</u>	
Data Set: <u>J:\...\MW-36-53Jan07.aqt</u>	Time: <u>16:45:11</u>
Date: <u>04/20/07</u>	
<u>PROJECT INFORMATION</u>	
Company: <u>GZA GeoEnvironmental</u>	
Client: <u>Indian Point Energy Center</u>	
Project: <u>41.0017869.10</u>	
Location: <u>Buchanan, New York</u>	
Test Well: <u>MW-36-53</u>	
Test Date: <u>1/4/07</u>	
<u>AQUIFER DATA</u>	
Saturated Thickness: <u>300. ft</u>	Anisotropy Ratio (Kz/Kr): <u>0.1</u>
<u>WELL DATA (MW-36-53)</u>	
Initial Displacement: <u>32.45 ft</u>	Static Water Column Height: <u>48.6 ft</u>
Total Well Penetration Depth: <u>48.6 ft</u>	Screen Length: <u>7. ft</u>
Casing Radius: <u>0.04167 ft</u>	Wellbore Radius: <u>0.159 ft</u>
<u>SOLUTION</u>	
Aquifer Model: <u>Unconfined</u>	Solution Method: <u>Hvorslev</u>
K = <u>0.09468 ft/day</u>	y0 = <u>35.02 ft</u>



MW-37-32 SLUG TEST (RISING)

Data Set: J:\...MW-37-32rising.aqt

Date: 04/20/07

Time: 16:49:11

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-37-32

Test Date: 4/4/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-37-32)

Initial Displacement: 1. ft

Static Water Column Height: 22. ft

Total Well Penetration Depth: 22. ft

Screen Length: 5.5 ft

Casing Radius: 0.04167 ft

Wellbore Radius: 0.159 ft

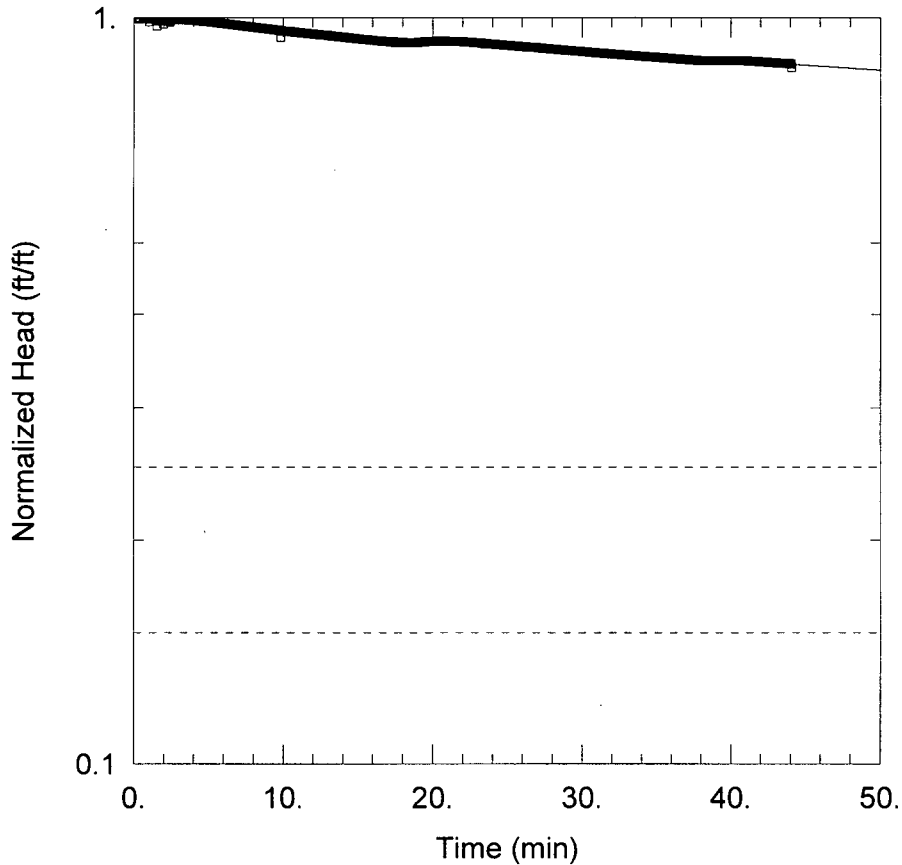
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 25.76 ft/day

y0 = 0.8789 ft



MW-37-40 SLUG TEST

Data Set: J:\...MW-37-40Jan07.aqt
 Date: 04/20/07

Time: 16:49:43

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-37-40
 Test Date: 1/4/07

AQUIFER DATA

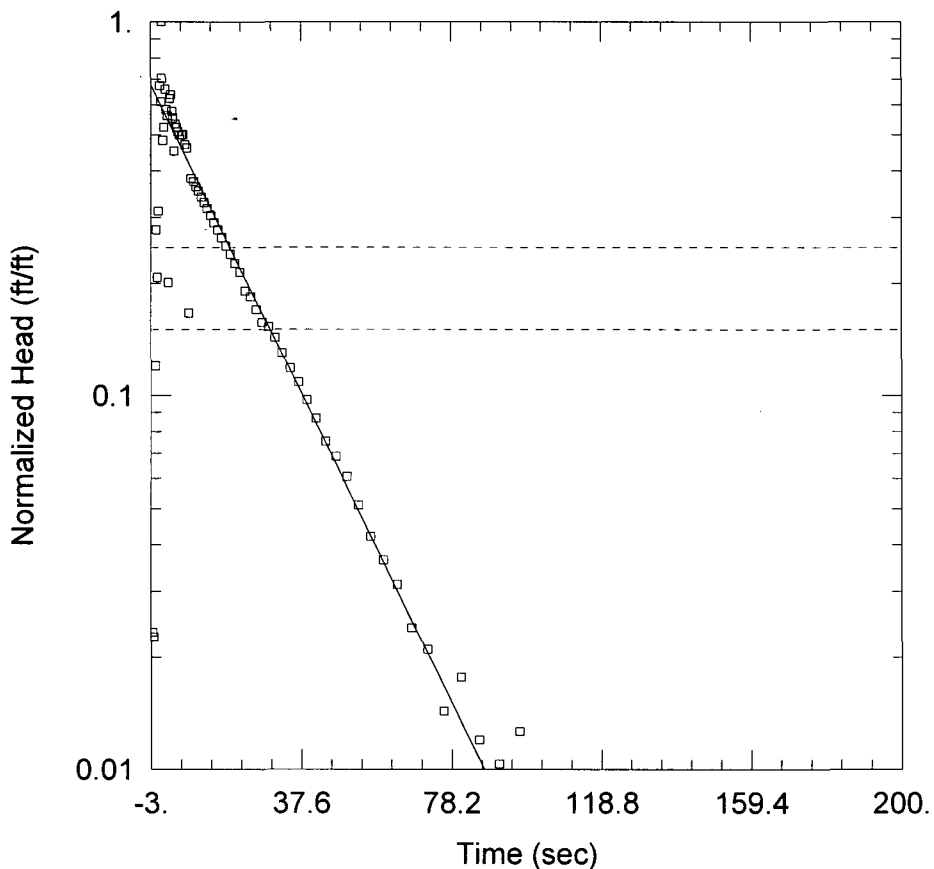
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-37-40)

Initial Displacement: 19.55 ft Static Water Column Height: 32.2 ft
 Total Well Penetration Depth: 32.2 ft Screen Length: 3.5 ft
 Casing Radius: 0.04167 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 0.004677 ft/day y0 = 19.41 ft



MW-37-57 SLUG TEST (RISING)

Data Set: J:\...\MW-37-57rising.aqt

Date: 09/11/07

Time: 18:47:47

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-37-57

Test Date: 4/4/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-37-57)

Initial Displacement: 3. ft

Static Water Column Height: 48. ft

Total Well Penetration Depth: 48. ft

Screen Length: 7. ft

Casing Radius: 0.04167 ft

Wellbore Radius: 0.159 ft

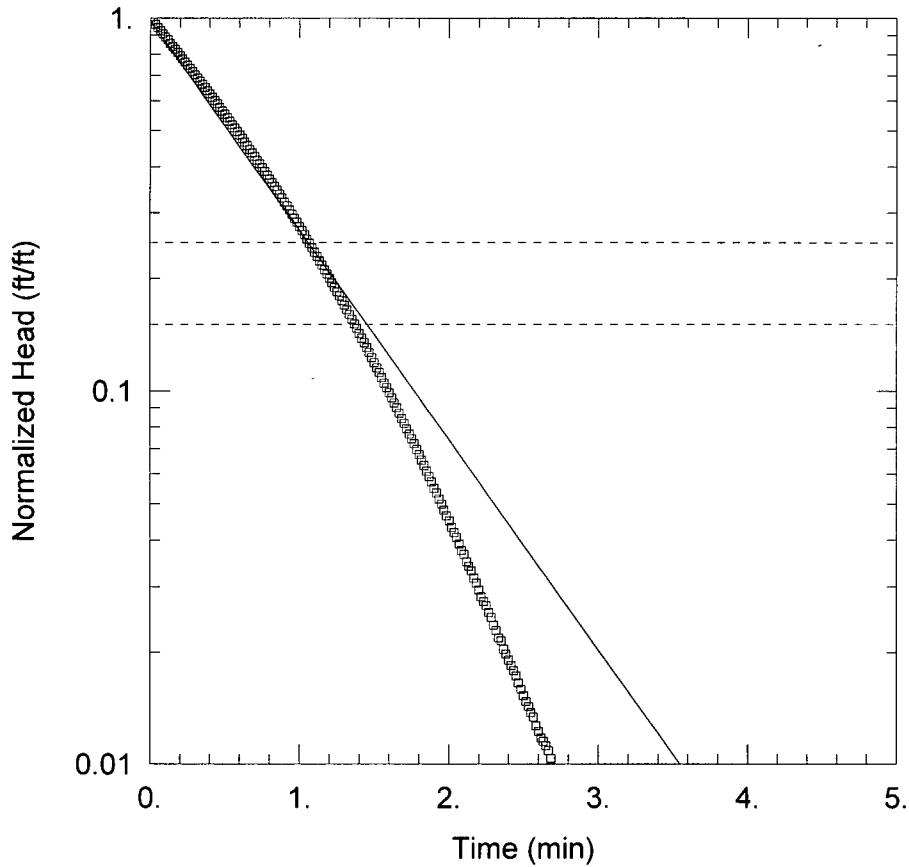
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 2.48 ft/day

y0 = 1.774 ft



MW-37-57 PNEUMATIC SLUG TEST

Data Set: J:\...MW-37-57Jan07.aqt

Date: 09/11/07

Time: 18:48:05

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-37-57

Test Date: 1/3/07

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-37-57)

Initial Displacement: 31.03 ft

Static Water Column Height: 48. ft

Total Well Penetration Depth: 48. ft

Screen Length: 7. ft

Casing Radius: 0.04167 ft

Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

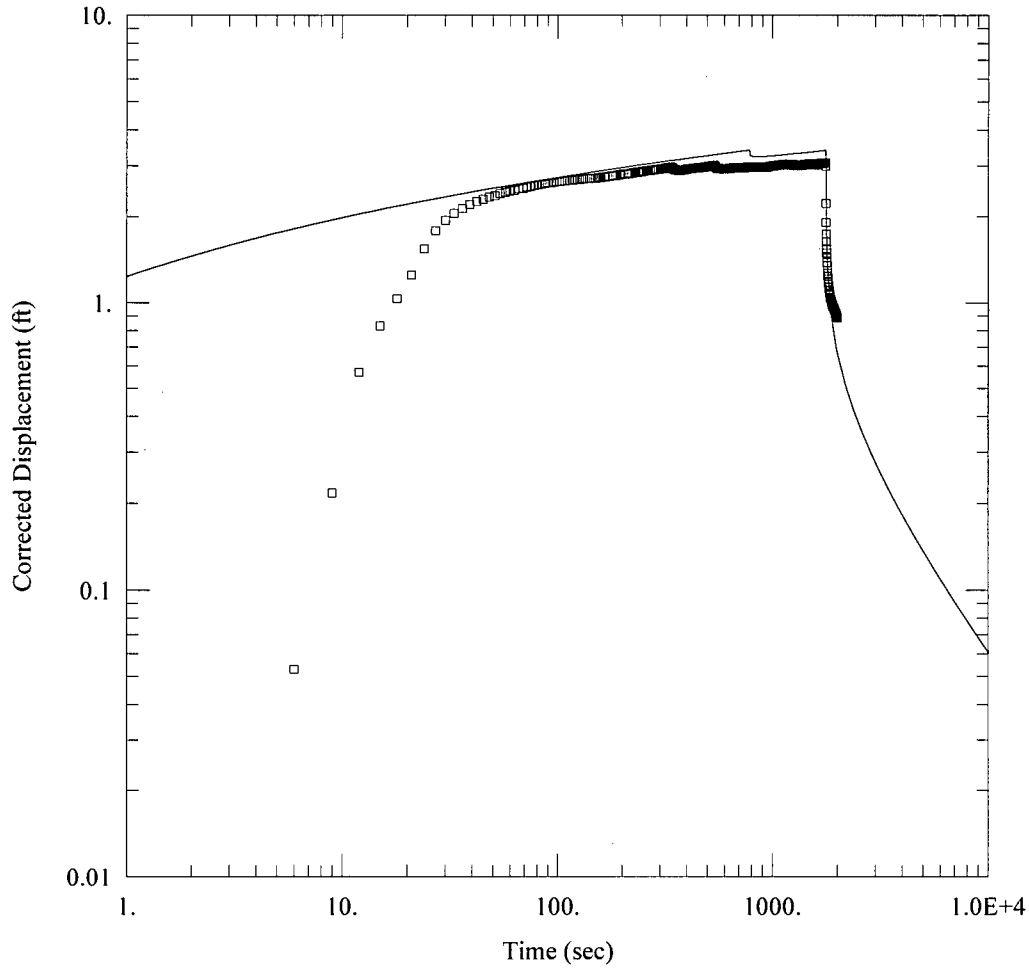
K = 1.14 ft/day

y0 = 30.48 ft

Estimate Transmissivity from Specific Capacity Data $\underline{R}_w := 0.167$ Radius of Well (FT.) $\underline{S}_w := 0.25$ Storage Coefficient, Assumed $t := \frac{50}{1440}$ Pumping Duration (Days.) $\underline{T}_w := 100$ Transmissivity (GPD/FT) *Initial Guess* $Q_p := 7.9$ Pumping Rate (GPM) $\underline{s}_w := 1.36$ Drawdown (FT.) $\frac{Q_p}{s} = 5.809$ Specific Capacity (GPM/FT)

$$aT := \text{root} \left(\frac{Q_p}{s} - \frac{T}{264 \cdot \log \left(\frac{0.3 \cdot T \cdot t}{R_w^2 \cdot S} \right)}, T \right)$$

Groundwater Resource Evaluation
William C. Walton Mc-Graw-hill 1970 $\underline{T}_w := aT$ $T_{ft} := \frac{T}{7.48}$ $T = 6069$ Computed Transmissivity (GPD/ Ft) $T_{ft} = 811$ **Computed Transmissivity (Sq.ft./Day)**



MW-39 T12 PACKERED EXTRACTION

Data Set: J:\...MW-39 t12 theis.aqt

Date: 09/10/07

Time: 16:48:49

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, NY

Test Well: MW-39

Test Date: 4/19/06

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
MW-39	0	0

Observation Wells

Well Name	X (ft)	Y (ft)
□ MW-39	0	0

SOLUTION

Aquifer Model: Unconfined

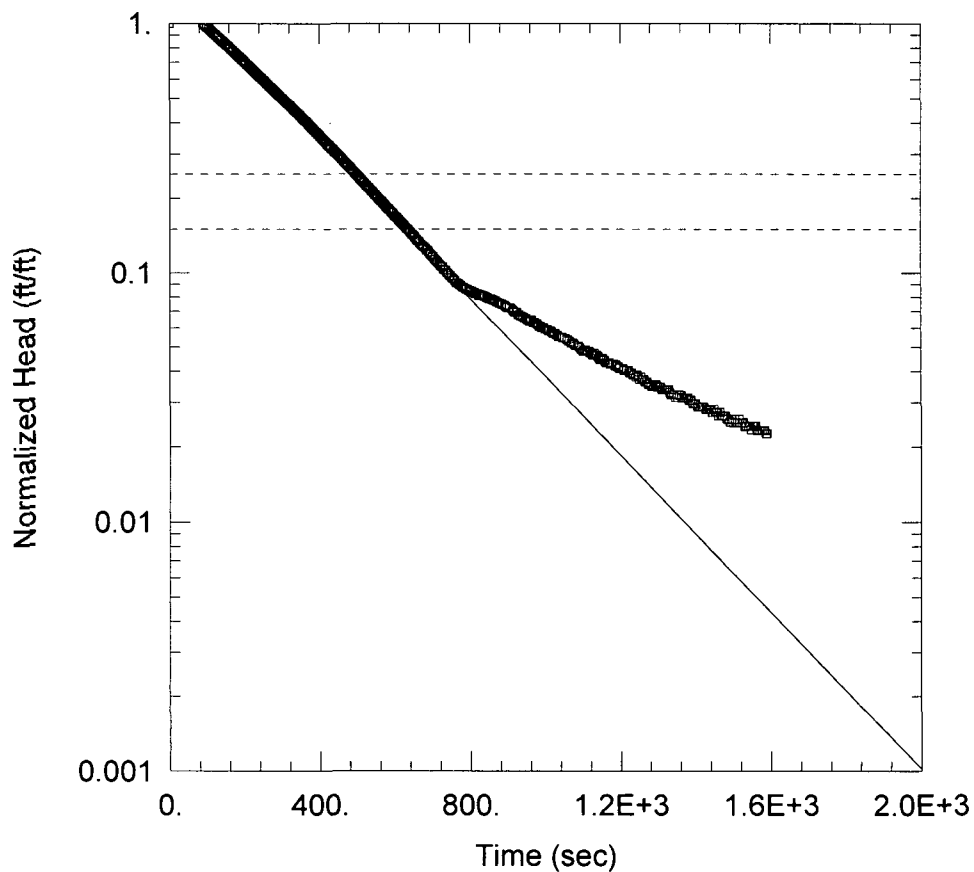
Solution Method: Theis

T = 121.6 ft²/day

S = 0.00291

Kz/Kr = 1.

b = 300. ft



MW-39 TEST 11

Data Set: J:\...MW-39 t11.aqt

Date: 04/19/07

Time: 14:35:02

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-39 (69.5-79.5)

Test Date: 04/19/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-39 T11)

Initial Displacement: 7. ft

Static Water Column Height: 21.71 ft

Total Well Penetration Depth: 21.71 ft

Screen Length: 10. ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

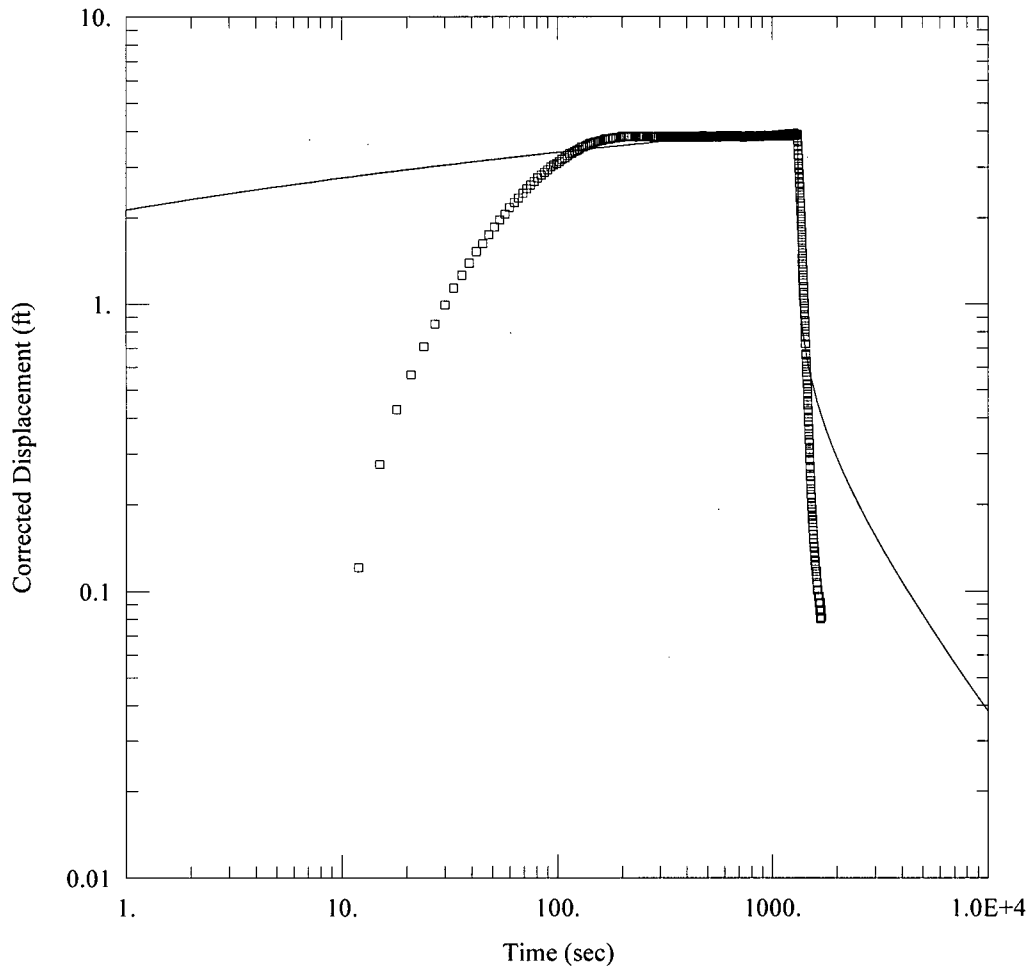
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.5746 ft/day

y0 = 9.952 ft



MW-39 T10 PACKERED EXTRACTION

Data Set: J:\...MW-39 t10 theis.aqt
 Date: 09/10/07

Time: 16:49:06

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, NY
 Test Well: MW-39
 Test Date: 4/19/06

WELL DATA

Pumping Wells

Observation Wells

Well Name	X (ft)	Y (ft)
MW-39	0	0

Well Name	X (ft)	Y (ft)
□ MW-39	0	0

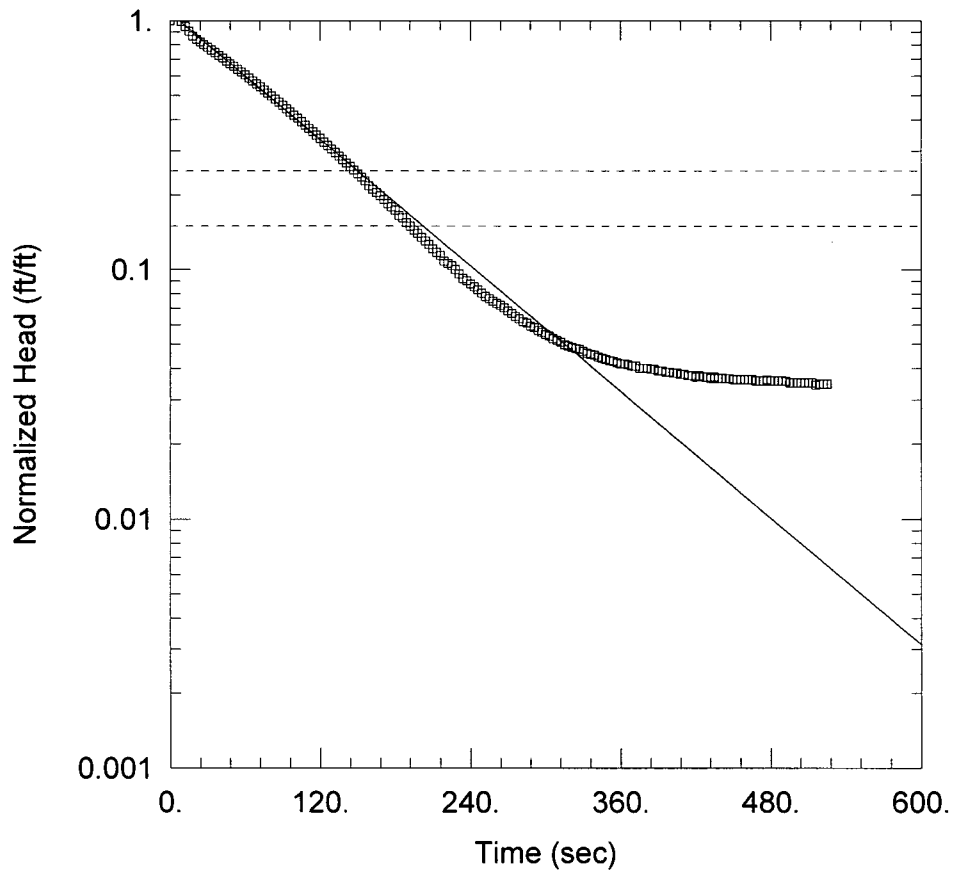
SOLUTION

Aquifer Model: Unconfined

Solution Method: Theis

T = 24.88 ft²/day
 Kz/Kr = 1.

S = 9.701E-6
 b = 300. ft



MW-39 TEST 10

Data Set: J:\...MW-39 t10.aqt
 Date: 04/19/07

Time: 14:33:13

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-39 (79.5-89.5)
 Test Date: 04/19/06

AQUIFER DATA

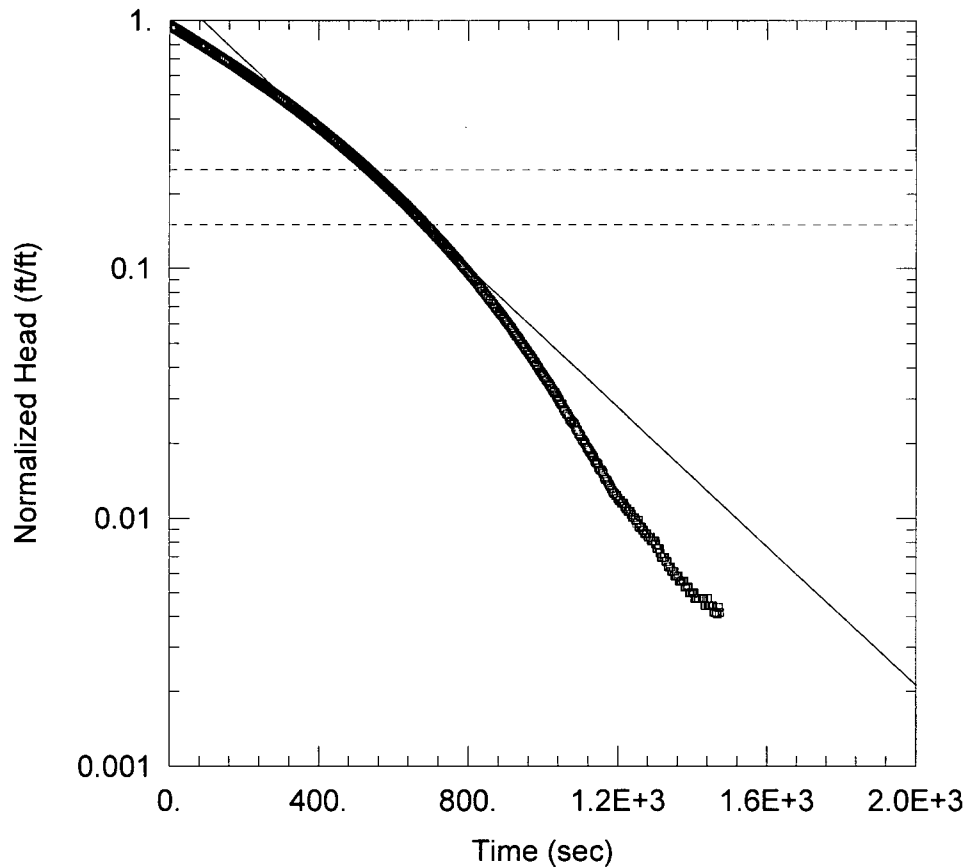
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-39 T10)

Initial Displacement: 13. ft Static Water Column Height: 31.71 ft
 Total Well Penetration Depth: 31.71 ft Screen Length: 10. ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 1.545 ft/day y0 = 13.98 ft



MW-39 TEST 9

Data Set: J:\...MW-39 t9.aqt
 Date: 04/19/07

Time: 14:31:11

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-39 (89.3-99.3)
 Test Date: 04/13/06

AQUIFER DATA

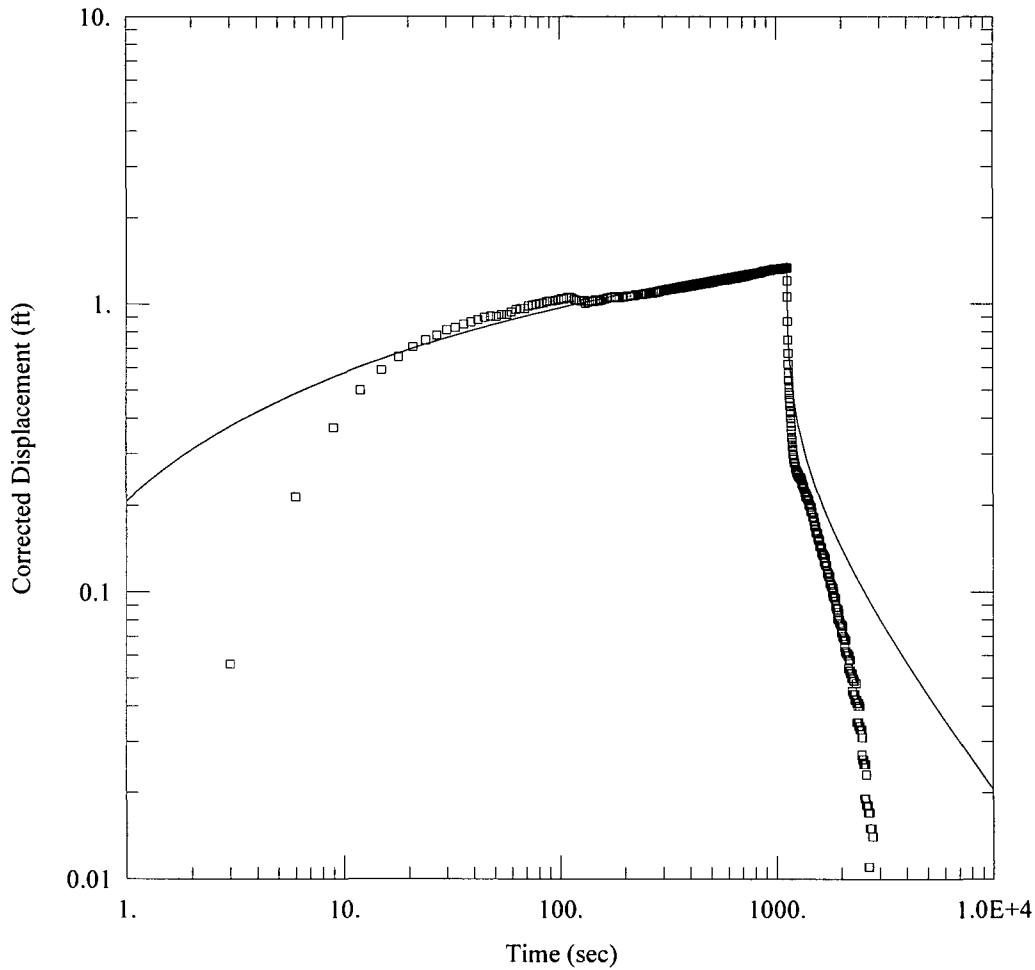
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-39 Test 9)

Initial Displacement: 19. ft Static Water Column Height: 46.8 ft
 Total Well Penetration Depth: 46.8 ft Screen Length: 10. ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 0.5113 ft/day y0 = 25.24 ft



MW-39 T8 PACKERED EXTRACTION

Data Set: J:\...MW-39 t8 this.aqt
 Date: 09/10/07

Time: 16:49:25

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, NY
 Test Well: MW-39
 Test Date: 4/11/06

WELL DATA

Pumping Wells			Observation Wells		
Well Name	X (ft)	Y (ft)	Well Name	X (ft)	Y (ft)
MW-39	0	0	□ MW-39	0	0

SOLUTION

Aquifer Model: Unconfined

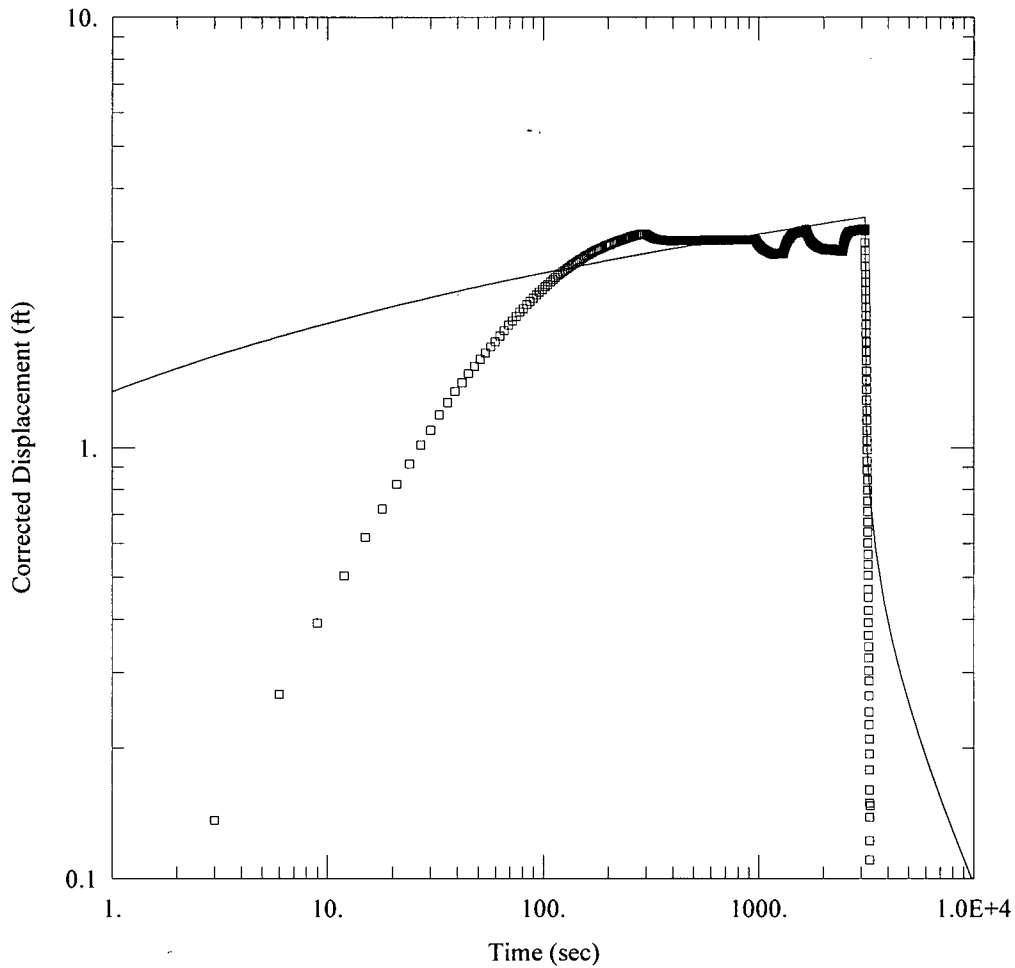
Solution Method: Thisis

T = 127.9 ft²/day

S = 0.04799

Kz/Kr = 1.

b = 300. ft



MW-39 T7 PACKERED EXTRACTION

Data Set: J:\...MW-39 t7 theis.aqt

Date: 09/10/07

Time: 16:49:43

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41:0017869.10

Location: Buchanan, NY

Test Well: MW-39

Test Date: 4/10/06

WELL DATA

Pumping Wells

Observation Wells

Well Name	X (ft)	Y (ft)
MW-39	0	0

Well Name	X (ft)	Y (ft)
□ MW-39	0	0

SOLUTION

Aquifer Model: Unconfined

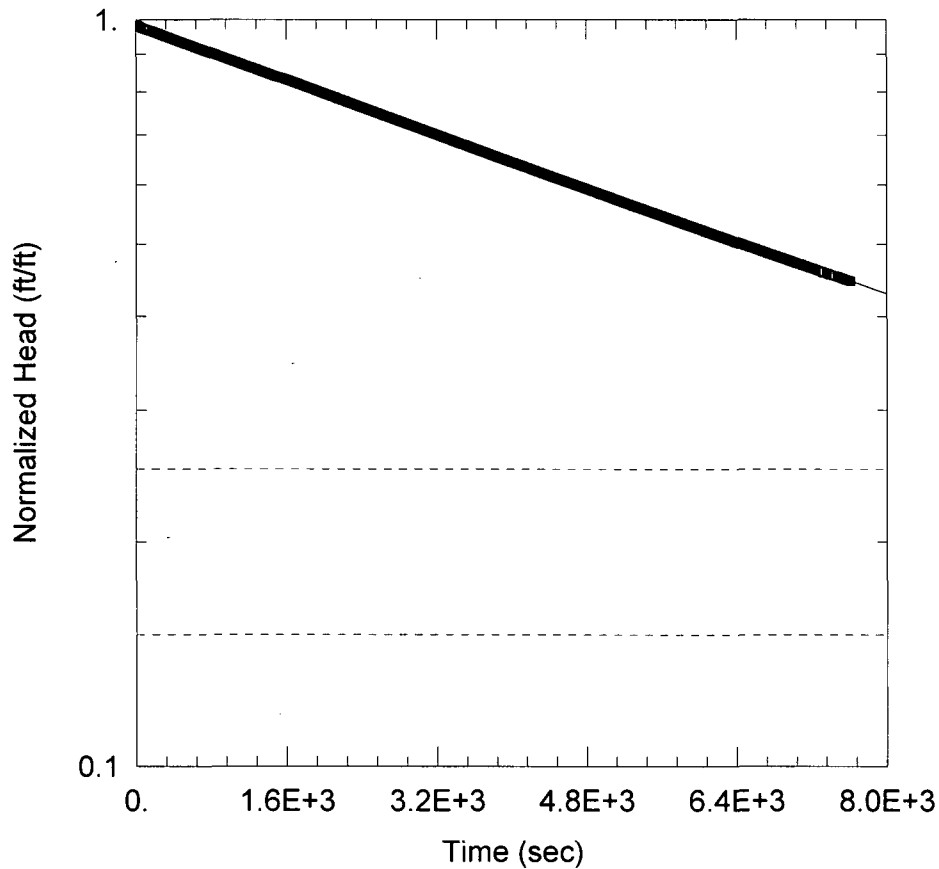
Solution Method: Theis

T = 22.74 ft²/day

S = 0.0001326

Kz/Kr = 1.

b = 300. ft



MW-39 TEST 6

Data Set: J:\...MW-39 t6.aqt
 Date: 04/19/07

Time: 14:29:09

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-39 (129.0-139.0)
 Test Date: 04/10/06

AQUIFER DATA

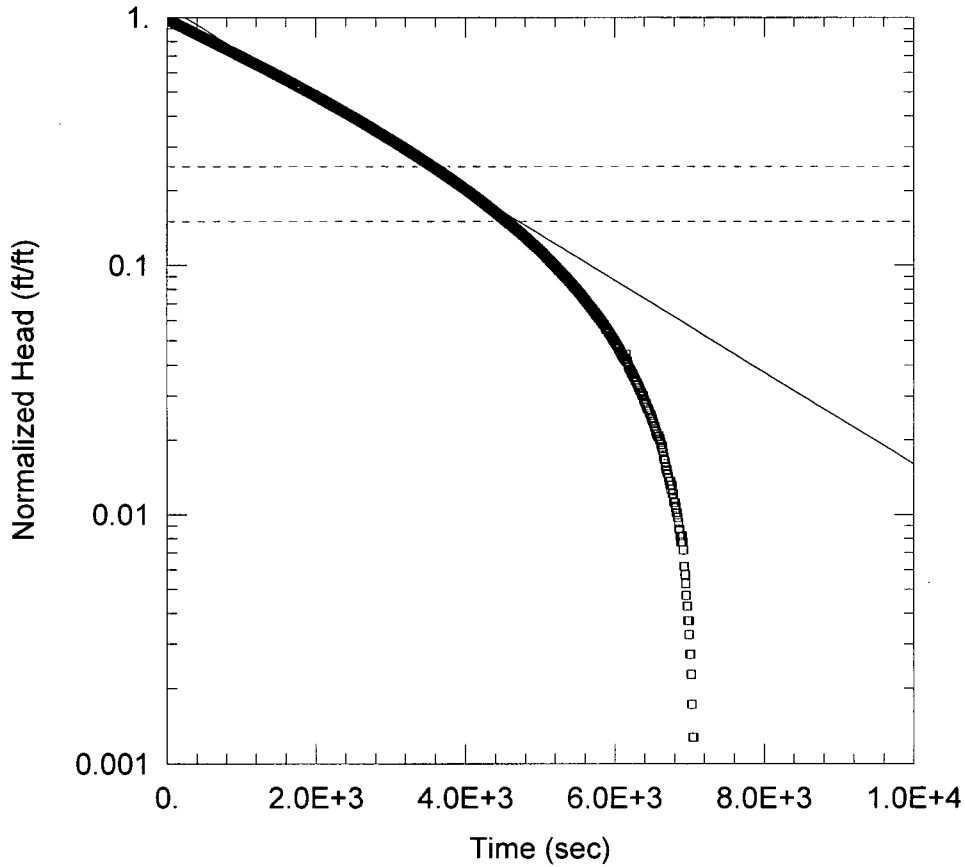
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-39 Test 6)

Initial Displacement: 13.5 ft Static Water Column Height: 81.88 ft
 Total Well Penetration Depth: 81.88 ft Screen Length: 10. ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 0.01631 ft/day $y_0 =$ 13.19 ft



MW-39 TEST 5

Data Set: J:\...MW-39 t5.aqt
 Date: 04/19/07

Time: 14:28:40

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-39 (139.2-149.2)
 Test Date: 04/6/06

AQUIFER DATA

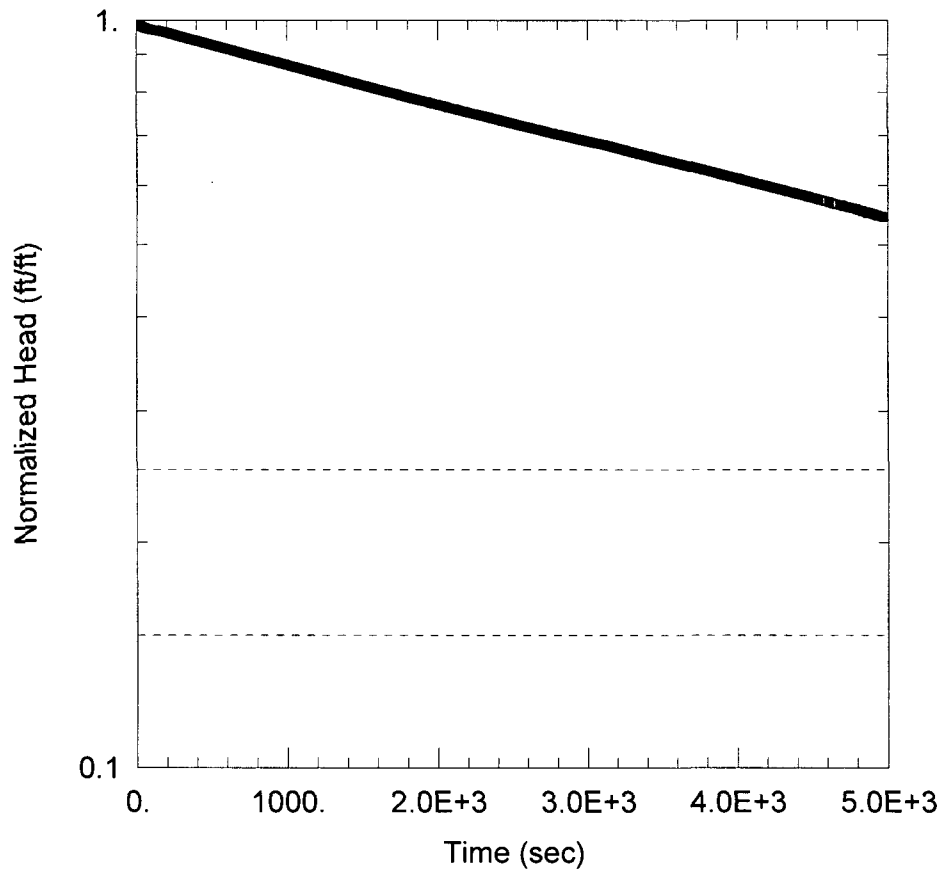
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-39 Test 5)

Initial Displacement: 11. ft Static Water Column Height: 92.08 ft
 Total Well Penetration Depth: 92.08 ft Screen Length: 10. ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 0.06719 ft/day y0 = 12.16 ft



MW-39 TEST 4

Data Set: J:\...MW-39 t4.aqt

Date: 04/19/07

Time: 14:28:20

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-39 (152.2-162.2)

Test Date: 04/6/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-39 Test 4)

Initial Displacement: 8.5 ft

Static Water Column Height: 105.1 ft

Total Well Penetration Depth: 105.1 ft

Screen Length: 10. ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

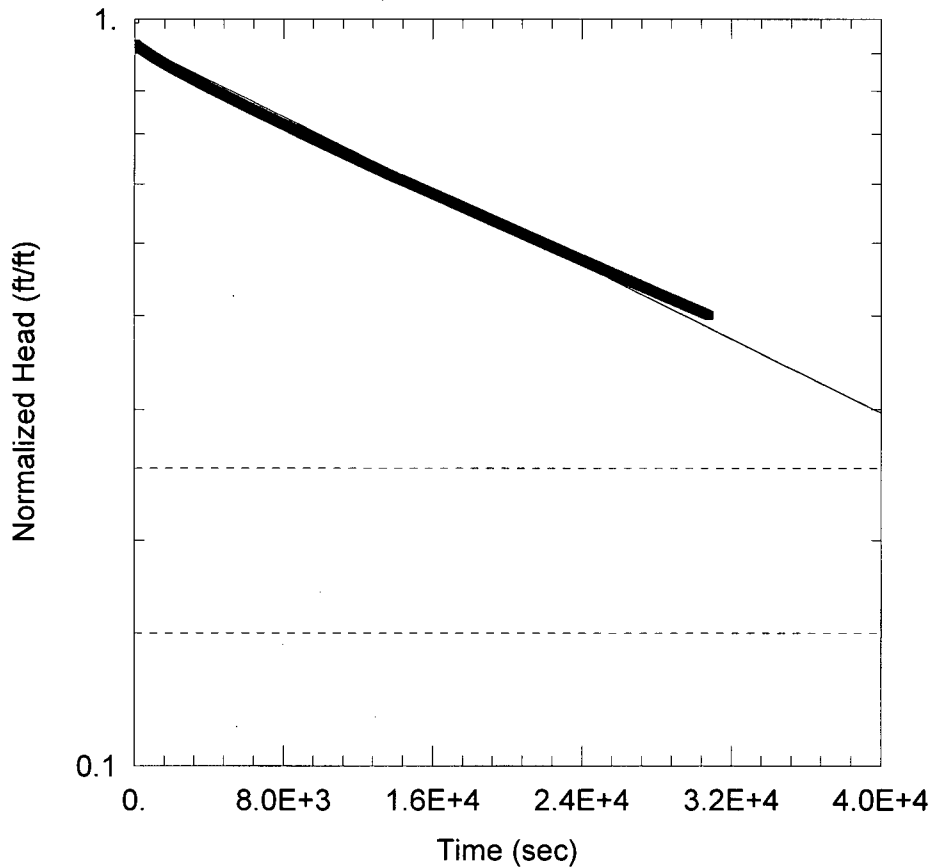
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.01934 ft/day

y0 = 8.472 ft



MW-39 TEST 3

Data Set: J:\...MW-39 T3.aqt
 Date: 04/19/07

Time: 14:27:14

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-39 (165.0-175.0)
 Test Date: 04/6/06

AQUIFER DATA

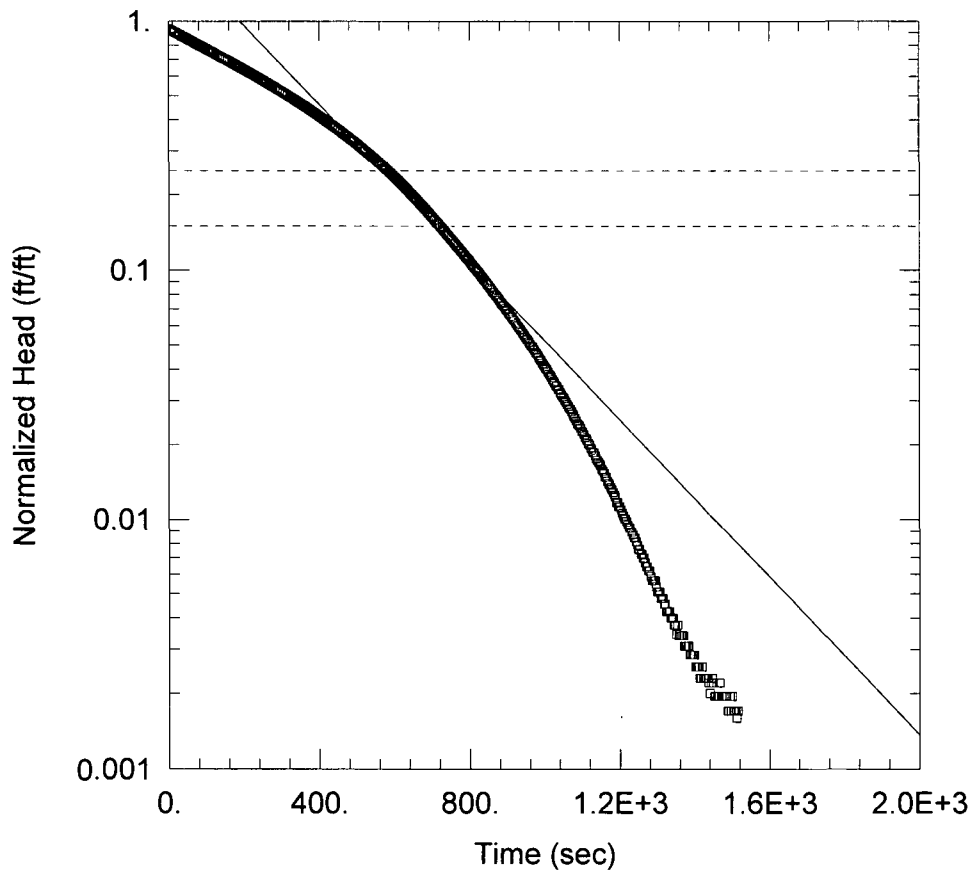
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-39 Test 3)

Initial Displacement: 23. ft Static Water Column Height: 117.9 ft
 Total Well Penetration Depth: 117.9 ft Screen Length: 10. ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 0.00452 ft/day y0 = 21.34 ft



MW-39 TEST 2

Data Set: J:\...MW-39 T2.aqt
 Date: 04/19/07

Time: 14:26:05

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-39 (175.0-185.0)
 Test Date: 04/5/06

AQUIFER DATA

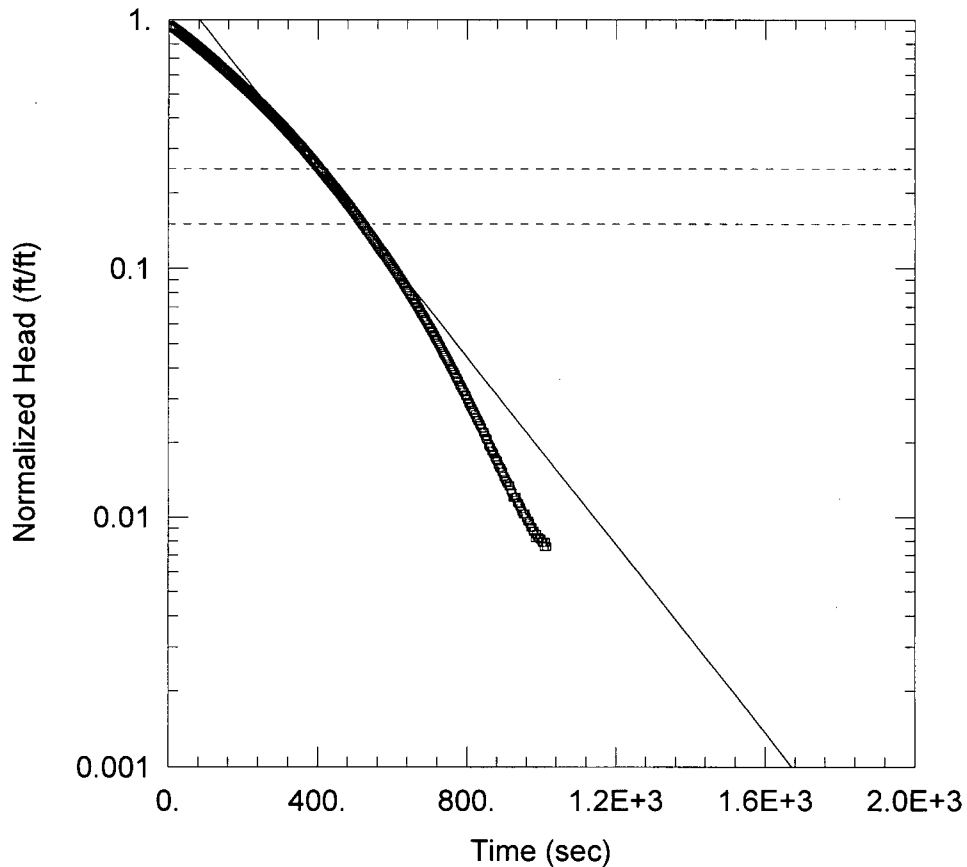
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-39 Test 2)

Initial Displacement: 20. ft Static Water Column Height: 127.9 ft
 Total Well Penetration Depth: 127.9 ft Screen Length: 10. ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 0.5784 ft/day $y_0 =$ 39.77 ft



MW-39 TEST 1

Data Set: J:\...MW-39 t1.aqt

Date: 04/19/07

Time: 14:25:30

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-39 (183.2-193.2)

Test Date: 04/5/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (K_z/K_r): 0.1

WELL DATA (MW-39 Test 1)

Initial Displacement: 20. ft

Static Water Column Height: 136.1 ft

Total Well Penetration Depth: 136.1 ft

Screen Length: 10. ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

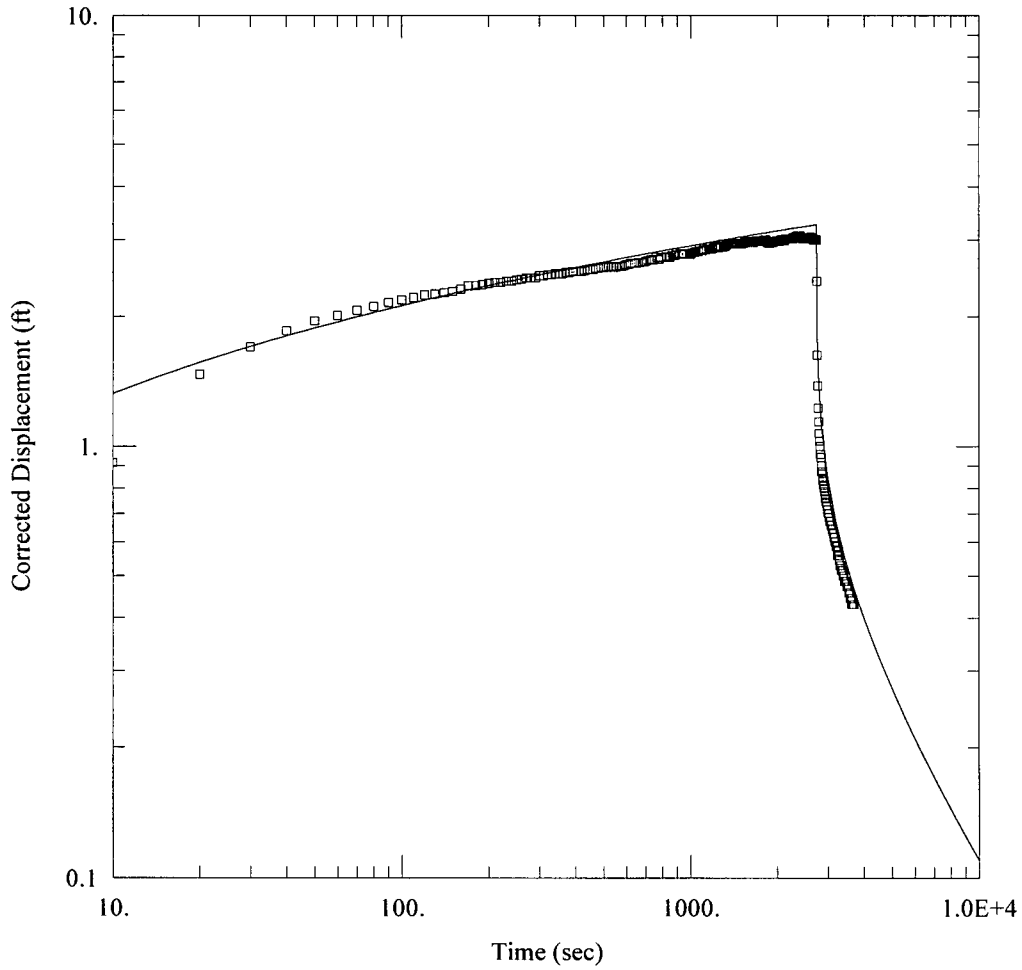
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

$K = 0.6907$ ft/day

$y_0 = 28.68$ ft



MW-40 T12 PACKERED EXTRACTION

Data Set: J:\...\MW-40 t12 theis.aqt
 Date: 09/10/07

Time: 16:53:28

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, NY
 Test Well: MW-40
 Test Date: 5/16/06

WELL DATA

Pumping Wells			Observation Wells		
Well Name	X (ft)	Y (ft)	Well Name	X (ft)	Y (ft)
MW-40	0	0	□ MW-40	0	0

SOLUTION

Aquifer Model: Unconfined

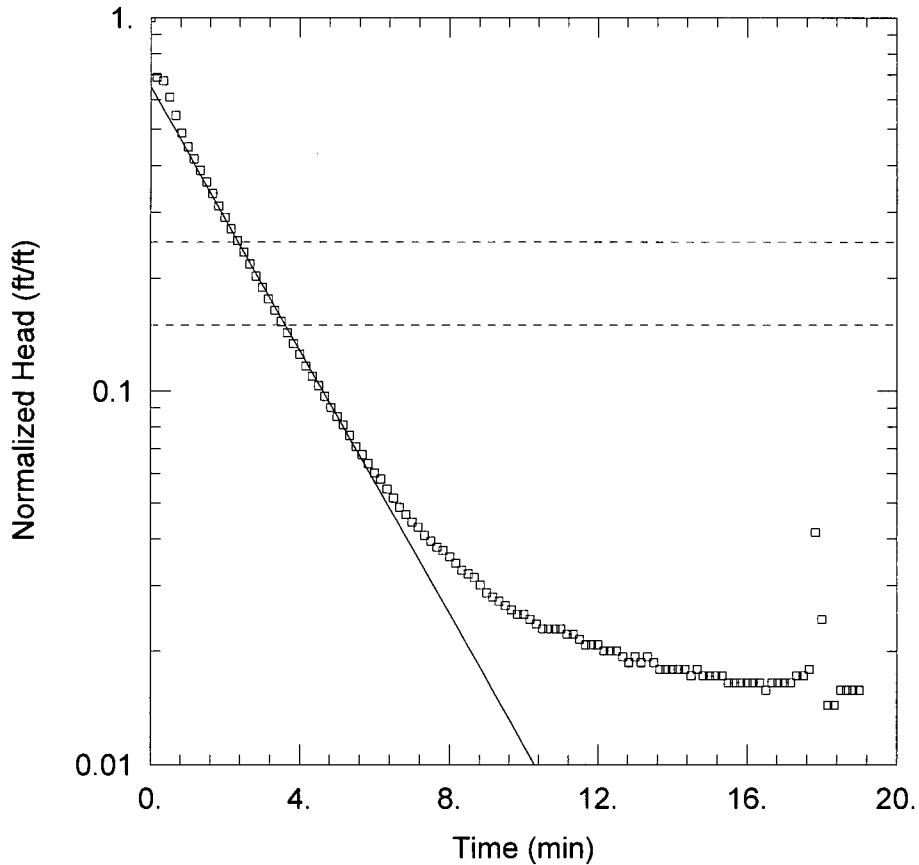
Solution Method: Theis

T = 74.05 ft²/day

S = 0.01628

Kz/Kr = 1.

b = 300. ft



MW-40 TEST 11

Data Set: J:\...MW-40 t11.aqt
 Date: 04/19/07

Time: 15:54:26

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-40 (28.0-38.0)
 Test Date: 5/16/06

AQUIFER DATA

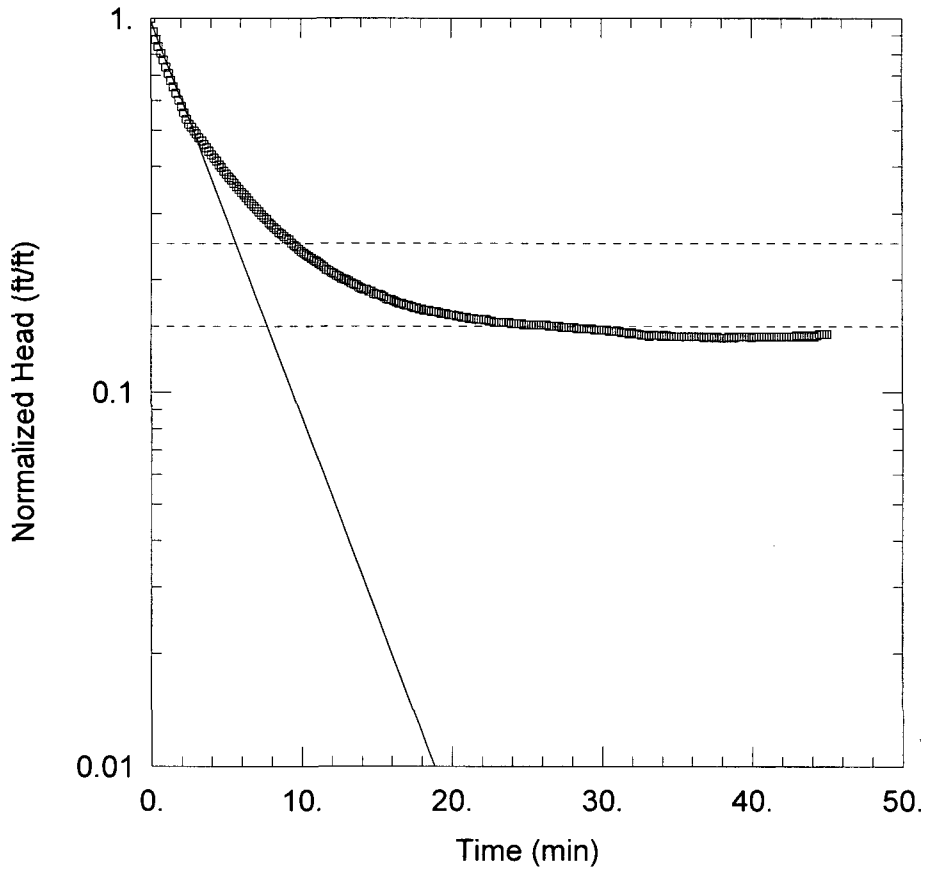
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-40 T11)

Initial Displacement: 20. ft Static Water Column Height: 21.74 ft
 Total Well Penetration Depth: 21.74 ft Screen Length: 10. ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 1.074 ft/day y0 = 12.98 ft



MW-40 TEST 10

Data Set: J:\...MW-40 t10.aqt
 Date: 09/10/07

Time: 16:56:15

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-40 (34.0-44.0)
 Test Date: 5/15/06

AQUIFER DATA

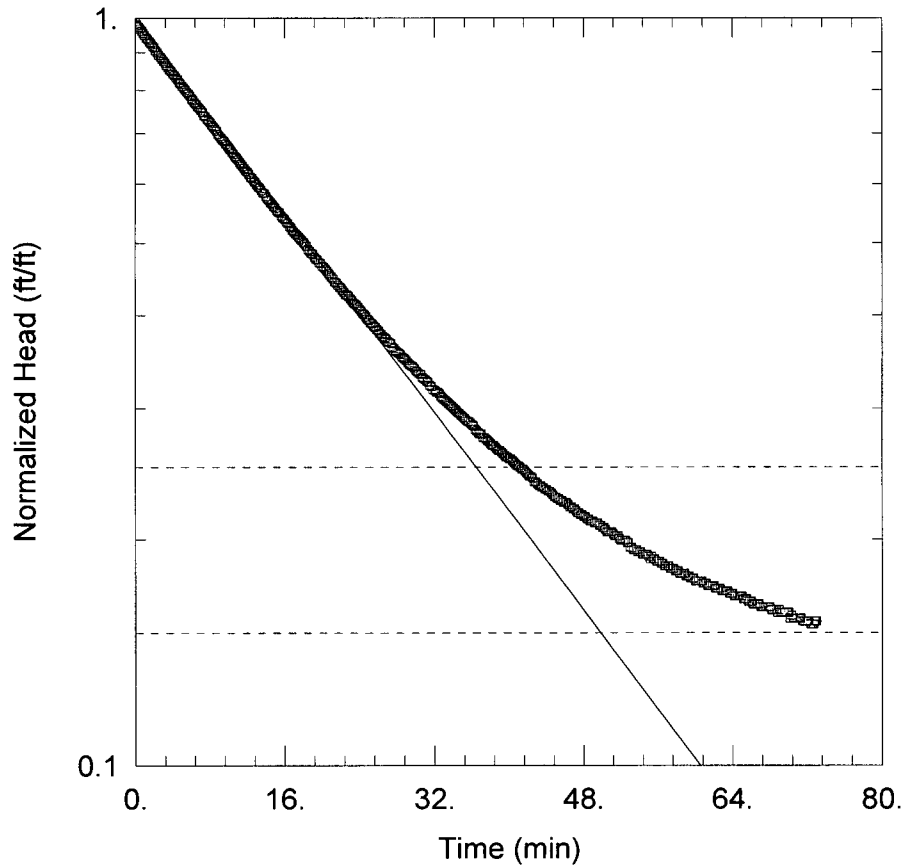
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-40 T10)

Initial Displacement: 12. ft Static Water Column Height: 27.74 ft
 Total Well Penetration Depth: 27.74 ft Screen Length: 10. ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 0.6442 ft/day y0 = 11.76 ft



MW-40 TEST 9

Data Set: J:\...MW-40 t9.aqt

Date: 09/10/07

Time: 16:56:02

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-40 (44.0-54.0)

Test Date: 5/15/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (K_z/K_r): 0.1

WELL DATA (MW-40 Test 9)

Initial Displacement: 10.5 ft

Static Water Column Height: 37.85 ft

Total Well Penetration Depth: 37.85 ft

Screen Length: 10. ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

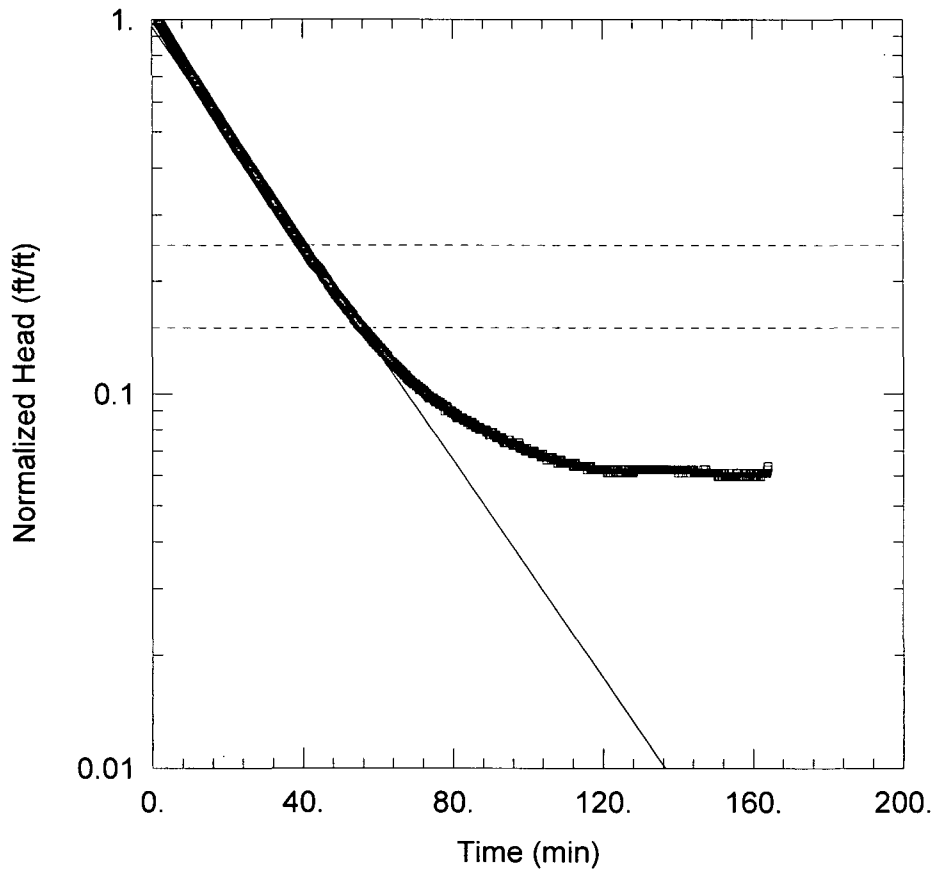
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

$K = 0.1007$ ft/day

$y_0 = 10.52$ ft



MW-40 TEST 8

Data Set: J:\...MW-40 t8.aqt
 Date: 04/19/07

Time: 15:53:18

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-40 (52.0-62.0)
 Test Date: 5/15/06

AQUIFER DATA

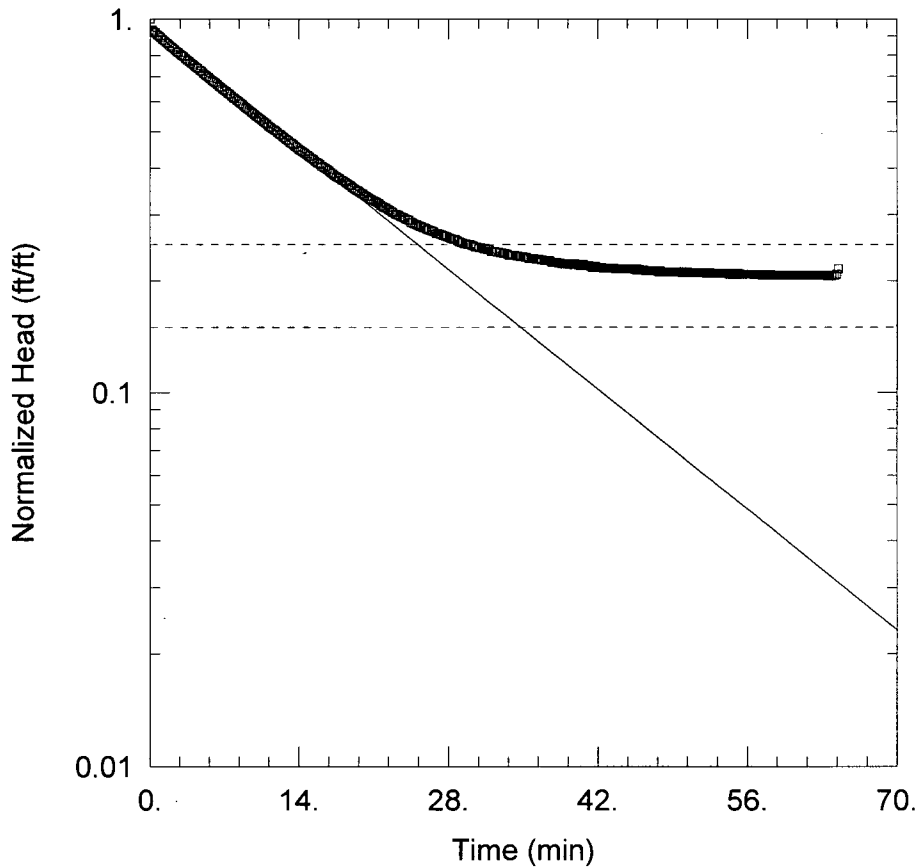
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-40 Test 8)

Initial Displacement: 11.5 ft Static Water Column Height: 45.85 ft
 Total Well Penetration Depth: 45.85 ft Screen Length: 10. ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 0.08836 ft/day y0 = 11. ft



MW-40 TEST7

Data Set: J:\...MW-40 t7.aqt

Date: 09/10/07

Time: 16:55:46

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-40 (62.5-72.5)

Test Date: 5/15/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-40 Test 1)

Initial Displacement: 12.8 ft

Static Water Column Height: 56.45 ft

Total Well Penetration Depth: 56.45 ft

Screen Length: 10. ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

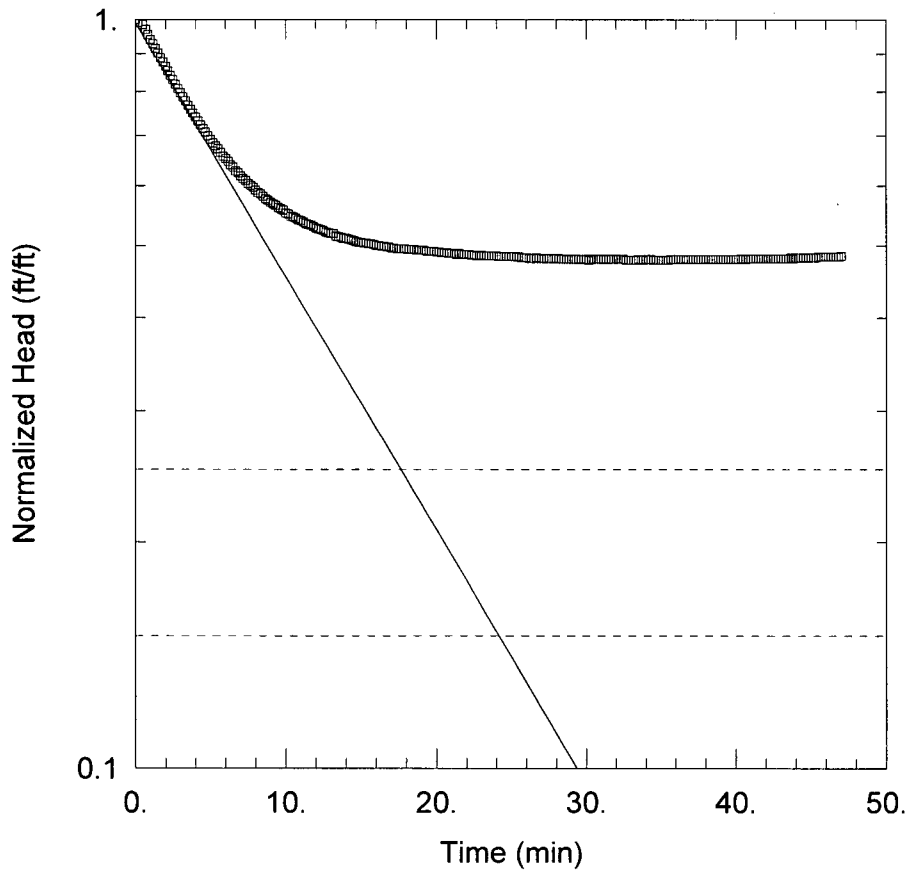
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.1403 ft/day

y0 = 12.13 ft



MW-40 TEST 6

Data Set: J:\...MW-40 t6.aqt
 Date: 09/10/07

Time: 16:55:31

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-40 (80.0-90.0)
 Test Date: 5/12/06

AQUIFER DATA

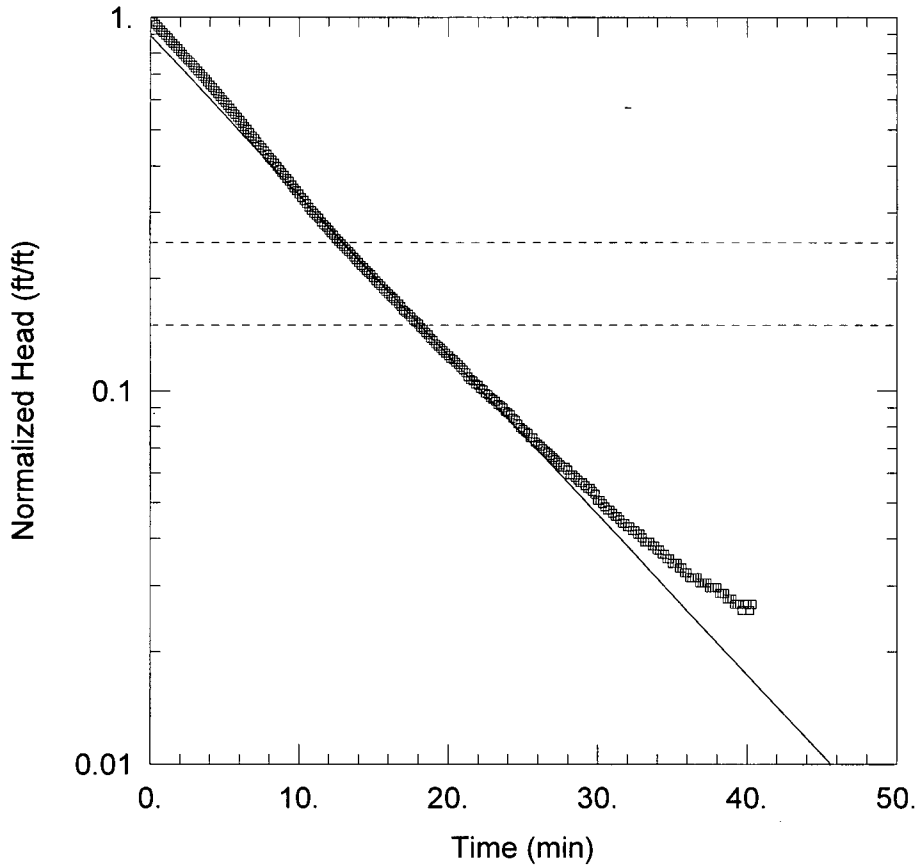
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-40 Test 6)

Initial Displacement: 11.7 ft Static Water Column Height: 74.4 ft
 Total Well Penetration Depth: 74.4 ft Screen Length: 10. ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 0.2067 ft/day $y_0 =$ 11.59 ft



MW-40 TEST 5

Data Set: J:\...MW-40 t5.aqt
 Date: 04/19/07

Time: 15:51:04

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-40 (95.0-105.0)
 Test Date: 5/11/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-40 Test 5)

Initial Displacement: 15. ft

Static Water Column Height: 88.87 ft

Total Well Penetration Depth: 88.87 ft

Screen Length: 10. ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

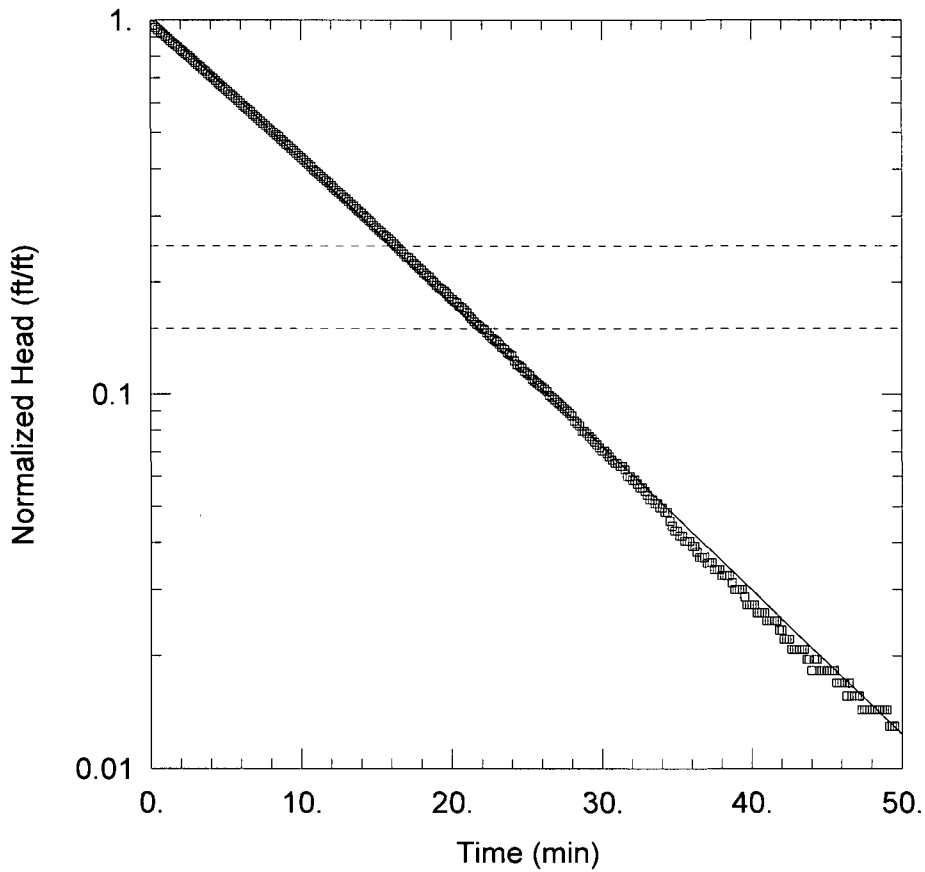
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.2608 ft/day

y0 = 13.4 ft



MW-40 TEST 4

Data Set: J:\...MW-40 t4.aqt
 Date: 04/19/07

Time: 15:51:29

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-40 (127.0-137.0)
 Test Date: 5/11/06

AQUIFER DATA

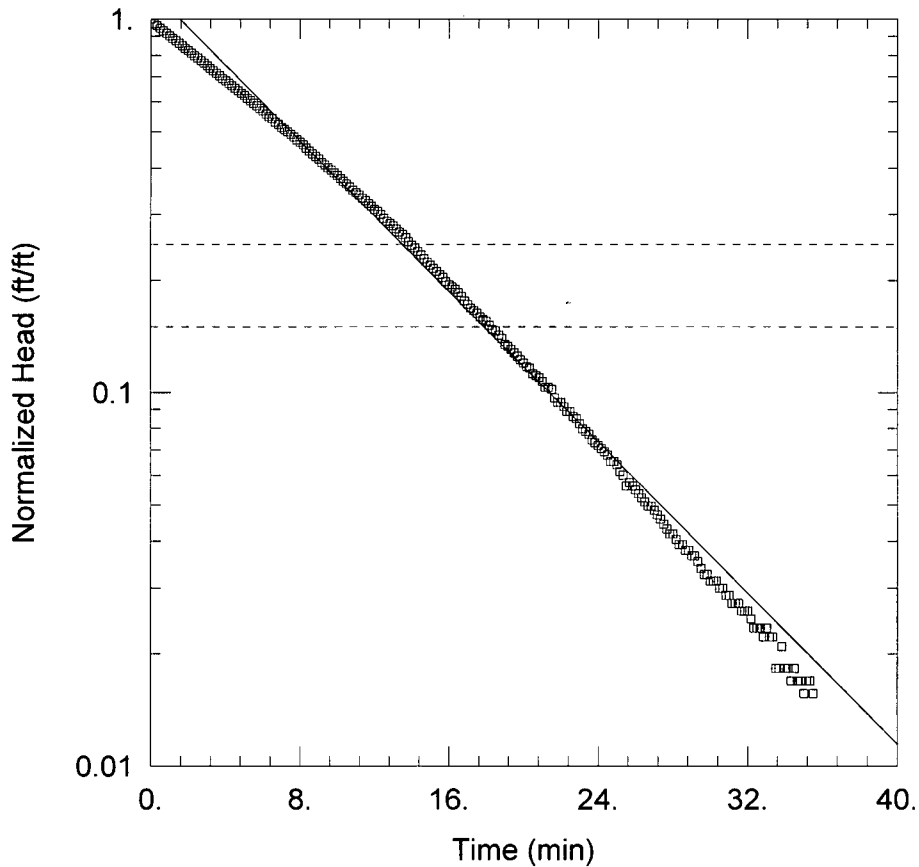
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-40 Test 4)

Initial Displacement: 11. ft Static Water Column Height: 120.9 ft
 Total Well Penetration Depth: 120.9 ft Screen Length: 10. ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 0.2339 ft/day y0 = 11.31 ft



MW-40 TEST 3

Data Set: J:\...MW-40 t3.aqt

Date: 04/19/07

Time: 15:50:04

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-40 (146.0-156.0)

Test Date: 5/11/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-40 Test 3)

Initial Displacement: 11. ft

Static Water Column Height: 139.9 ft

Total Well Penetration Depth: 139.9 ft

Screen Length: 10. ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

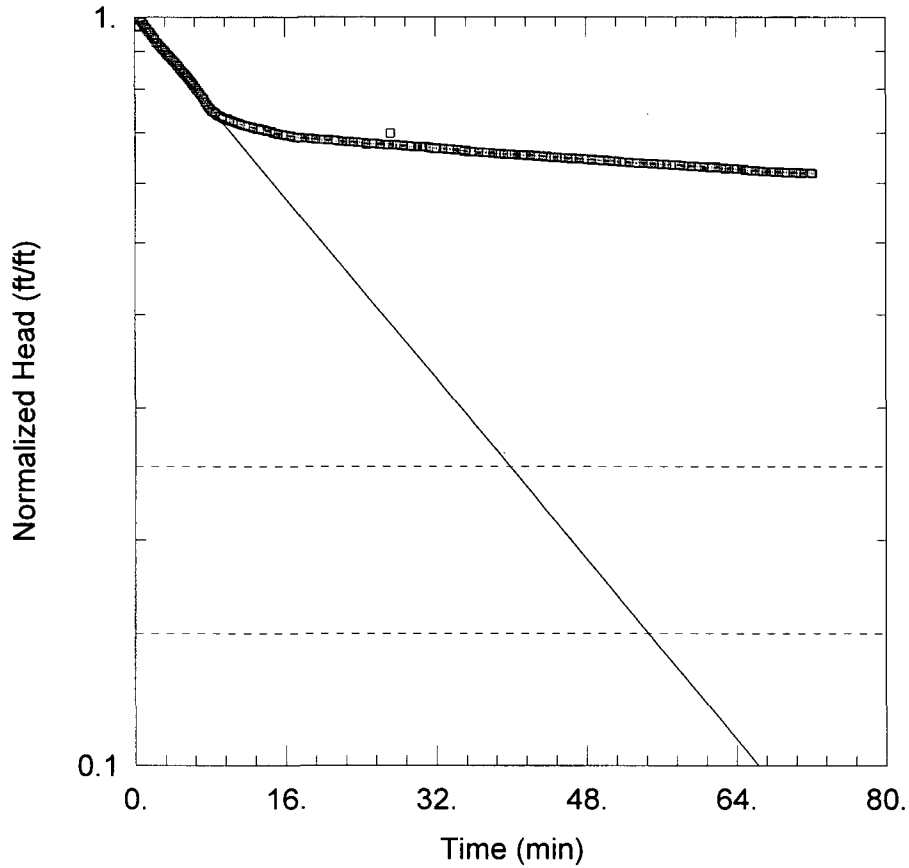
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.3075 ft/day

y0 = 13.18 ft



MW-40 TEST 2

Data Set: J:\...MW-40 t2.aqt
 Date: 09/10/07

Time: 16:55:08

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-40 (160.0-170.0)
 Test Date: 5/10/06

AQUIFER DATA

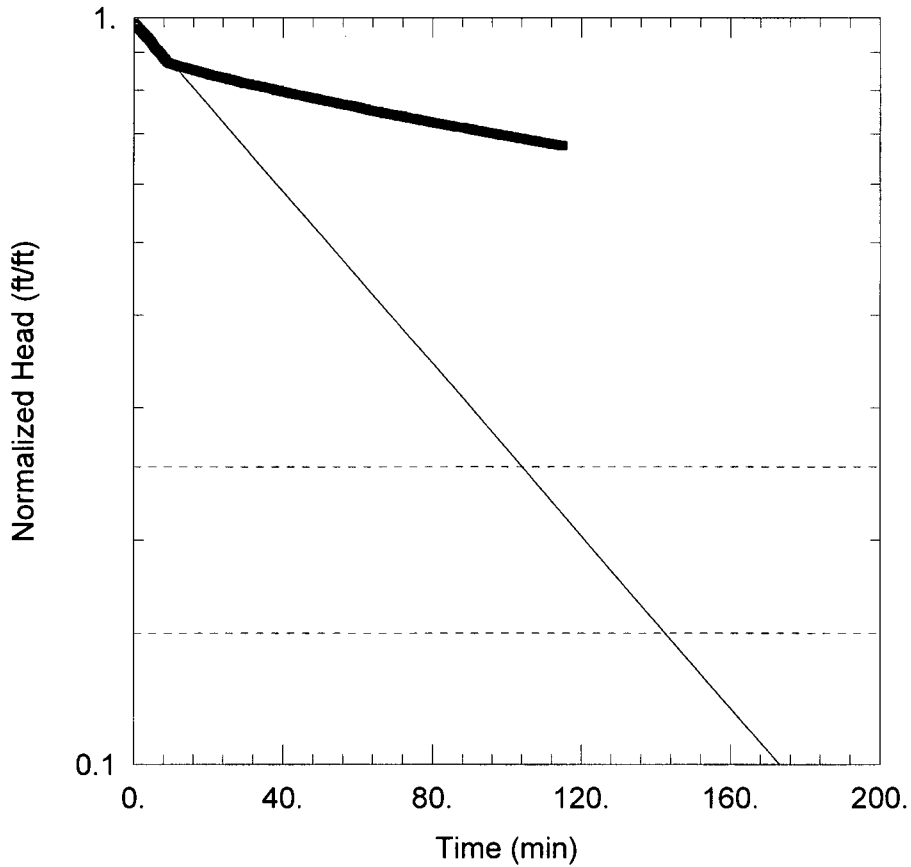
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-40 Test 2)

Initial Displacement: 11.5 ft Static Water Column Height: 154. ft
 Total Well Penetration Depth: 154. ft Screen Length: 10. ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 0.0918 ft/day y0 = 11.48 ft



MW-40 TEST 1

Data Set: J:\...MW-40 t1.aqt
 Date: 09/10/07

Time: 16:54:53

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-40 (178.0-188.0)
 Test Date: 5/10/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-40 Test 1)

Initial Displacement: 20. ft

Static Water Column Height: 136.1 ft

Total Well Penetration Depth: 136.1 ft

Screen Length: 10. ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

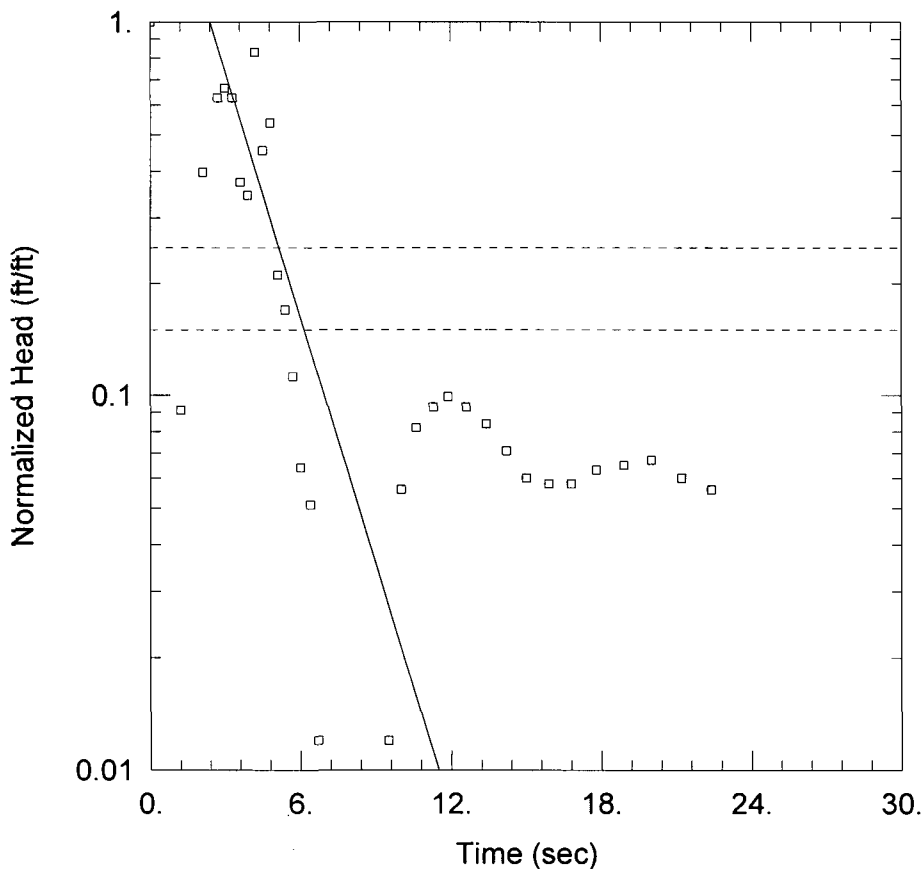
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.03516 ft/day

y0 = 19.95 ft



MW-41-64 SLUG TEST (RISING)

Data Set: J:\...\MW-41-64rising.aqt

Date: 04/23/07

Time: 14:38:48

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-41-64

Test Date: 5/2/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-41-64)

Initial Displacement: 1. ft

Static Water Column Height: 64. ft

Total Well Penetration Depth: 9. ft

Screen Length: 9. ft

Casing Radius: 0.04167 ft

Wellbore Radius: 0.159 ft

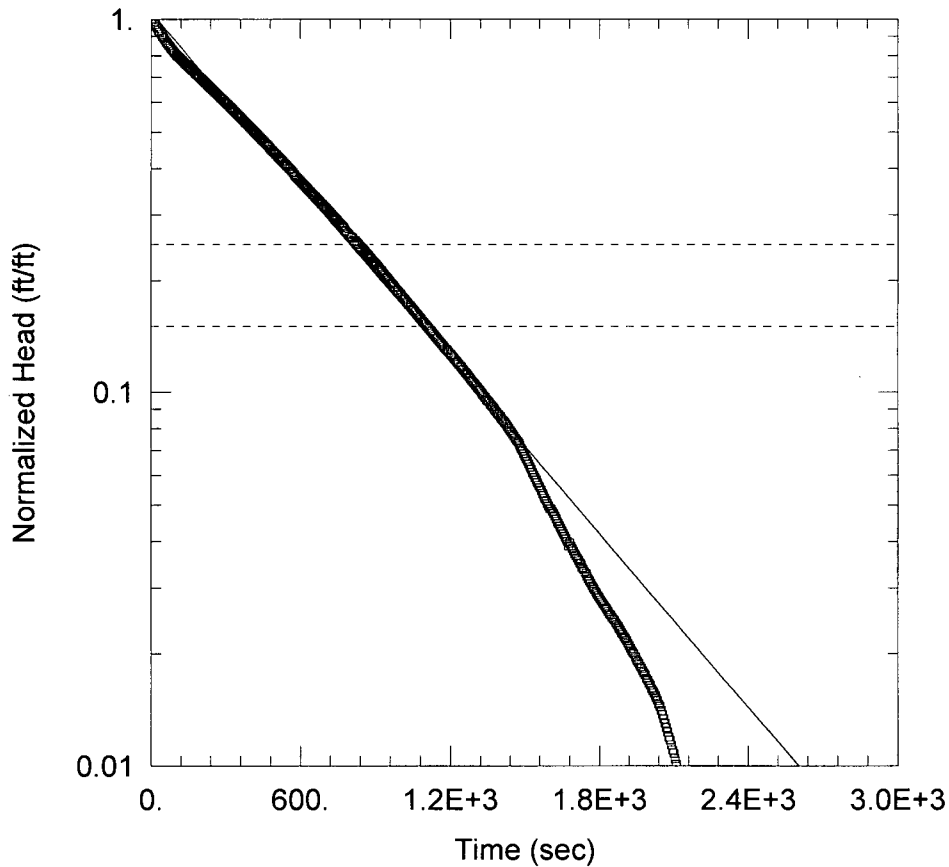
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 21.9 ft/day

y0 = 3.392 ft



MW-41-42 SLUG TEST (RISING)

Data Set: J:\...MW-41-42rising.aqt

Date: 09/11/07

Time: 18:49:26

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-41-42

Test Date: 5/11/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-41-42)

Initial Displacement: 14.08 ft

Static Water Column Height: 22.46 ft

Total Well Penetration Depth: 22.46 ft

Screen Length: 22.46 ft

Casing Radius: 0.04167 ft

Wellbore Radius: 0.159 ft

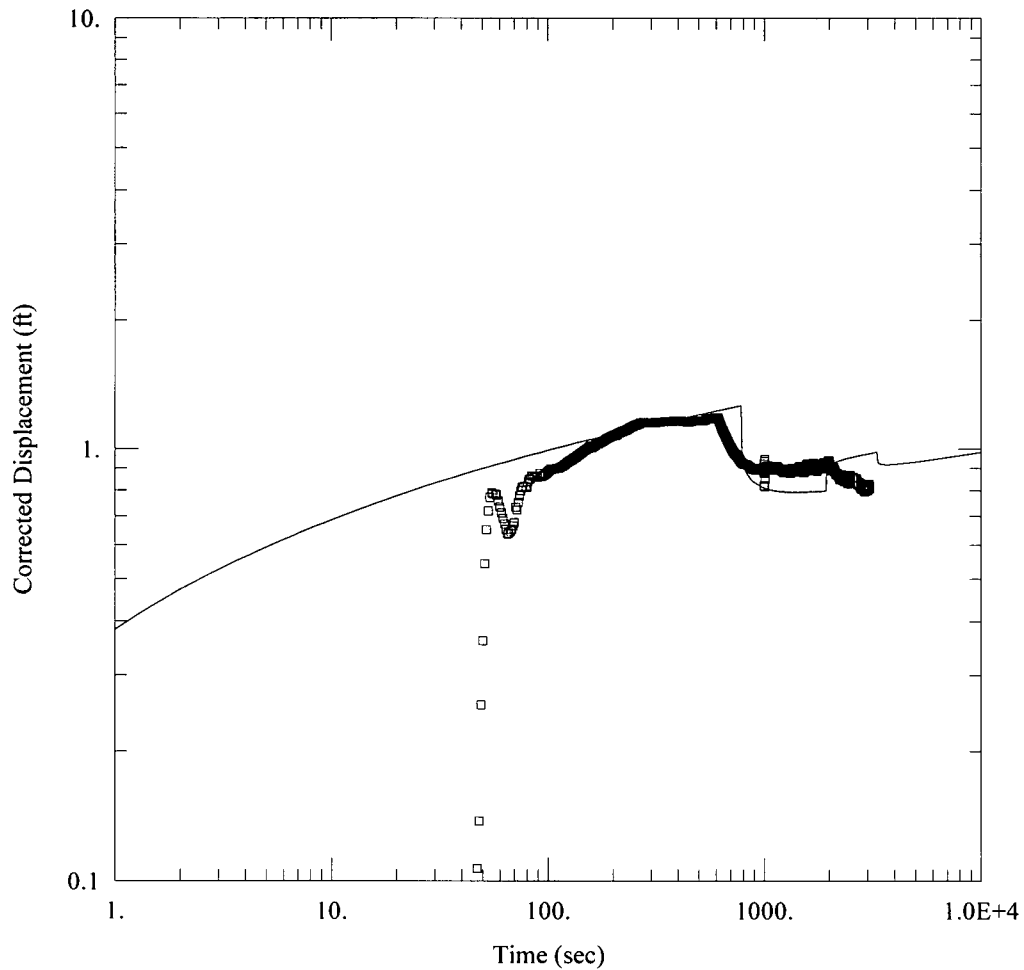
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.03638 ft/day

y0 = 14.68 ft



MW-42-51 EXTRACTION

Data Set: J:\...\sy42-51 theis.aqt
 Date: 09/11/07

Time: 18:50:30

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, NY
 Test Well: MW-42-51
 Test Date: 5/30/06

WELL DATA

Pumping Wells			Observation Wells		
Well Name	X (ft)	Y (ft)	Well Name	X (ft)	Y (ft)
MW-42-51	0	0	□ MW-42-51	0	0

SOLUTION

Aquifer Model: Unconfined

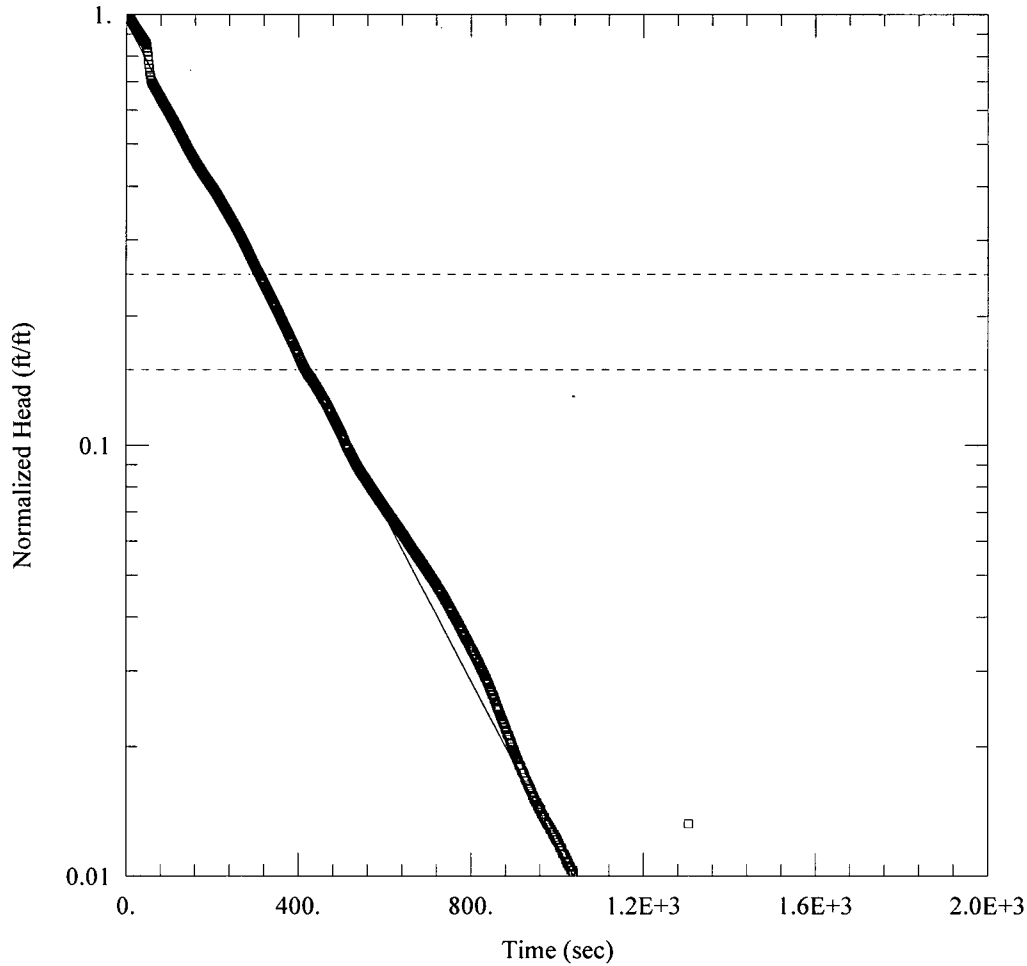
Solution Method: Theis

T = 12.64 ft²/day

S = 0.00076

Kz/Kr = 1.

b = 50. ft



MW-42-51 RISING HEAD TEST

Data Set: J:\...MW42-51 rising head.aqt
 Date: 04/24/07

Time: 09:27:43

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, NY
 Test Well: MW-42-51
 Test Date: 5/30/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-42-51)

Initial Displacement: 12.42 ft
 Total Well Penetration Depth: 14.37 ft
 Casing Radius: 0.08333 ft

Static Water Column Height: 14.37 ft
 Screen Length: 14.37 ft
 Wellbore Radius: 0.159 ft

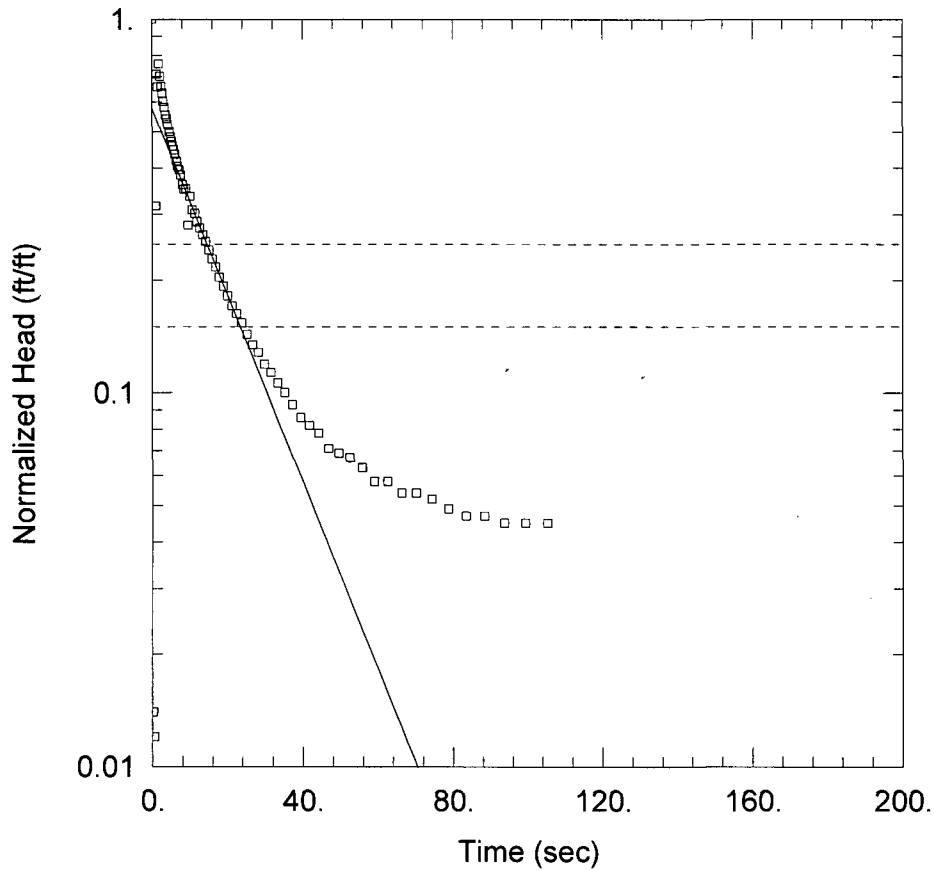
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.5196 ft/day

y0 = 11.95 ft



MW-42-79 SLUG TEST (RISING)

Data Set: J:\...\MW-42-79rising.aqt

Date: 04/23/07

Time: 16:05:13

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-42-79

Test Date: 4.27/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-42-79)

Initial Displacement: 1. ft

Static Water Column Height: 46. ft

Total Well Penetration Depth: 46. ft

Screen Length: 12. ft

Casing Radius: 0.04167 ft

Wellbore Radius: 0.159 ft

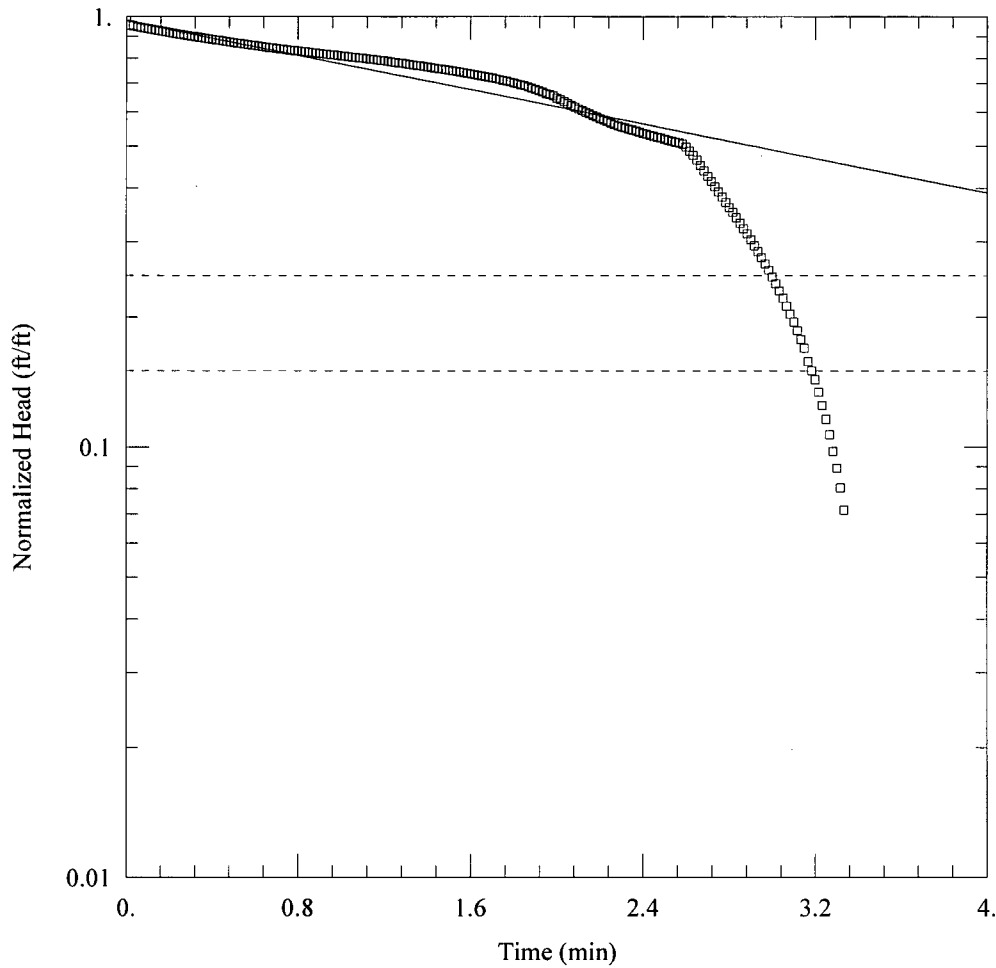
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 1.97 ft/day

y0 = 0.5766 ft



MW-43-28 RISING HEAD TEST

Data Set: J:\...MW43-28 recovery.aqt

Date: 09/11/07

Time: 18:54:48

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, NY

Test Well: MW-43-28

Test Date: 5/23/06

AQUIFER DATA

Saturated Thickness: 300 ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-43-28)

Initial Displacement: 5.6 ft

Static Water Column Height: 14.48 ft

Total Well Penetration Depth: 14.48 ft

Screen Length: 14.48 ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

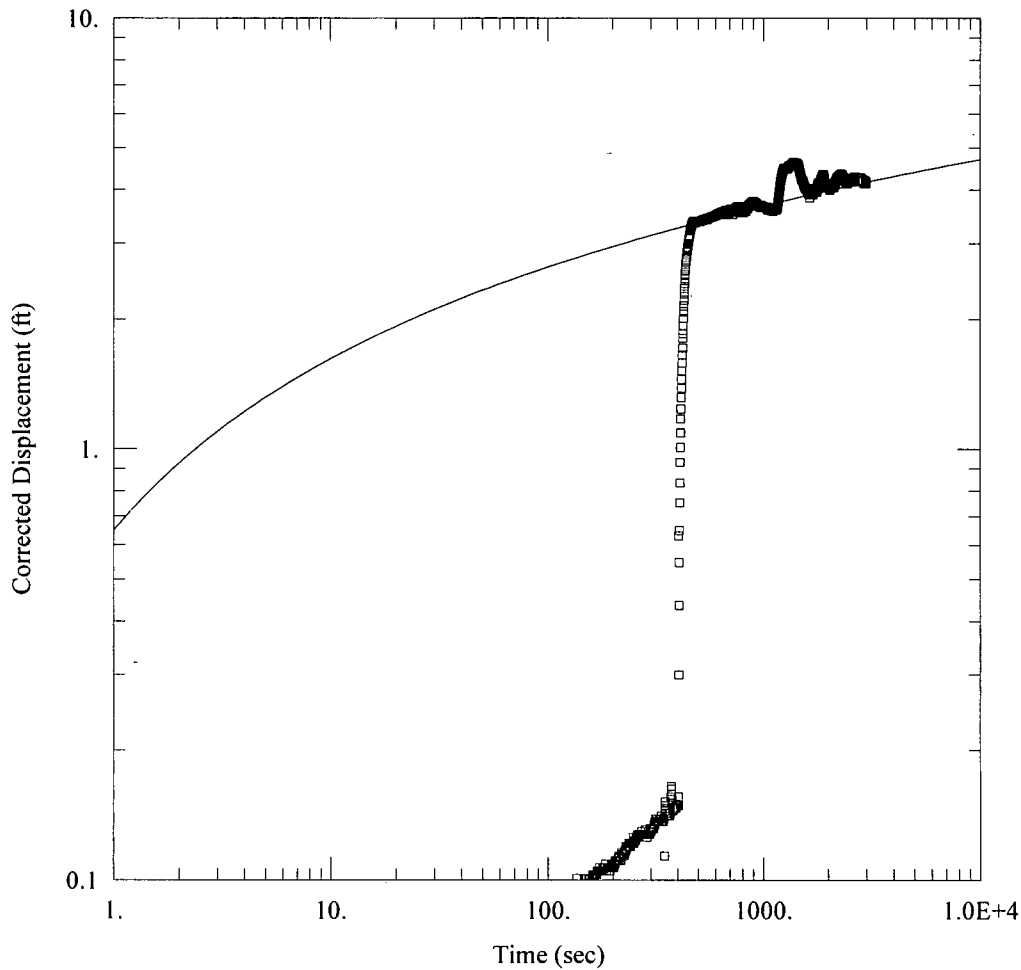
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.4494 ft/day

y0 = 5.478 ft



MW-43-62 EXTRACTION

Data Set: J:\...\sy43-62 this.aqt
 Date: 09/11/07

Time: 18:55:19

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, NY
 Test Well: MW-43-62
 Test Date: 5/22/06

WELL DATA

Pumping Wells			Observation Wells		
Well Name	X (ft)	Y (ft)	Well Name	X (ft)	Y (ft)
MW-43-62	0	0	□ MW-43-62	0	0

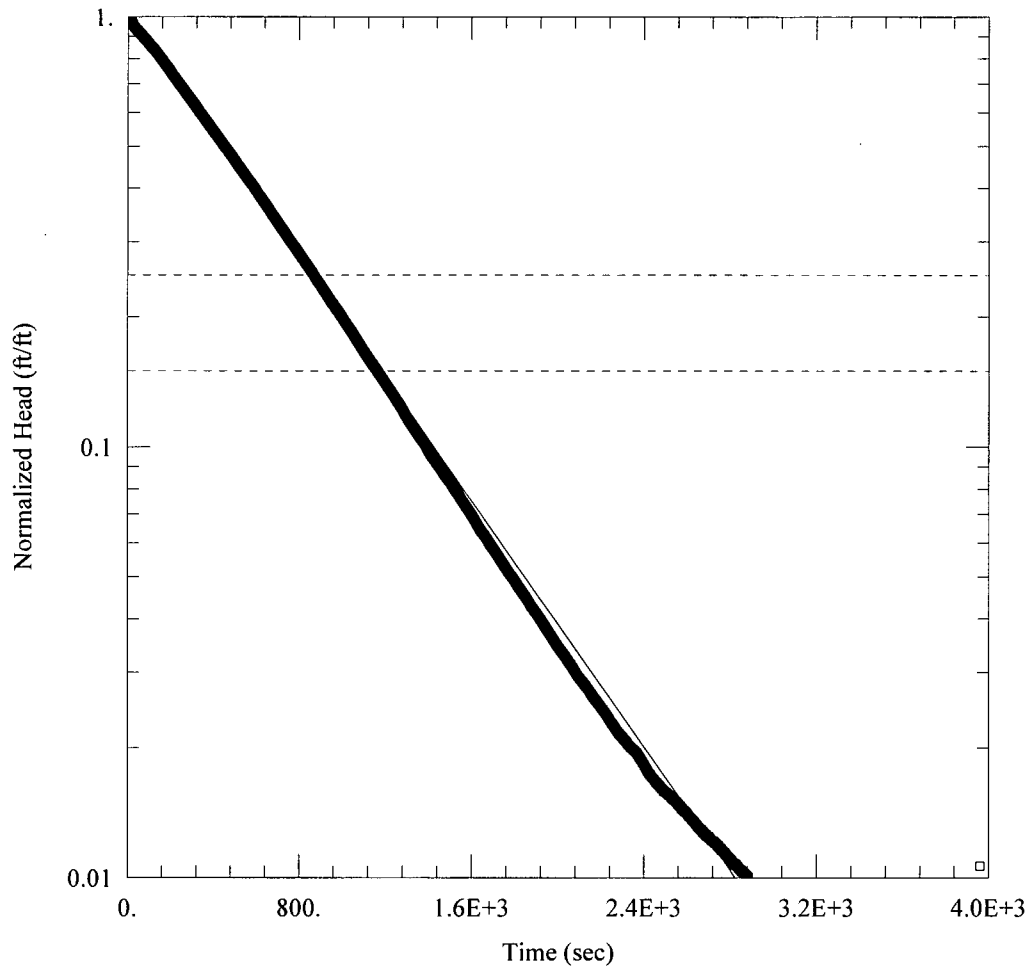
SOLUTION

Aquifer Model: Unconfined

Solution Method: Thisis

T = 3.594 ft²/day
 Kz/Kr = 1.

S = 0.001003
 b = 50. ft



MW-43-62 RISING HEAD TEST

Data Set: J:\...MW43-62 rising head.aqt

Date: 09/11/07

Time: 18:55:52

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, NY

Test Well: MW-43-62

Test Date: 5/22/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-43-62)

Initial Displacement: 31.52 ft

Static Water Column Height: 46.4 ft

Total Well Penetration Depth: 49.4 ft

Screen Length: 25. ft

Casing Radius: 0.04167 ft

Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

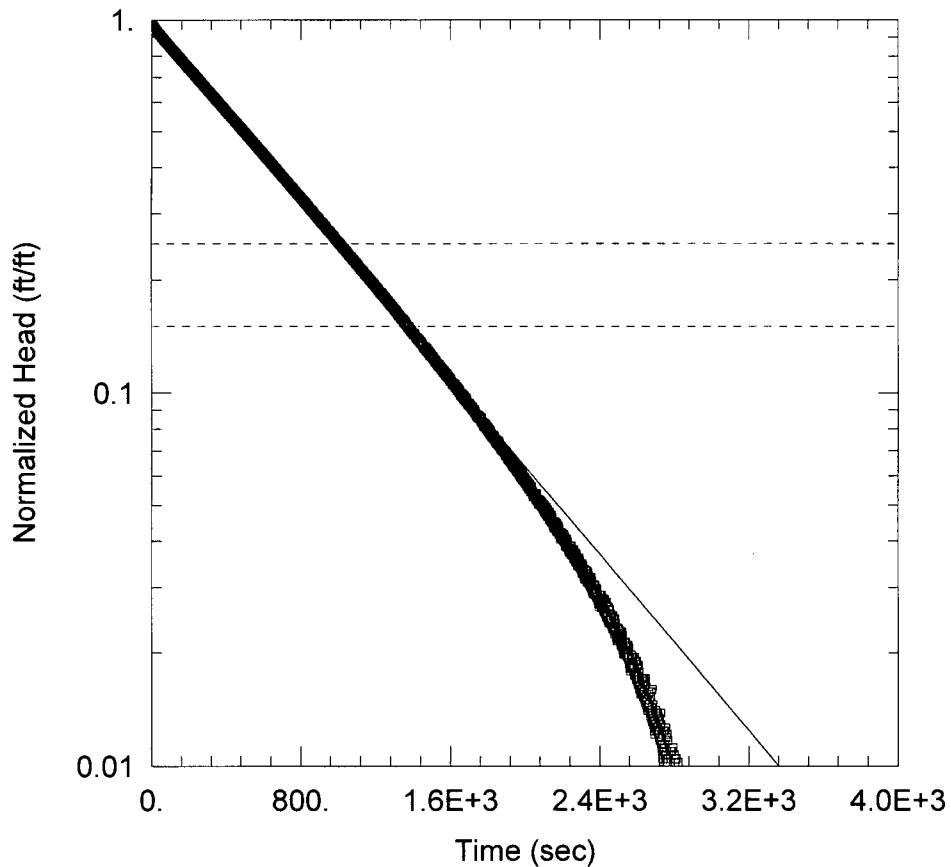
K = 0.03067 ft/day

y0 = 32.91 ft

Estimate Transmissivity from Specific Capacity Data $\underline{R}_w := 0.167$ Radius of Well (FT.) $\underline{S}_w := 0.01$ Storage Coefficient, Assumed $t := \frac{27}{1440}$ Pumping Duration (Days.) $\underline{T}_w := 100$ Transmissivity (GPD/FT) *Initial Guess* $Q_p := 0.337$ Pumping Rate (GPM) $\underline{s}_w := 3.8$ Drawdown (FT.) $\frac{Q_p}{s} = 0.089$ Specific Capacity (GPM/FT)

$$aT := \text{root} \left(\frac{Q_p}{s} - \frac{T}{264 \cdot \log \left(\frac{0.3 \cdot T \cdot t}{R^2 \cdot S} \right)}, T \right)$$

Groundwater Resource Evaluation
William C. Walton Mc-Graw-hill 1970 $\underline{T}_w := aT$ $T = 74$ Computed Transmissivity (GPD/ Ft) $T_{ft} := \frac{T}{7.48}$ $T_{ft} = 10$ **Computed Transmissivity (Sq.ft./Day)**



MW-44-104 PNEUMATIC SLUG (TEST2)

Data Set: J:\...MW-44-104 T2.aqt

Date: 09/11/07

Time: 18:57:40

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-44-104

Test Date: 5/8/07

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-44-104)

Initial Displacement: 8.325 ft

Static Water Column Height: 37.22 ft

Total Well Penetration Depth: 37.22 ft

Screen Length: 28. ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

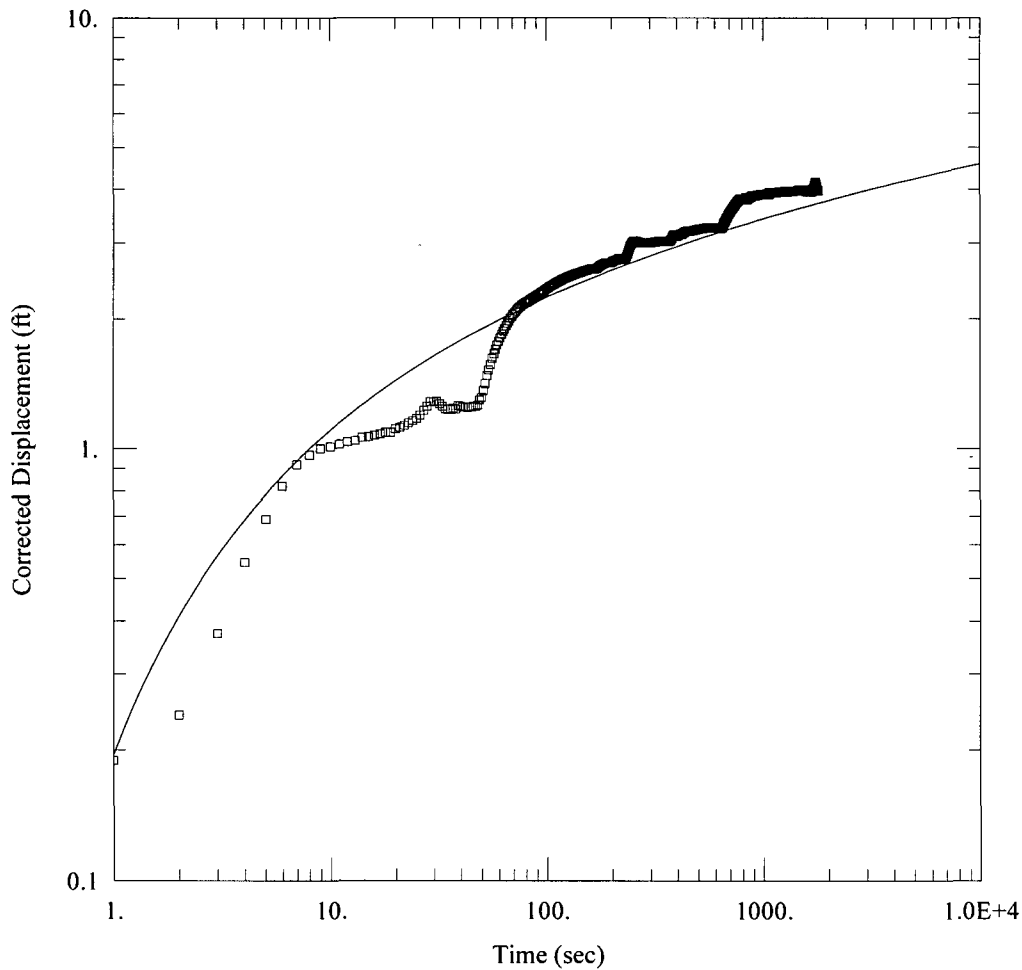
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.09192 ft/day

y0 = 7.959 ft



MW-45-43 EXTRACTION

Data Set: J:\...\sy45-43 mw45-43 theis.aqt

Date: 09/11/07

Time: 18:59:02

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, NY

Test Well: MW-45-43

Test Date: 5/24/06

WELL DATA

Pumping Wells

Observation Wells

Well Name	X (ft)	Y (ft)
MW-45-43	0	0

Well Name	X (ft)	Y (ft)
□ MW-45-43	0	0

SOLUTION

Aquifer Model: Unconfined

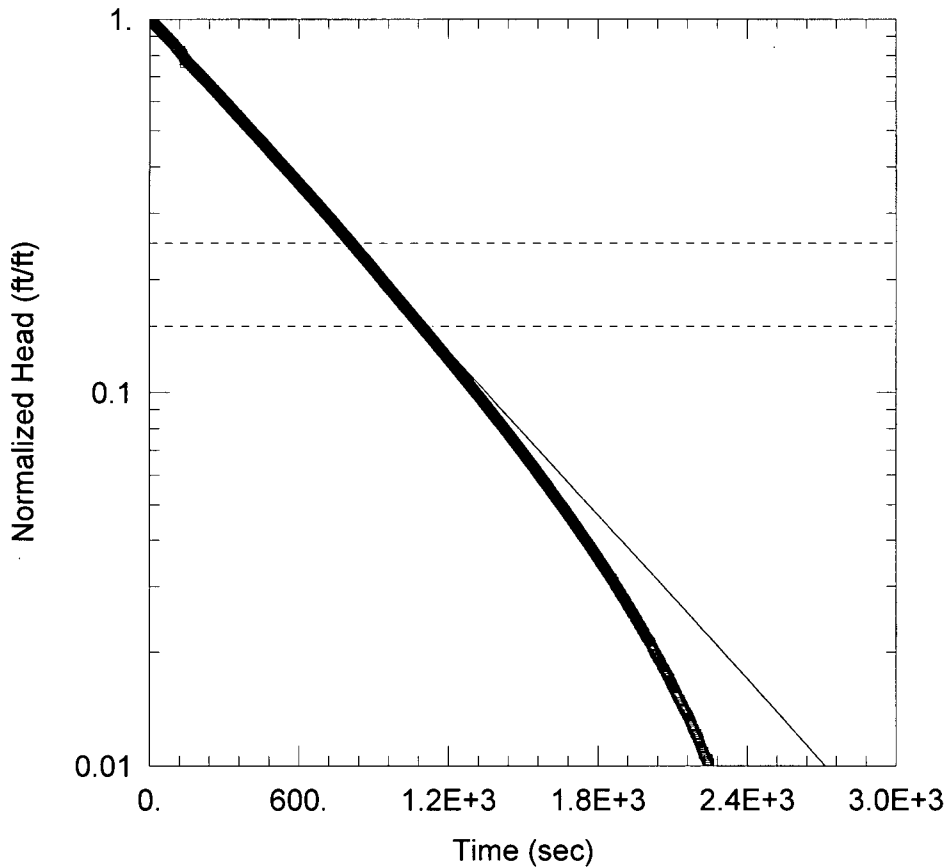
Solution Method: Theis

T = 0.09019 ft²/day

S = 0.0001136

Kz/Kr = 1.

b = 300. ft



MW-45-62 PNEUMATIC SLUG (TEST1)

Data Set: J:\...MW-45-62 T1.aqt

Date: 07/01/07

Time: 18:08:00

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-45-62

Test Date: 5/7/07

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-45-62)

Initial Displacement: 16.2 ft

Static Water Column Height: 40.54 ft

Total Well Penetration Depth: 40.54 ft

Screen Length: 14.5 ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

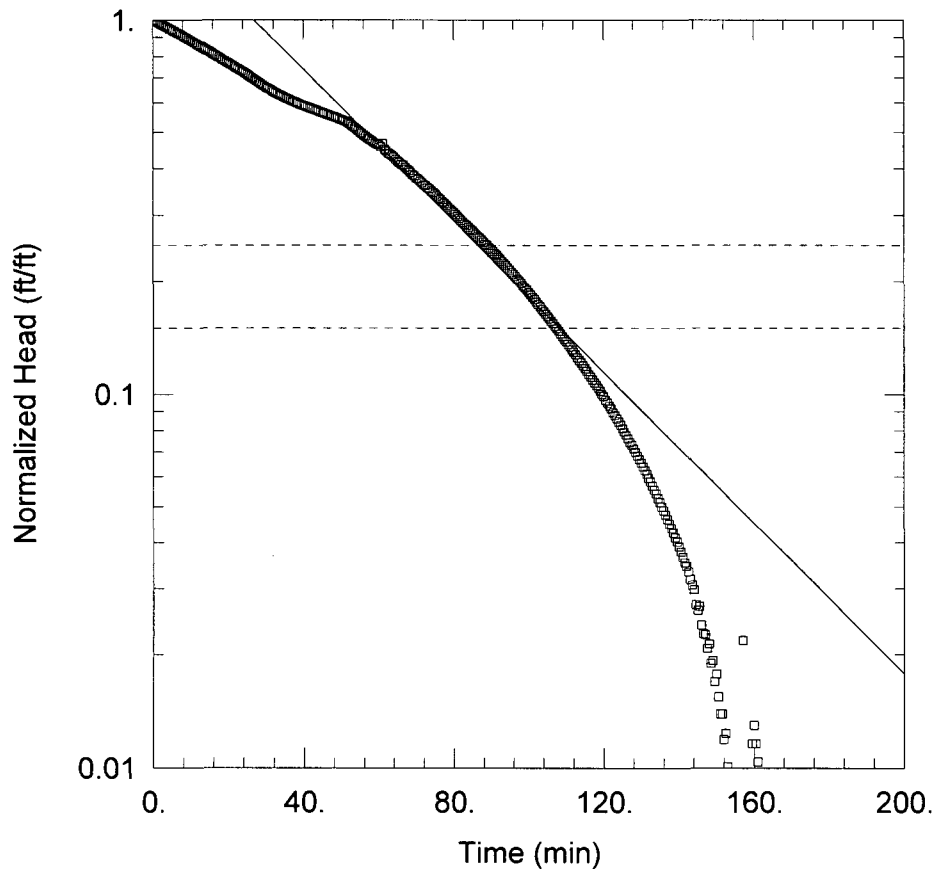
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.1979 ft/day

y0 = 15.85 ft



MW-46 EXTRACTION TEST RECOVERY

Data Set: J:\...\SY MW-46 recovery.aqt

Date: 07/01/07

Time: 17:57:12

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-46

Test Date: 5/23/07

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (K_z/K_r): 0.1

WELL DATA (MW-46)

Initial Displacement: 6.544 ft

Static Water Column Height: 25.68 ft

Total Well Penetration Depth: 25.68 ft

Screen Length: 25.68 ft

Casing Radius: 0.159 ft

Wellbore Radius: 0.159 ft

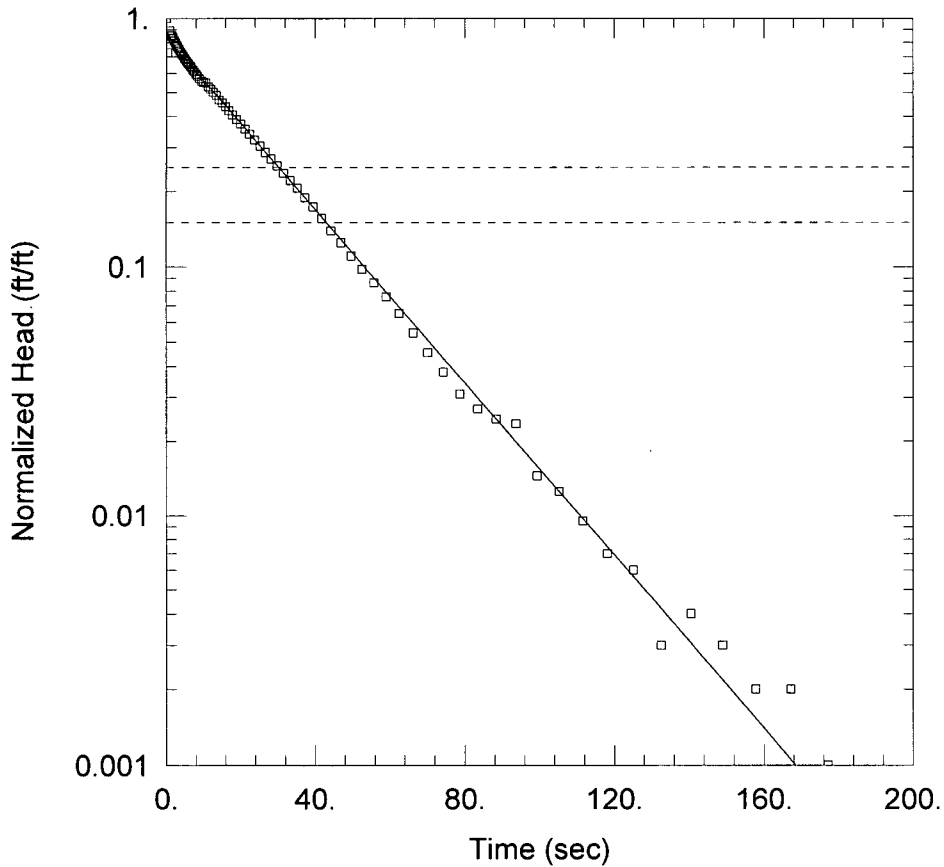
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

$K = 0.1029$ ft/day

$y_0 = 12.24$ ft



MW-47-80 SLUG TEST (RISING)

Data Set: J:\...\MW-47-80rising.aqt

Date: 04/24/07

Time: 08:32:40

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-47-80

Test Date: 5/2/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-47-80)

Initial Displacement: 2. ft

Static Water Column Height: 80. ft

Total Well Penetration Depth: 12. ft

Screen Length: 12. ft

Casing Radius: 0.04167 ft

Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 1.367 ft/day

y0 = 1.673 ft

Estimate Transmissivity from Specific Capacity Data

$\underline{R}_w := 0.159$	Radius of Well (FT.)
$\underline{S}_w := 0.25$	Storage Coefficient, Assumed
$t := \frac{48}{1440}$	Pumping Duration (Days.)
$\underline{T}_w := 100$	Transmissivity (GPD/FT) <i>Initial Guess</i>
$Q_p := 2.22$	Pumping Rate (GPM)
$\underline{s}_w := 3$	Drawdown (FT.)
$\frac{Q_p}{s} = 0.74$	Specific Capacity (GPM/FT)

$$aT := \text{root} \left(\frac{Q_p}{s} - \frac{T}{264 \cdot \log \left(\frac{0.3 \cdot T \cdot t}{R^2 \cdot S} \right)}, T \right)$$

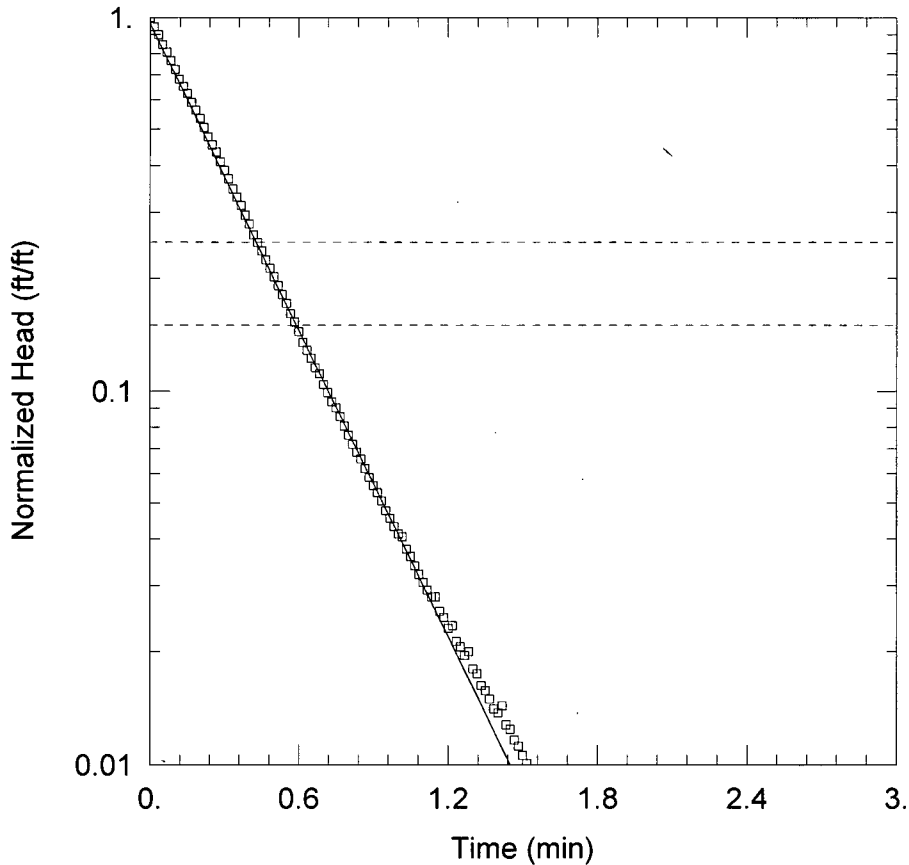
Groundwater Resource Evaluation
William C. Walton Mc-Graw-hill 1970

$$\underline{T}_w := aT$$

$$T_{ft} := \frac{T}{7.48}$$

$T = 579$ Computed Transmissivity (GPD/ Ft)

$T_{ft} = 77$ **Computed Transmissivity (Sq.ft./Day)**



MW-48-38 PNEUMATIC SLUG TEST 1

Data Set: J:\...MW-48-38 T1.aqt

Date: 07/01/07

Time: 18:00:29

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-48-38

Test Date: 5/25/07

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-48-38)

Initial Displacement: 11.52 ft

Static Water Column Height: 25.36 ft

Total Well Penetration Depth: 25.36 ft

Screen Length: 8. ft

Casing Radius: 0.04167 ft

Wellbore Radius: 0.159 ft

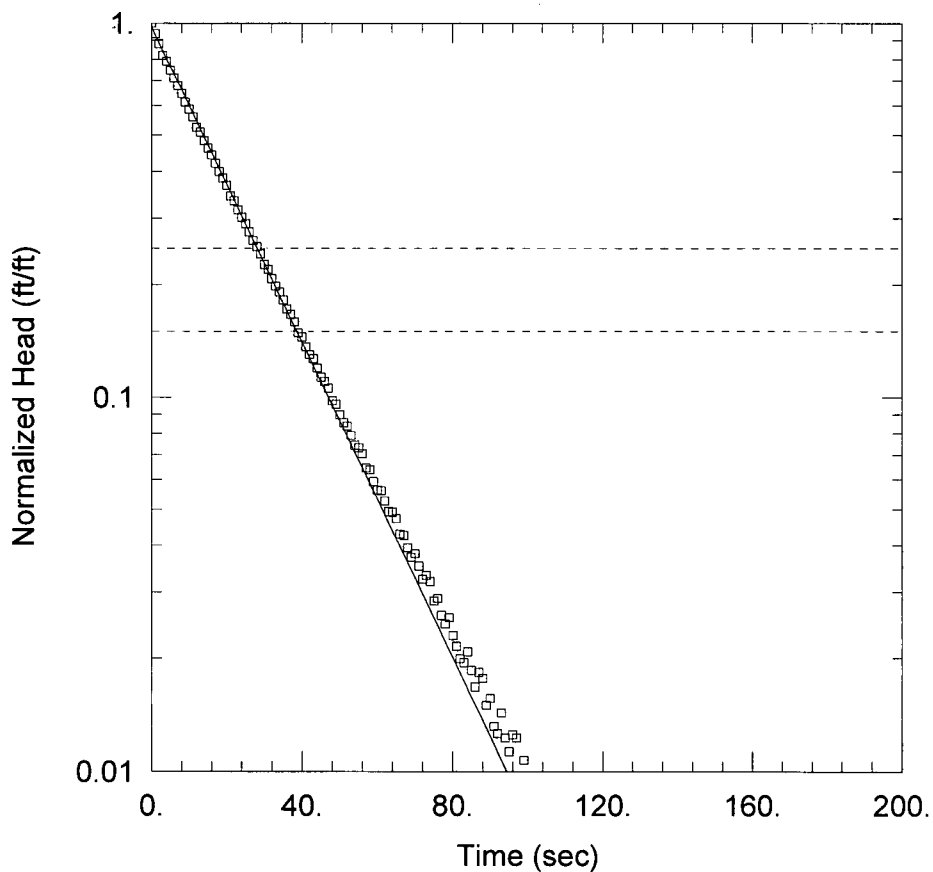
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 2.496 ft/day

y0 = 11.07 ft



MW-49-42 PNEUMATIC SLUG (TEST1)

Data Set: J:\...\MW-49-42 T1.aqt

Date: 07/01/07

Time: 18:03:04

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-49-42

Test Date: 5/9/07

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-49-42 T1)

Initial Displacement: 8.874 ft

Static Water Column Height: 32. ft

Total Well Penetration Depth: 32. ft

Screen Length: 13. ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

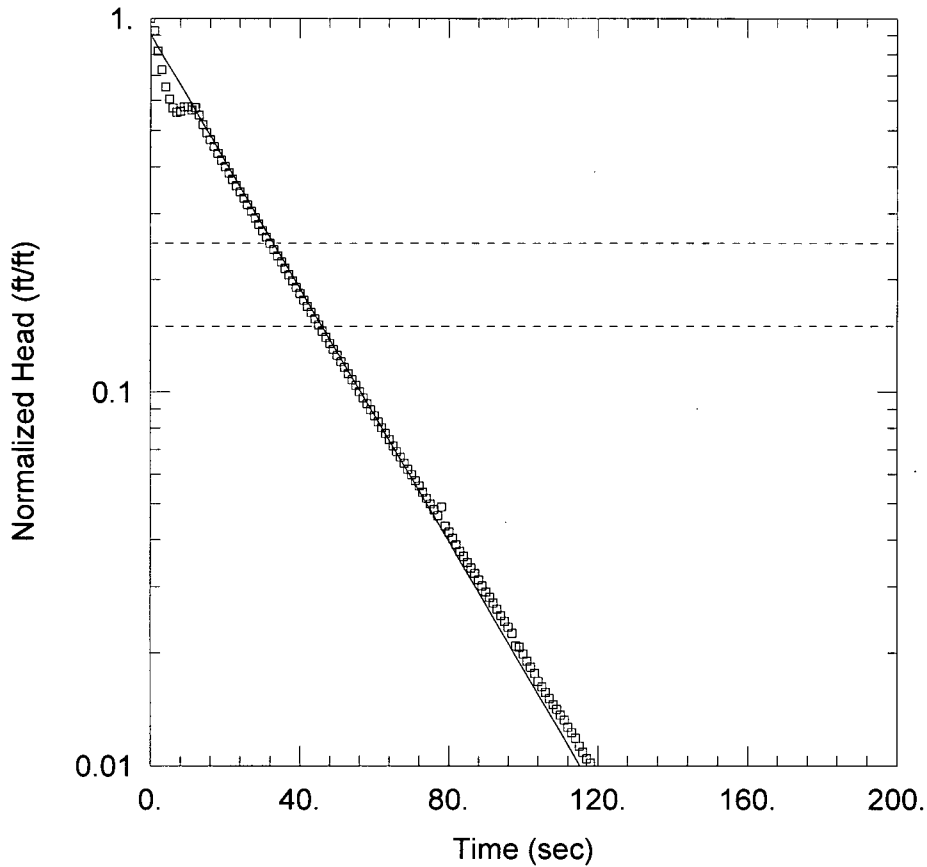
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 6.218 ft/day

y0 = 8.639 ft



MW-49-66 PNEUMATIC SLUG (TEST1)

Data Set: J:\...MW-49-65 T1.aqt
 Date: 07/01/07

Time: 18:03:19

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-49-66
 Test Date: 5/4/07

AQUIFER DATA

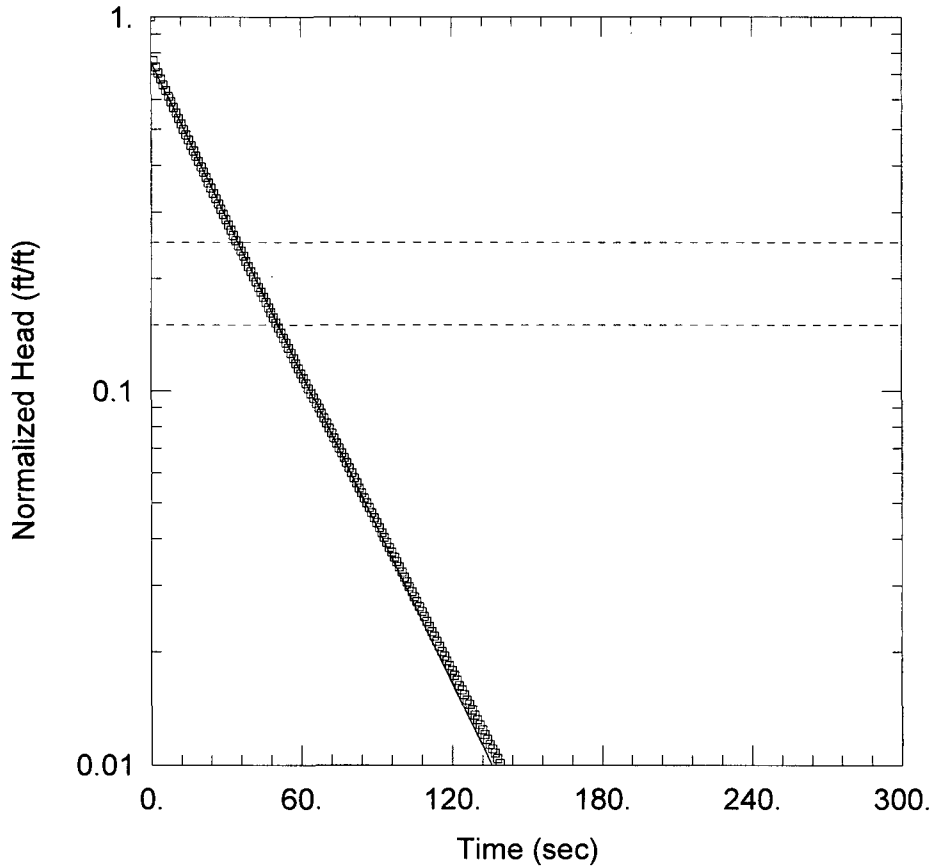
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-49-66 T1)

Initial Displacement: 14.28 ft Static Water Column Height: 52.32 ft
 Total Well Penetration Depth: 52.32 ft Screen Length: 10. ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 6.209 ft/day y0 = 12.92 ft



MW-49-66 PNEUMATIC SLUG (TEST2)

Data Set: J:\...MW-49-65 T2.aqt

Date: 07/01/07

Time: 18:03:57

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-49-66

Test Date: 5/4/07

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-49-66 T2)

Initial Displacement: 39.39 ft

Static Water Column Height: 52.32 ft

Total Well Penetration Depth: 52.32 ft

Screen Length: 10. ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 5.063 ft/day

y0 = 29.85 ft

Estimate Transmissivity from Specific Capacity Data

$\underline{R} := 0.159$	Radius of Well (FT.)
$\underline{S} := 0.01$	Storage Coefficient, Assumed
$t := \frac{30}{1440}$	Pumping Duration (Days.)
$\underline{T} := 100$	Transmissivity (GPD/FT) <i>Initial Guess</i>
$Q_p := 1.25$	Pumping Rate (GPM)
$\underline{s} := 2.03$	Drawdown (FT.)
$\frac{Q_p}{s} = 0.616$	Specific Capacity (GPM/FT)

$$aT := \text{root} \left(\frac{Q_p}{s} - \frac{T}{264 \cdot \log \left(\frac{0.3 \cdot T \cdot t}{R^2 \cdot S} \right)}, T \right)$$

Groundwater Resource Evaluation
William C. Walton Mc-Graw-hill 1970

$$\underline{T} := aT$$

$$T_{ft} := \frac{T}{7.48}$$

T = 688 Computed Transmissivity (GPD/ Ft)

Tft = 92 **Computed Transmissivity (Sq.ft./Day)**

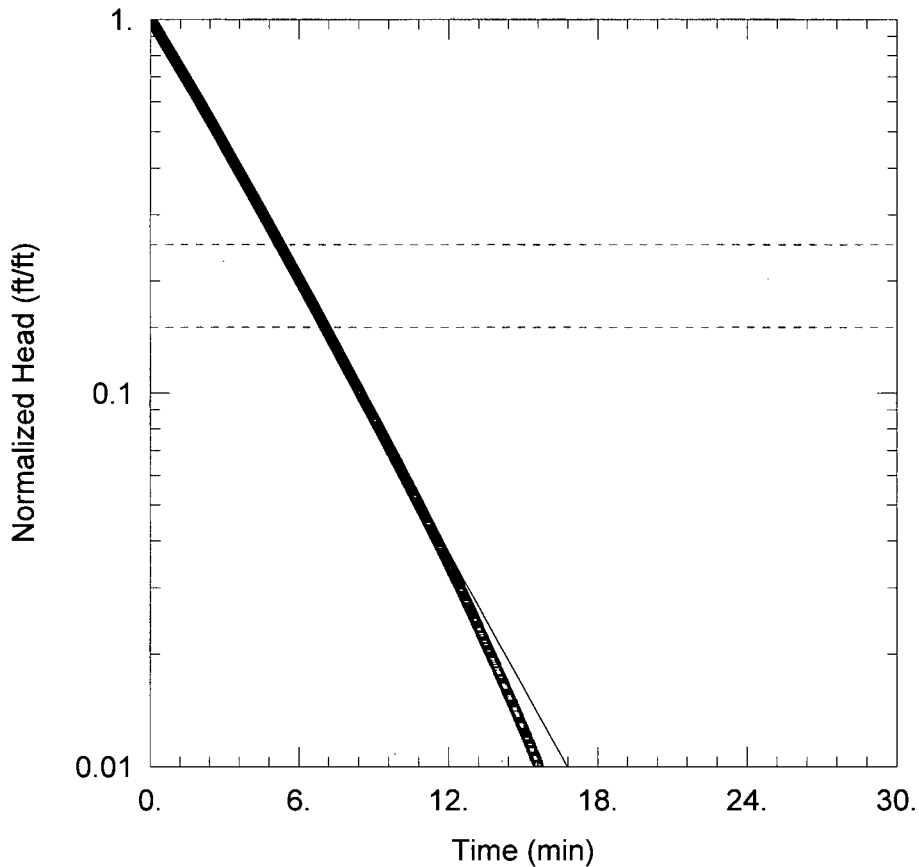
Estimate Transmissivity from Specific Capacity Data

$\underline{R}_w := 0.159$ Radius of Well (FT.)
 $\underline{S} := 0.001$ Storage Coefficient, Assumed
 $t := \frac{30}{1440}$ Pumping Duration (Days.)
 $\underline{T} := 100$ Transmissivity (GPD/FT) *Initial Guess*
 $Q_p := 0.03$ Pumping Rate (GPM)
 $\underline{s}_w := 4.46$ Drawdown (FT.)
 $\frac{Q_p}{s} = 6.726 \cdot 10^{-3}$ Specific Capacity (GPM/FT)

$$aT := \text{root} \left(\frac{Q_p}{s} - \frac{T}{264 \cdot \log \left(\frac{0.3 \cdot T \cdot t}{R_w^2 \cdot S} \right)}, T \right)$$

Groundwater Resource Evaluation
William C. Walton Mc-Graw-hill 1970

$\underline{T} := aT$
 $T = 6$ Computed Transmissivity (GPD/ Ft)
 $T_{ft} := \frac{T}{7.48}$
 $T_{ft} = 1$ **Computed Transmissivity (Sq.ft./Day)**



MW50-67 SLUG TEST

Data Set: J:\...MW50-67.aqt
 Date: 09/12/07

Time: 14:09:38

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW50-67
 Test Date: 1/2/07

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-50-67)

Initial Displacement: 14.87 ft

Static Water Column Height: 67. ft

Total Well Penetration Depth: 67. ft

Screen Length: 7. ft

Casing Radius: 0.04167 ft

Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

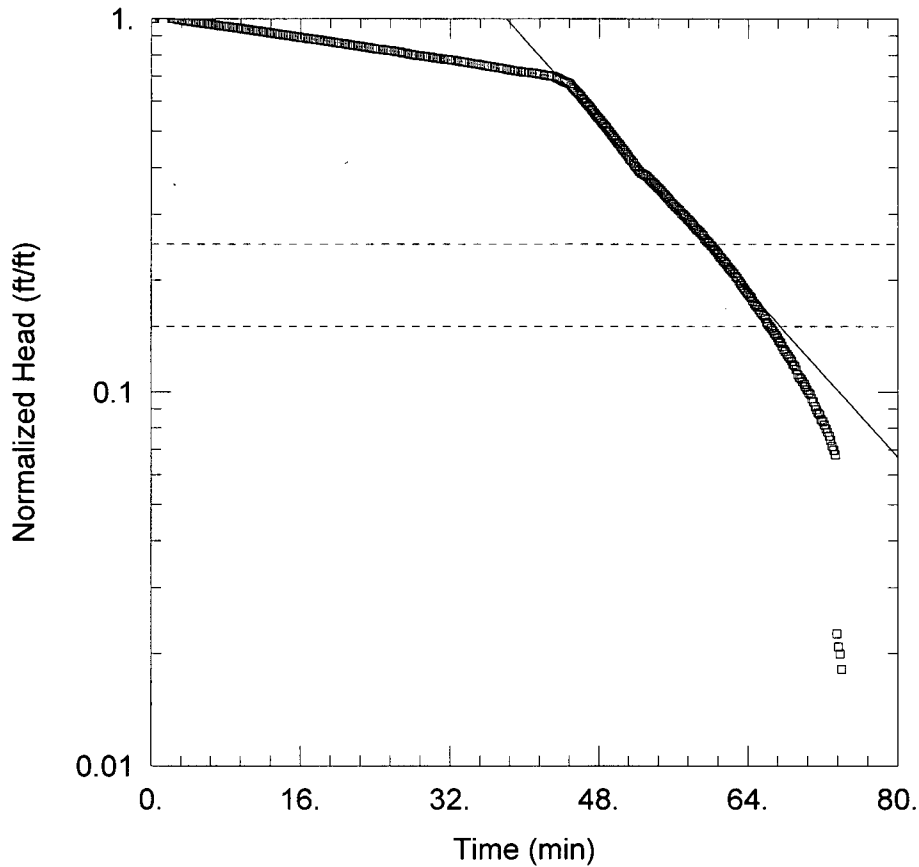
K = 0.2436 ft/day

y0 = 15.32 ft

Estimate Transmissivity from Specific Capacity Data $\underline{R}_w := 0.159$ Radius of Well (FT.) $\underline{S}_w := 0.001$ Storage Coefficient, Assumed $\underline{t} := \frac{70}{1440}$ Pumping Duration (Days.) $\underline{T}_w := 100$ Transmissivity (GPD/FT) *Initial Guess* $\underline{Q}_p := 1.0$ Pumping Rate (GPM) $\underline{s}_w := 16$ Drawdown (FT.) $\frac{\underline{Q}_p}{s} = 0.063$ Specific Capacity (GPM/FT)

$$aT := \text{root} \left(\frac{\underline{Q}_p}{s} - \frac{T}{264 \cdot \log \left(\frac{0.3 \cdot T \cdot t}{R_w^2 \cdot S} \right)}, T \right)$$

Groundwater Resource Evaluation
William C. Walton Mc-Graw-hill 1970 $\underline{T}_w := aT$ $T = 77$ Computed Transmissivity (GPD/ Ft) $T_{ft} = 10$ **Computed Transmissivity (Sq.ft./Day)**



MW-51 TEST 15

Data Set: J:\...MW-51 t15.aqt
 Date: 09/10/07

Time: 17:01:40

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-51 (38.7-29)
 Test Date: 5/24/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (K_z/K_r): 0.1

WELL DATA (MW-51 T15)

Initial Displacement: 15.8 ft

Static Water Column Height: 11.41 ft

Total Well Penetration Depth: 11.41 ft

Screen Length: 10. ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

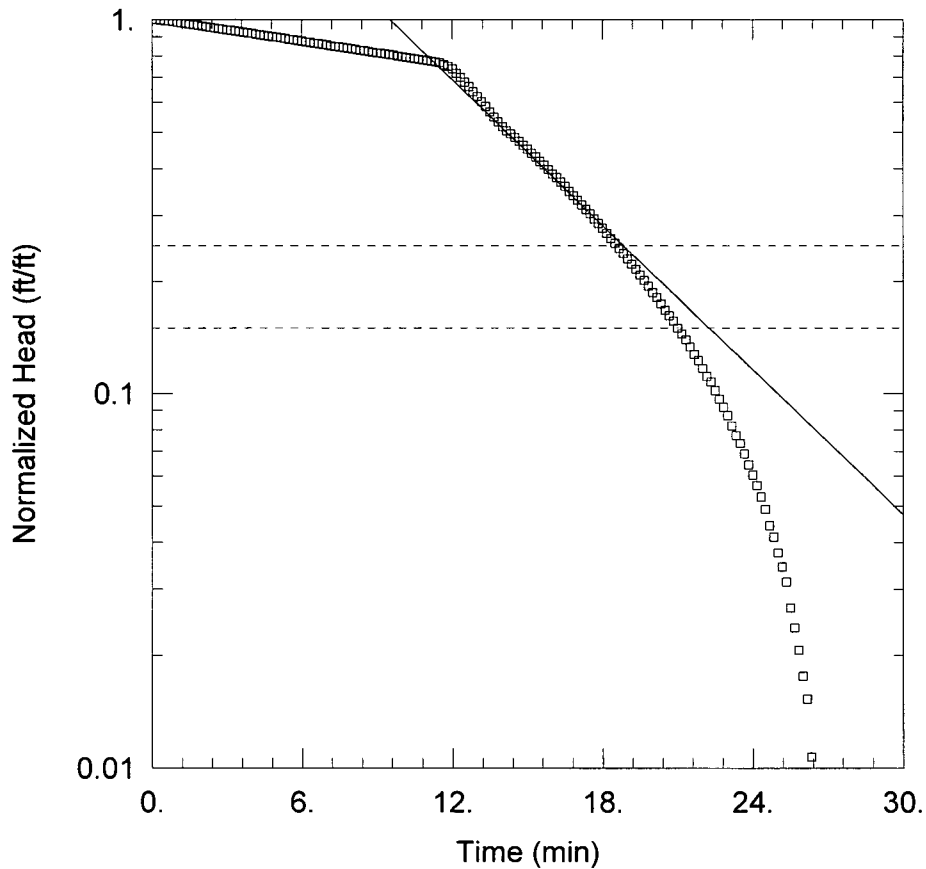
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

$K = 0.1704$ ft/day

$y_0 = 182.4$ ft



MW-51 TEST 14

Data Set: J:\...MW-51 t14.aqt
 Date: 09/10/07

Time: 17:01:57

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-51 (49.2-39.5)
 Test Date: 5/24/06

AQUIFER DATA

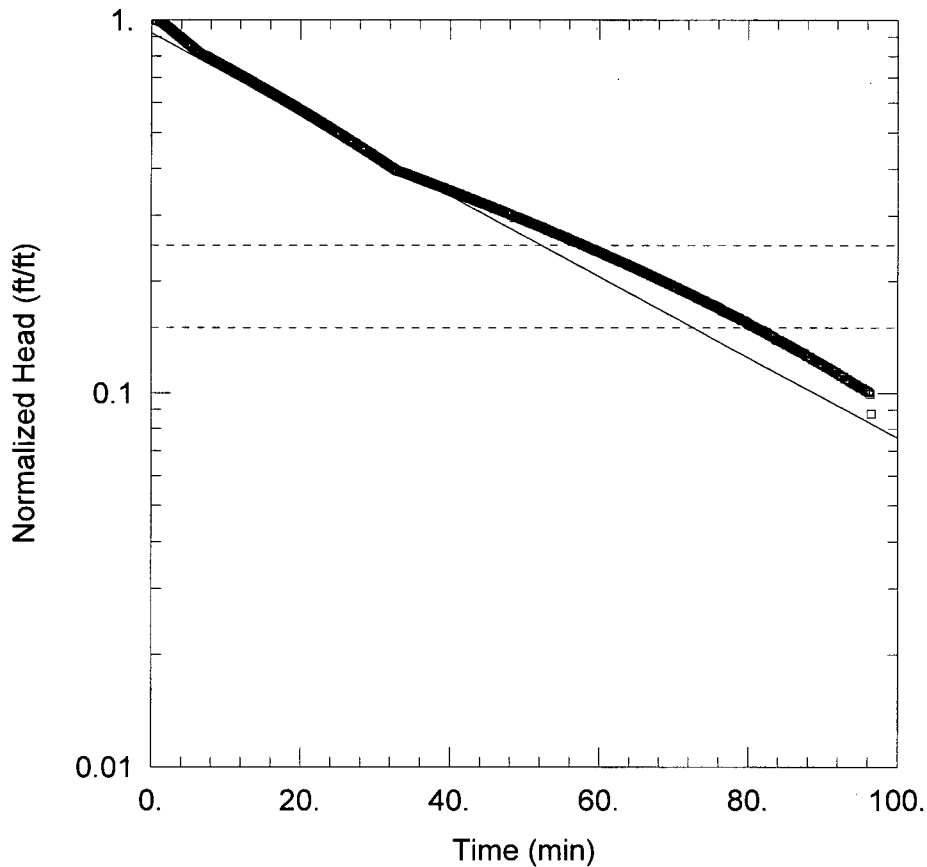
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-51 T14)

Initial Displacement: 18.67 ft Static Water Column Height: 21.98 ft
 Total Well Penetration Depth: 21.98 ft Screen Length: 10. ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 0.3938 ft/day $y_0 =$ 76.94 ft



MW-51 TEST 13

Data Set: J:\...MW-51 t13.aqt

Date: 09/10/07

Time: 17:02:09

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-51 (59.7-50)

Test Date: 5/24/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-51 T13)

Initial Displacement: 24.59 ft

Static Water Column Height: 32.34 ft

Total Well Penetration Depth: 32.34 ft

Screen Length: 10. ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

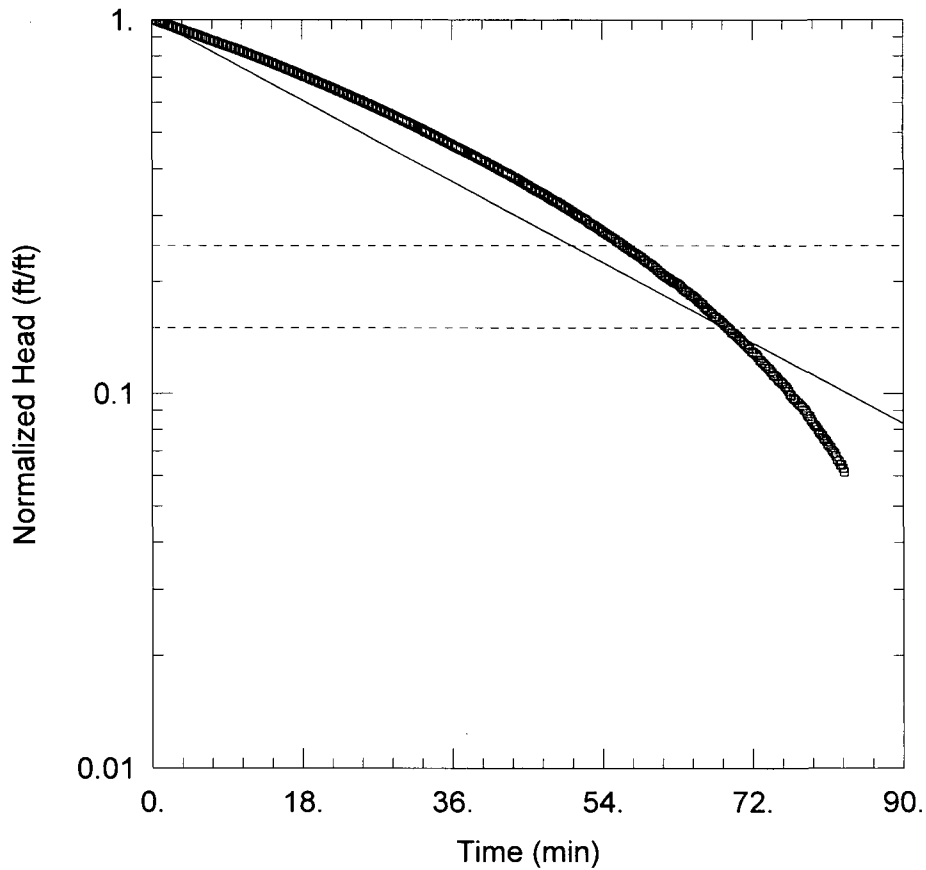
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.06621 ft/day

y0 = 22.71 ft



MW-51 TEST 12

Data Set: J:\...MW-51 t12.aqt
 Date: 09/10/07

Time: 17:24:02

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-51 (87.5-77.8)
 Test Date: 5/23/06

AQUIFER DATA

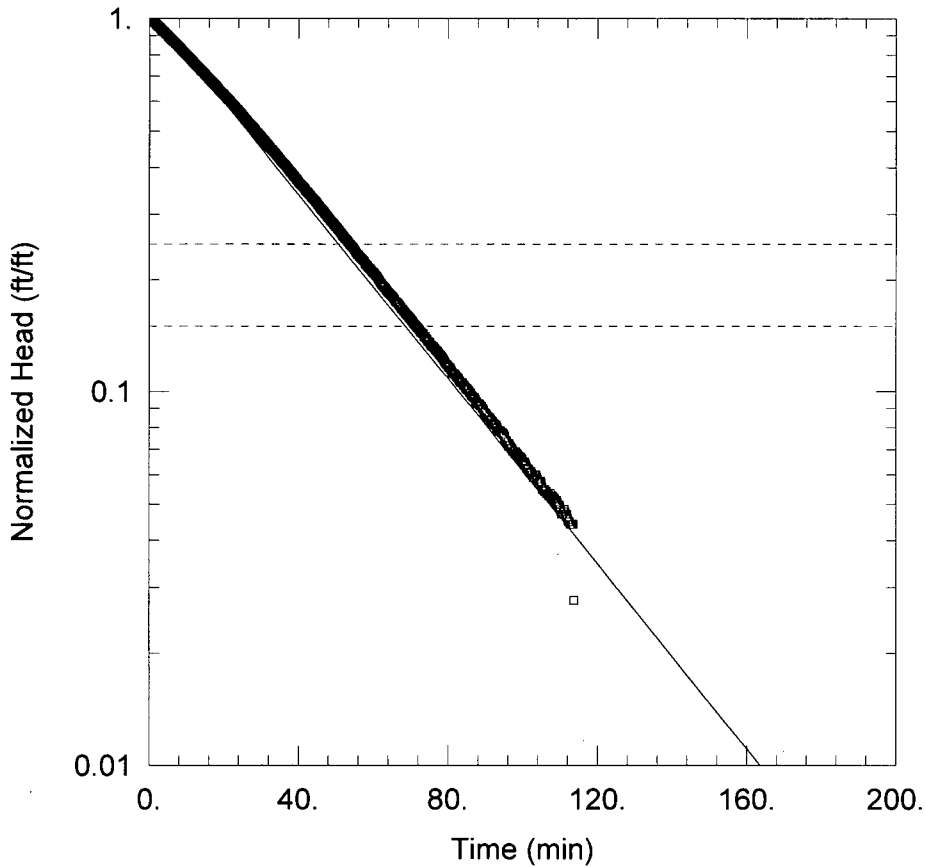
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-51 T12)

Initial Displacement: 21.17 ft Static Water Column Height: 46.97 ft
 Total Well Penetration Depth: 46.97 ft Screen Length: 10. ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 0.07326 ft/day y0 = 21.28 ft



MW-51 TEST 11

Data Set: J:\...MW-51 t11.aqt
 Date: 04/19/07

Time: 16:11:37

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-51 (87.5-77.8)
 Test Date: 5/23/06

AQUIFER DATA

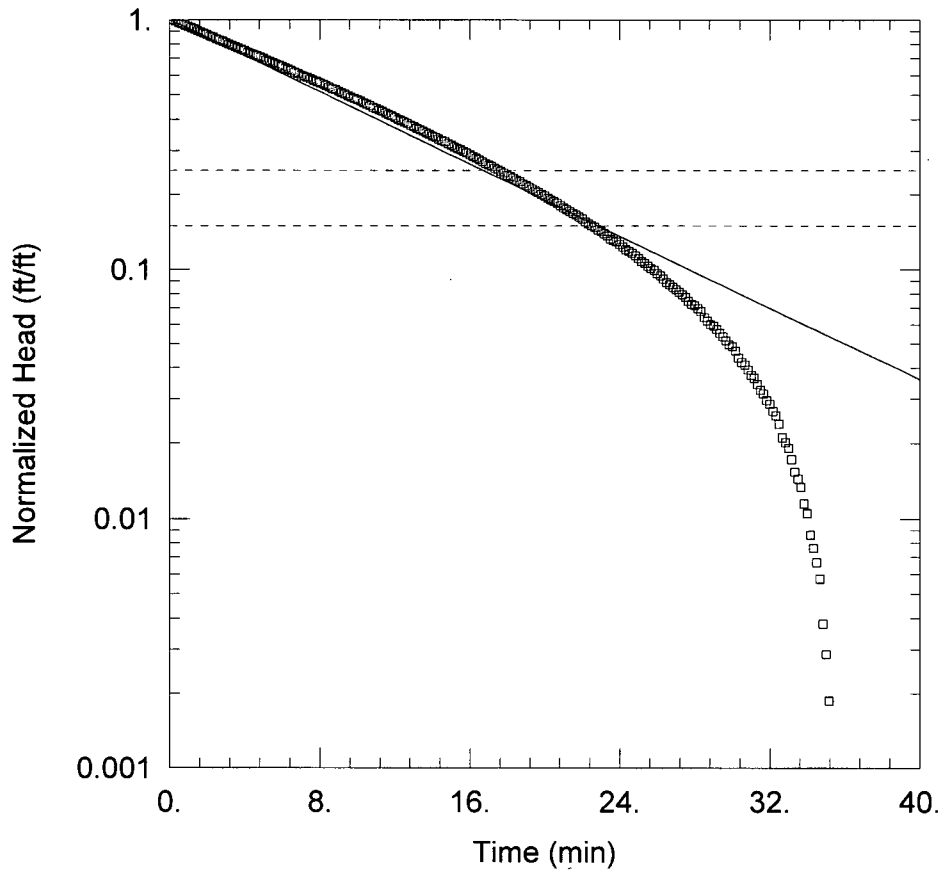
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-51 T11)

Initial Displacement: 20.12 ft Static Water Column Height: 60.29 ft
 Total Well Penetration Depth: 60.29 ft Screen Length: 10. ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 0.07544 ft/day y0 = 21.29 ft



MW-51 TEST 10

Data Set: J:\...MW-51 t10.aqt
 Date: 04/19/07

Time: 16:11:14

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-51 (98.5-88.8)
 Test Date: 5/23/06

AQUIFER DATA

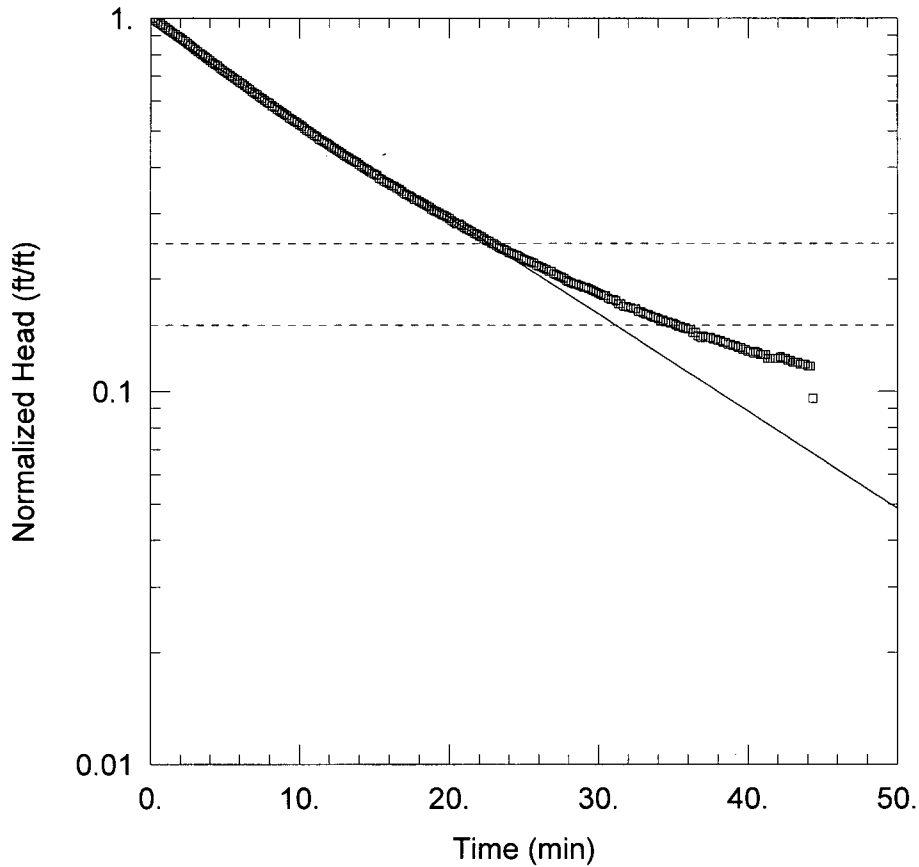
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-51 T10)

Initial Displacement: 14.97 ft Static Water Column Height: 71.42 ft
 Total Well Penetration Depth: 71.42 ft Screen Length: 10. ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 0.2204 ft/day $y_0 =$ 15.07 ft



MW-51 TEST 9

Data Set: J:\...MW-51 t9.aqt
 Date: 04/19/07

Time: 16:10:44

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-51 (109.7-100)
 Test Date: 5/22/06

AQUIFER DATA

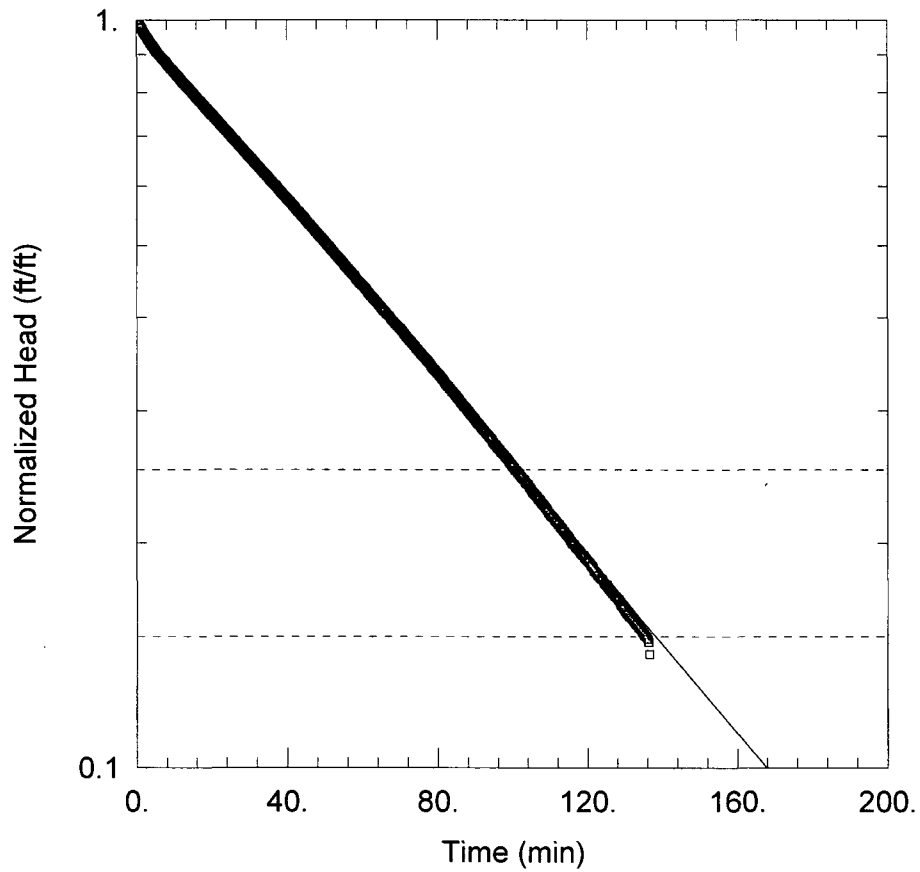
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-51 Test 9)

Initial Displacement: 10.18 ft Static Water Column Height: 82.03 ft
 Total Well Penetration Depth: 82.03 ft Screen Length: 10. ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 0.1583 ft/day y0 = 9.864 ft



MW-51 TEST 8

Data Set: J:\...\MW-51 t8.aqt
 Date: 04/19/07

Time: 16:10:02

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-51 (119-109.3)
 Test Date: 5/22/06

AQUIFER DATA

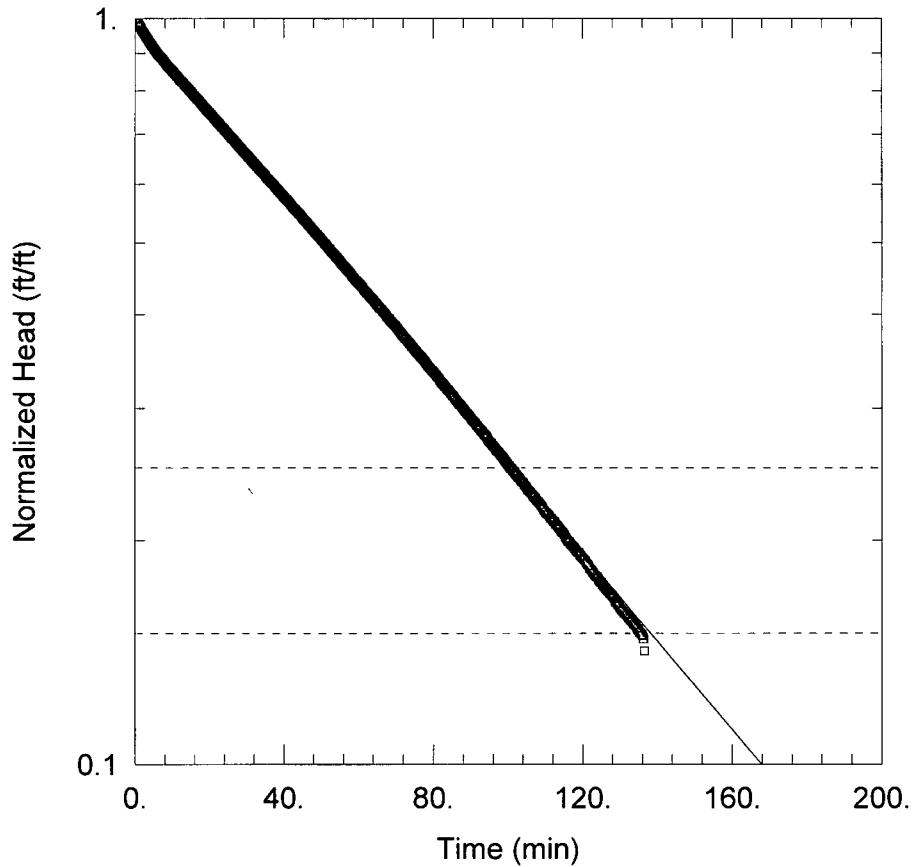
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-51 Test 8)

Initial Displacement: 18.75 ft Static Water Column Height: 90.94 ft
 Total Well Penetration Depth: 90.94 ft Screen Length: 10. ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 0.03628 ft/day y0 = 18.71 ft



MW-51 TEST 7

Data Set: J:\...MW-51 t7.aqt
Date: 04/19/07

Time: 16:09:22

PROJECT INFORMATION

Company: GZA GeoEnvironmental
Client: Indian Point Energy Center
Project: 41.0017869.10
Location: Buchanan, New York
Test Well: MW-51 (130.1-120.4)
Test Date: 5/22/06

AQUIFER DATA

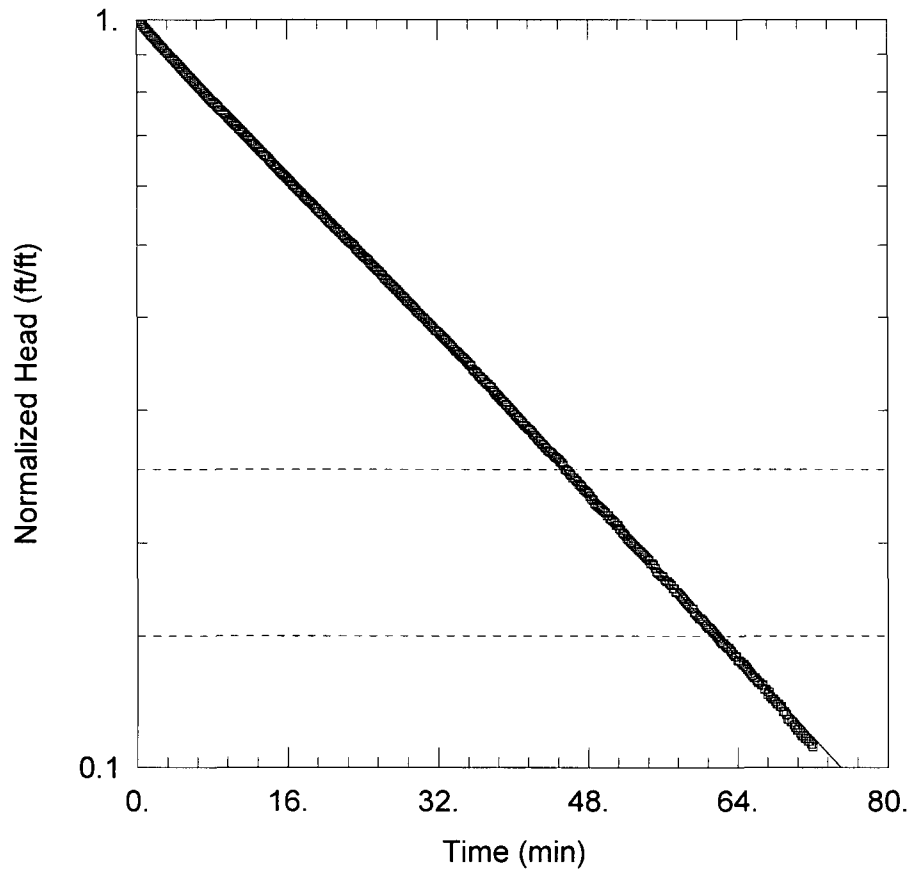
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-51 Test 7)

Initial Displacement: 18.75 ft Static Water Column Height: 103.2 ft
Total Well Penetration Depth: 103.2 ft Screen Length: 10. ft
Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
K = 0.03628 ft/day y0 = 18.71 ft



MW-51 TEST 6

Data Set: J:\...\MW-51 t6.aqt

Date: 04/19/07

Time: 16:08:53

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-51 (141.2-131.5)

Test Date: 5/19/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-51 Test 6)

Initial Displacement: 15.35 ft

Static Water Column Height: 113.1 ft

Total Well Penetration Depth: 113.1 ft

Screen Length: 10. ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

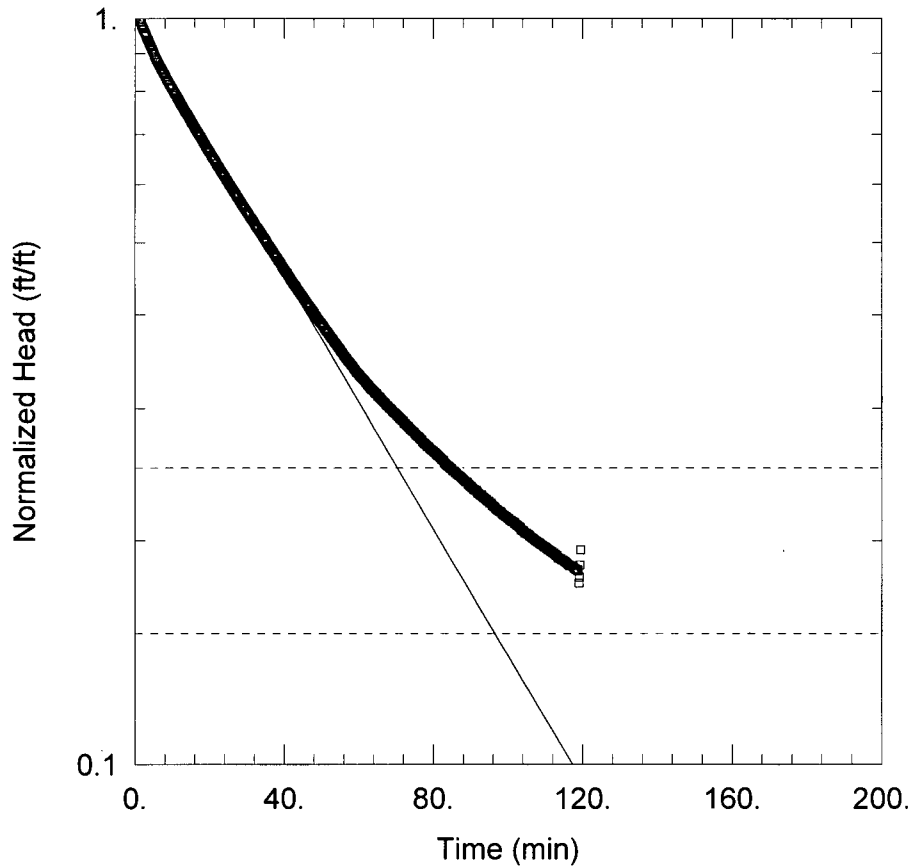
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.08191 ft/day

y0 = 15.62 ft



MW-51 TEST 5

Data Set: J:\...MW-51 t5.aqt
 Date: 04/19/07

Time: 16:08:06

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-51 (153.1-143.4)
 Test Date: 5/19/06

AQUIFER DATA

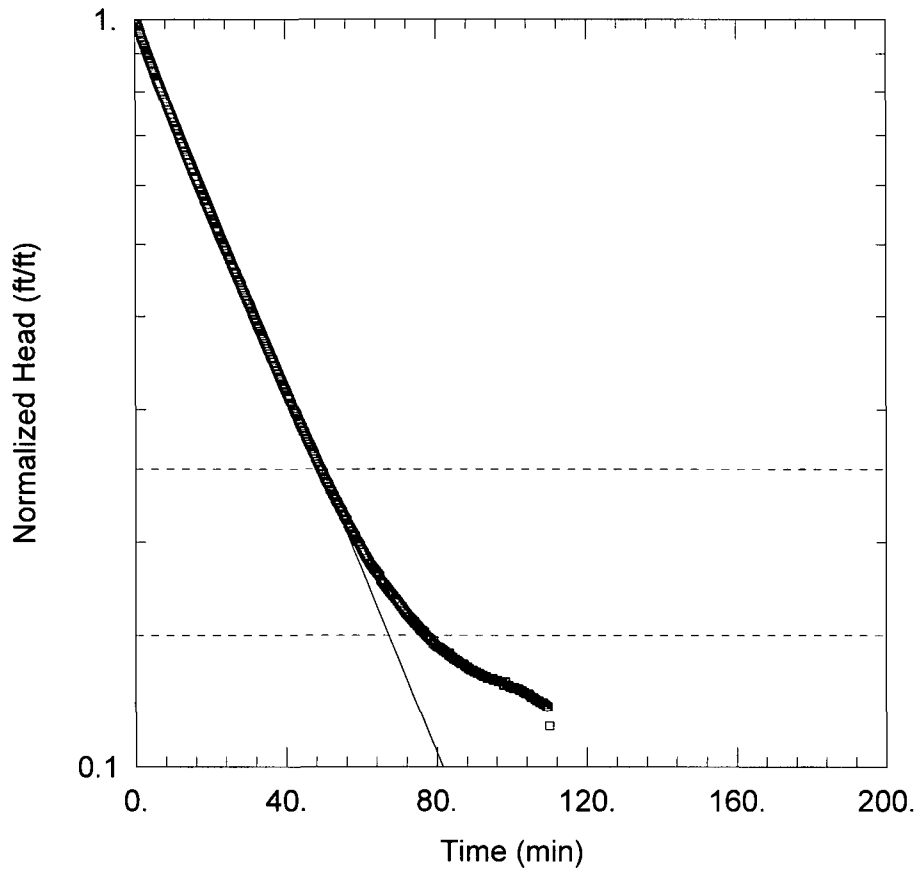
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-51 Test 5)

Initial Displacement: 21.09 ft Static Water Column Height: 125.8 ft
 Total Well Penetration Depth: 125.8 ft Screen Length: 10. ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 0.05165 ft/day $y_0 =$ 20.81 ft



MW-51 TEST 4

Data Set: J:\...MW-51 t4.aqt
 Date: 04/19/07

Time: 16:07:12

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-51 (163.6-153.9)
 Test Date: 5/19/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-51 Test 4)

Initial Displacement: 21.09 ft

Static Water Column Height: 136.6 ft

Total Well Penetration Depth: 136.6 ft

Screen Length: 10. ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

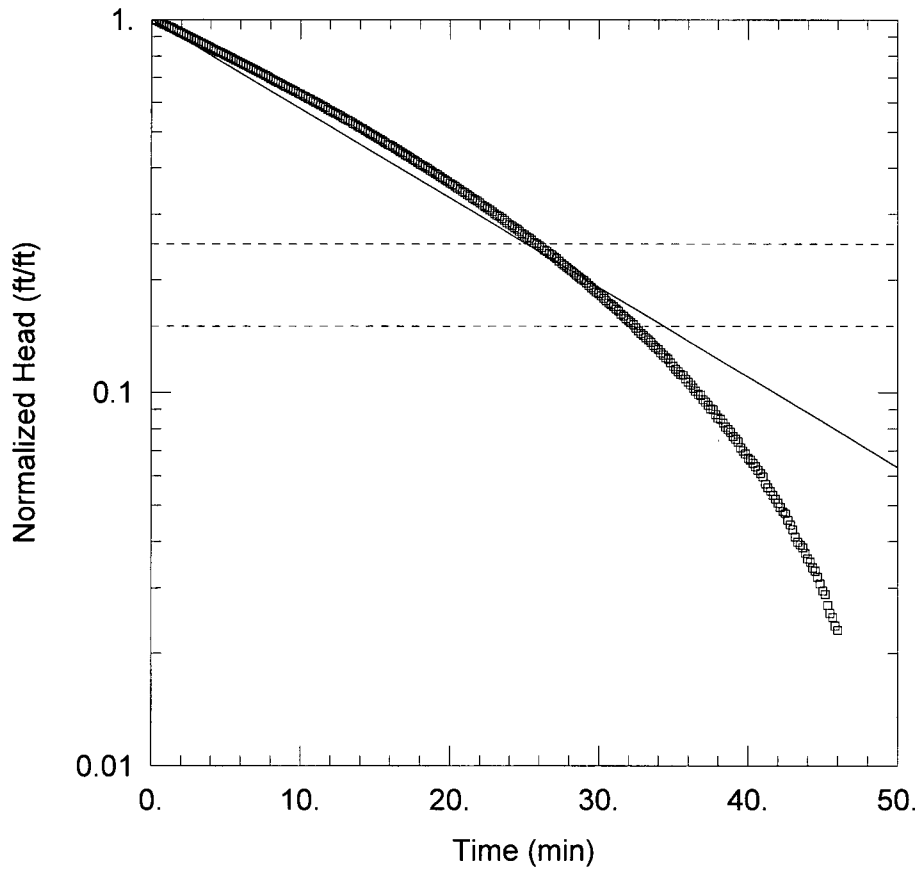
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.0752 ft/day

y0 = 21.4 ft



MW-51 TEST 3

Data Set: J:\...MW-51 t3.aqt
 Date: 04/26/07

Time: 23:13:22

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-51 (167.5-157.8)
 Test Date: 5/18/06

AQUIFER DATA

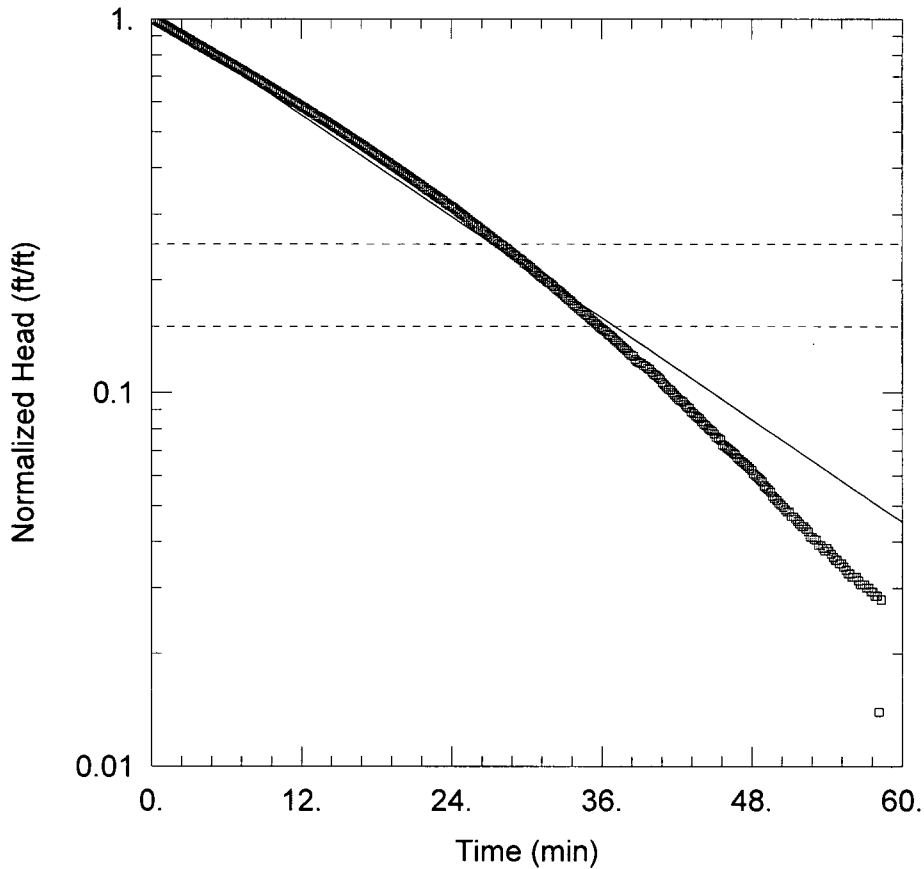
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-51 Test 3)

Initial Displacement: 22.34 ft Static Water Column Height: 139.3 ft
 Total Well Penetration Depth: 139.3 ft Screen Length: 10. ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 0.1463 ft/day y0 = 22.43 ft



MW-51 TEST 2

Data Set: J:\...MW-51 t2.aqt
 Date: 04/19/07

Time: 16:06:24

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-51 (173.3-183.0)
 Test Date: 5/18/06

AQUIFER DATA

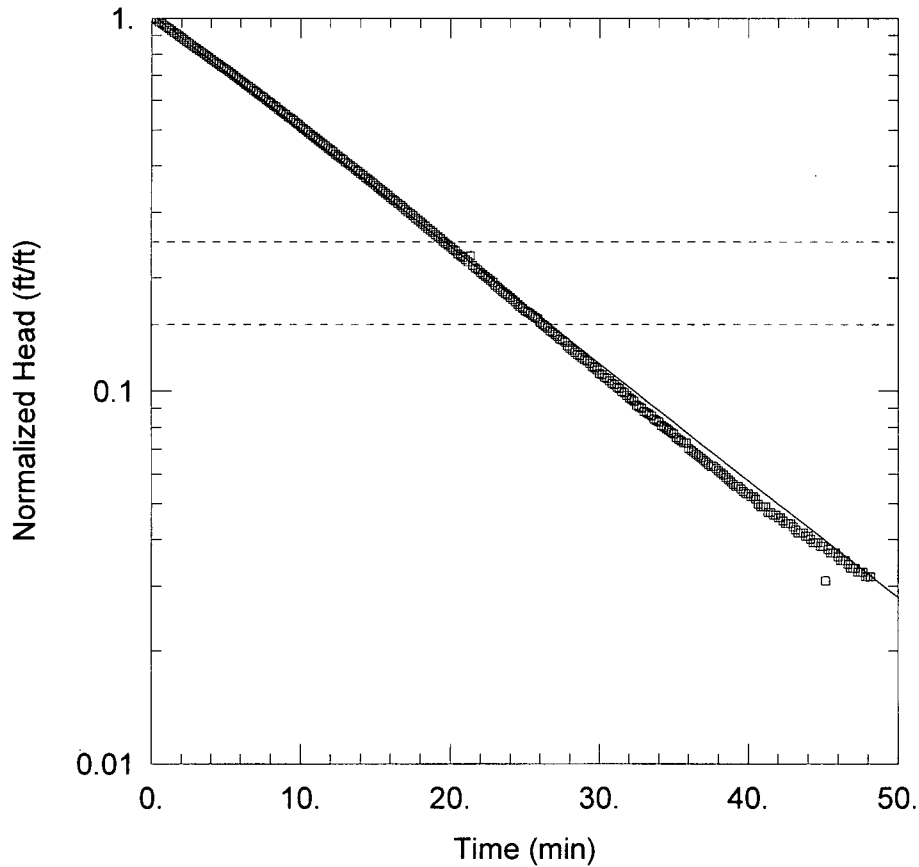
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-51 Test 2)

Initial Displacement: 20.54 ft Static Water Column Height: 156.1 ft
 Total Well Penetration Depth: 156.1 ft Screen Length: 10. ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 0.1382 ft/day $y_0 =$ 21.34 ft



MW-51 TEST 1

Data Set: J:\...MW-51 t1.aqt
 Date: 04/19/07

Time: 16:05:25

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-51 (184.6-194.3)
 Test Date: 5/18/06

AQUIFER DATA

Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-51 Test 1)

Initial Displacement: 17.57 ft Static Water Column Height: 166.4 ft
 Total Well Penetration Depth: 166.4 ft Screen Length: 10. ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 0.1904 ft/day y0 = 17.96 ft

Estimate Transmissivity from Specific Capacity Data

$R_w := 0.159$	Radius of Well (FT.)
$S_w := 0.001$	Storage Coefficient, Assumed
$t := \frac{30}{1440}$	Pumping Duration (Days.)
$T_w := 100$	Transmissivity (GPD/FT) <i>Initial Guess</i>
$Q_p := 0.04$	Pumping Rate (GPM)
$s_w := 2.8$	Drawdown (FT.)
$\frac{Q_p}{s} = 0.014$	Specific Capacity (GPM/FT)

$$aT := \text{root} \left(\frac{Q_p}{s} - \frac{T}{264 \cdot \log \left(\frac{0.3 \cdot T \cdot t}{R_w^2 \cdot S} \right)}, T \right)$$

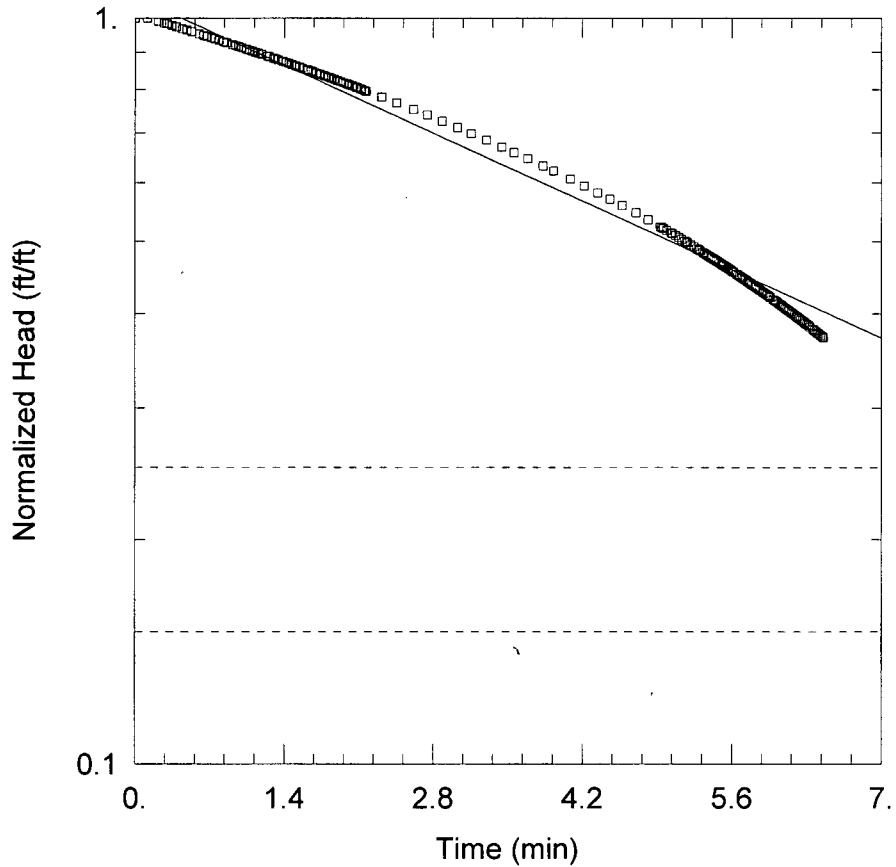
Groundwater Resource Evaluation
William C. Walton Mc-Graw-hill 1970

$$T_w := aT$$

$$T_{ft} := \frac{T}{7.48}$$

$T = 13$ Computed Transmissivity (GPD/ Ft)

$T_{ft} = 2$ **Computed Transmissivity (Sq.ft./Day)**



MW-52 TEST16

Data Set: J:\...MW-52 t16.aqt

Date: 04/19/07

Time: 16:48:20

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-52 (12.5-22.2)

Test Date: 6/6/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-52 Test16)

Initial Displacement: 10.1 ft

Static Water Column Height: 11.3 ft

Total Well Penetration Depth: 11.3 ft

Screen Length: 10. ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

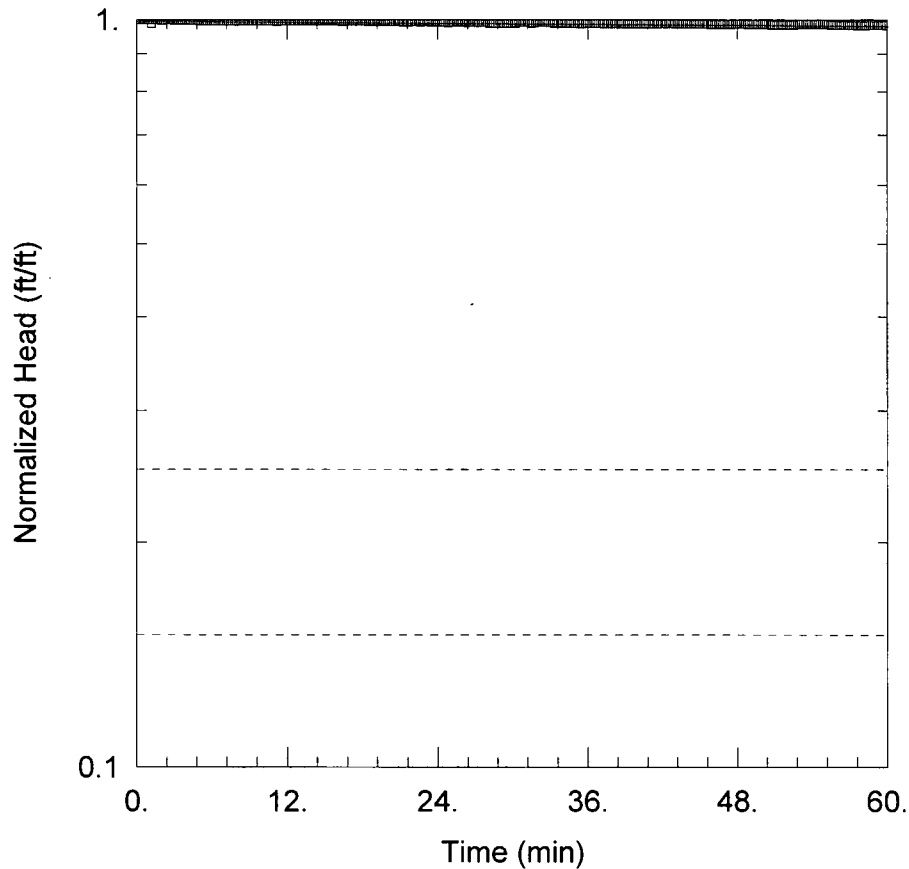
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.3991 ft/day

y0 = 10.78 ft



MW-52 TEST15

Data Set: J:\...MW-52 t15.aqt

Date: 04/19/07

Time: 16:47:57

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-52 (18.5-28.2)

Test Date: 6/6/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-52 Test15)

Initial Displacement: 11.39 ft

Static Water Column Height: 17.3 ft

Total Well Penetration Depth: 17.3 ft

Screen Length: 10. ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

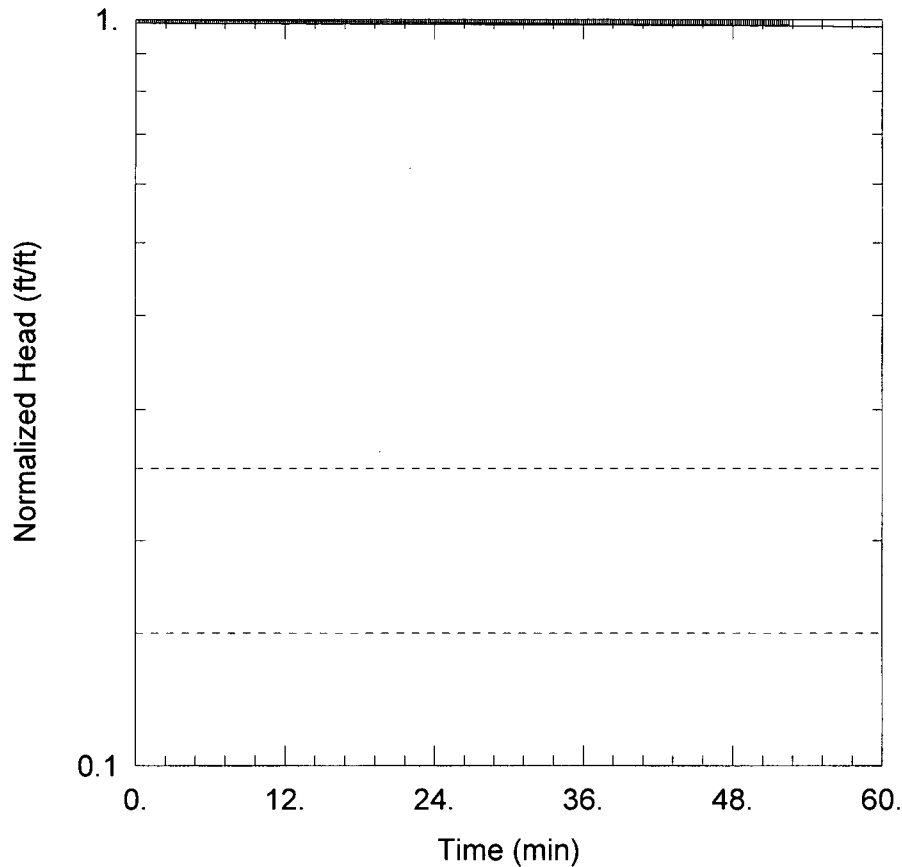
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.0006925 ft/day

y0 = 11.34 ft



MW-52 TEST14

Data Set: J:\...MW-52 t14.aqt

Date: 04/19/07

Time: 16:47:35

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-52 (28.2-37.9)

Test Date: 6/6/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-52 Test14)

Initial Displacement: 18.77 ft

Static Water Column Height: 27. ft

Total Well Penetration Depth: 27. ft

Screen Length: 10. ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

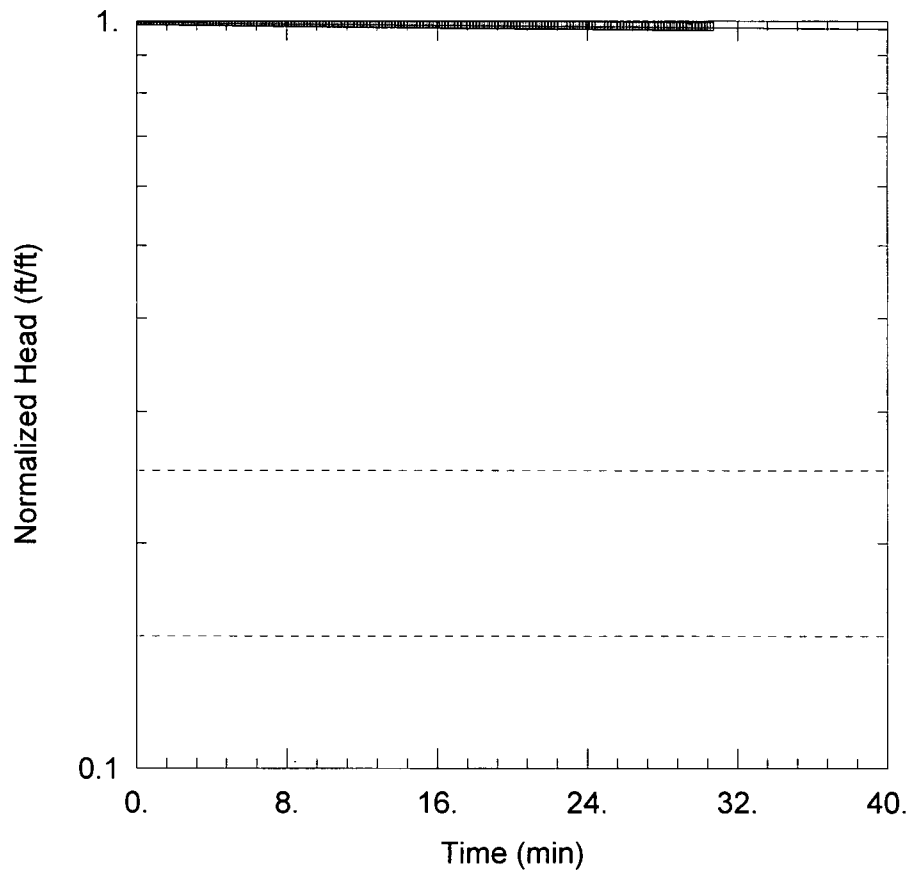
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.001021 ft/day

y0 = 18.77 ft



MW-52 TEST13

Data Set: J:\...MW-52 t13.aqt

Date: 04/19/07

Time: 16:47:12

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-52 (38.8-48.5)

Test Date: 6/5/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-52 Test13)

Initial Displacement: 20.33 ft

Static Water Column Height: 37.6 ft

Total Well Penetration Depth: 37.6 ft

Screen Length: 10. ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

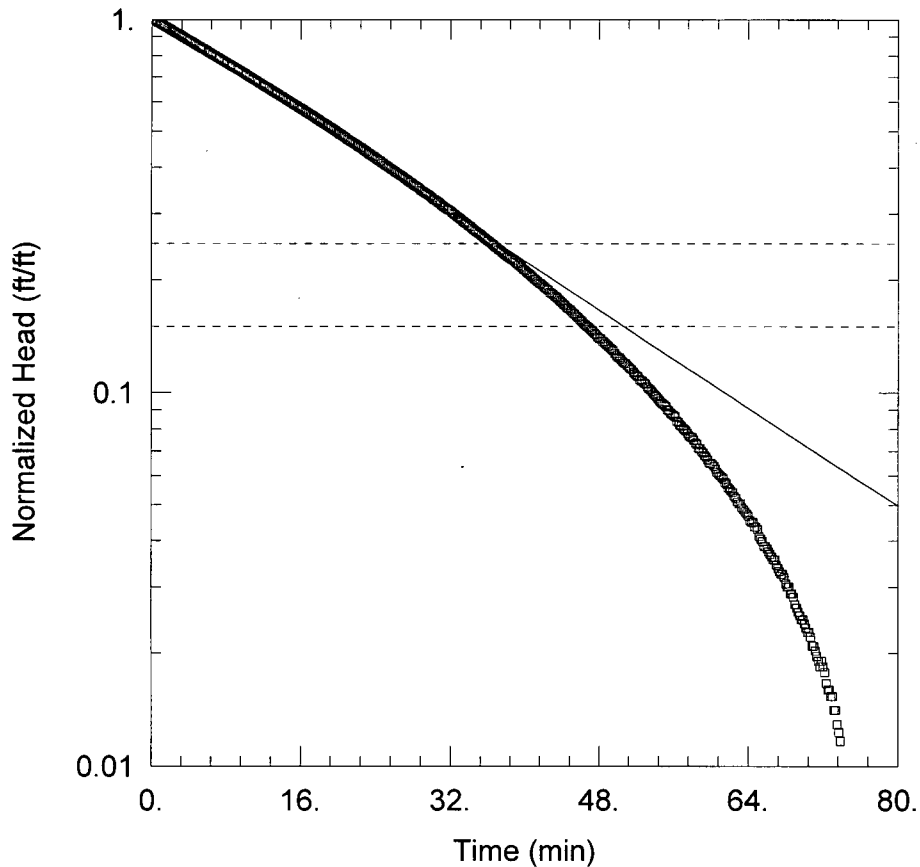
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.001321 ft/day

y0 = 20.23 ft



MW-52 TEST12

Data Set: J:\...MW-52 t12.aqt
 Date: 09/10/07

Time: 17:26:27

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-52 (50-59.7)
 Test Date: 6/5/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-52 Test12)

Initial Displacement: 23.34 ft

Static Water Column Height: 59.7 ft

Total Well Penetration Depth: 59.7 ft

Screen Length: 10. ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

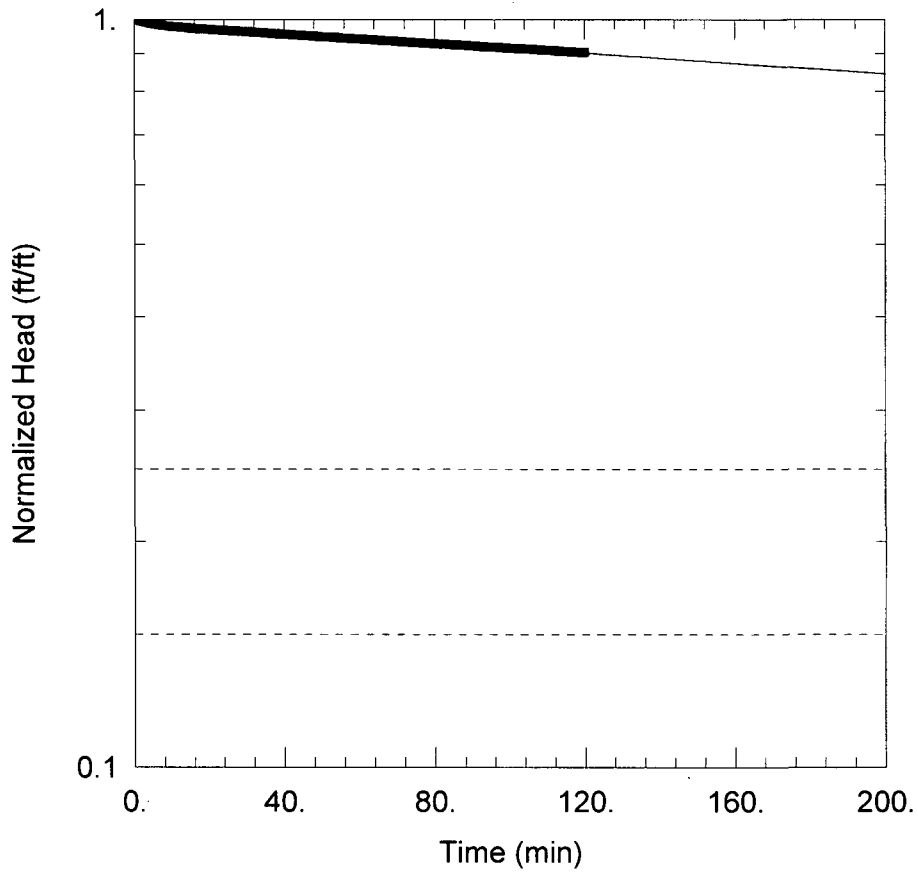
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.0997 ft/day

y0 = 23.65 ft



MW-52 TEST11

Data Set: J:\...MW-52 t11.aqt

Date: 04/19/07

Time: 16:45:56

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-52 (60-69.7)

Test Date: 6/5/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-52 Test11)

Initial Displacement: 20.83 ft

Static Water Column Height: 69.7 ft

Total Well Penetration Depth: 69.7 ft

Screen Length: 10. ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

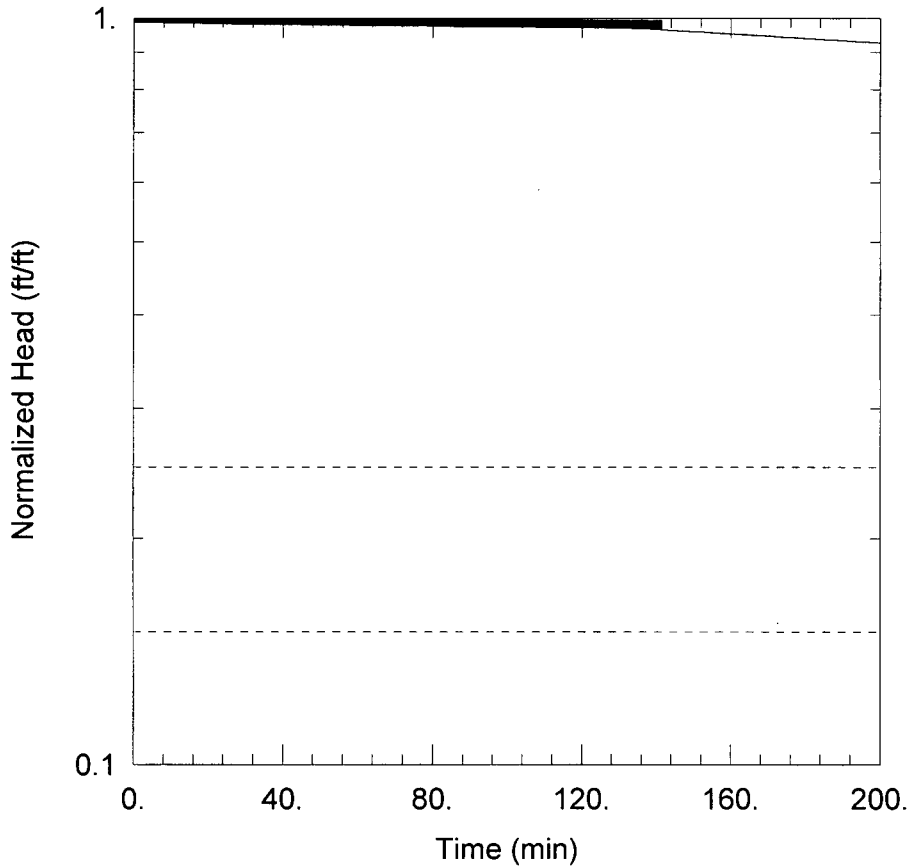
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.002132 ft/day

y0 = 20.69 ft



MW-52 TEST10

Data Set: J:\...MW-52 t10.aqt

Date: 04/19/07

Time: 16:45:16

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-52 (69-78.7)

Test Date: 6/2/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-52 Test10)

Initial Displacement: 21.17 ft

Static Water Column Height: 78.7 ft

Total Well Penetration Depth: 78.7 ft

Screen Length: 10. ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

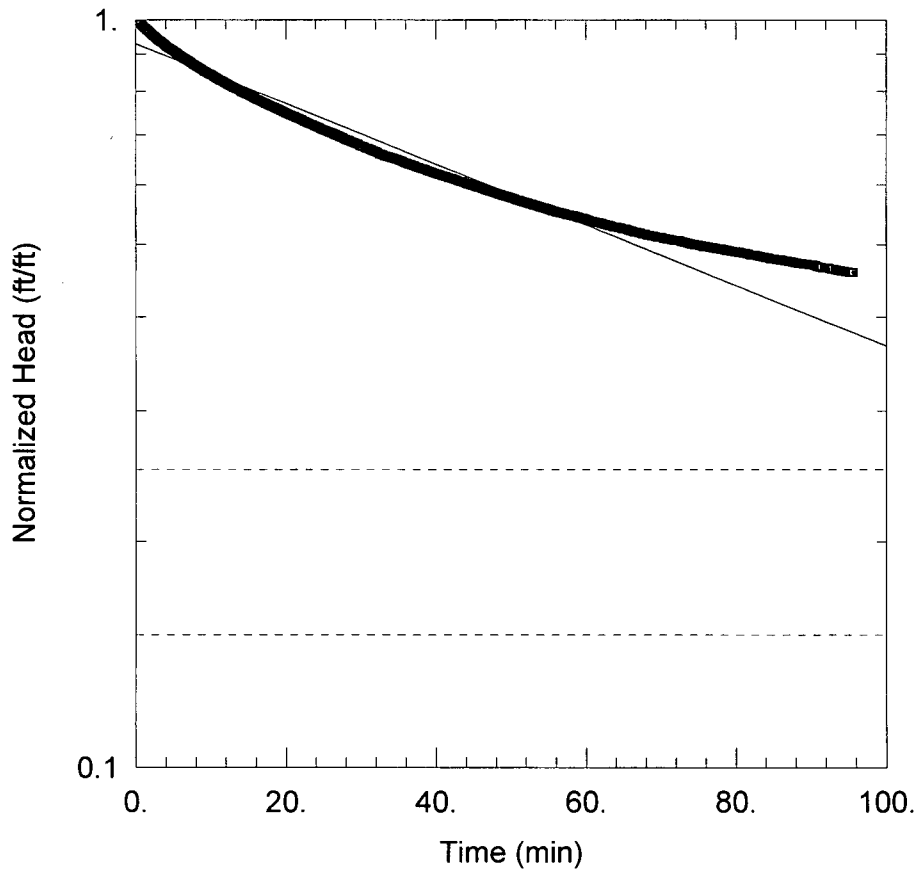
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.001839 ft/day

y0 = 22.54 ft



MW-52 TEST9

Data Set: J:\...\MW-52 t9.aqt
 Date: 04/19/07

Time: 16:44:34

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-52 (76.4-86.1)
 Test Date: 6/2/06

AQUIFER DATA

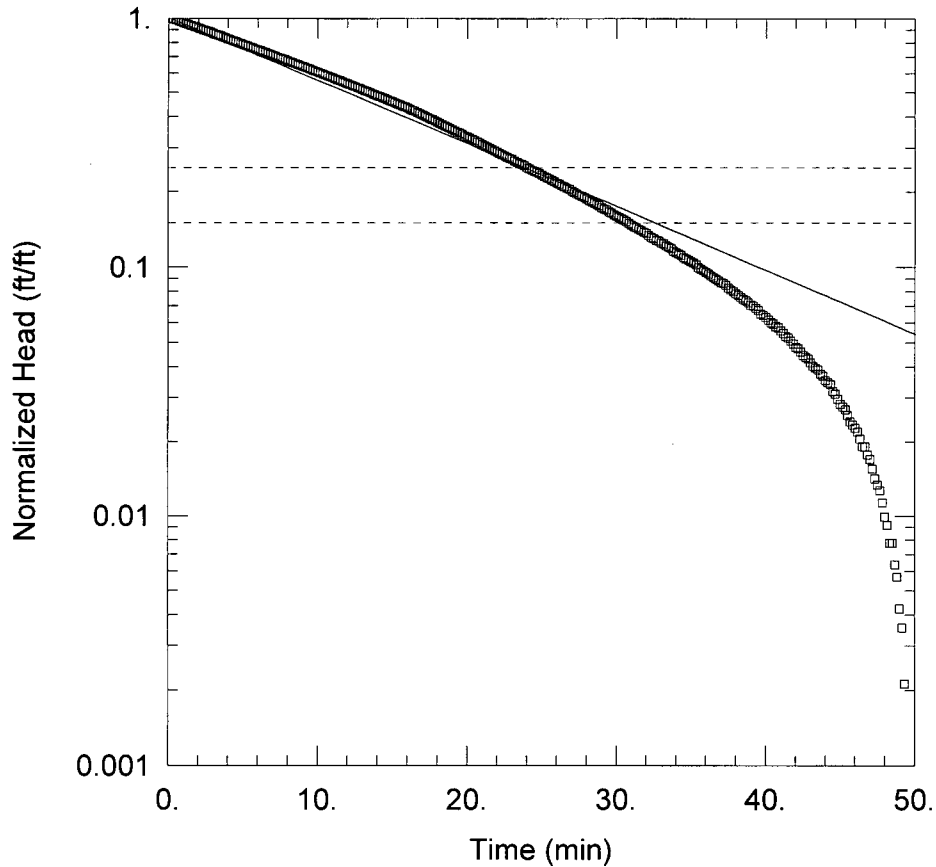
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-52 Test9)

Initial Displacement: 19.17 ft Static Water Column Height: 75.2 ft
 Total Well Penetration Depth: 75.2 ft Screen Length: 10. ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 0.02463 ft/day $y_0 =$ 17.81 ft



MW-52 TEST8

Data Set: J:\...MW-52 t8.aqt
Date: 09/10/07

Time: 17:26:17

PROJECT INFORMATION

Company: GZA GeoEnvironmental
Client: Indian Point Energy Center
Project: 41.0017869.10
Location: Buchanan, New York
Test Well: MW-52 (89-98.7)
Test Date: 6/1/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-52 Test8)

Initial Displacement: 20.29 ft

Static Water Column Height: 87.8 ft

Total Well Penetration Depth: 87.8 ft

Screen Length: 10. ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

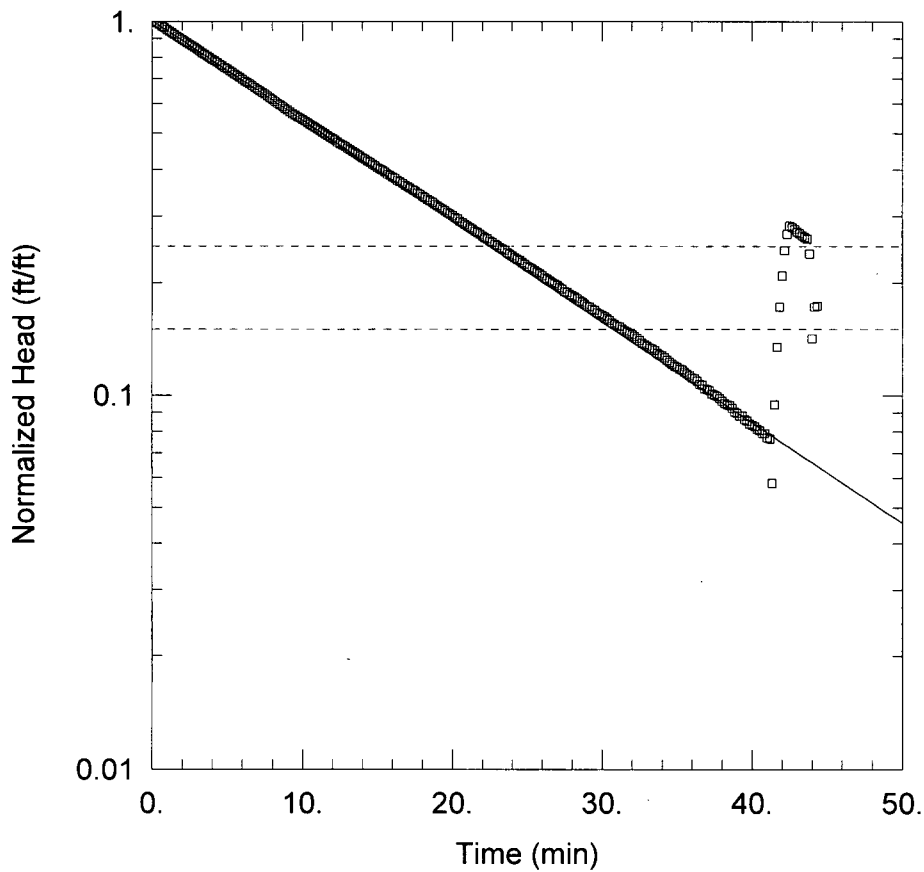
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.1546 ft/day

y0 = 20.45 ft



MW-52 TEST7

Data Set: J:\...MW-52 t7.aqt

Date: 04/19/07

Time: 16:43:55

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-52 (100.5-110.2)

Test Date: 6/1/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-52 Test7)

Initial Displacement: 20.47 ft

Static Water Column Height: 99.3 ft

Total Well Penetration Depth: 99.3 ft

Screen Length: 10. ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

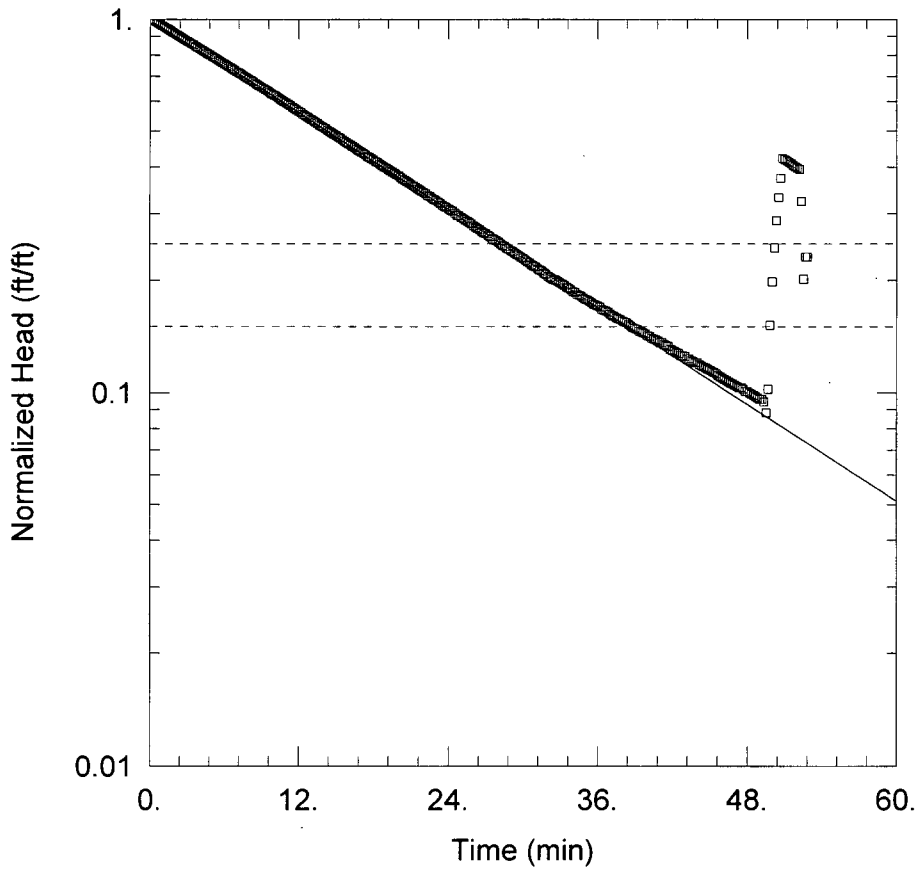
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.164 ft/day

y0 = 20.61 ft



MW-52 TEST6

Data Set: J:\...MW-52 t6.aqt
 Date: 04/19/07

Time: 16:43:27

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-52 (115.3-125)
 Test Date: 6/1/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-52 Test6)

Initial Displacement: 18.36 ft

Static Water Column Height: 114.1 ft

Total Well Penetration Depth: 114.1 ft

Screen Length: 10. ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

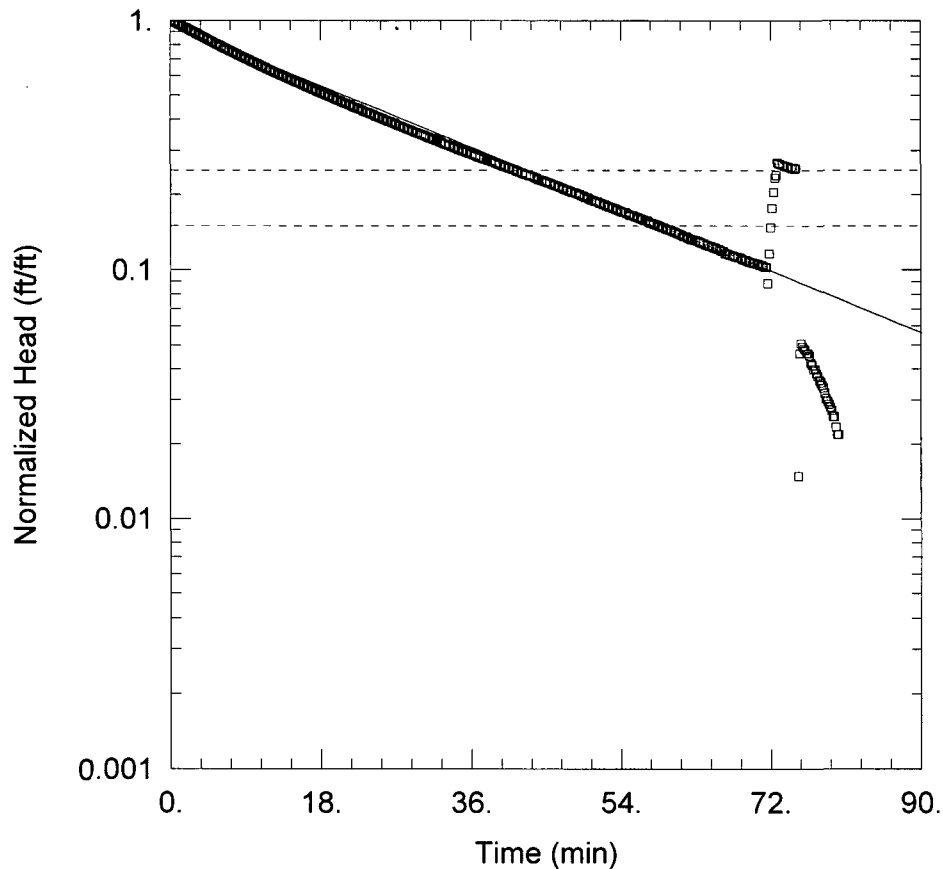
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.1322 ft/day

y0 = 18.78 ft



MW-52 TEST5

Data Set: J:\...\MW-52 t5.aqt

Date: 04/19/07

Time: 16:42:52

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-52 (133.2-142.9)

Test Date: 5/31/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-52 Test5)

Initial Displacement: 18.36 ft

Static Water Column Height: 132. ft

Total Well Penetration Depth: 132. ft

Screen Length: 10. ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

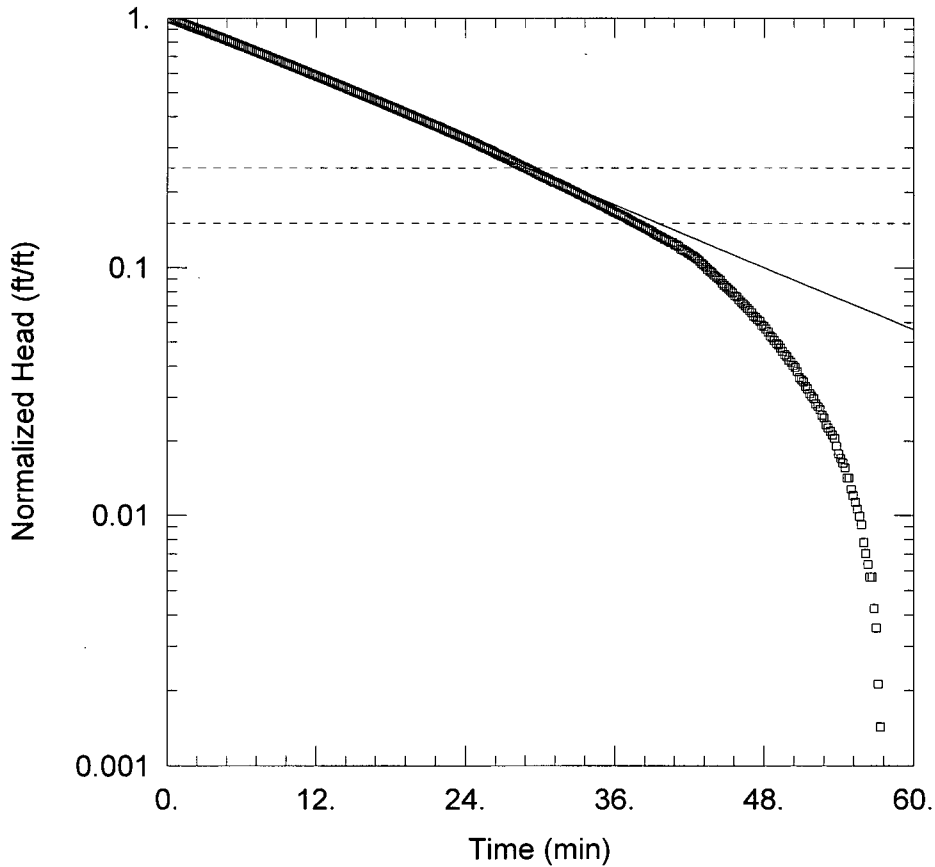
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.08353 ft/day

y0 = 17.74 ft



MW-52 TEST4

Data Set: J:\...MW-52 t4.aqt
 Date: 04/26/07

Time: 23:16:40

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-52 (143.5-153.2)
 Test Date: 5/31/06

AQUIFER DATA

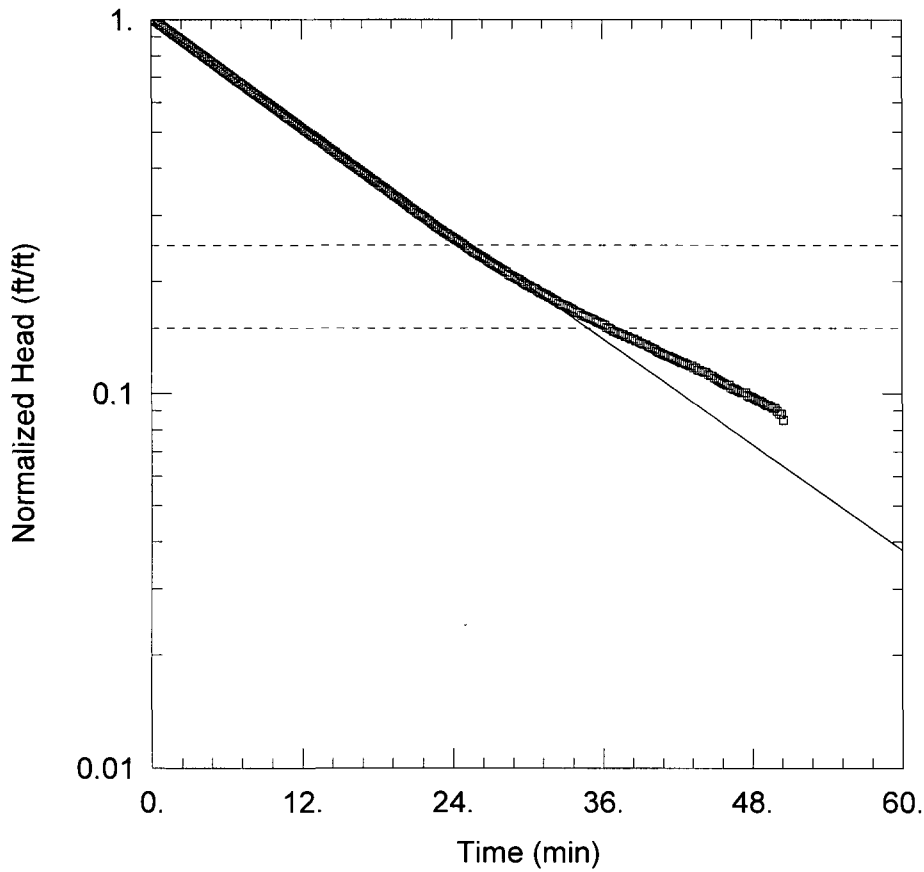
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-52 Test4)

Initial Displacement: 20.31 ft Static Water Column Height: 142.3 ft
 Total Well Penetration Depth: 142.3 ft Screen Length: 10. ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 0.127 ft/day y0 = 20.33 ft



MW-52 TEST3

Data Set: J:\...MW-52 t3.aqt
 Date: 04/19/07

Time: 16:42:02

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-52 (158.3-168)
 Test Date: 5/31/06

AQUIFER DATA

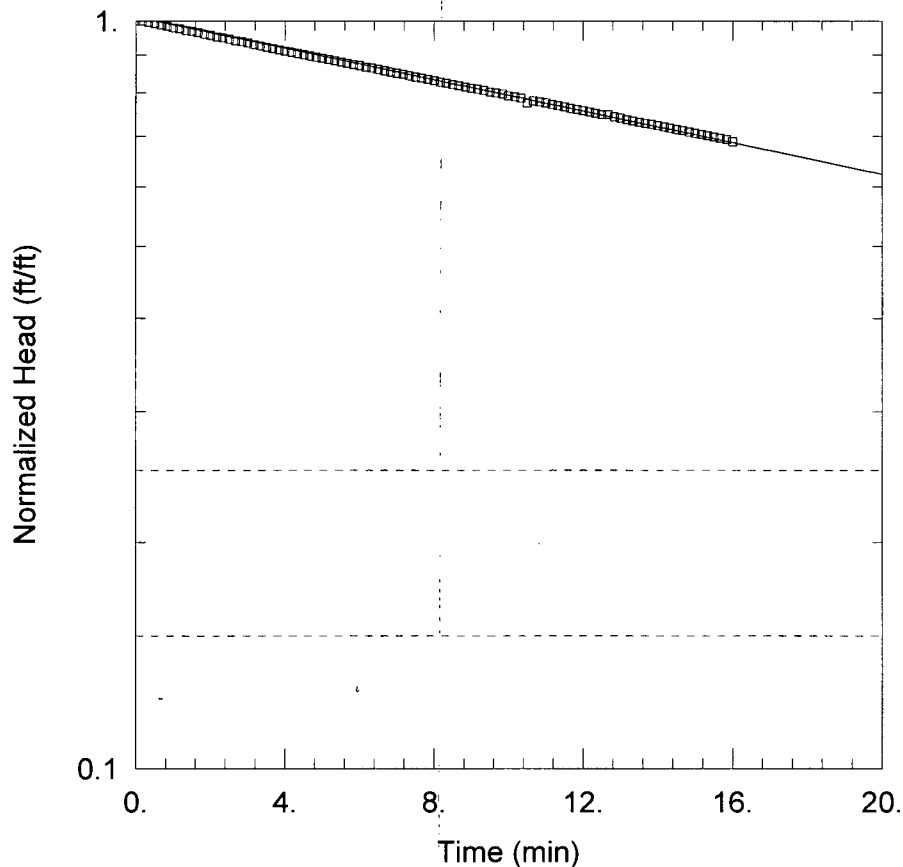
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-52 Test3)

Initial Displacement: 17.9 ft Static Water Column Height: 157.1 ft
 Total Well Penetration Depth: 157.1 ft Screen Length: 10. ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 0.1443 ft/day y0 = 17.93 ft



MW-52 TEST2

Data Set: J:\...MW-52 t2.aqt

Date: 04/19/07

Time: 16:41:30

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-52 (168.5-178.2)

Test Date: 5/30/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-52 Test2)

Initial Displacement: 32.83 ft

Static Water Column Height: 167.3 ft

Total Well Penetration Depth: 167.3 ft

Screen Length: 10. ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

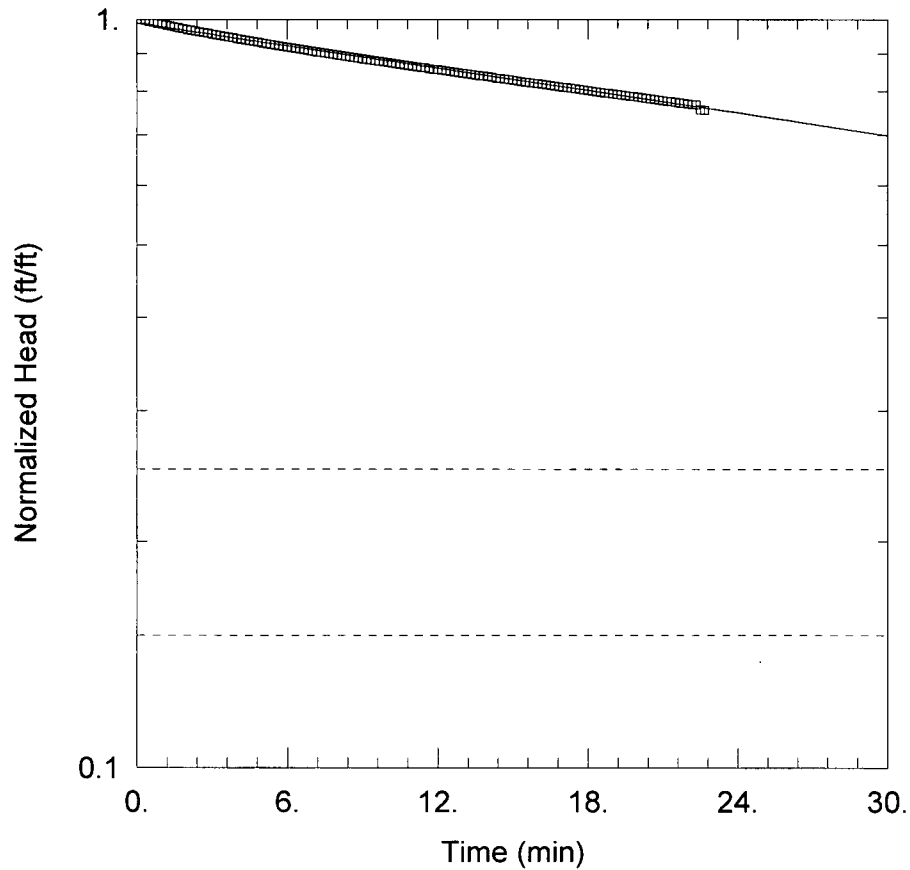
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.06415 ft/day

y0 = 33.24 ft



MW-52 TEST1

Data Set: J:\...\MW-52 t1.aqt
 Date: 04/19/07

Time: 16:40:57

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-52 (179.5-189.2)
 Test Date: 5/30/06

AQUIFER DATA

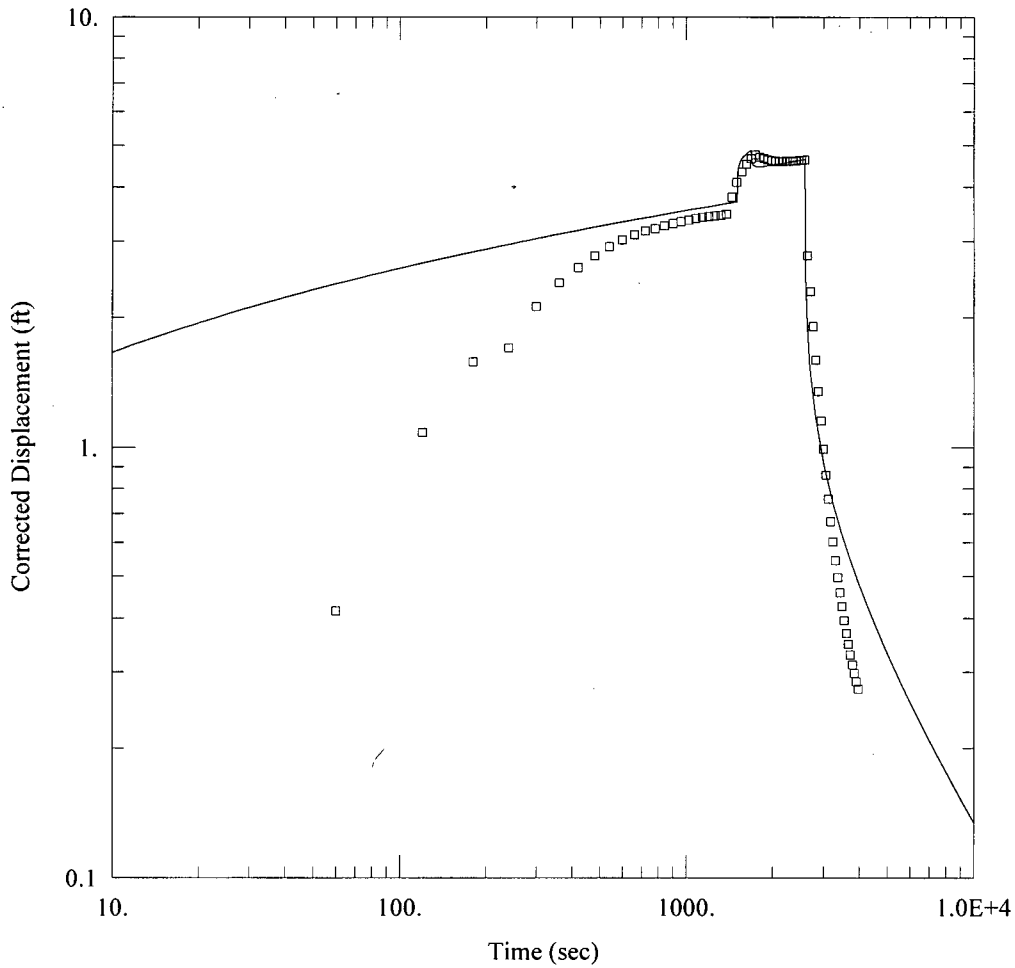
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-52 Test 1)

Initial Displacement: 36.79 ft Static Water Column Height: 178.3 ft
 Total Well Penetration Depth: 178.3 ft Screen Length: 10. ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 0.0306 ft/day y0 = 36.38 ft



MW-53-80 EXTRACTION TEST

Data Set: J:\...MW-53-80 theis.aqt

Date: 09/12/07

Time: 14:13:29

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, NY

Test Well: MW-53-80

Test Date: 12/19/06

WELL DATA

Pumping Wells

Observation Wells

Well Name	X (ft)	Y (ft)
MW-53-80	0	0

Well Name	X (ft)	Y (ft)
□ MW-53-80	0	0

SOLUTION

Aquifer Model: Unconfined

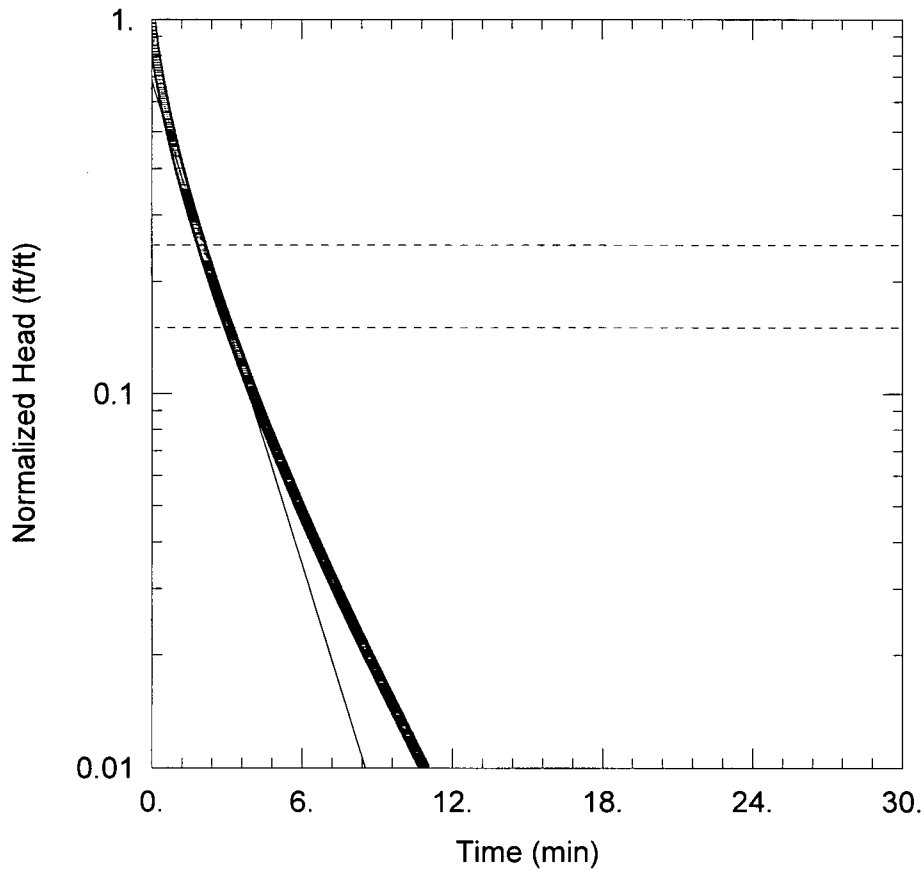
Solution Method: Theis

T = 18.75 ft²/day

S = 0.003325

Kz/Kr = 1.

b = 300. ft



MW53-120 SLUG TEST 2

Data Set: J:\...\MW53-120 2.aqt

Date: 09/12/07

Time: 14:13:55

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW53-120

Test Date: 12/28/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-53-120)

Initial Displacement: 29.55 ft

Static Water Column Height: 92.2 ft

Total Well Penetration Depth: 62.2 ft

Screen Length: 26. ft

Casing Radius: 0.04167 ft

Wellbore Radius: 0.159 ft

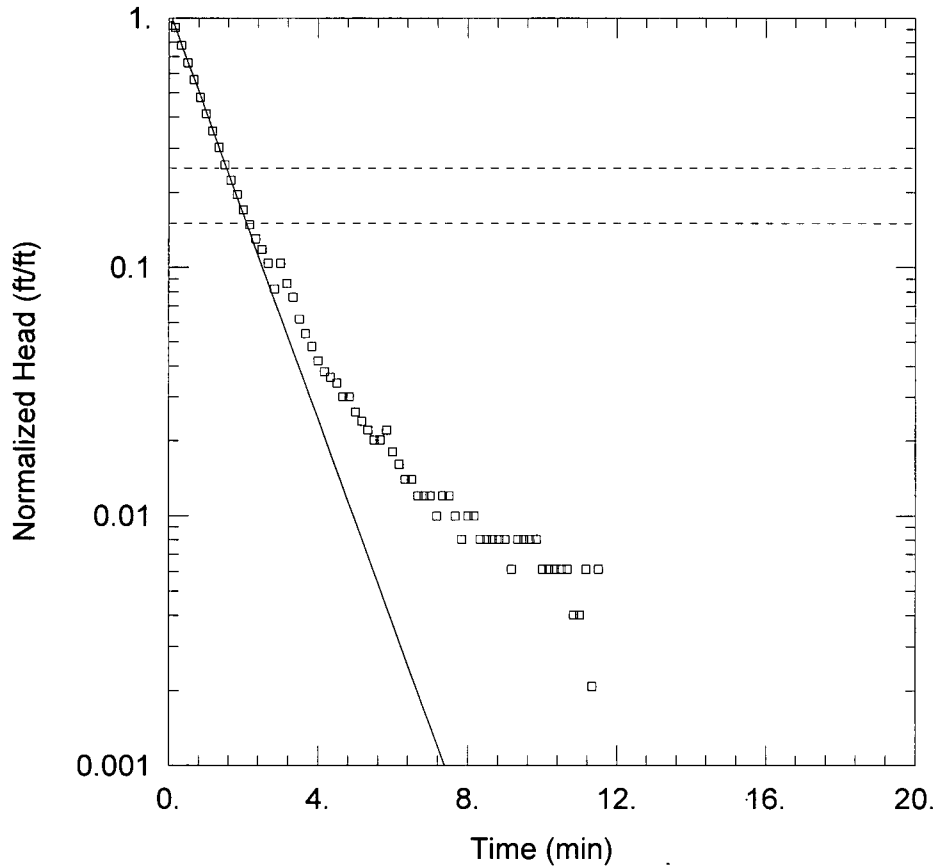
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.1487 ft/day

y0 = 20.18 ft



MW-54 TEST 17

Data Set: J:\...MW-54 T17.aqt
 Date: 04/20/07

Time: 11:35:17

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-54 (187.0-206.0)
 Test Date: 10/2/06

AQUIFER DATA

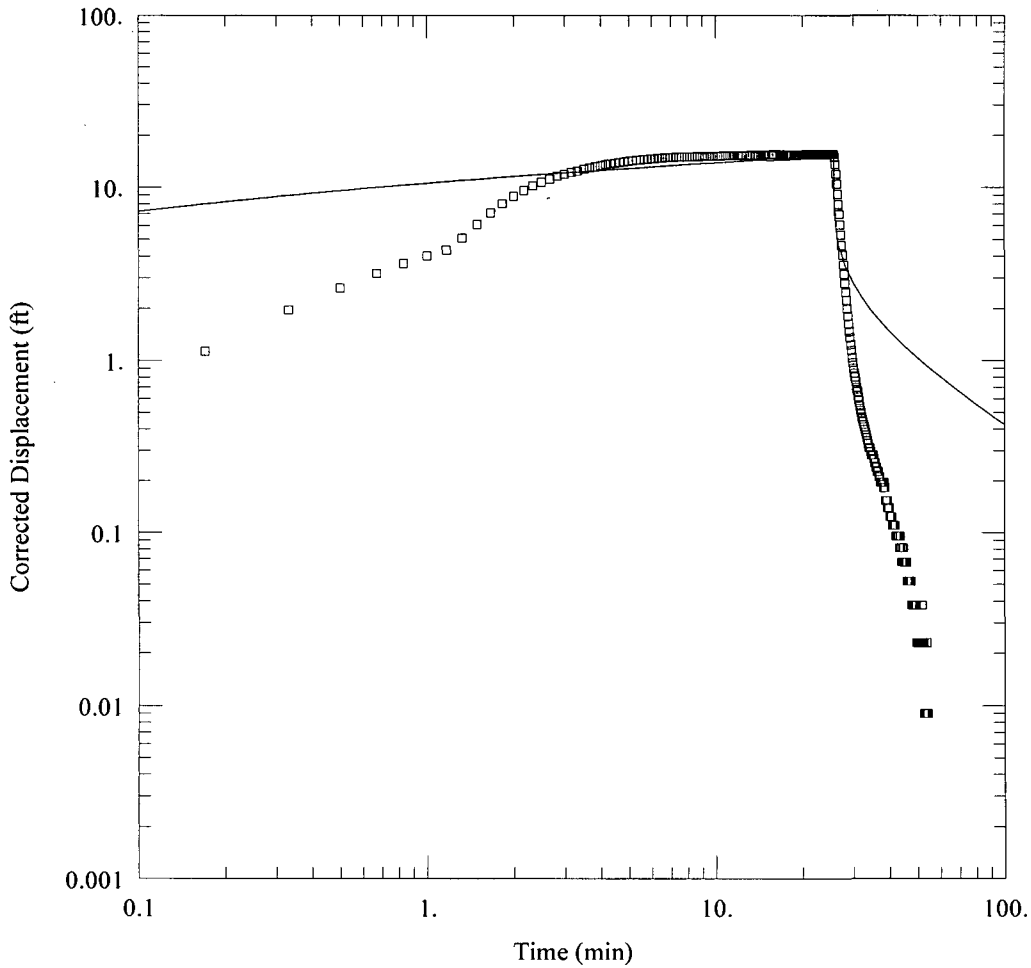
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-54Test 17)

Initial Displacement: 7.213 ft Static Water Column Height: 196.4 ft
 Total Well Penetration Depth: 196.4 ft Screen Length: 19. ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 1.478 ft/day y0 = 7.77 ft



MW-54 T16 PACKERED EXTRACTION

Data Set: J:\...MW-54 t16 this.aqt
 Date: 09/10/07

Time: 17:35:04

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, NY
 Test Well: MW-54
 Test Date: 10/2/06

WELL DATA

Pumping Wells			Observation Wells		
Well Name	X (ft)	Y (ft)	Well Name	X (ft)	Y (ft)
MW-54	0	0	□ MW-54	0	0

SOLUTION

Aquifer Model: Unconfined

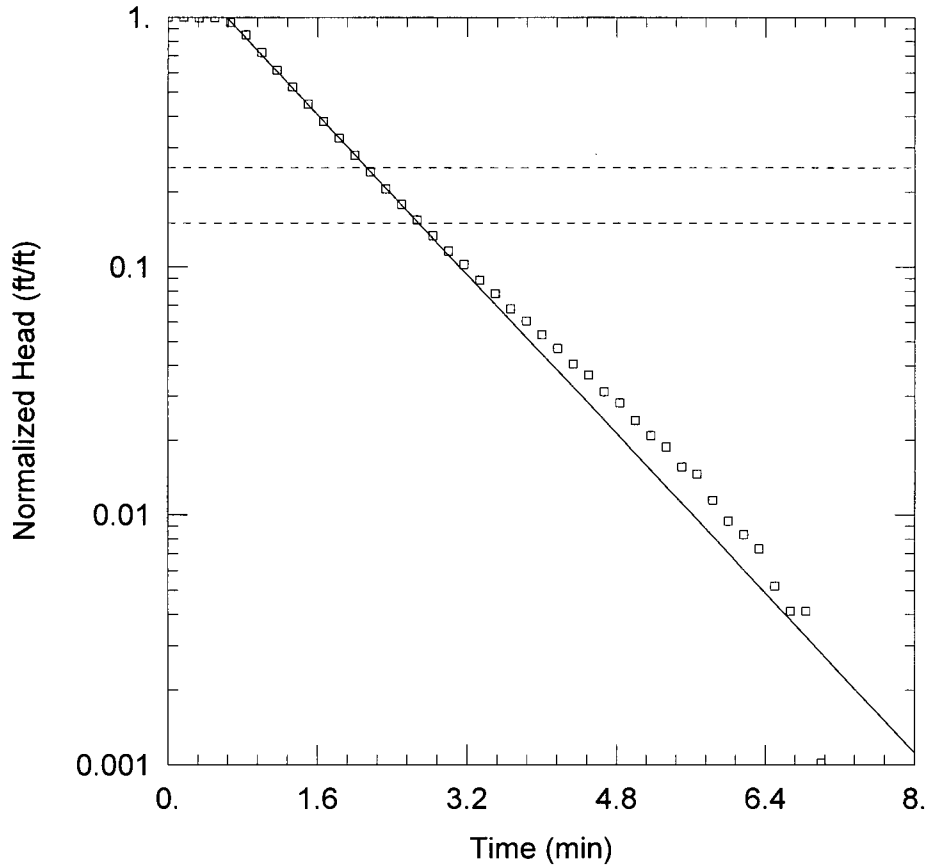
Solution Method: Thisis

T = 23.75 ft²/day

S = 0.001002

Kz/Kr = 1.

b = 300. ft



MW-54 TEST 15

Data Set: J:\...MW-54 T15.aqt

Date: 04/20/07

Time: 11:33:55

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-54 (172.3-182.0)

Test Date: 10/2/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-54Test 15)

Initial Displacement: 13.81 ft

Static Water Column Height: 172.4 ft

Total Well Penetration Depth: 172.4 ft

Screen Length: 9.7 ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

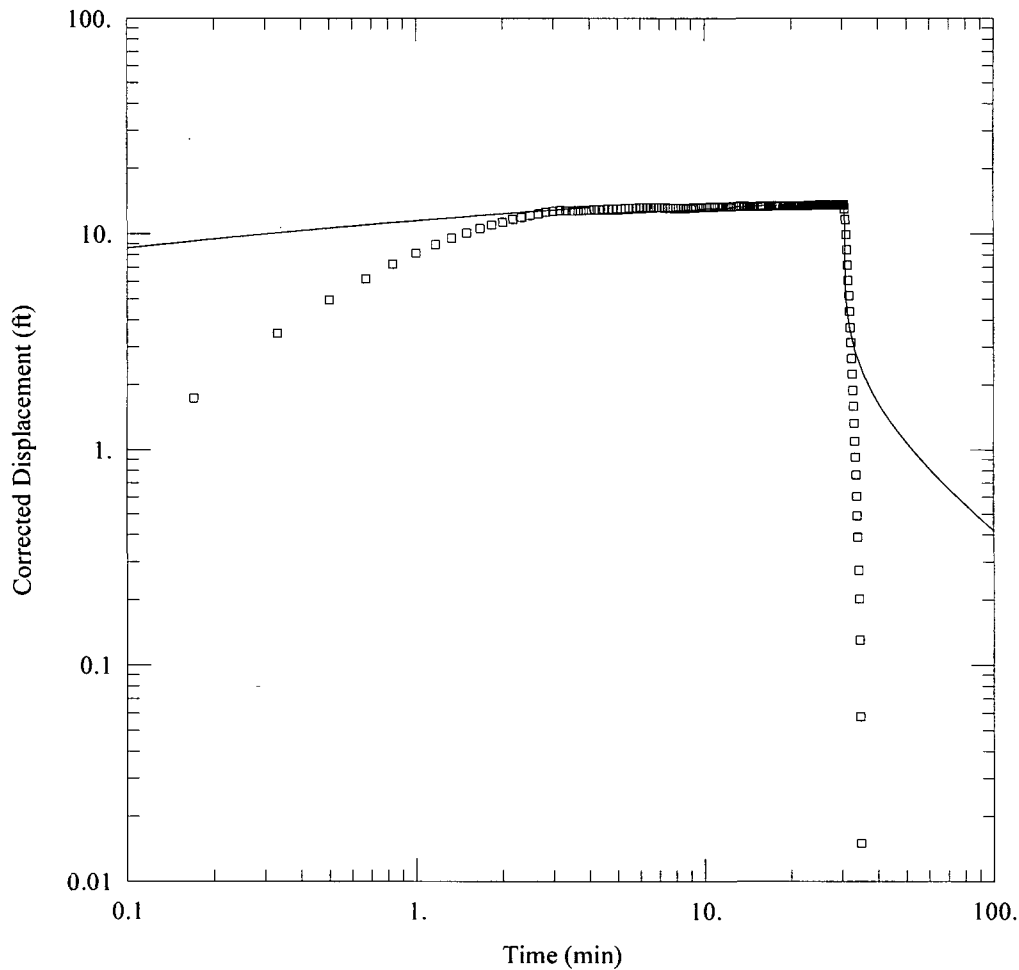
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 2.501 ft/day

y0 = 24.6 ft



MW-54 T15 PACKERED EXTRACTION

Data Set: J:\...MW-54 t15 this.gqt
 Date: 09/10/07

Time: 17:34:54

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, NY
 Test Well: MW-54
 Test Date: 10/2/06

WELL DATA

Pumping Wells			Observation Wells		
Well Name	X (ft)	Y (ft)	Well Name	X (ft)	Y (ft)
MW-54	0	0	□ MW-54	0	0

SOLUTION

Aquifer Model: Unconfined

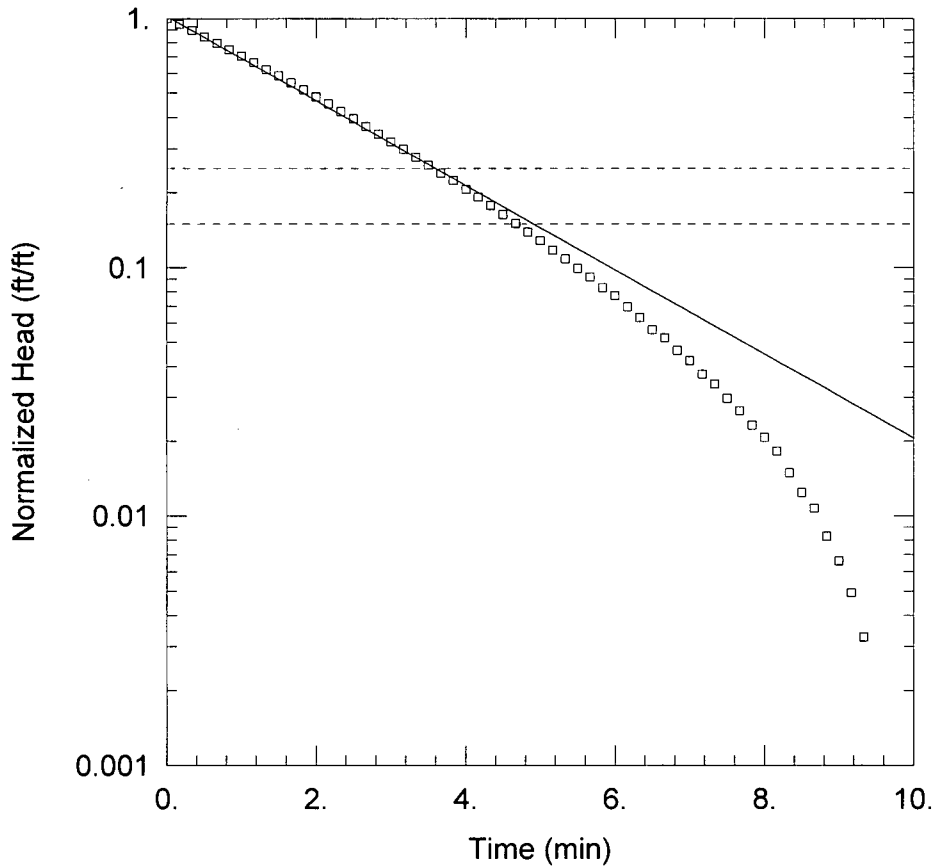
Solution Method: Thisis

T = 30.35 ft²/day

S = 0.000205

Kz/Kr = 1.

b = 300. ft



MW-54 TEST 14

Data Set: J:\...MW-54 T14.aqt
 Date: 04/20/07

Time: 11:33:08

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-54 (157.4-167.1)
 Test Date: 10/2/06

AQUIFER DATA

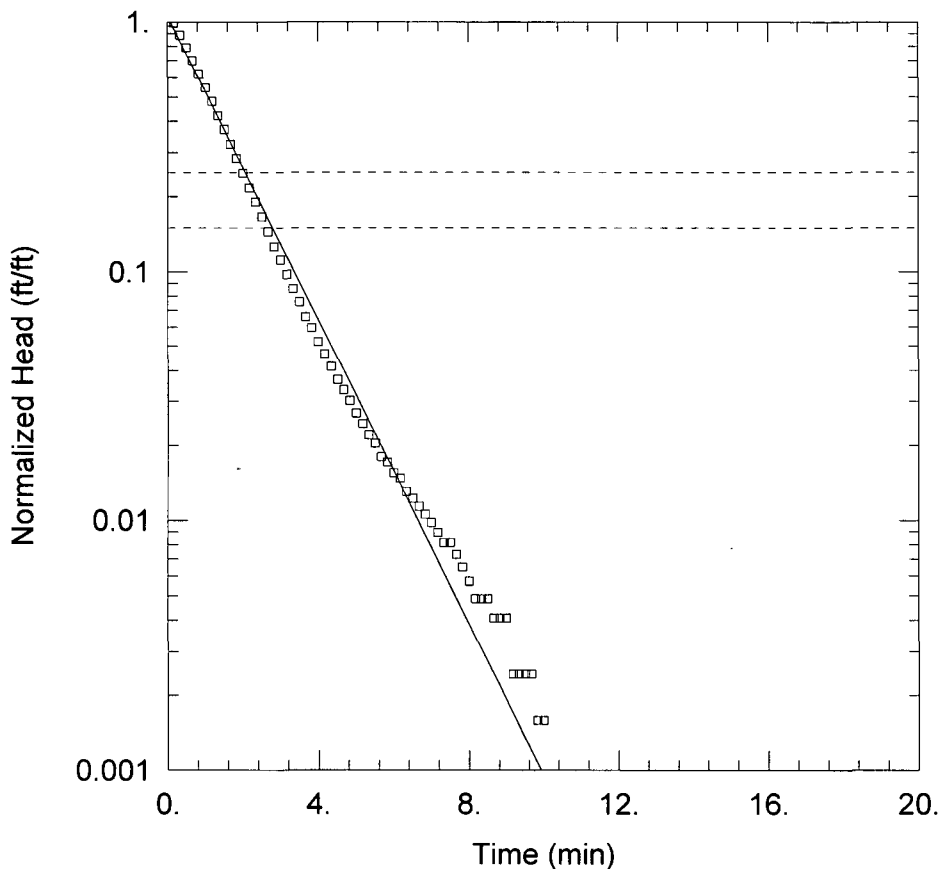
Saturated Thickness: 300 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-54Test 14)

Initial Displacement: 17.41 ft Static Water Column Height: 157.6 ft
 Total Well Penetration Depth: 157.6 ft Screen Length: 9.7 ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 1.058 ft/day y0 = 17.74 ft



MW-54 TEST 13

Data Set: J:\...\MW-54 T13.aqt

Date: 04/20/07

Time: 11:32:46

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-54 (146.0-155.7)

Test Date: 9/29/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-54Test 13)

Initial Displacement: 17.69 ft

Static Water Column Height: 146.2 ft

Total Well Penetration Depth: 146.2 ft

Screen Length: 9.7 ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

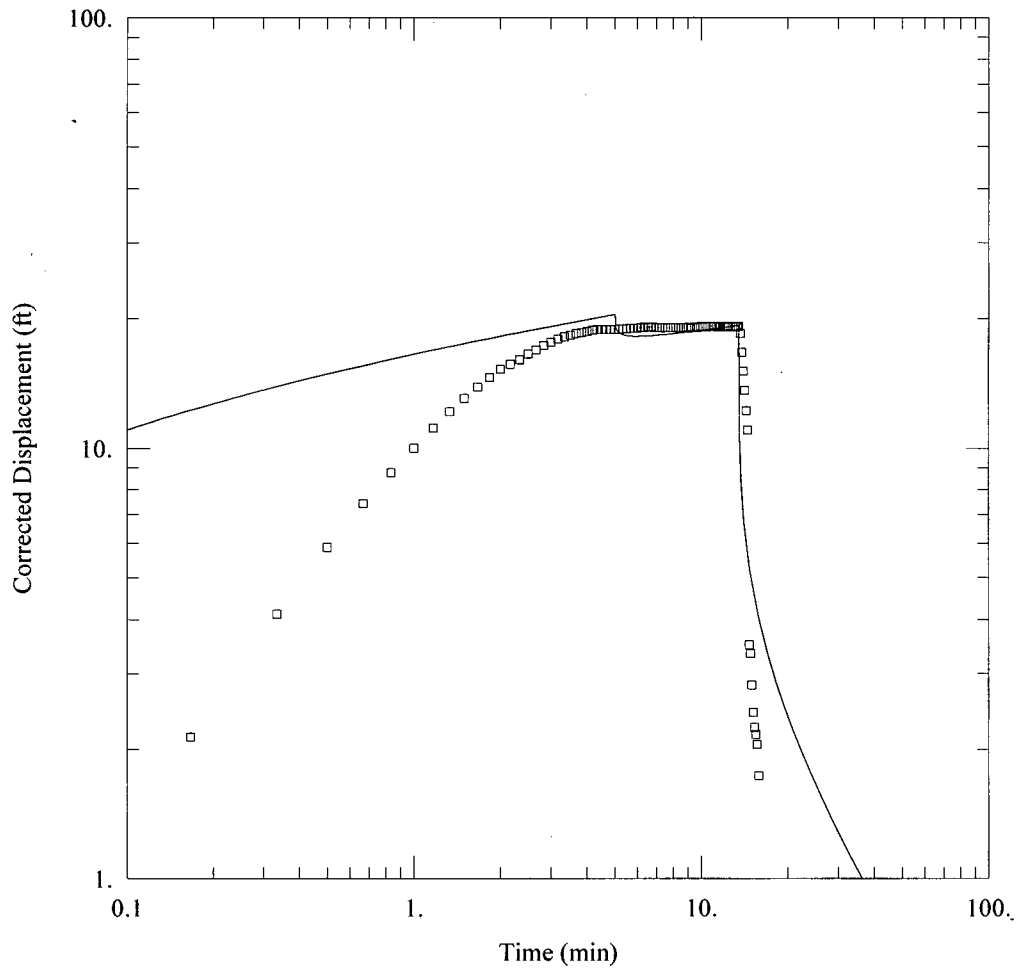
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 1.904 ft/day

y0 = 18.76 ft



MW-54 T13 PACKERED EXTRACTION

Data Set: J:\...MW-54 t13 theis.aqt
 Date: 09/10/07

Time: 17:34:44

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, NY
 Test Well: MW-54
 Test Date: 9/29/06

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
MW-54	0	0

Observation Wells

Well Name	X (ft)	Y (ft)
□ MW-54	0	0

SOLUTION

Aquifer Model: Unconfined

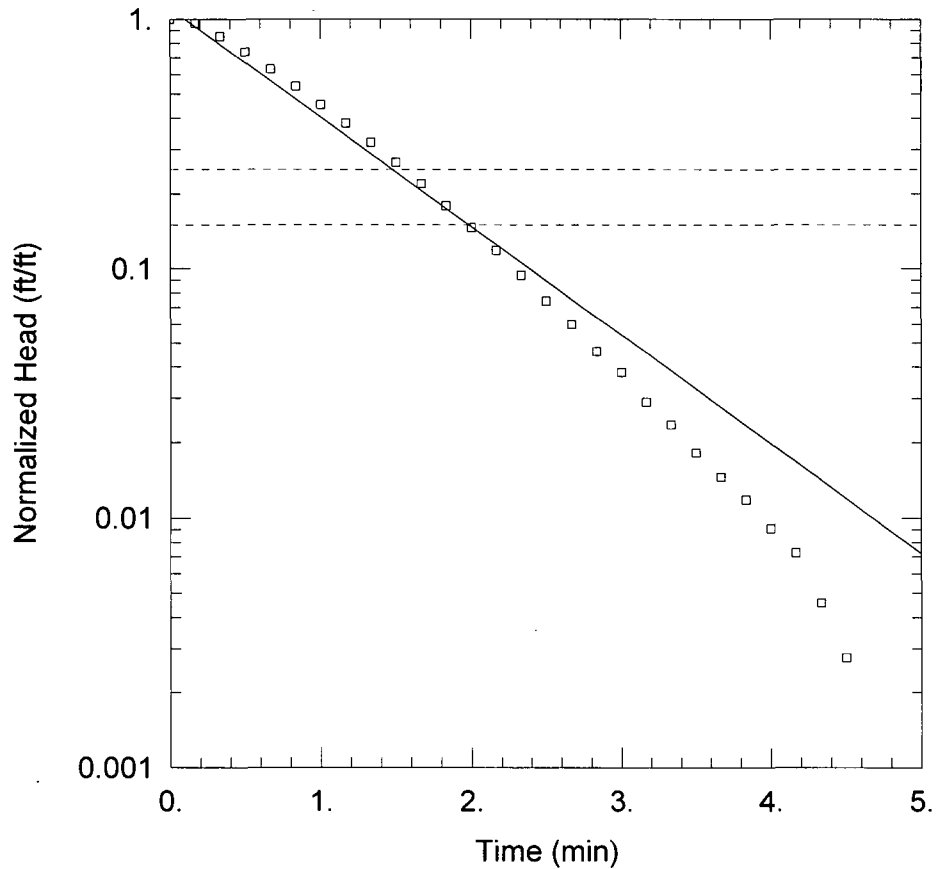
Solution Method: Theis

T = 15.91 ft²/day

S = 0.001007

Kz/Kr = 1.

b = 300. ft



MW-54 TEST 12

Data Set: J:\...MW-54 T12.aqt
 Date: 04/20/07

Time: 11:32:04

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-54 (136.6-146.0)
 Test Date: 9/29/06

AQUIFER DATA

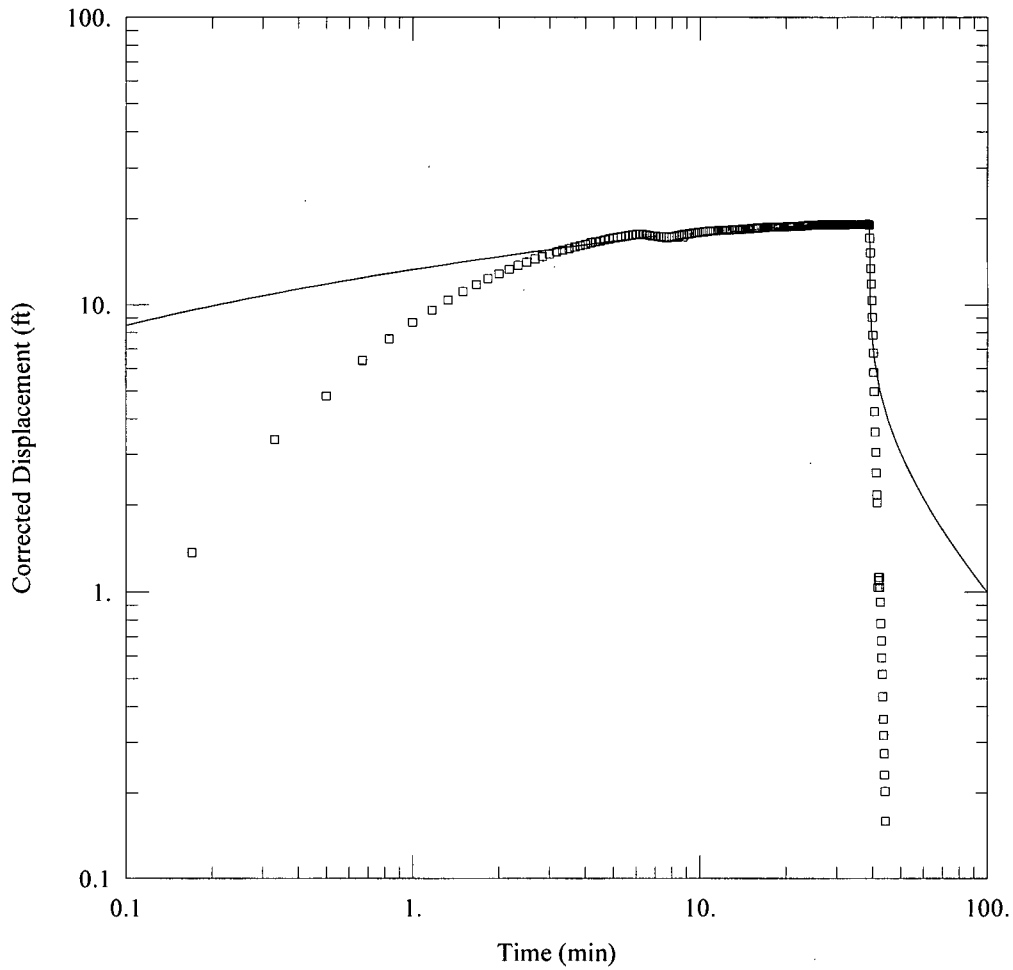
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-54Test 12)

Initial Displacement: 15.94 ft Static Water Column Height: 136.4 ft
 Total Well Penetration Depth: 136.4 ft Screen Length: 9.4 ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 2.798 ft/day y0 = 17.61 ft



MW-54 T12 PACKERED EXTRACTION

Data Set: J:\...MW-54 t12 theis.aqt

Date: 09/10/07

Time: 17:34:34

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, NY

Test Well: MW-54

Test Date: 9/29/06

WELL DATA

Pumping Wells

Observation Wells

Well Name	X (ft)	Y (ft)
MW-54	0	0

Well Name	X (ft)	Y (ft)
□ MW-54	0	0

SOLUTION

Aquifer Model: Unconfined

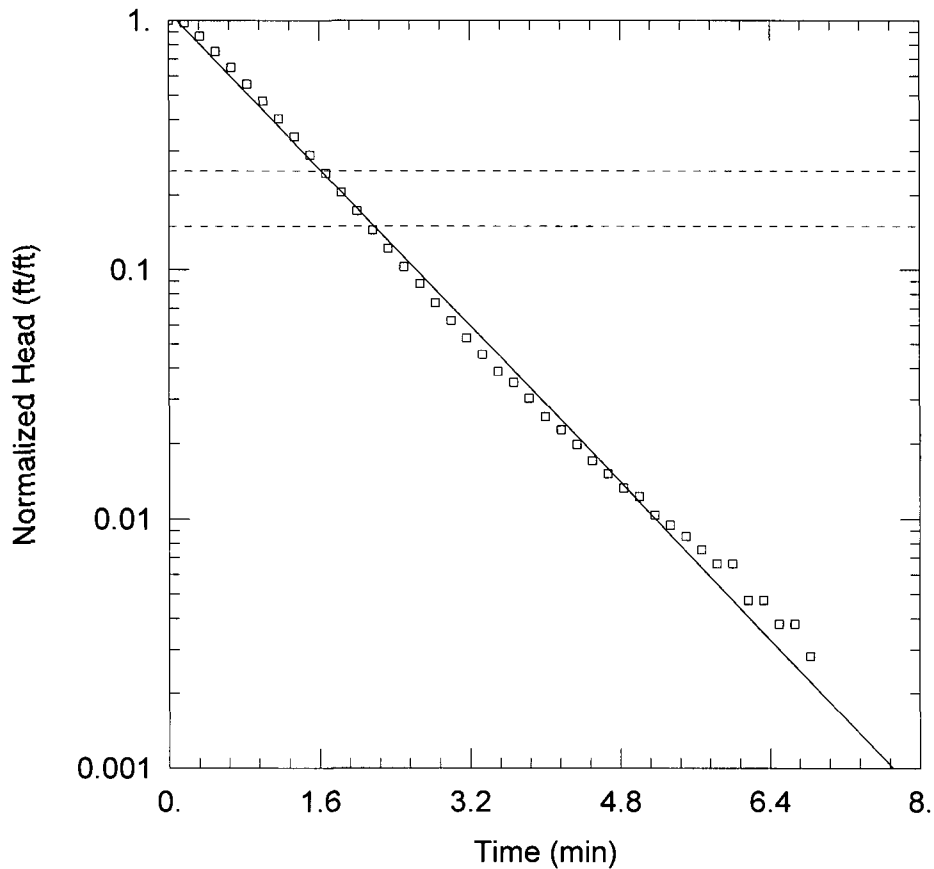
Solution Method: Theis

T = 18.13 ft²/day

S = 0.00206

Kz/Kr = 1.

b = 300. ft



MW-54 TEST 11

Data Set: J:\...MW-54 T11.aqt

Date: 04/20/07

Time: 11:31:14

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-54 (120.4-130.1)

Test Date: 9/29/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-54Test 11)

Initial Displacement: 15.26 ft

Static Water Column Height: 120.6 ft

Total Well Penetration Depth: 120.6 ft

Screen Length: 9.7 ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

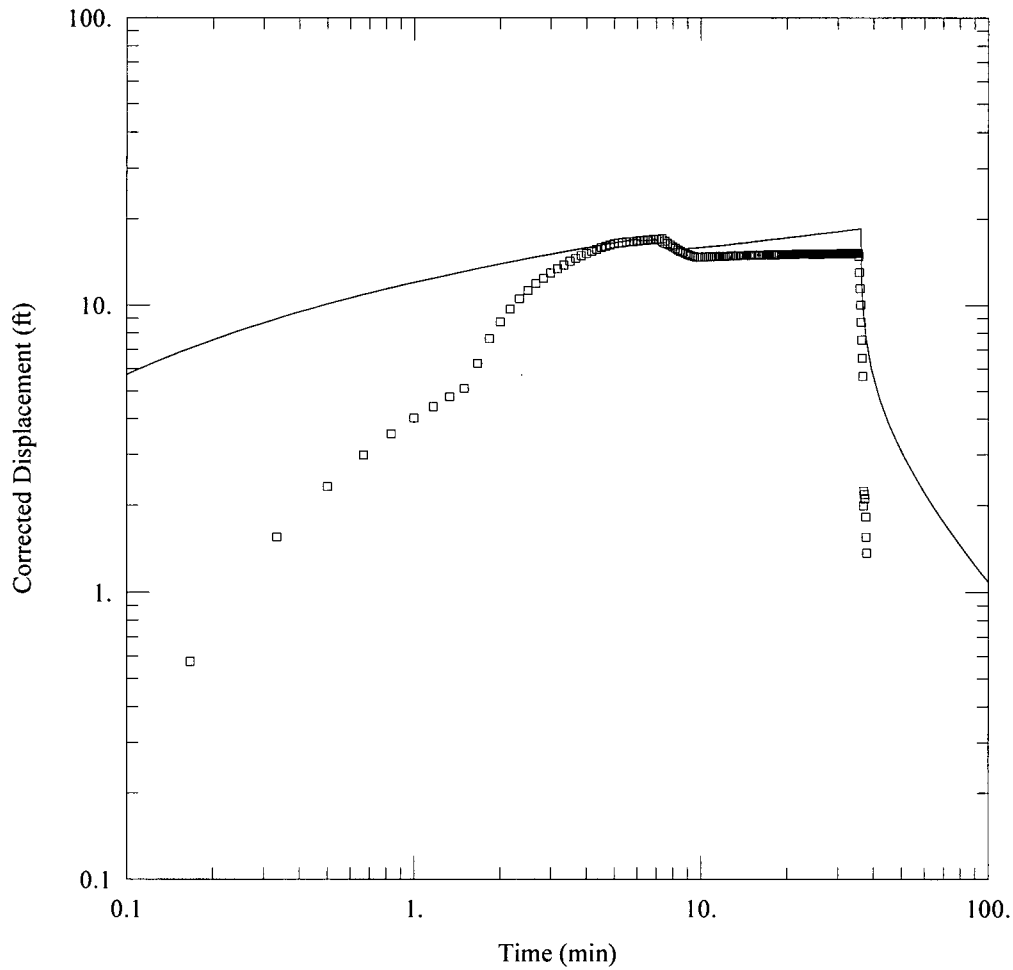
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 2.456 ft/day

y0 = 16.52 ft



MW-54 T11 PACKERED EXTRACTION

Data Set: J:\...MW-54 t11 theis.aqt

Date: 09/10/07

Time: 17:34:22

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, NY

Test Well: MW-54

Test Date: 9/29/06

WELL DATA

Pumping Wells

Observation Wells

Well Name	X (ft)	Y (ft)
MW-54	0	0

Well Name	X (ft)	Y (ft)
□ MW-54	0	0

SOLUTION

Aquifer Model: Unconfined

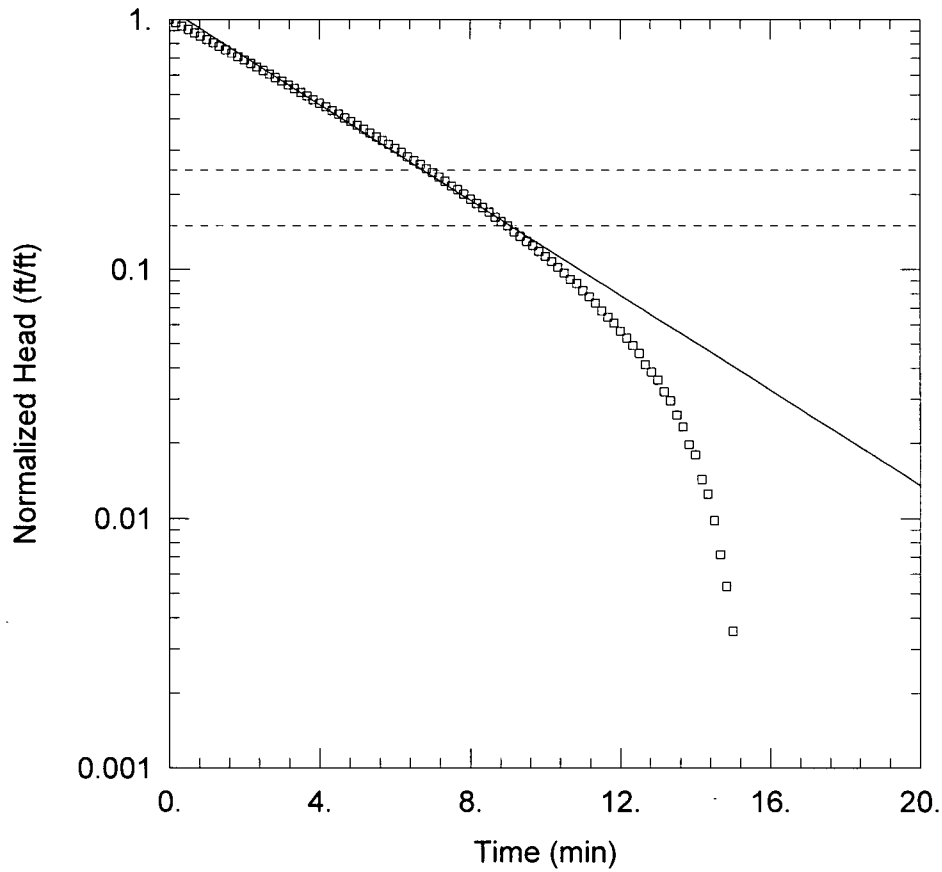
Solution Method: Theis

T = 13.03 ft²/day

S = 0.01141

Kz/Kr = 1

b = 300 ft



MW-54 TEST 10

Data Set: J:\...MW-54 T10.aqt

Date: 04/20/07

Time: 11:29:58

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-54 (110.7-120.4)

Test Date: 9/29/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-54Test 10)

Initial Displacement: 16.07 ft

Static Water Column Height: 110.8 ft

Total Well Penetration Depth: 110.8 ft

Screen Length: 9.7 ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

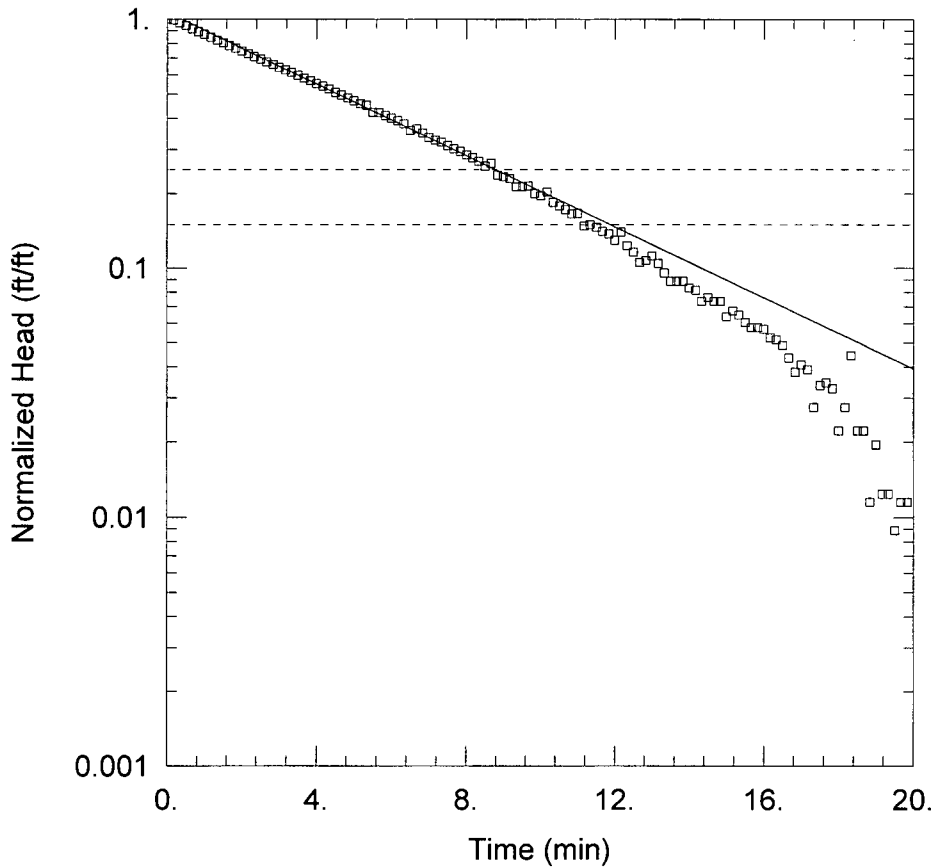
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.5963 ft/day

y0 = 17.71 ft



MW-54 TEST 9

Data Set: J:\...MW-54 T9.aqt
 Date: 04/20/07

Time: 11:29:28

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-54 (101.0-110.7))
 Test Date: 9/28/06

AQUIFER DATA

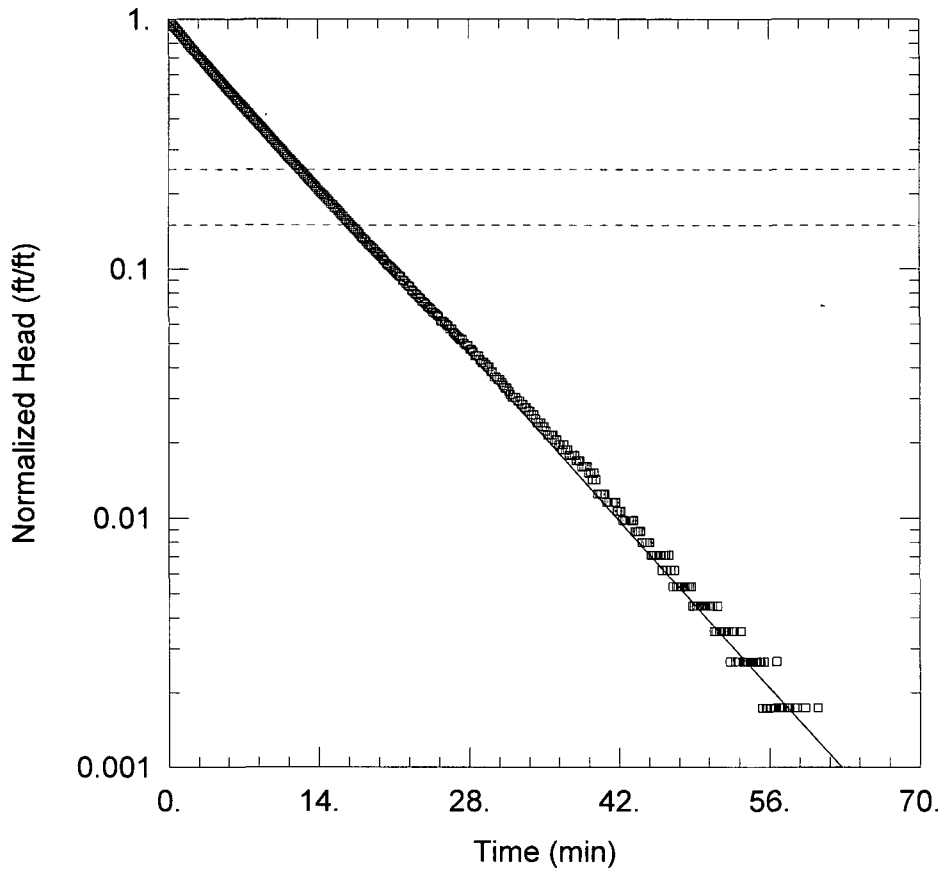
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-54 Test 9)

Initial Displacement: 16.23 ft Static Water Column Height: 101.2 ft
 Total Well Penetration Depth: 101.2 ft Screen Length: 9.7 ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 0.4475 ft/day y0 = 17.3 ft



MW-54 TEST 8

Data Set: J:\...MW-54 T8.aqt
 Date: 04/20/07

Time: 11:29:03

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-54 (83.6-93.3)
 Test Date: 9/28/06

AQUIFER DATA

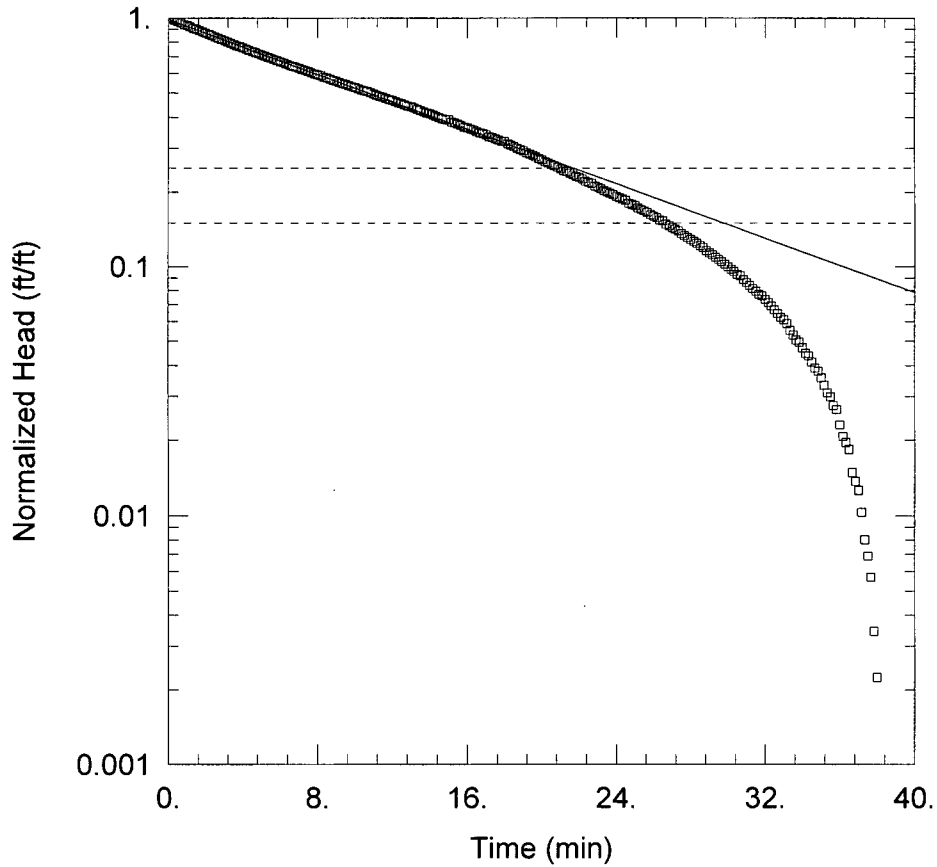
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-54 Test 8)

Initial Displacement: 16.13 ft Static Water Column Height: 83.75 ft
 Total Well Penetration Depth: 83.75 ft Screen Length: 9.7 ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 0.2985 ft/day y0 = 15.97 ft



MW-54 TEST 7

Data Set: J:\...\MW-54 T7.aqt
 Date: 04/20/07

Time: 11:28:42

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-54 (73.9-83.6)
 Test Date: 9/28/06

AQUIFER DATA

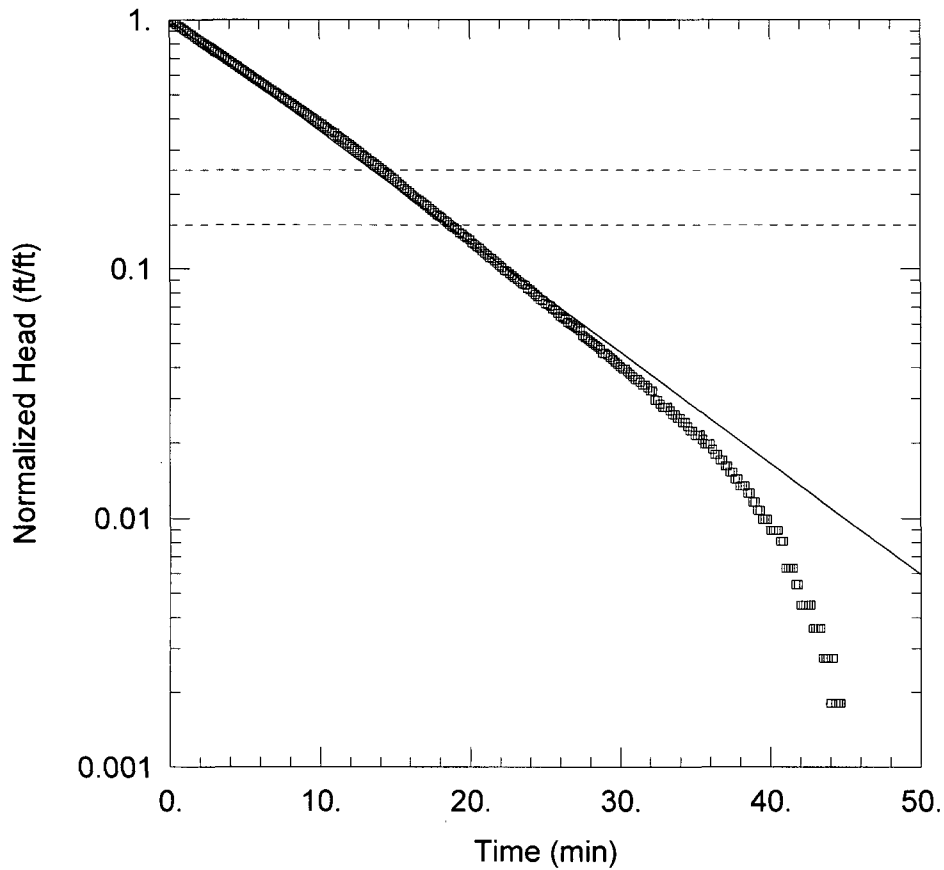
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-54 Test 7)

Initial Displacement: 12.49 ft Static Water Column Height: 74.05 ft
 Total Well Penetration Depth: 74.05 ft Screen Length: 9.7 ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 0.1713 ft/day y0 = 12.31 ft



MW-54 TEST6

Data Set: J:\...MW-54 T6.aqt

Date: 04/20/07

Time: 11:28:13

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-54 (64.2-73.9)

Test Date: 9/28/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-54 Test 6)

Initial Displacement: 16.06 ft

Static Water Column Height: 64.35 ft

Total Well Penetration Depth: 64.35 ft

Screen Length: 9.7 ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

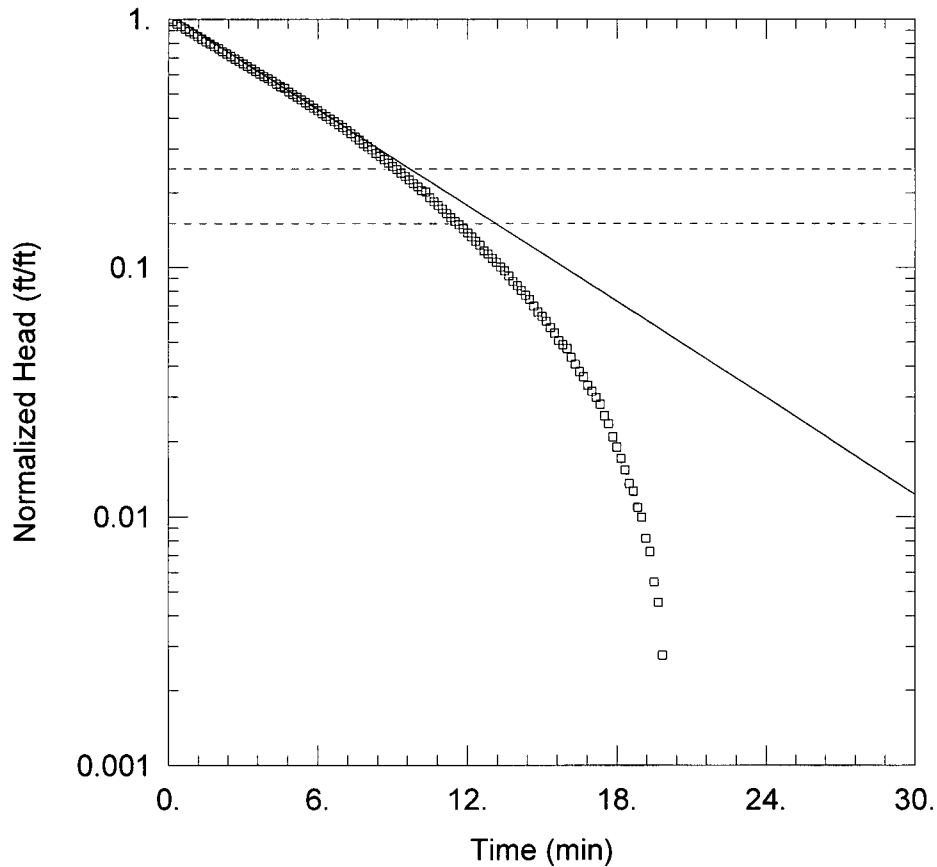
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.278 ft/day

y0 = 16.06 ft



MW-54 TEST5

Data Set: J:\...MW-54 T5.aqt
 Date: 04/20/07

Time: 11:27:46

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-54 (54.5-64.2)
 Test Date: 9/28/06

AQUIFER DATA

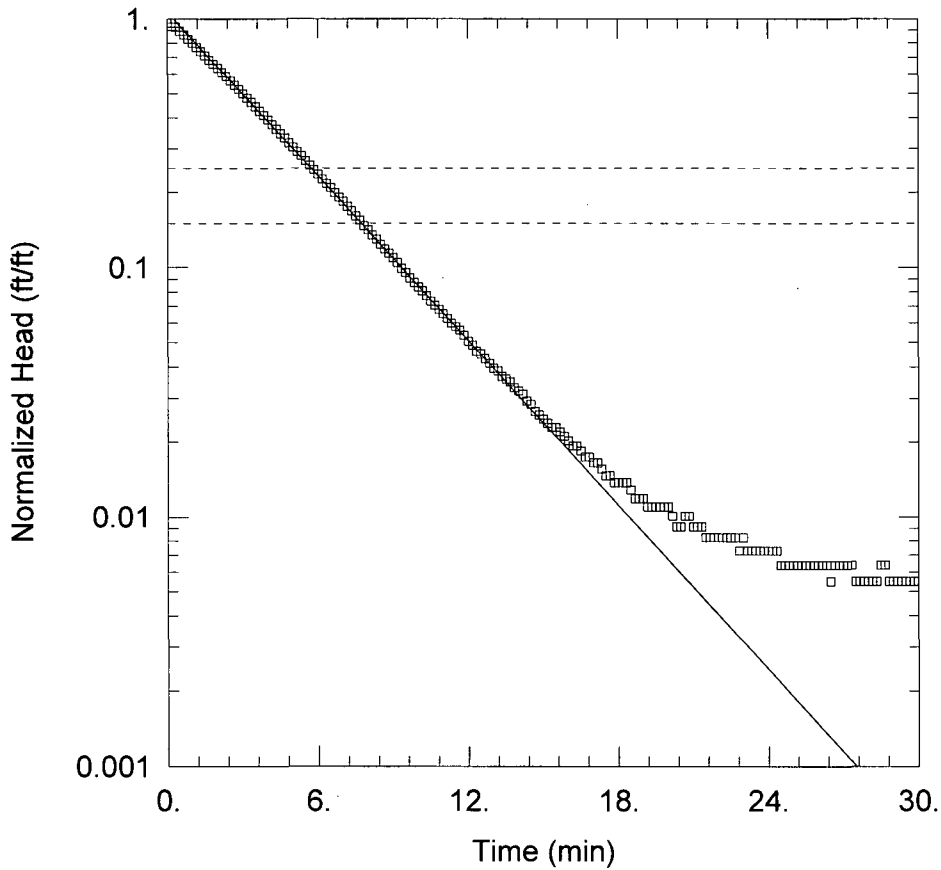
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-54 Test 5)

Initial Displacement: 15.89 ft Static Water Column Height: 54.65 ft
 Total Well Penetration Depth: 54.65 ft Screen Length: 9.7 ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 0.402 ft/day y0 = 16.73 ft



MW-54 TEST4

Data Set: J:\...MW-54 T4.aqt
 Date: 04/20/07

Time: 11:27:23

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-54 (44.8-54.5)
 Test Date: 9/27/06

AQUIFER DATA

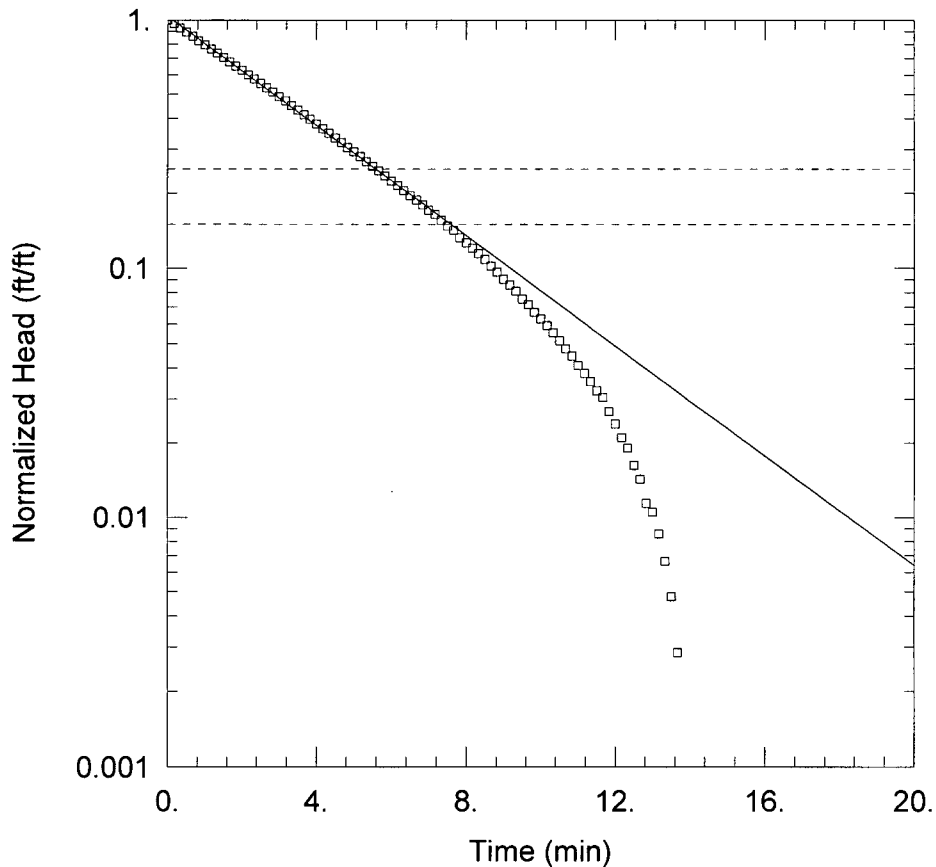
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-54 Test 4)

Initial Displacement: 15.65 ft Static Water Column Height: 44.95 ft
 Total Well Penetration Depth: 44.95 ft Screen Length: 9.7 ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 0.6871 ft/day $y_0 =$ 16.67 ft



MW-54 TEST3

Data Set: J:\...MW-54 T3.aqt

Date: 04/20/07

Time: 11:26:58

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-54 (35.1-44.8)

Test Date: 9/28/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-54 Test 3)

Initial Displacement: 15.06 ft

Static Water Column Height: 35.25 ft

Total Well Penetration Depth: 35.25 ft

Screen Length: 9.7 ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

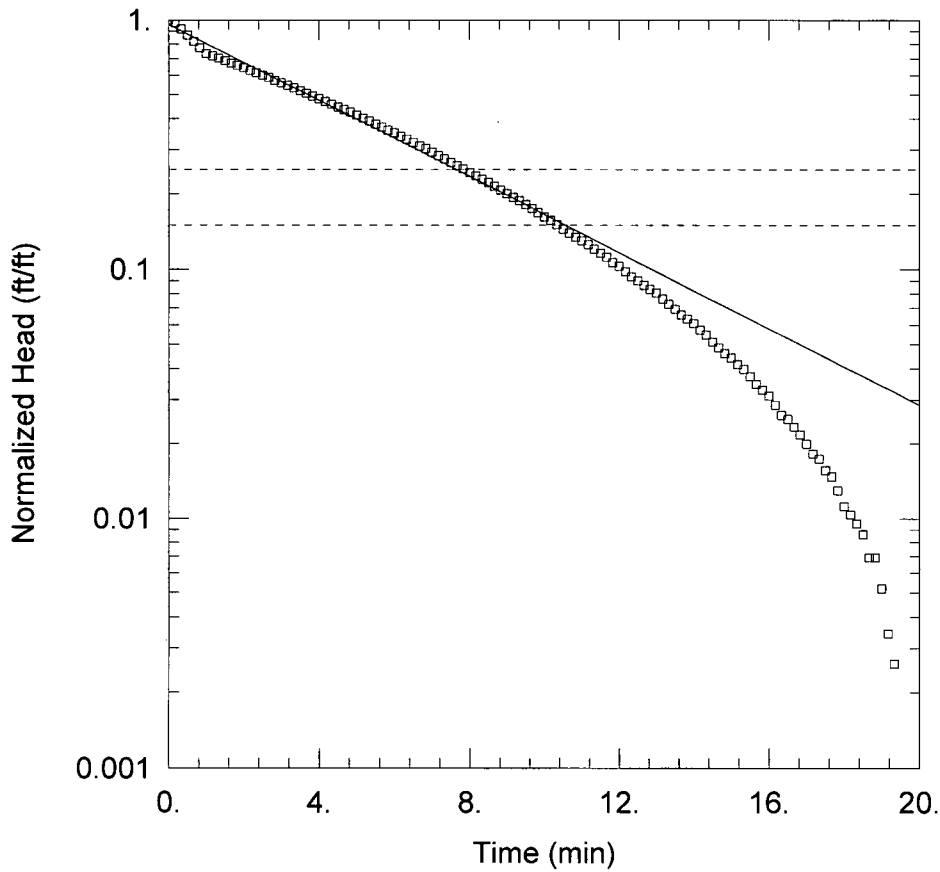
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.6897 ft/day

y0 = 15.6 ft



MW-54 TEST2

Data Set: J:\...\MW-54 T2.aqt
 Date: 04/20/07

Time: 11:26:30

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-54 (24.2-33.9)
 Test Date: 9/26/06

AQUIFER DATA

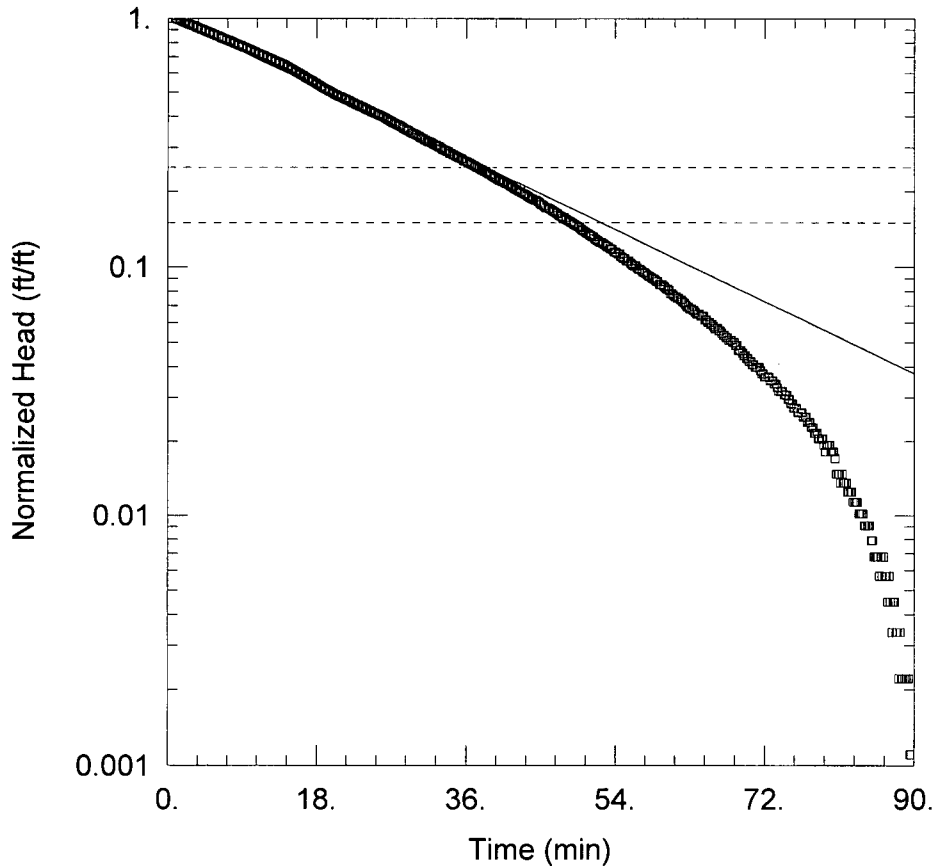
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-54 Test 2)

Initial Displacement: 16.57 ft Static Water Column Height: 24.35 ft
 Total Well Penetration Depth: 24.35 ft Screen Length: 9.8 ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 0.4722 ft/day y0 = 15.92 ft



MW-54 TEST1

Data Set: J:\...MW-54 T1.aqt
 Date: 04/20/07

Time: 11:25:57

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-54 (20.5-24)
 Test Date: 9/26/06

AQUIFER DATA

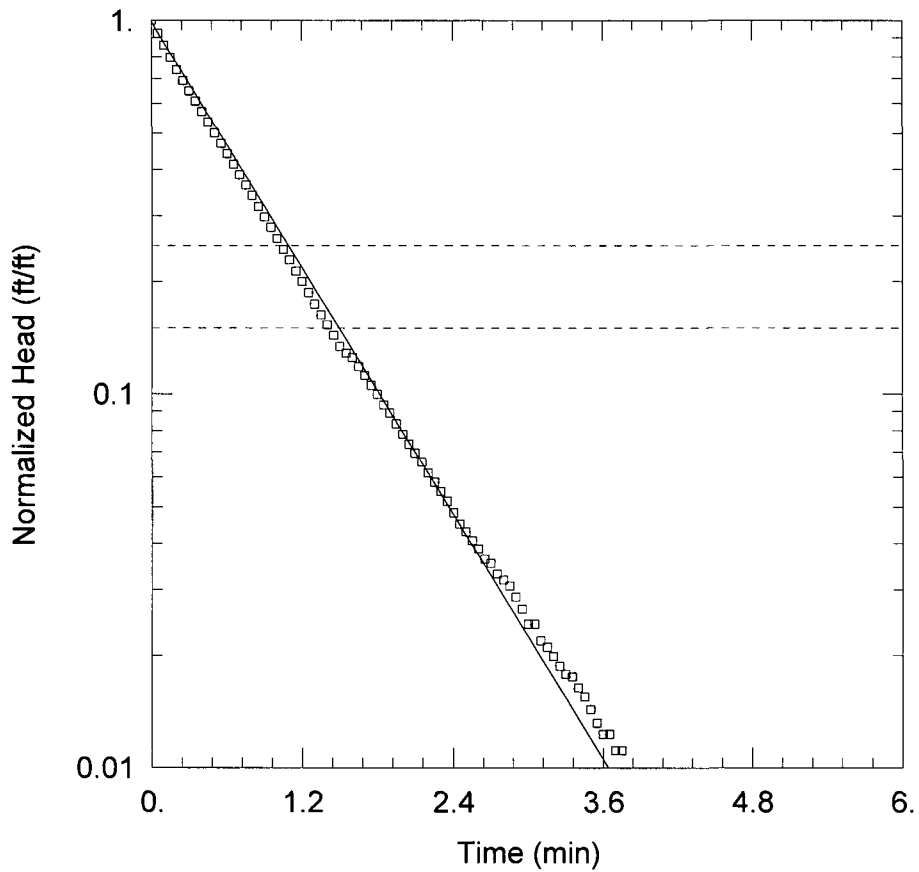
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-54 Test 1)

Initial Displacement: 12.67 ft Static Water Column Height: 14.45 ft
 Total Well Penetration Depth: 14.45 ft Screen Length: 3.5 ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 0.2222 ft/day y0 = 12.93 ft



MW55-24 SLUG TEST 2

Data Set: J:\...\MW55-24-2.aqt
 Date: 09/12/07

Time: 14:15:16

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW55-24
 Test Date: 12/27/06

AQUIFER DATA

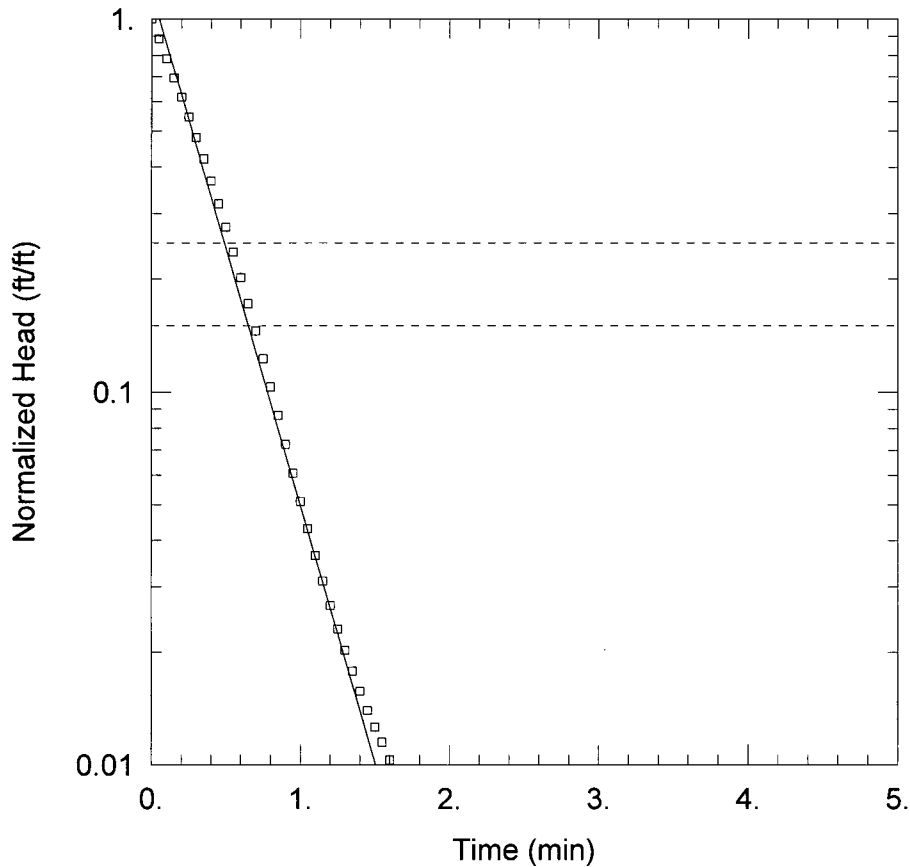
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-55-24)

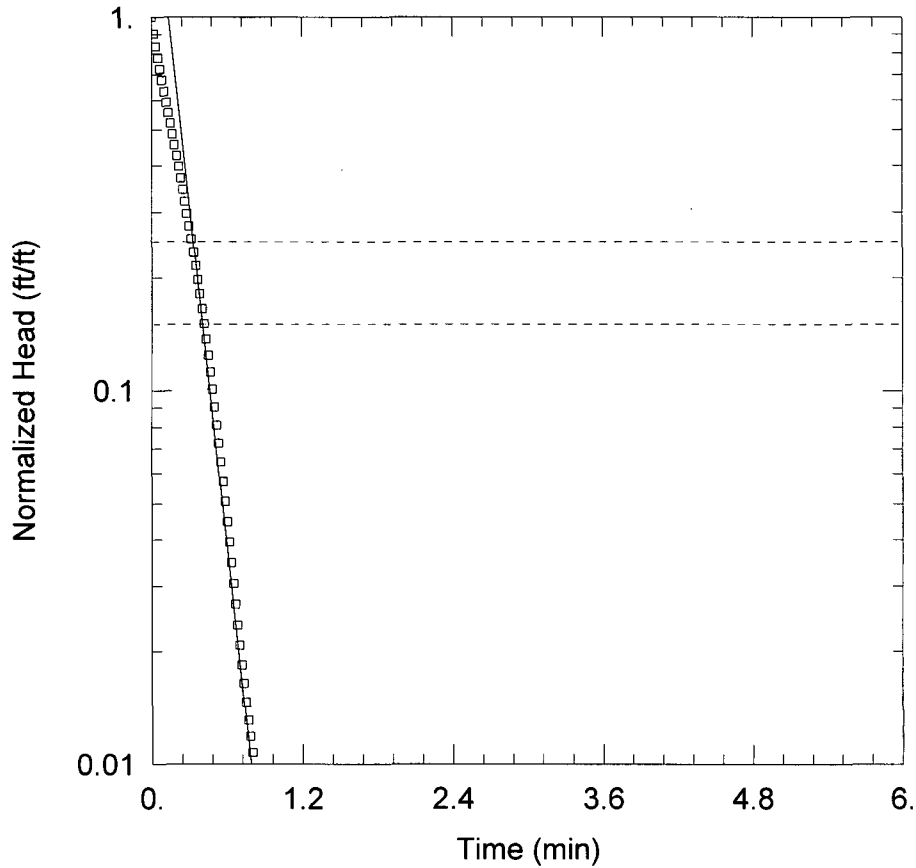
Initial Displacement: 3.417 ft Static Water Column Height: 14.48 ft
 Total Well Penetration Depth: 14.48 ft Screen Length: 13. ft
 Casing Radius: 0.04167 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 0.6737 ft/day y0 = 3.376 ft



<u>MW55-35 SLUG TEST</u>	
Data Set: <u>J:\...MW55-35.aqt</u>	Time: <u>14:15:52</u>
Date: <u>09/12/07</u>	
<u>PROJECT INFORMATION</u>	
Company: <u>GZA GeoEnvironmental</u>	
Client: <u>Indian Point Energy Center</u>	
Project: <u>41.0017869.10</u>	
Location: <u>Buchanan, New York</u>	
Test Well: <u>MW55-24</u>	
Test Date: <u>12/27/06</u>	
<u>AQUIFER DATA</u>	
Saturated Thickness: <u>300. ft</u>	Anisotropy Ratio (Kz/Kr): <u>0.1</u>
<u>WELL DATA (MW-55-35)</u>	
Initial Displacement: <u>16.12 ft</u>	Static Water Column Height: <u>25.12 ft</u>
Total Well Penetration Depth: <u>25.12 ft</u>	Screen Length: <u>8. ft</u>
Casing Radius: <u>0.04167 ft</u>	Wellbore Radius: <u>0.159 ft</u>
<u>SOLUTION</u>	
Aquifer Model: <u>Unconfined</u>	Solution Method: <u>Hvorslev</u>
K = <u>2.51 ft/day</u>	y0 = <u>19.03 ft</u>



MW55-54 SLUG TEST

Data Set: J:\...MW55-54.aqt

Date: 09/12/07

Time: 14:16:09

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW55-54

Test Date: 12/27/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-55-54)

Initial Displacement: 25.38 ft

Static Water Column Height: 44.4 ft

Total Well Penetration Depth: 44.4 ft

Screen Length: 13. ft

Casing Radius: 0.04167 ft

Wellbore Radius: 0.159 ft

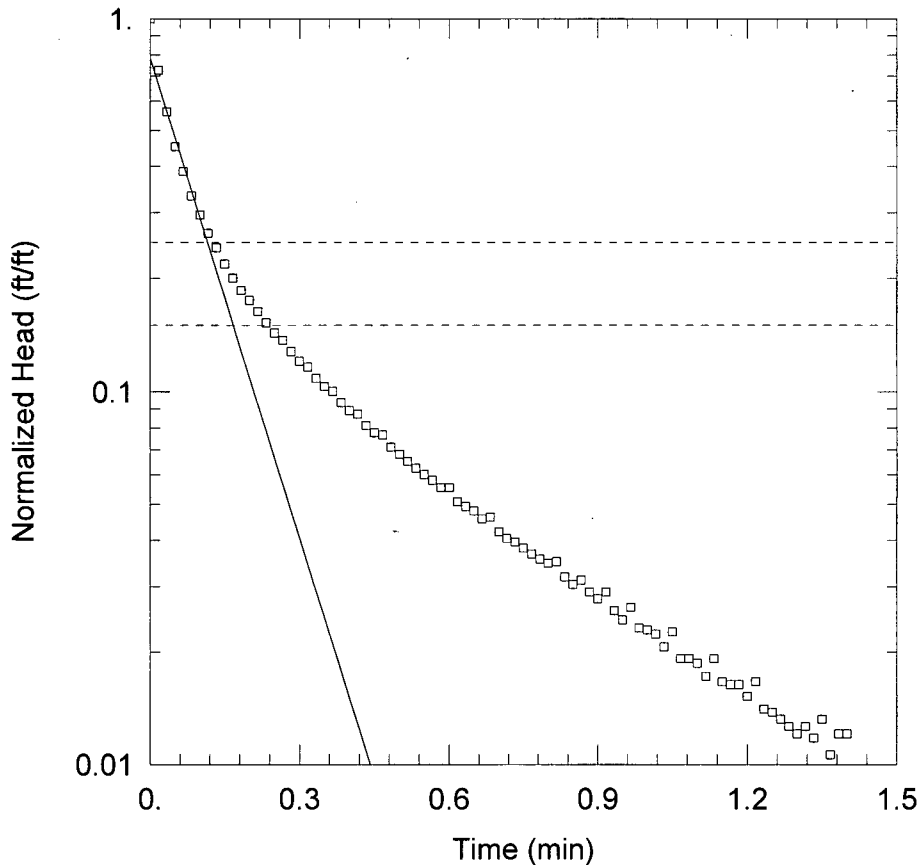
SOLUTION

Aquifer Model: Unconfined

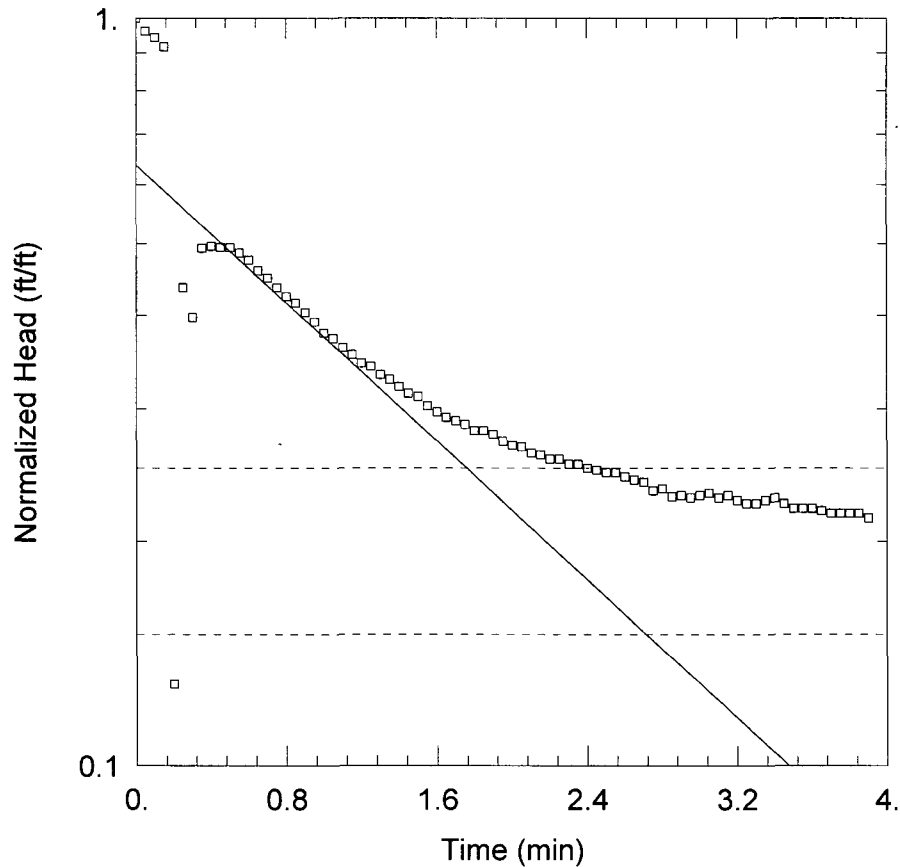
Solution Method: Hvorslev

K = 3.778 ft/day

y0 = 65.78 ft



<u>MW56-85 SLUG TEST</u>	
Data Set: <u>J:\...\MW56-85.aqt</u>	Time: <u>14:18:18</u>
Date: <u>09/12/07</u>	
<u>PROJECT INFORMATION</u>	
Company: <u>GZA GeoEnvironmental</u>	
Client: <u>Indian Point Energy Center</u>	
Project: <u>41.0017869.10</u>	
Location: <u>Buchanan, New York</u>	
Test Well: <u>MW56-85</u>	
Test Date: <u>12/28/06</u>	
<u>AQUIFER DATA</u>	
Saturated Thickness: <u>300. ft</u>	Anisotropy Ratio (Kz/Kr): <u>0.1</u>
<u>WELL DATA (MW-56-85)</u>	
Initial Displacement: <u>3.486 ft</u>	Static Water Column Height: <u>39.2 ft</u>
Total Well Penetration Depth: <u>39.2 ft</u>	Screen Length: <u>19. ft</u>
Casing Radius: <u>0.04167 ft</u>	Wellbore Radius: <u>0.159 ft</u>
<u>SOLUTION</u>	
Aquifer Model: <u>Unconfined</u>	Solution Method: <u>Hvorslev</u>
K = <u>3.854 ft/day</u>	y0 = <u>2.73 ft</u>



MW57-11 SLUG TEST

Data Set: J:\...\MW57-11.aqt

Date: 04/20/07

Time: 12:05:37

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW57-11

Test Date: 12/26/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-57-11)

Initial Displacement: 1.252 ft

Static Water Column Height: 6.6 ft

Total Well Penetration Depth: 6.6 ft

Screen Length: 9. ft

Casing Radius: 0.04167 ft

Wellbore Radius: 0.159 ft

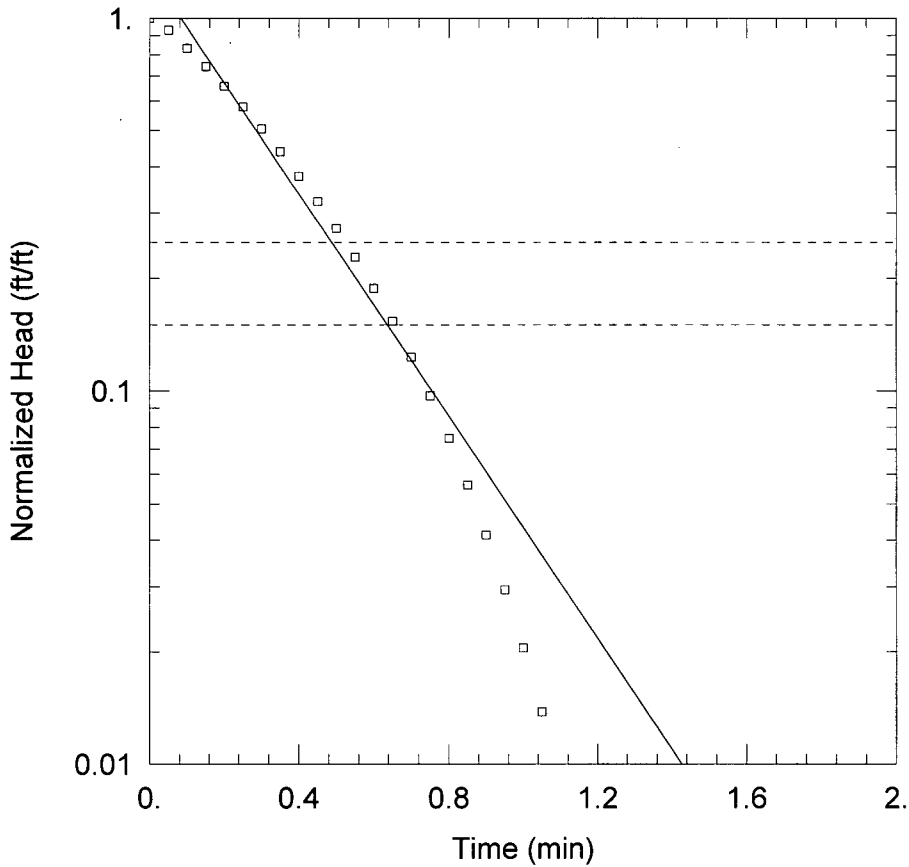
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.3839 ft/day

y0 = 0.7981 ft



MW57-20 SLUG TEST

Data Set: J:\...MW57-20.aqt

Date: 09/12/07

Time: 14:20:30

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW57-20

Test Date: 12/26/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-57-20)

Initial Displacement: 8.046 ft

Static Water Column Height: 15.4 ft

Total Well Penetration Depth: 15.4 ft

Screen Length: 6. ft

Casing Radius: 0.04167 ft

Wellbore Radius: 0.159 ft

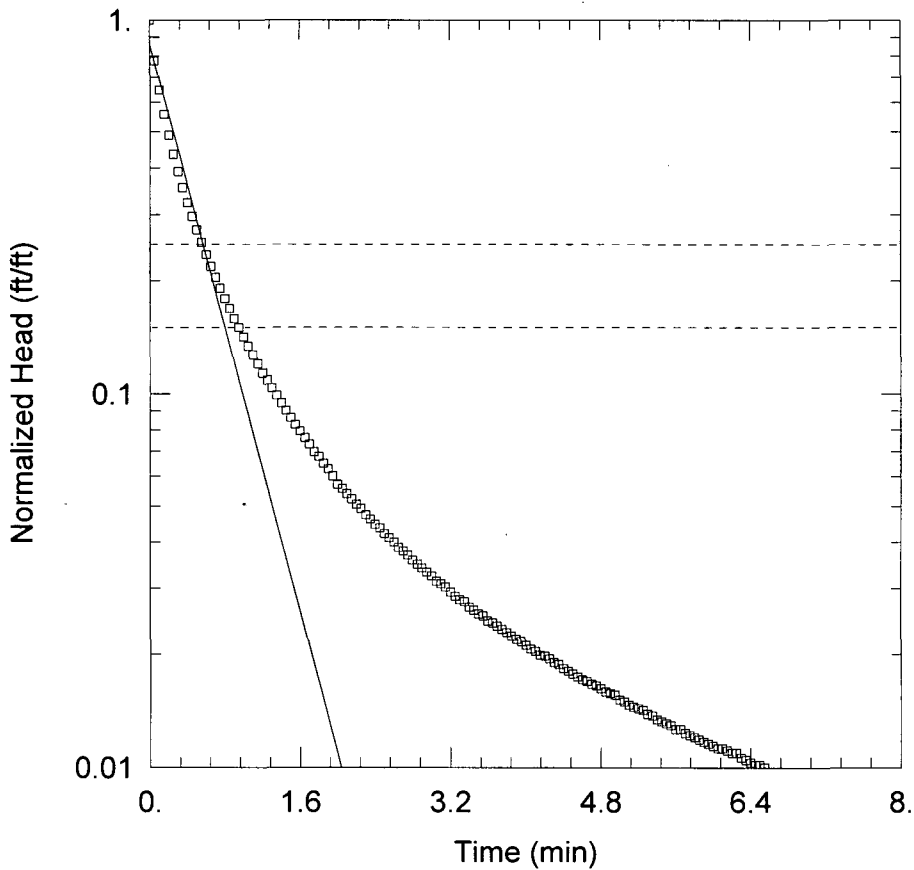
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 3.415 ft/day

y0 = 10.7 ft



MW57-45 SLUG TEST

Data Set: J:\...MW57-45.aqt
 Date: 09/12/07

Time: 14:20:20

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW57-45
 Test Date: 12/26/06

AQUIFER DATA

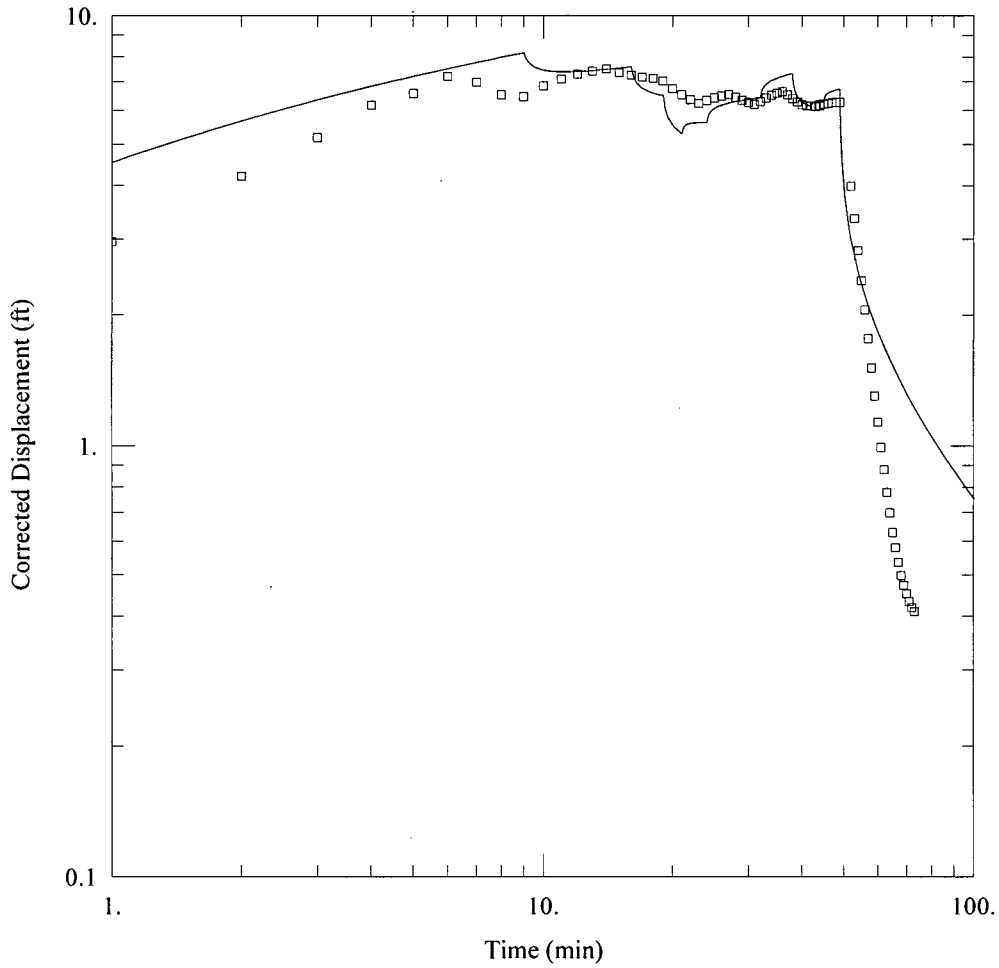
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-57-45)

Initial Displacement: 13. ft Static Water Column Height: 40.7 ft
 Total Well Penetration Depth: 40.7 ft Screen Length: 18. ft
 Casing Radius: 0.04167 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 0.8935 ft/day y0 = 11.21 ft



MW-58-25 EXTRACTION

Data Set: J:\...MW-58-25 theis.aqt
 Date: 09/12/07

Time: 14:22:02

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, NY
 Test Well: MW-58-25
 Test Date: 12/19/06

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
MW-58-25	0	0

Observation Wells

Well Name	X (ft)	Y (ft)
□ MW-58-25	0	0

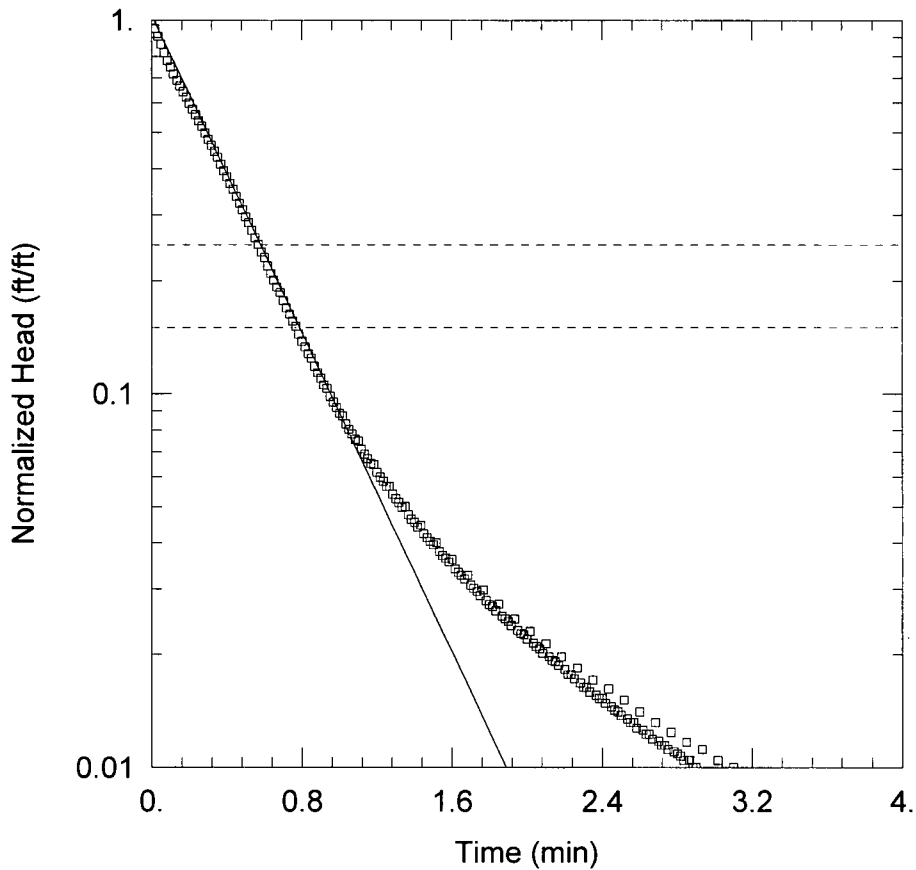
SOLUTION

Aquifer Model: Unconfined

Solution Method: Theis

T = 4.549 ft²/day
 Kz/Kr = 1.

S = 0.01966
 b = 300. ft



MW58-65 SLUG TEST

Data Set: J:\...\MW58-65.redo.aqt
 Date: 04/26/07

Time: 23:23:46

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW58-65
 Test Date: 1/2/07

AQUIFER DATA

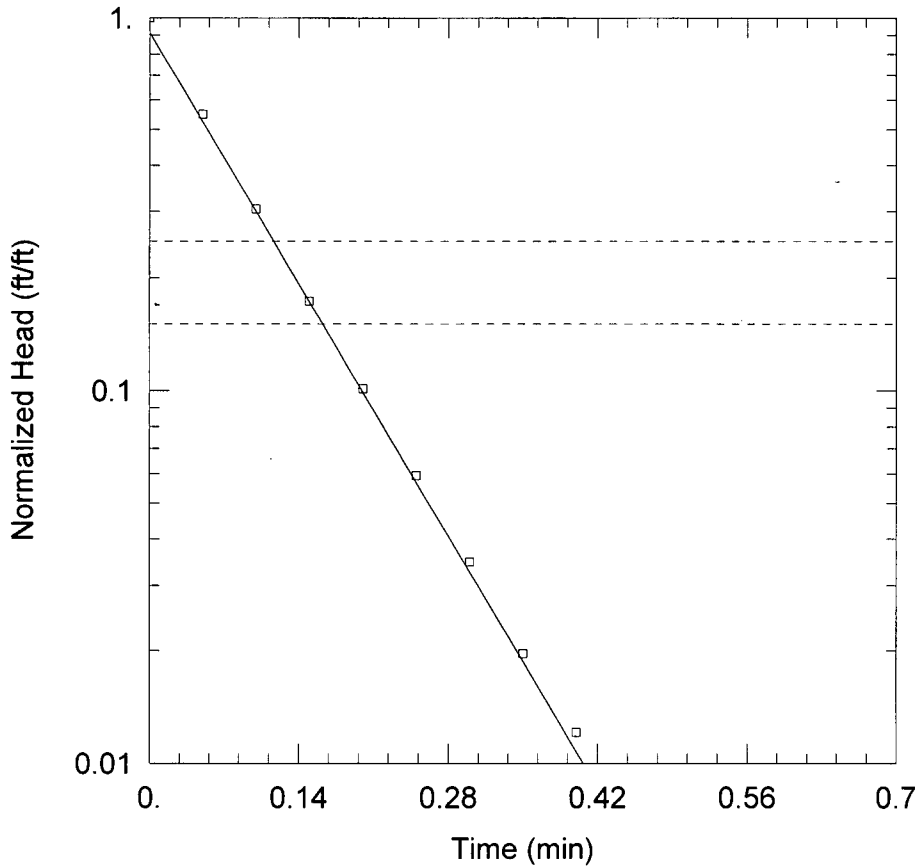
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-58-65)

Initial Displacement: 13.5 ft Static Water Column Height: 59.6 ft
 Total Well Penetration Depth: 59.6 ft Screen Length: 19. ft
 Casing Radius: 0.04167 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 0.9583 ft/day y0 = 13.98 ft



MW59-31 SLUG TEST

Data Set: J:\...MW59-31.aqt

Date: 09/12/07

Time: 14:23:31

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW59-31

Test Date: 12/26/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-59-31)

Initial Displacement: 2.392 ft

Static Water Column Height: 20.36 ft

Total Well Penetration Depth: 20.36 ft

Screen Length: 13. ft

Casing Radius: 0.04167 ft

Wellbore Radius: 0.159 ft

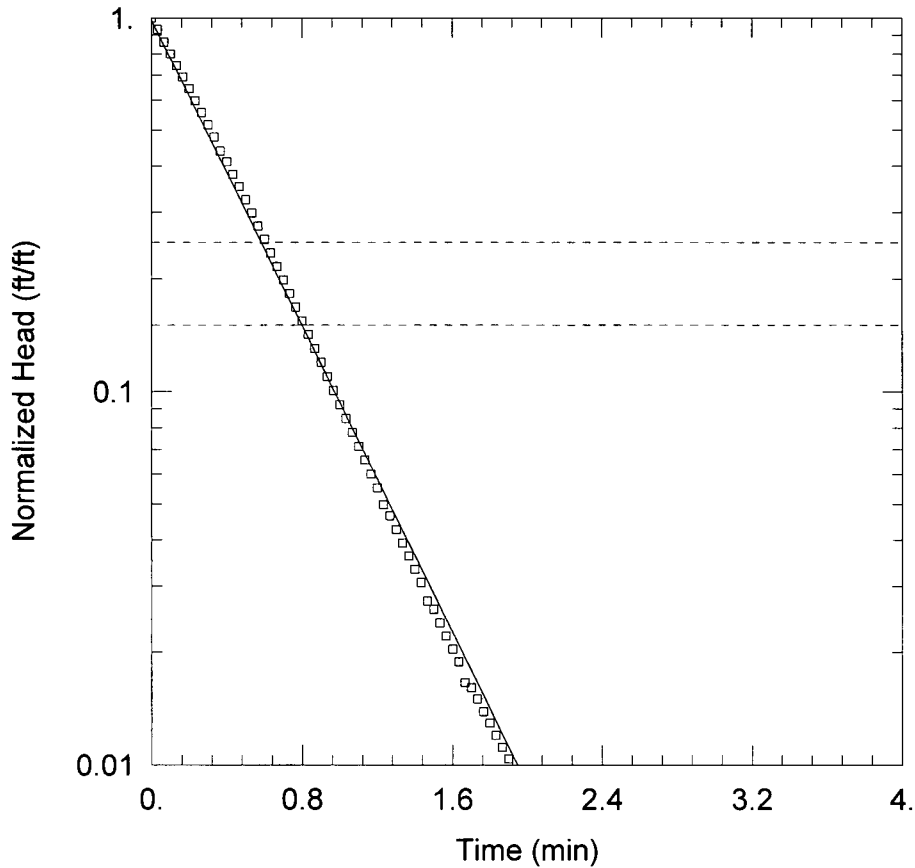
SOLUTION

Aquifer Model: Unconfined

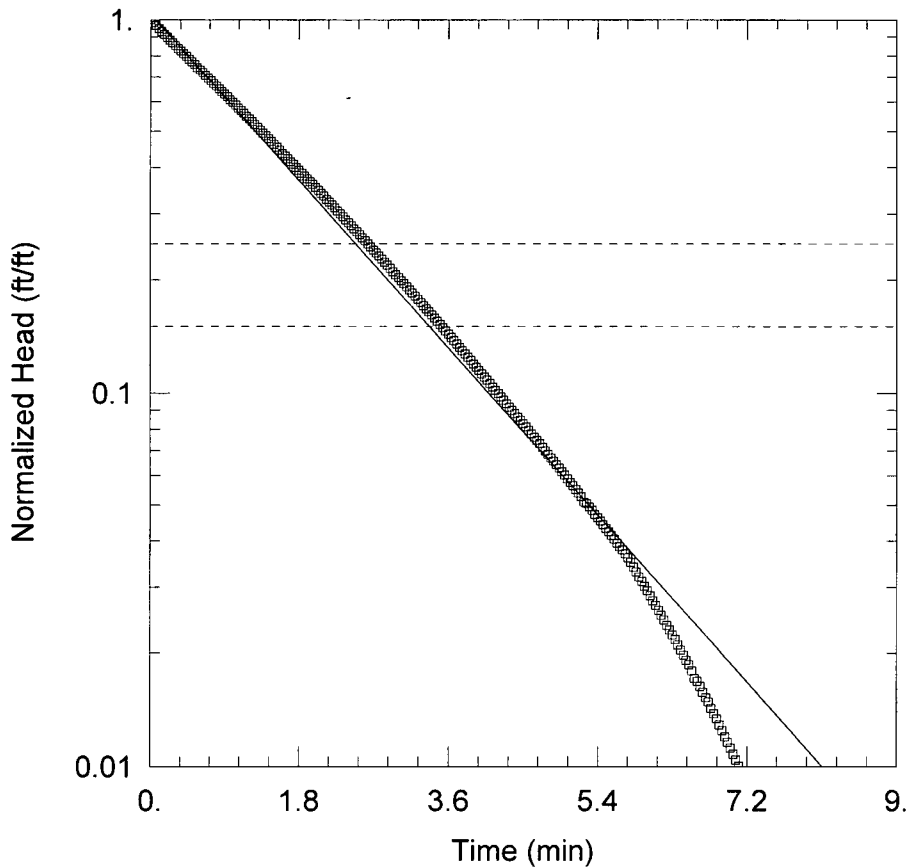
Solution Method: Hvorslev

K = 5.936 ft/day

y0 = 2.183 ft



<u>MW59-45 SLUG TEST</u>	
Data Set: <u>J:\...MW59-45.aqt</u>	Time: <u>14:23:47</u>
Date: <u>09/12/07</u>	
<u>PROJECT INFORMATION</u>	
Company: <u>GZA GeoEnvironmental</u>	
Client: <u>Indian Point Energy Center</u>	
Project: <u>41.0017869.10</u>	
Location: <u>Buchanan, New York</u>	
Test Well: <u>MW59-45</u>	
Test Date: <u>12/21/06</u>	
<u>AQUIFER DATA</u>	
Saturated Thickness: <u>300. ft</u>	Anisotropy Ratio (Kz/Kr): <u>0.1</u>
<u>WELL DATA (MW-59-45)</u>	
Initial Displacement: <u>20.73 ft</u>	Static Water Column Height: <u>36.4 ft</u>
Total Well Penetration Depth: <u>36.4 ft</u>	Screen Length: <u>8. ft</u>
Casing Radius: <u>0.04167 ft</u>	Wellbore Radius: <u>0.159 ft</u>
<u>SOLUTION</u>	
Aquifer Model: <u>Unconfined</u>	Solution Method: <u>Hvorslev</u>
K = <u>1.867 ft/day</u>	y0 = <u>20.4 ft</u>



MW59-68 SLUG TEST

Data Set: J:\...MW59-68.aqt

Date: 09/12/07

Time: 14:24:00

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW59-45

Test Date: 12/21/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-59-68)

Initial Displacement: 37.1 ft

Static Water Column Height: 58. ft

Total Well Penetration Depth: 58. ft

Screen Length: 18. ft

Casing Radius: 0.04167 ft

Wellbore Radius: 0.159 ft

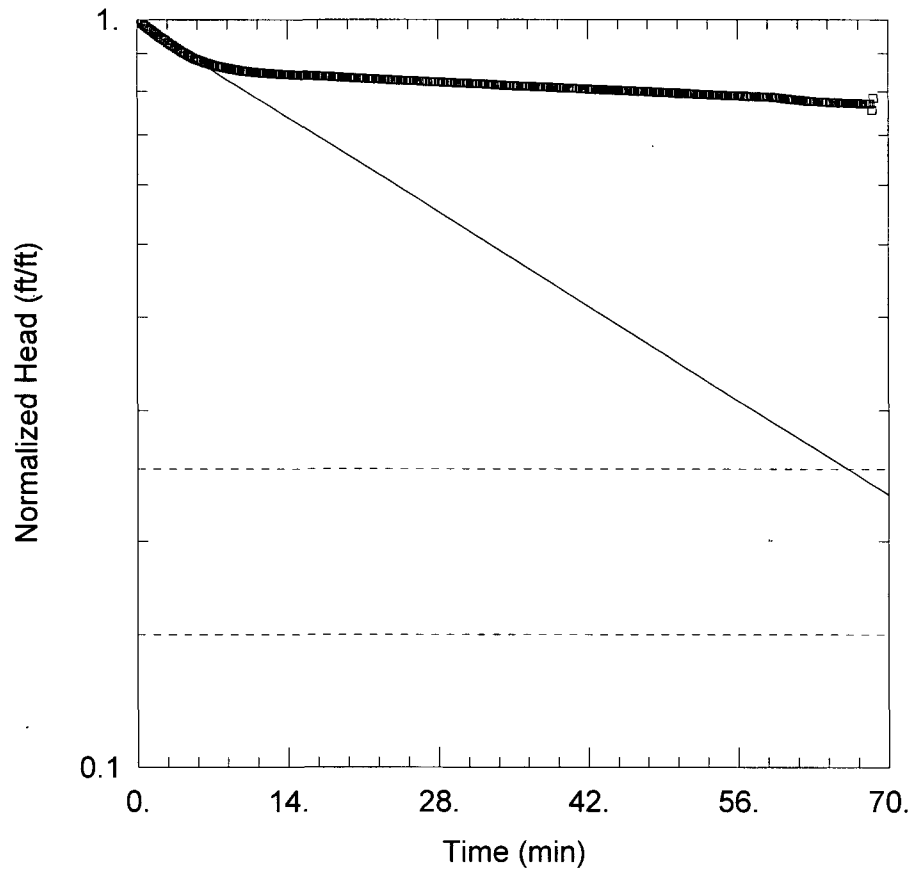
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.234 ft/day

y0 = 38.51 ft



MW-60 TEST1

Data Set: J:\...MW-60 T1.aqt
 Date: 04/26/07

Time: 23:17:28

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-60 (188.2-202.0)
 Test Date: 12/7/06

AQUIFER DATA

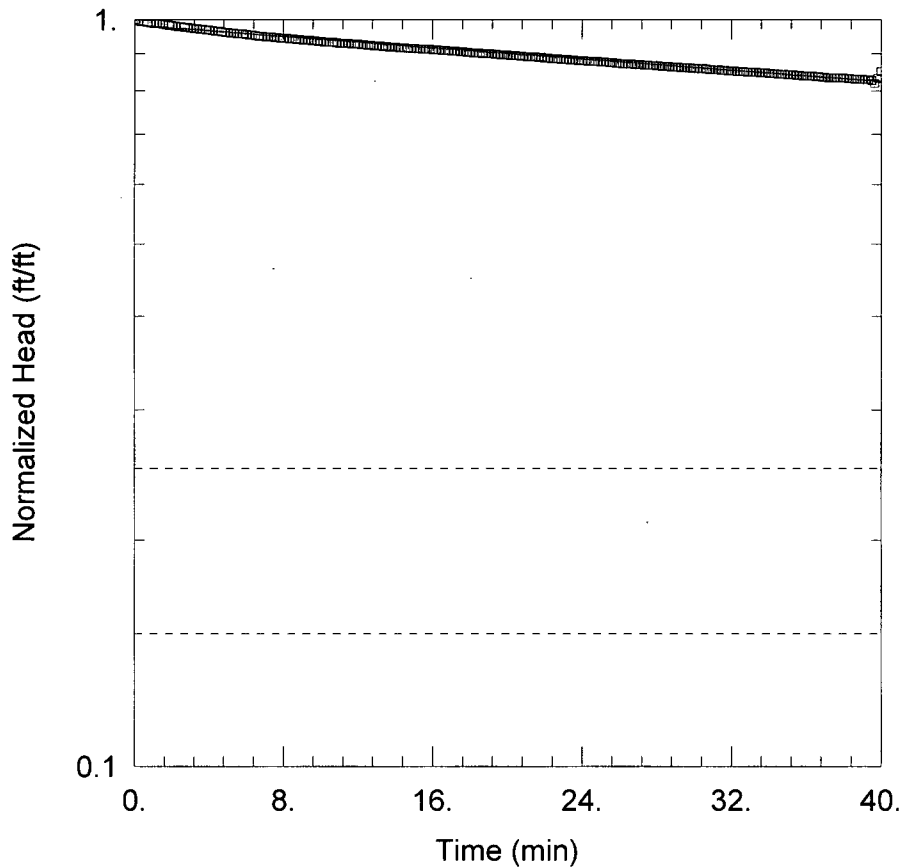
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-60 Test 1)

Initial Displacement: 24.8 ft Static Water Column Height: 190.7 ft
 Total Well Penetration Depth: 190.7 ft Screen Length: 13.8 ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 0.04219 ft/day y0 = 24.51 ft



MW-60 TEST2

Data Set: J:\...MW-60 T2.aqt

Date: 04/23/07

Time: 16:18:12

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-60 (172.3-182.0)

Test Date: 12/7/06

AQUIFER DATA

Saturated Thickness: 300 ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-60 Test 2)

Initial Displacement: 24.42 ft

Static Water Column Height: 170.1 ft

Total Well Penetration Depth: 170.1 ft

Screen Length: 9.7 ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

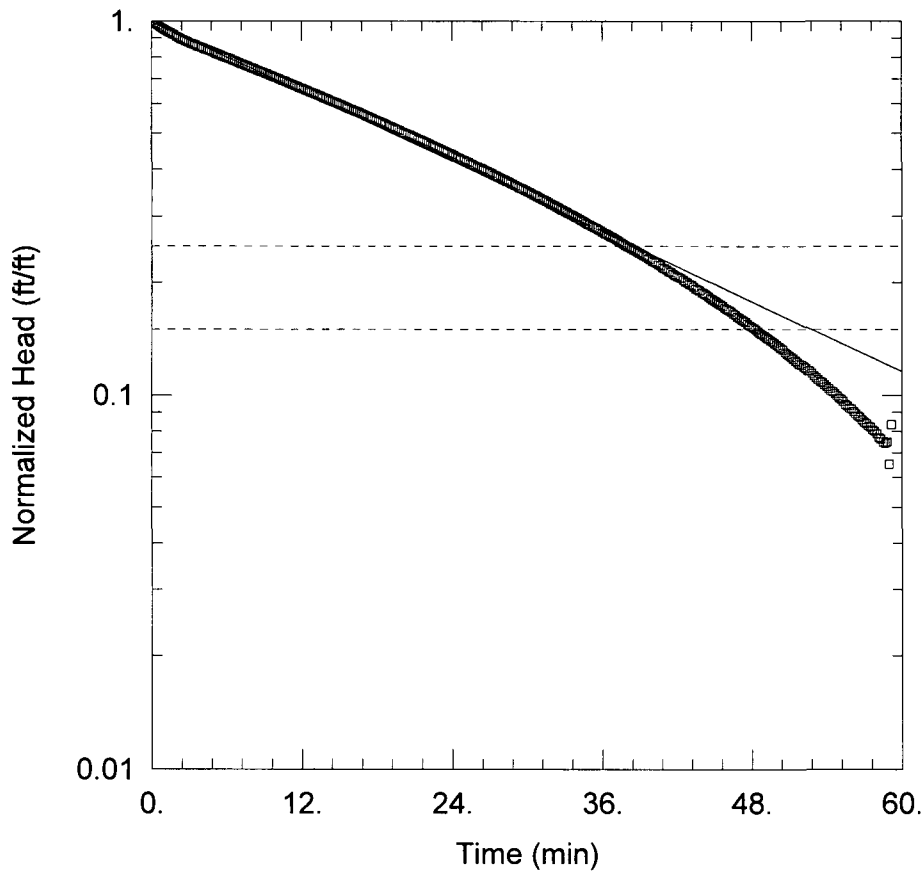
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.01189 ft/day

y0 = 24.02 ft



MW-60 TEST3

Data Set: J:\...MW-60 T3.aqt
 Date: 04/26/07

Time: 23:17:45

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-60 (161.3-171)
 Test Date: 12/11/06

AQUIFER DATA

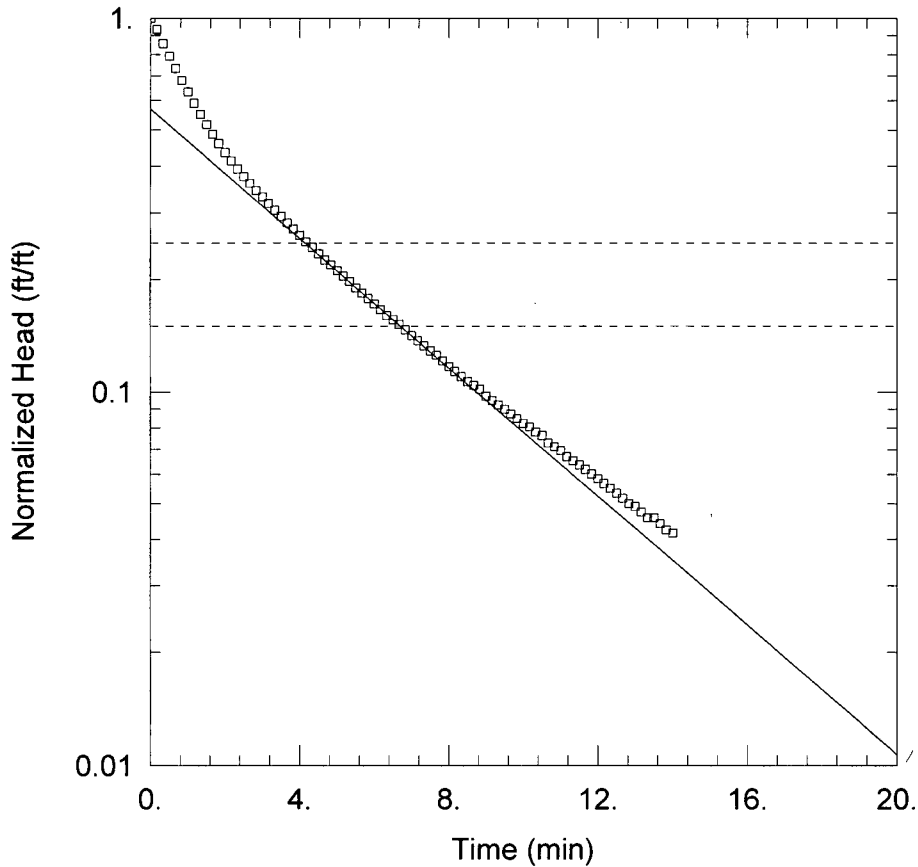
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-60 Test 3)

Initial Displacement: 22.13 ft Static Water Column Height: 157.1 ft
 Total Well Penetration Depth: 157.1 ft Screen Length: 9.7 ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 0.09717 ft/day y0 = 22.01 ft



MW-60 TEST4

Data Set: J:\...MW-60 T4.aqt
 Date: 04/26/07

Time: 23:17:52

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-60 (151.3-161)
 Test Date: 12/11/06

AQUIFER DATA

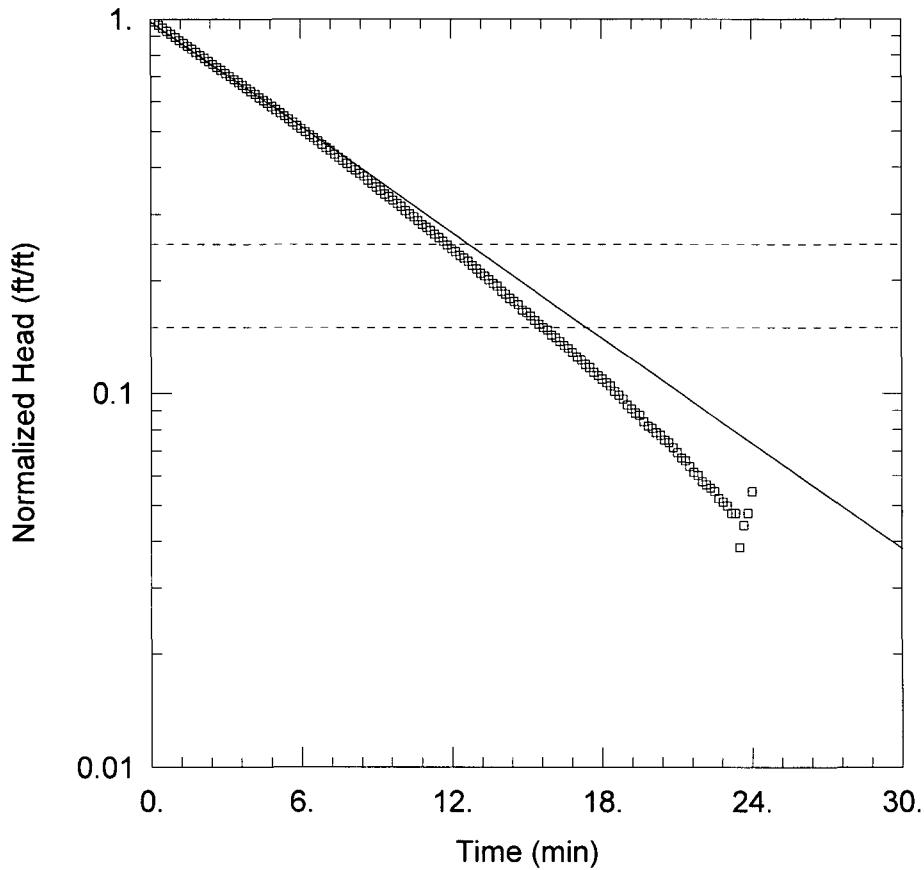
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-60 Test 4)

Initial Displacement: 17. ft Static Water Column Height: 147.5 ft
 Total Well Penetration Depth: 147.5 ft Screen Length: 9.7 ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 0.5393 ft/day y0 = 9.673 ft



MW-60 TEST5

Data Set: J:\...\MW-60 T5.aqt
 Date: 04/26/07

Time: 23:17:58

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-60 (135-144.7)
 Test Date: 12/11/06

AQUIFER DATA

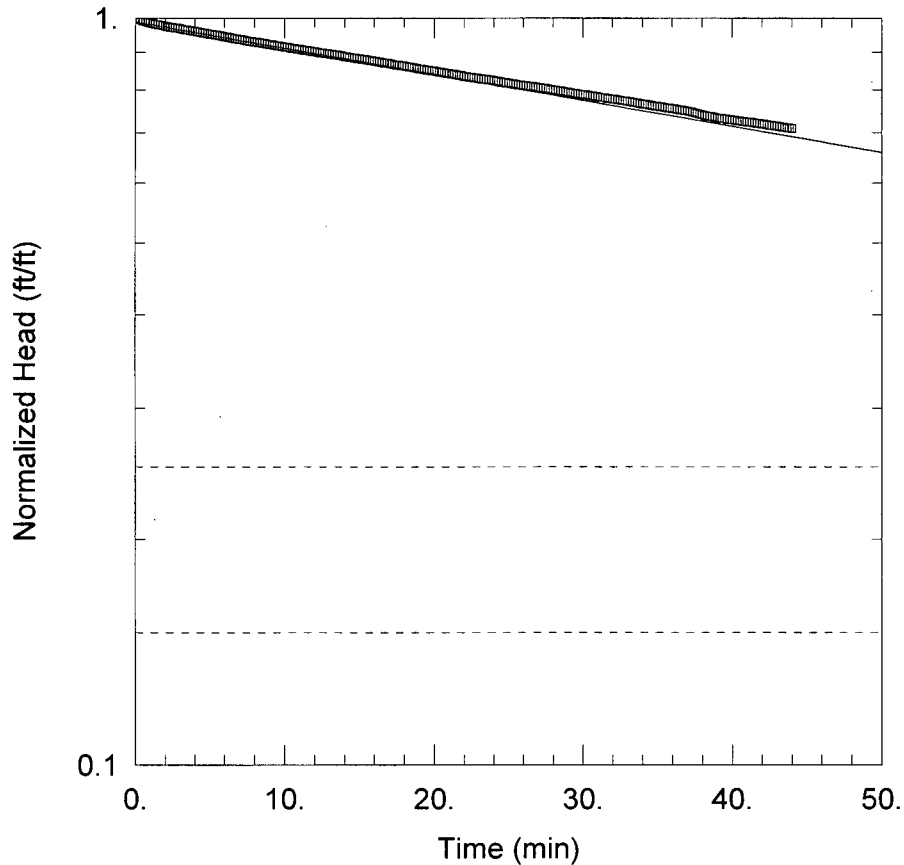
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-60 Test 5)

Initial Displacement: 12.67 ft Static Water Column Height: 131.9 ft
 Total Well Penetration Depth: 131.9 ft Screen Length: 9.7 ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 0.2935 ft/day $y_0 =$ 12.49 ft



MW-60 TEST6

Data Set: J:\...MW-60 T6.aqt

Date: 04/23/07

Time: 16:19:36

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-60 (115.3-125)

Test Date: 12/12/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-60 Test 6)

Initial Displacement: 22.45 ft

Static Water Column Height: 111.8 ft

Total Well Penetration Depth: 111.8 ft

Screen Length: 9.7 ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

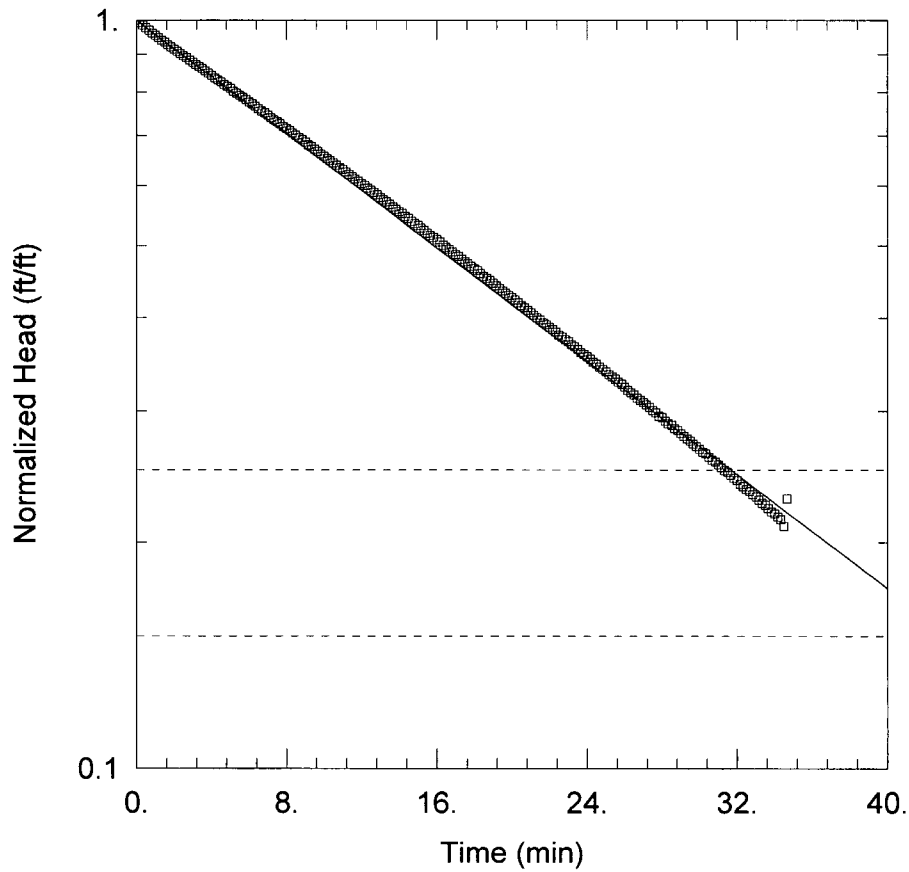
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.02196 ft/day

y0 = 22.17 ft



MW-60 TEST7

Data Set: J:\...MW-60 T7.aqt
 Date: 04/23/07

Time: 16:19:51

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-60 (99.3-109)
 Test Date: 12/12/06

AQUIFER DATA

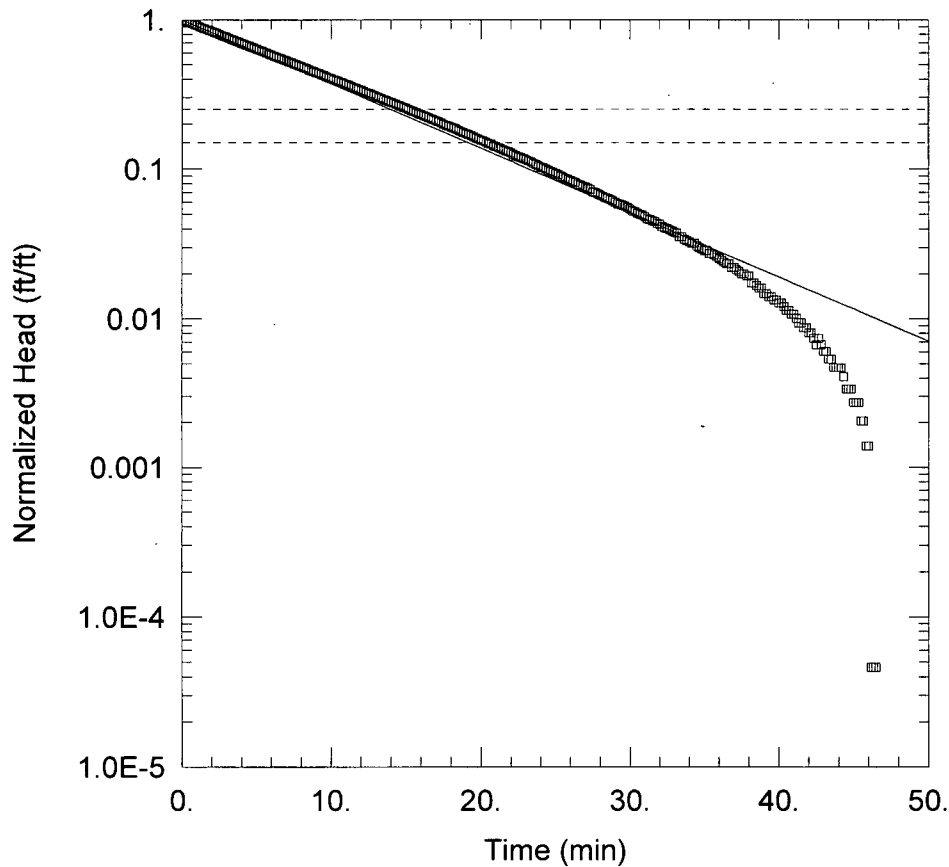
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-60 Test 7)

Initial Displacement: 19.41 ft Static Water Column Height: 95.35 ft
 Total Well Penetration Depth: 170.1 ft Screen Length: 9.7 ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 0.1187 ft/day $y_0 =$ 19.41 ft



MW-60 TEST8

Data Set: J:\...MW-60 T8.aqt
 Date: 04/23/07

Time: 16:20:12

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-60 (88.3-98)
 Test Date: 12/12/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-60 Test 8)

Initial Displacement: 21.61 ft

Static Water Column Height: 84. ft

Total Well Penetration Depth: 84. ft

Screen Length: 9.7 ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

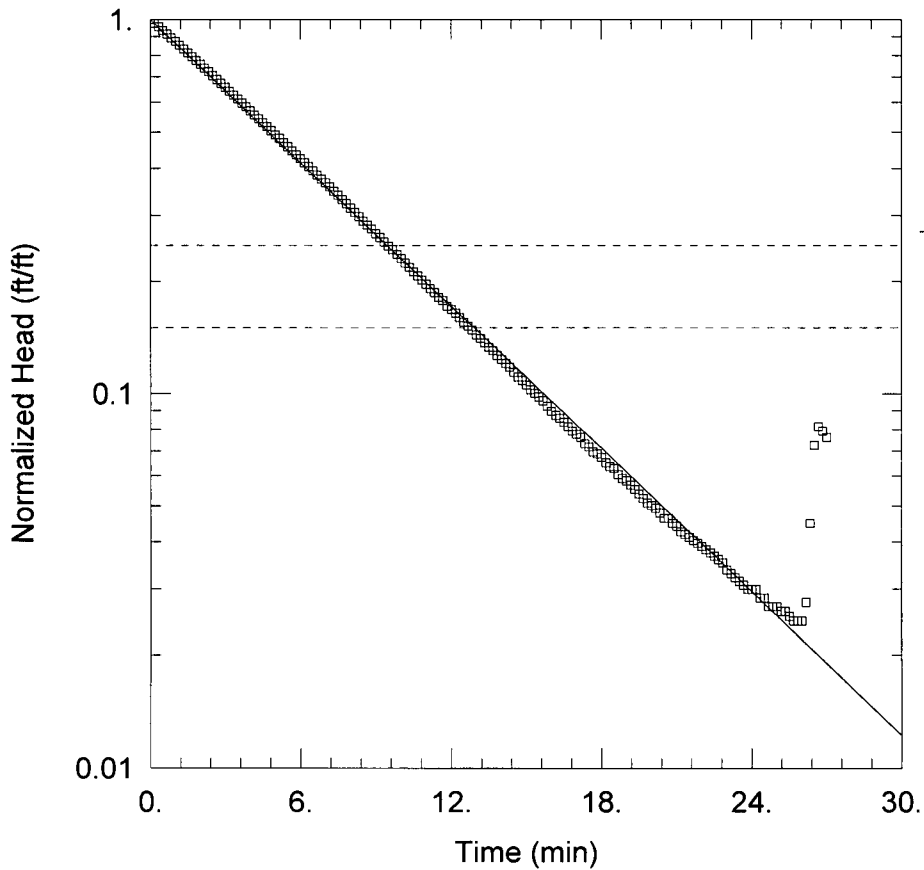
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.2683 ft/day

y0 = 21.53 ft



MW-60 TEST9

Data Set: J:\...MW-60 T9.aqt
 Date: 04/23/07

Time: 16:20:36

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-60 (69-78.7)
 Test Date: 12/13/06

AQUIFER DATA

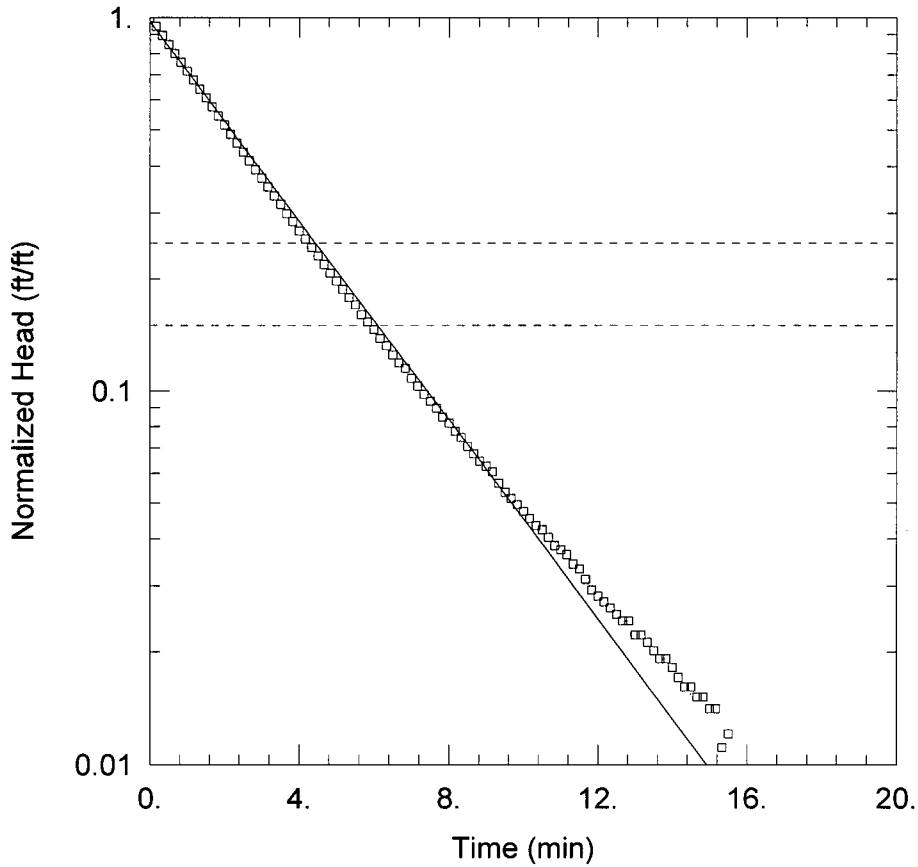
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-60 Test 9)

Initial Displacement: 19.22 ft Static Water Column Height: 66.45 ft
 Total Well Penetration Depth: 66.45 ft Screen Length: 9.7 ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 0.398 ft/day y0 = 19.22 ft



MW-60 TEST10

Data Set: J:\...MW-60 T10.aqt

Date: 04/23/07

Time: 16:21:58

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-60 (50.3-60)

Test Date: 12/13/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-60 Test10)

Initial Displacement: 14.24 ft

Static Water Column Height: 46.87 ft

Total Well Penetration Depth: 46.87 ft

Screen Length: 9.7 ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

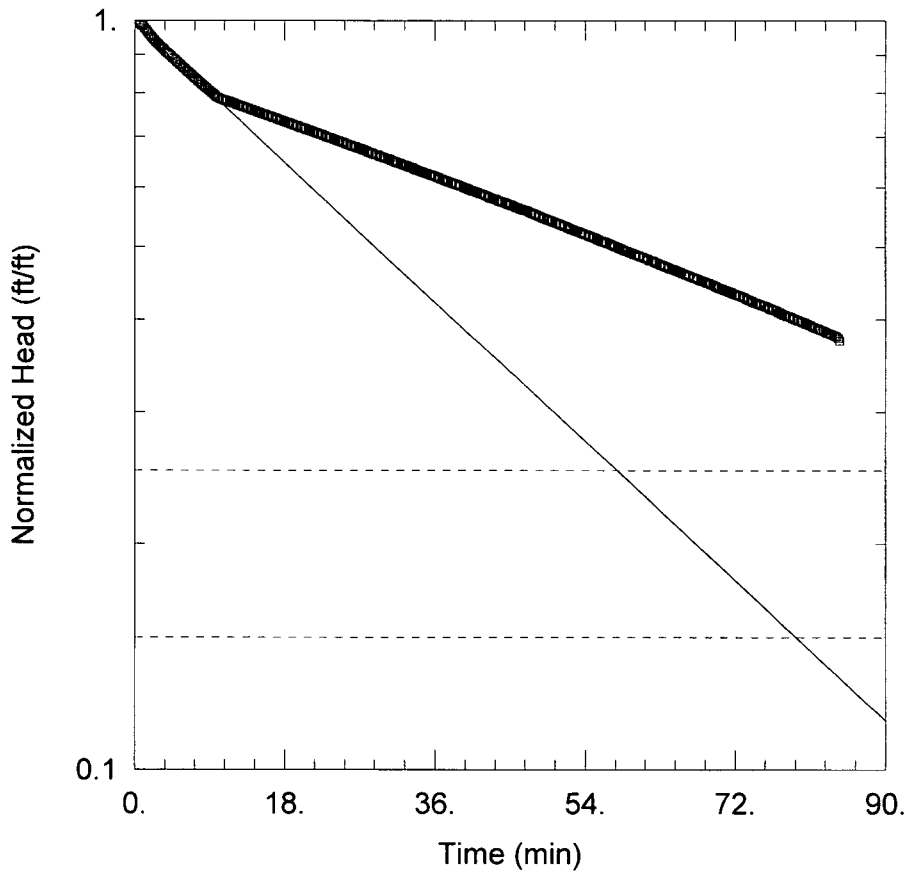
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.8329 ft/day

y0 = 13.87 ft



MW-60 TEST11

Data Set: J:\...\MW-60 T11.aqt

Date: 04/26/07

Time: 23:18:06

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-60 (34.3-44)

Test Date: 12/13/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-60 Test11)

Initial Displacement: 22.6 ft

Static Water Column Height: 30.49 ft

Total Well Penetration Depth: 30.49 ft

Screen Length: 9.7 ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

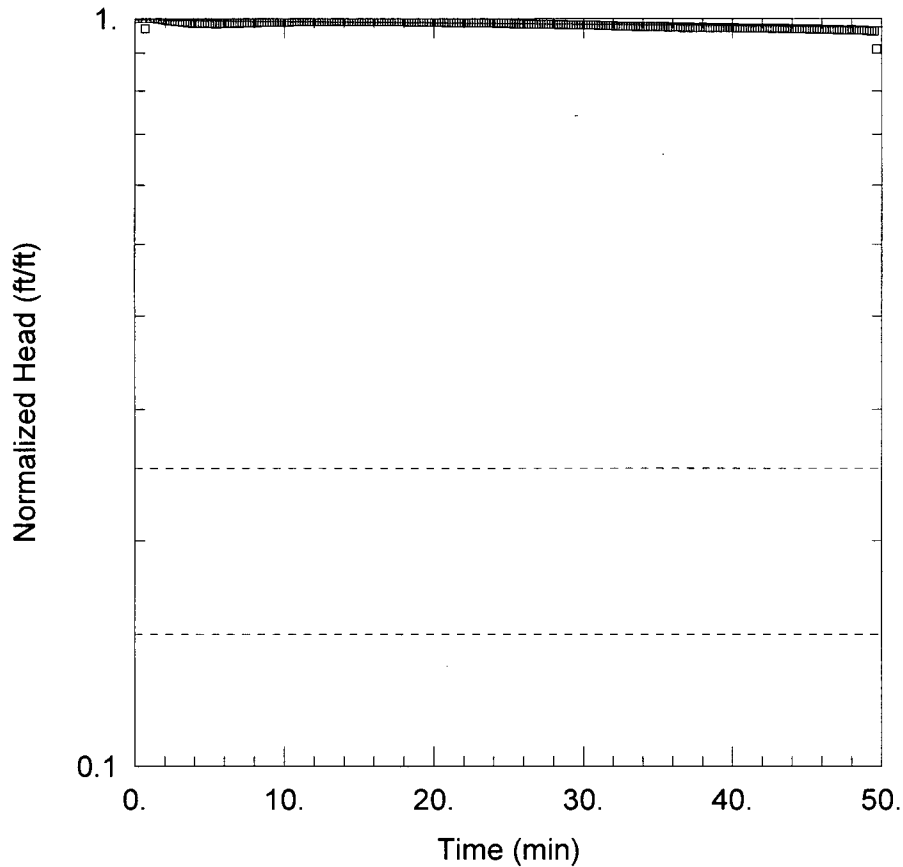
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.06467 ft/day

y0 = 22.47 ft



MW-60 TEST12

Data Set: J:\...MW-60 T12.aqt

Date: 04/23/07

Time: 16:23:47

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-60 (10.2-29)

Test Date: 12/13/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-60 Test12)

Initial Displacement: 8.709 ft

Static Water Column Height: 15.43 ft

Total Well Penetration Depth: 15.43 ft

Screen Length: 18.8 ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

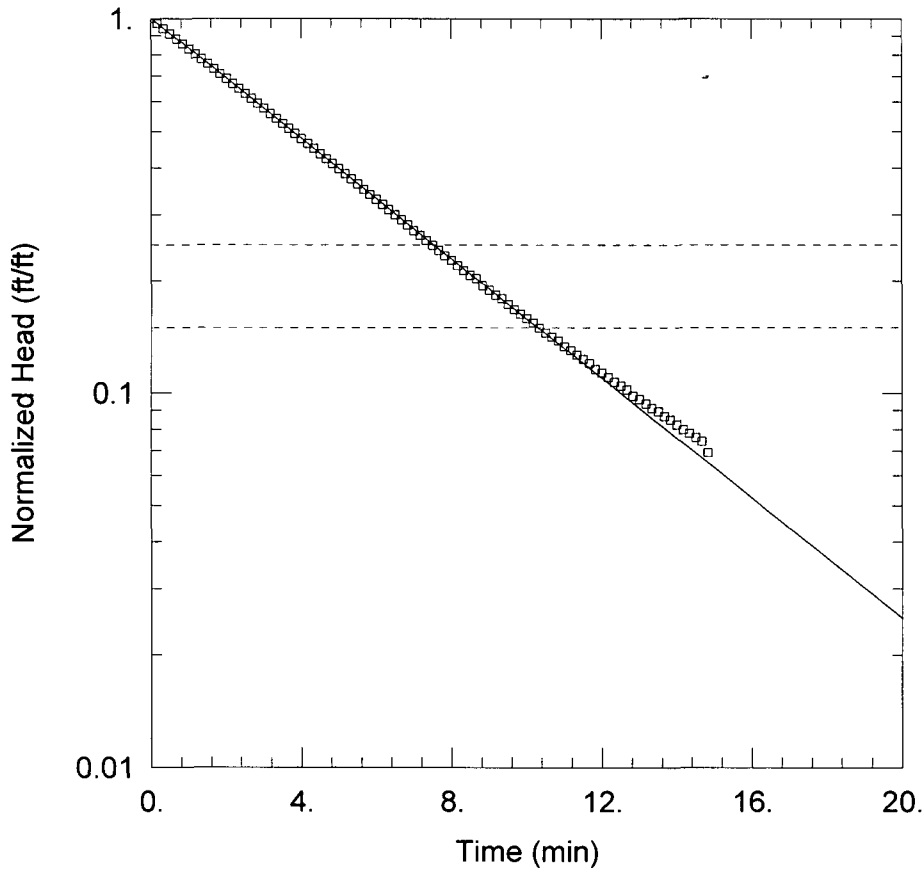
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.0006557 ft/day

y0 = 8.669 ft



MW-62 TEST1

Data Set: J:\...\MW-62T1.aqt
 Date: 04/23/07

Time: 16:29:34

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-62
 Test Date: 12/19/06

AQUIFER DATA

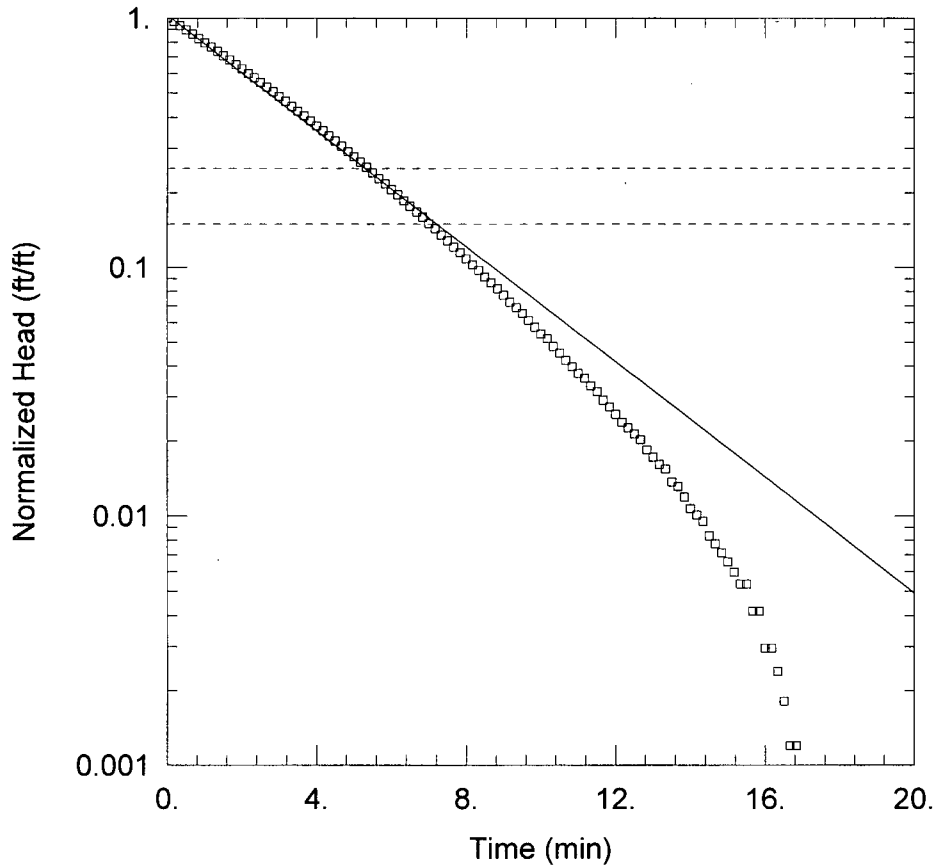
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-62 Test 1)

Initial Displacement: 22.93 ft Static Water Column Height: 189. ft
 Total Well Penetration Depth: 189. ft Screen Length: 13.9 ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 0.373 ft/day y0 = 23.02 ft



MW-62 TEST2

Data Set: J:\...MW-62T2.aqt

Date: 04/23/07

Time: 16:30:16

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-62

Test Date: 12/20/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-62 Test 2)

Initial Displacement: 24.27 ft

Static Water Column Height: 173.3 ft

Total Well Penetration Depth: 173.3 ft

Screen Length: 9.7 ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

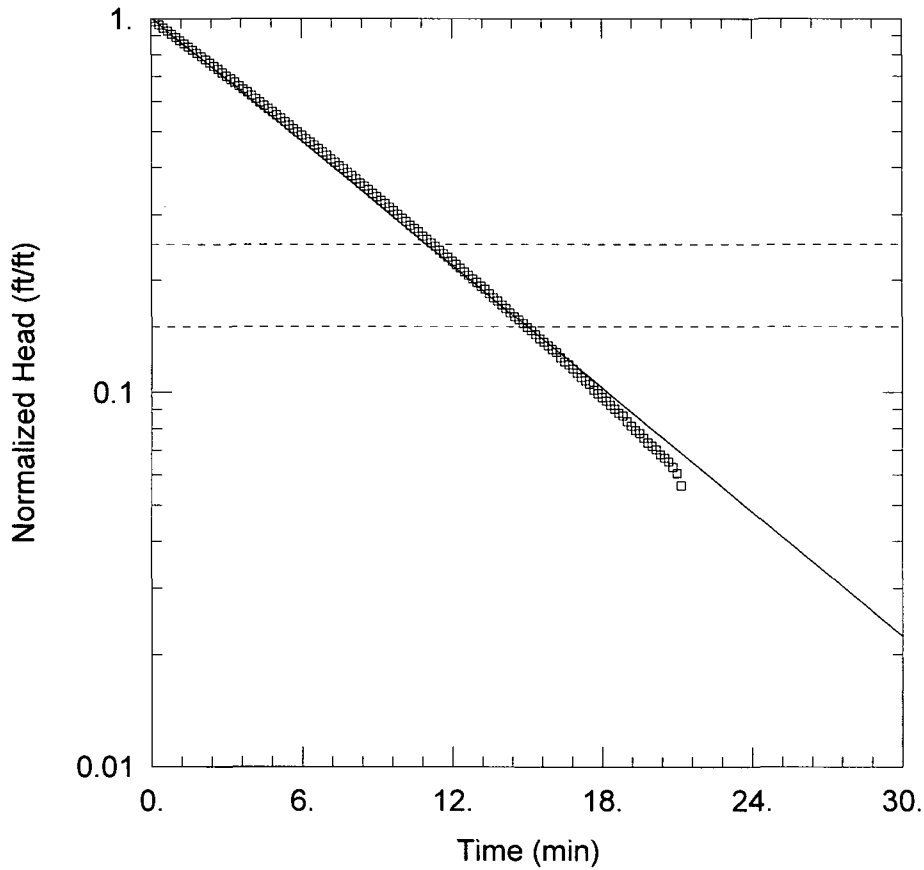
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.7246 ft/day

y0 = 25. ft



MW-62 TEST3

Data Set: J:\...\MW-62T3.aqt
 Date: 04/23/07

Time: 16:30:47

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-62
 Test Date: 12/20/06

AQUIFER DATA

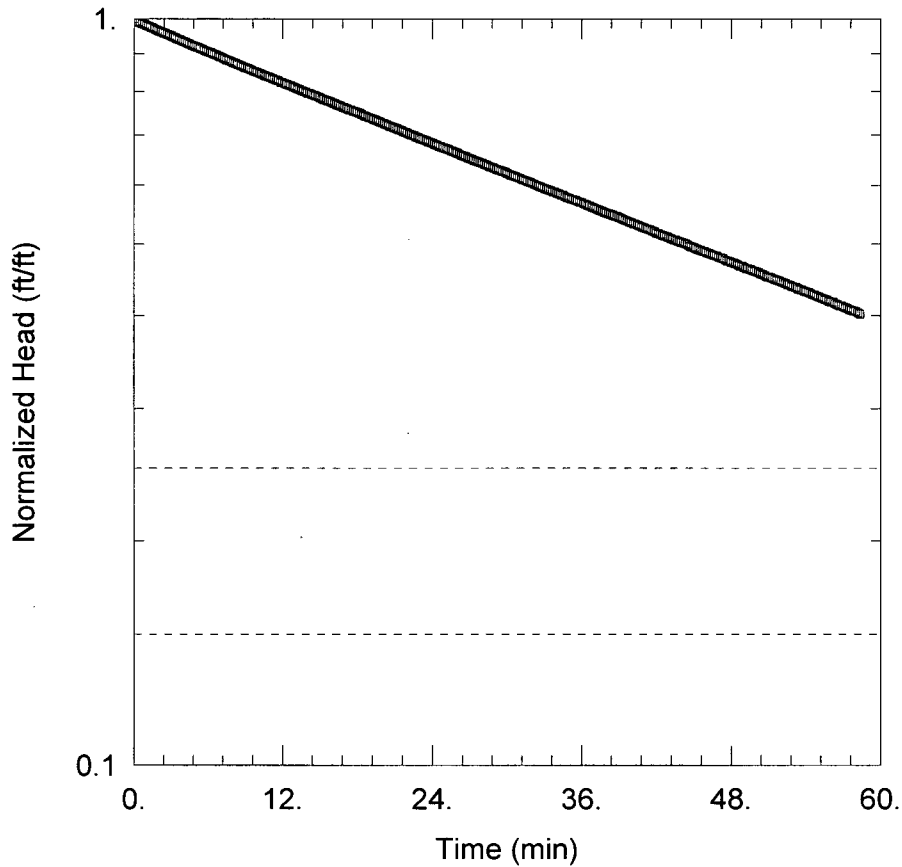
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-62 Test 3)

Initial Displacement: 19.48 ft Static Water Column Height: 165.2 ft
 Total Well Penetration Depth: 165.2 ft Screen Length: 9.7 ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 0.344 ft/day y0 = 19.64 ft



MW-62 TEST4

Data Set: J:\...MW-62T4.aqt
 Date: 04/23/07

Time: 16:31:05

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-62
 Test Date: 12/20/06

AQUIFER DATA

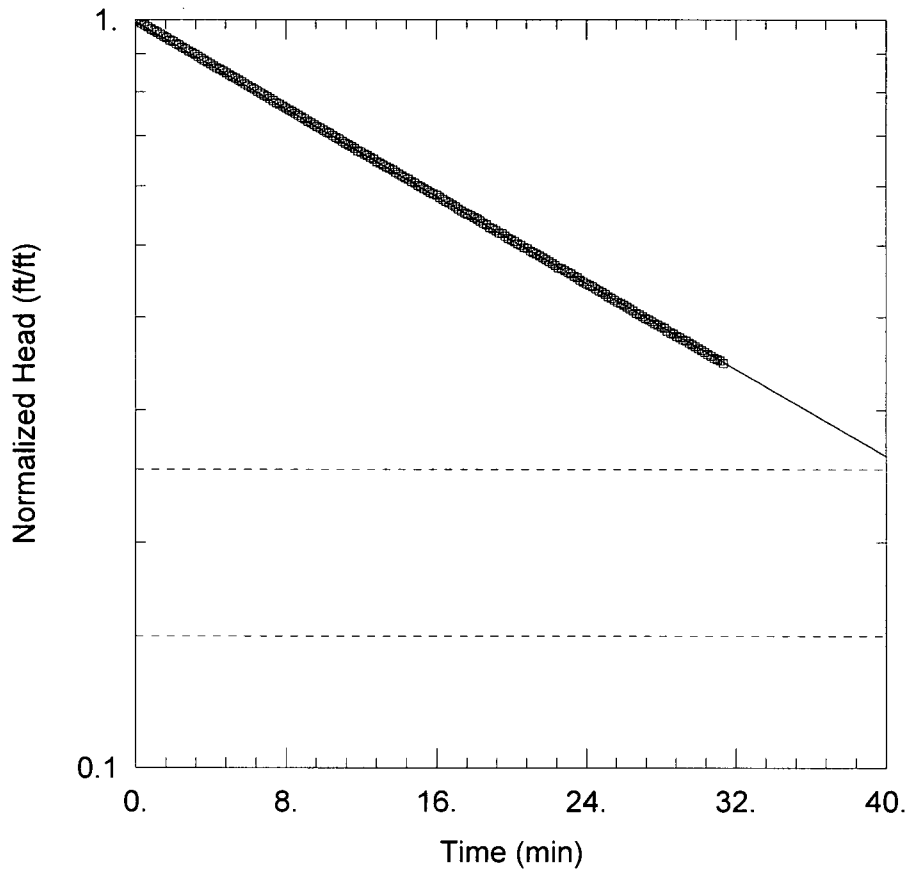
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-62 Test4)

Initial Displacement: 19.65 ft Static Water Column Height: 154.7 ft
 Total Well Penetration Depth: 154.7 ft Screen Length: 9.7 ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 0.04219 ft/day y0 = 19.52 ft



MW-62 TEST5

Data Set: J:\...MW-62T5.aqt
 Date: 04/23/07

Time: 16:31:27

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-62
 Test Date: 12/20/06

AQUIFER DATA

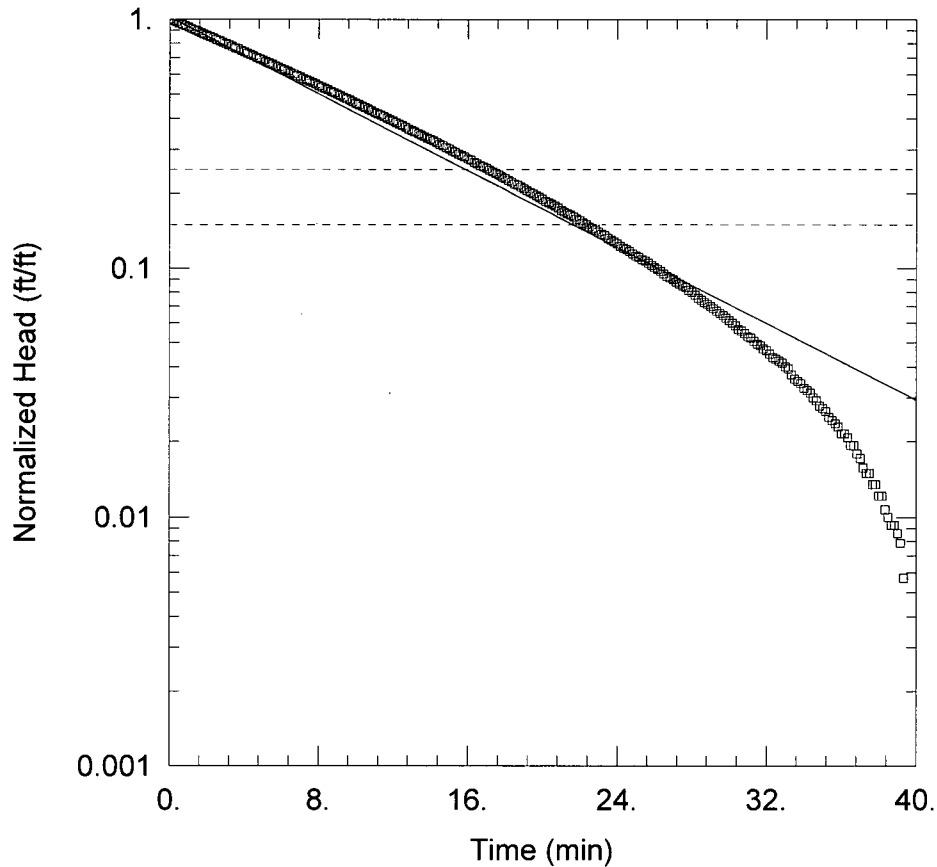
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-62 Test5)

Initial Displacement: 18.06 ft Static Water Column Height: 144.1 ft
 Total Well Penetration Depth: 144.1 ft Screen Length: 9.7 ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 0.09074 ft/day y0 = 17.93 ft



MW-62 TEST6

Data Set: J:\...MW-62T6.aqt

Date: 04/23/07

Time: 16:31:44

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-62

Test Date: 12/21/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-62 Test6)

Initial Displacement: 20.13 ft

Static Water Column Height: 130.8 ft

Total Well Penetration Depth: 130.8 ft

Screen Length: 9.7 ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

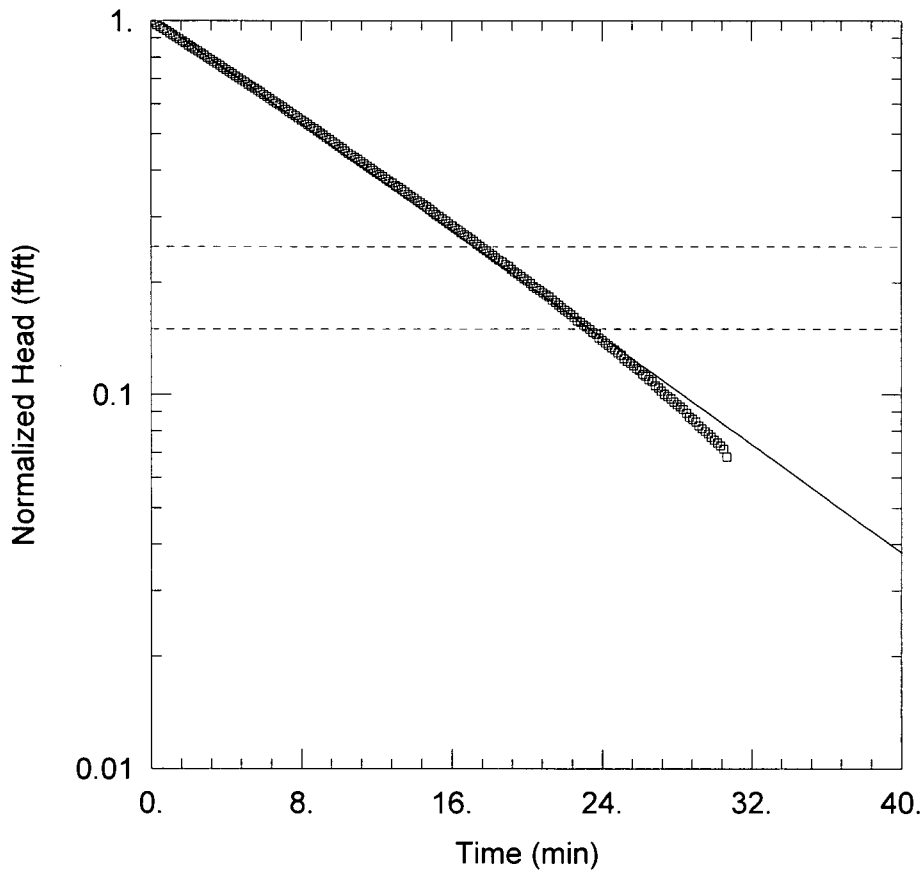
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.2406 ft/day

y0 = 20.6 ft



MW-62 TEST7

Data Set: J:\...MW-62T7.aqt

Date: 01/03/08

Time: 12:37:18

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-62

Test Date: 12/21/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-62 Test7)

Initial Displacement: 21.12 ft

Static Water Column Height: 112.7 ft

Total Well Penetration Depth: 112.7 ft

Screen Length: 9.7 ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

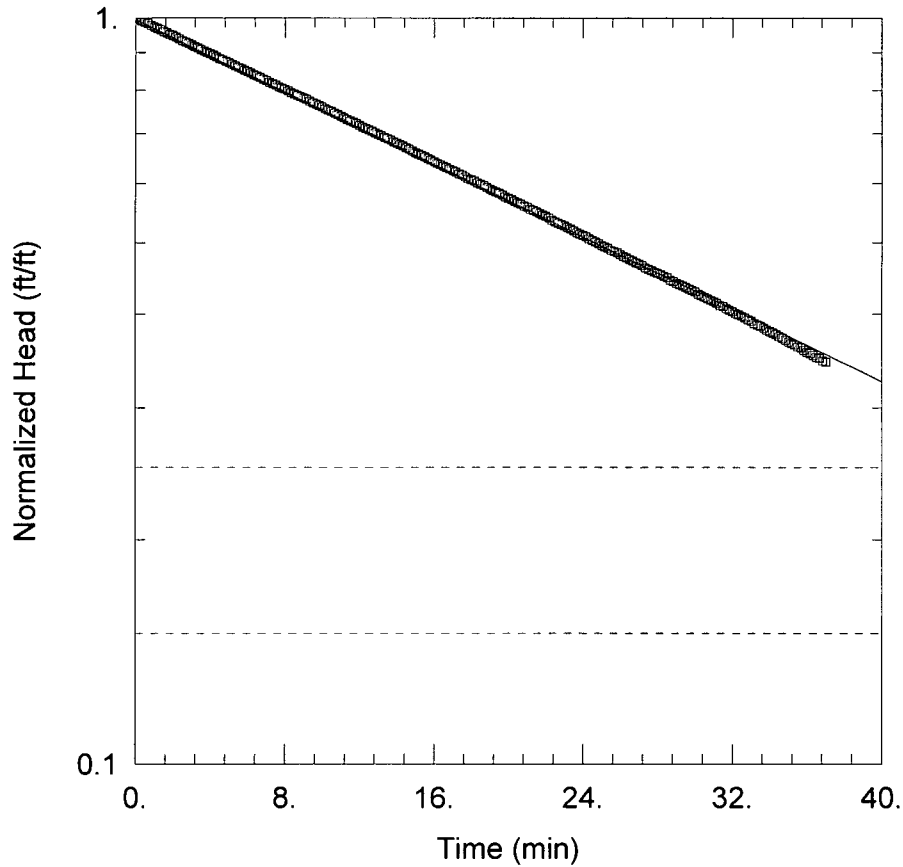
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.2238 ft/day

y0 = 21.8 ft



MW-62 TEST8

Data Set: J:\...MW-62T8.aqt
 Date: 04/23/07

Time: 16:32:25

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-62
 Test Date: 12/21/06

AQUIFER DATA

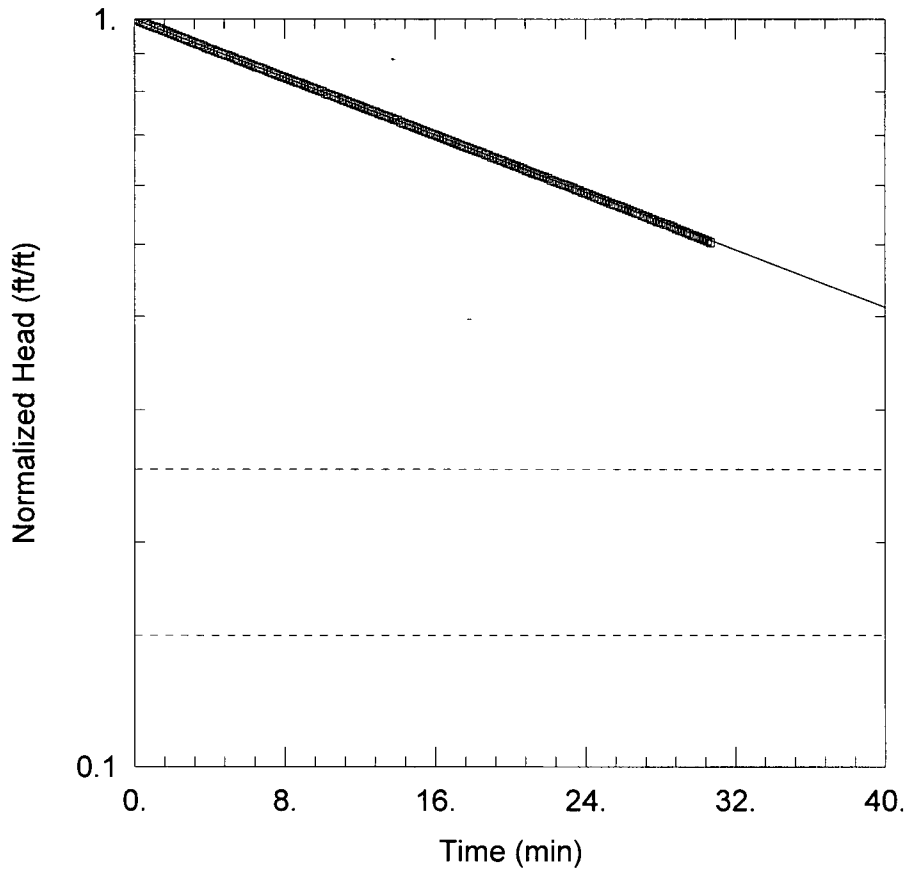
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-62 Test8)

Initial Displacement: 21.2 ft Static Water Column Height: 103. ft
 Total Well Penetration Depth: 103. ft Screen Length: 9.7 ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 0.07574 ft/day y0 = 21.09 ft



MW-62 TEST9

Data Set: J:\...\MW-62T9.aqt

Date: 04/23/07

Time: 16:32:41

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-62

Test Date: 12/21/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-62 Test9)

Initial Displacement: 22.57 ft

Static Water Column Height: 93.56 ft

Total Well Penetration Depth: 93.56 ft

Screen Length: 9.7 ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

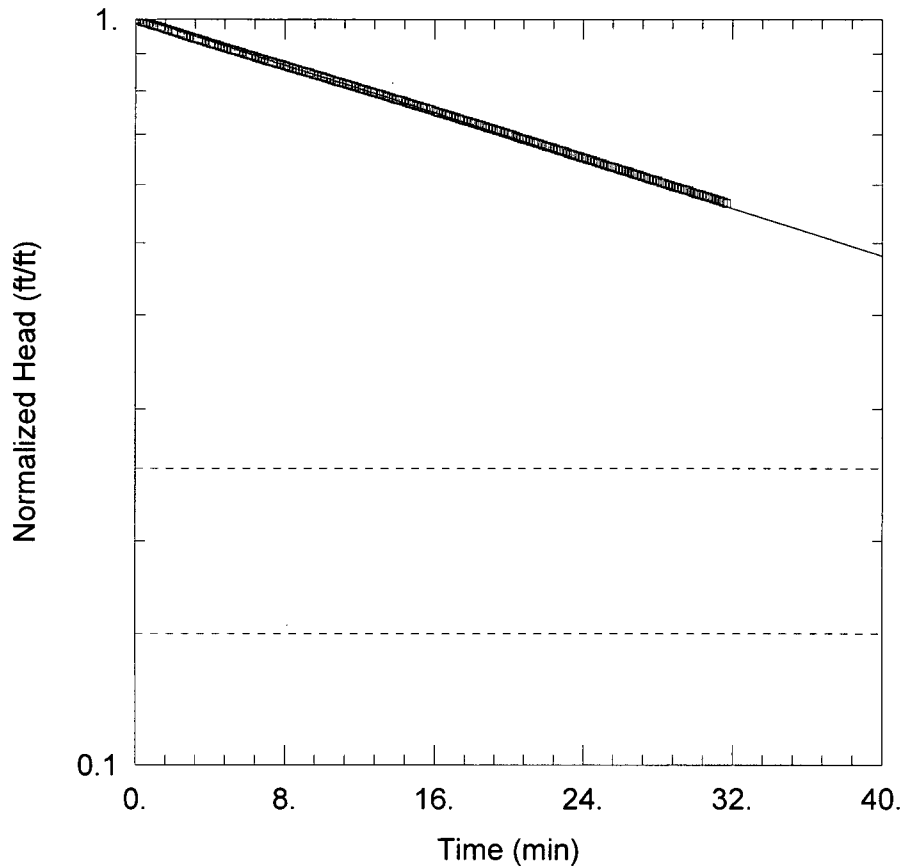
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.06006 ft/day

y0 = 22.57 ft



MW-62 TEST10

Data Set: J:\...MW-62T10.aqt
 Date: 04/23/07

Time: 16:32:57

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-62
 Test Date: 12/21/06

AQUIFER DATA

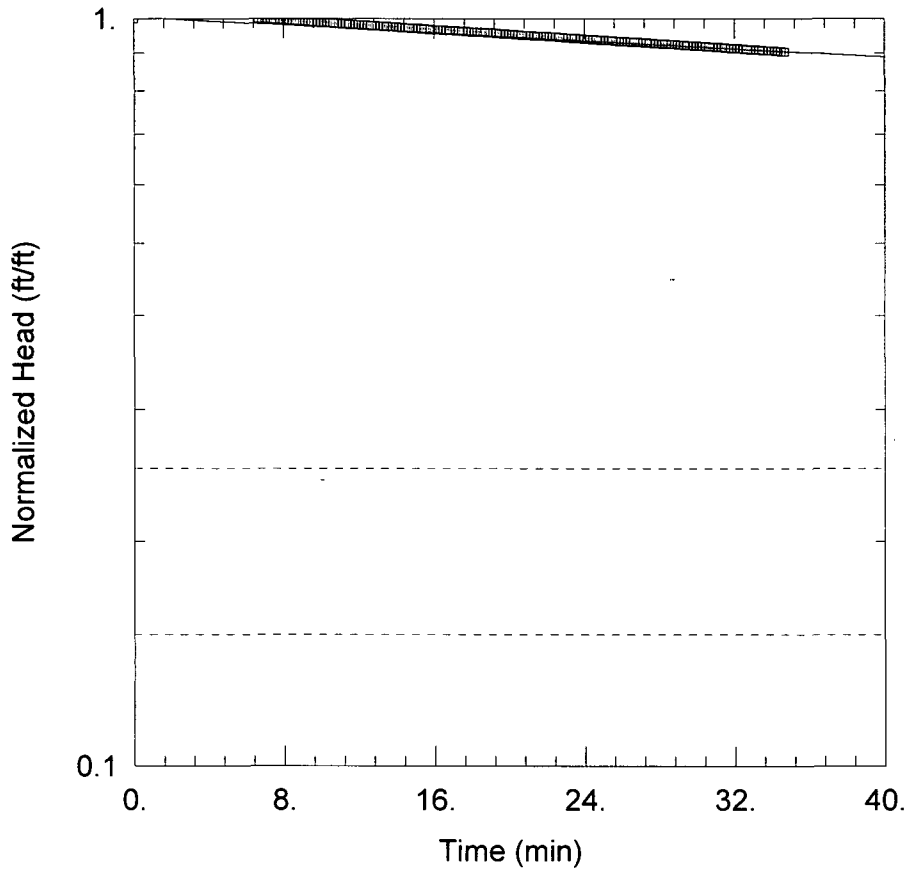
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-62 Test10)

Initial Displacement: 21.24 ft Static Water Column Height: 76.9 ft
 Total Well Penetration Depth: 76.9 ft Screen Length: 9.7 ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 0.05019 ft/day y0 = 21.4 ft



MW-62 TEST11

Data Set: J:\...MW-62T11.aqt

Date: 04/23/07

Time: 16:33:17

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-62

Test Date: 12/22/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-62 Test11)

Initial Displacement: 21.3 ft

Static Water Column Height: 57.98 ft

Total Well Penetration Depth: 57.98 ft

Screen Length: 9.7 ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

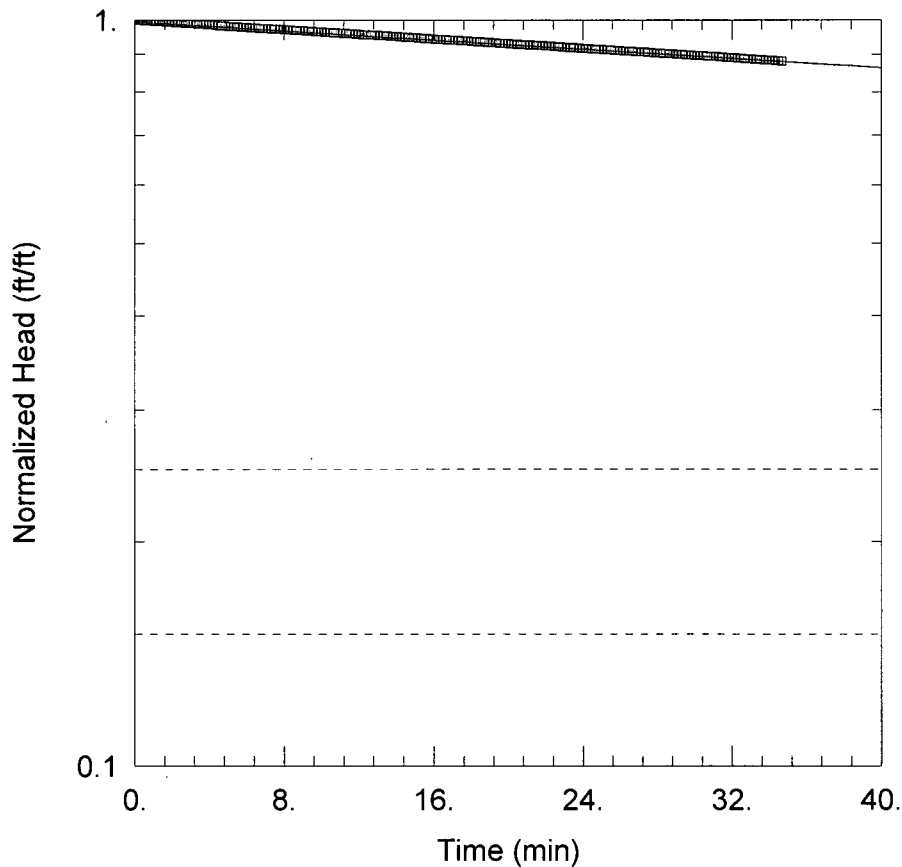
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.008284 ft/day

y0 = 21.41 ft



MW-62 TEST12

Data Set: J:\...\MW-62T12.aqt
 Date: 04/23/07

Time: 16:33:44

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-62
 Test Date: 12/22/06

AQUIFER DATA

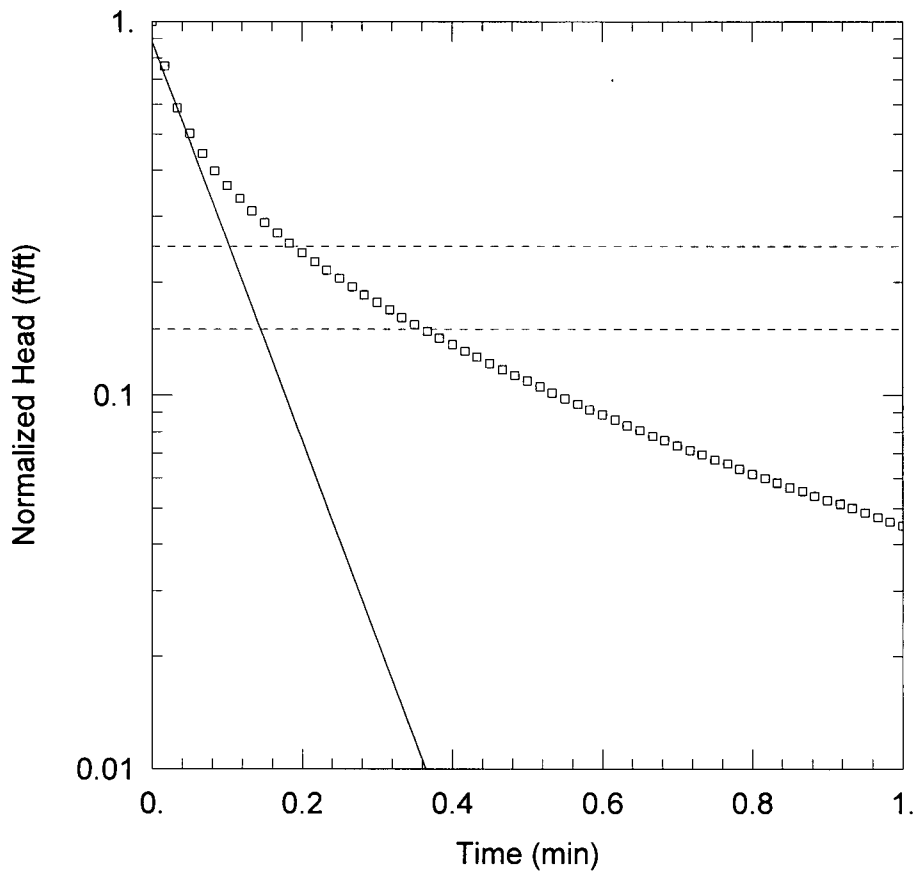
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-62 Test12)

Initial Displacement: 21.84 ft Static Water Column Height: 45.92 ft
 Total Well Penetration Depth: 190.7 ft Screen Length: 13.8 ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 0.007207 ft/day $y_0 =$ 21.73 ft



MW-62-38 PNEUMATIC SLUG (TEST 2)

Data Set: J:\...MW-62-38 May07 T2.aqt

Date: 07/01/07

Time: 18:10:58

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-62-38

Test Date: 5/16/07

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-62-38)

Initial Displacement: 7.38 ft

Static Water Column Height: 24.79 ft

Total Well Penetration Depth: 24.79 ft

Screen Length: 6.3 ft

Casing Radius: 0.04167 ft

Wellbore Radius: 0.159 ft

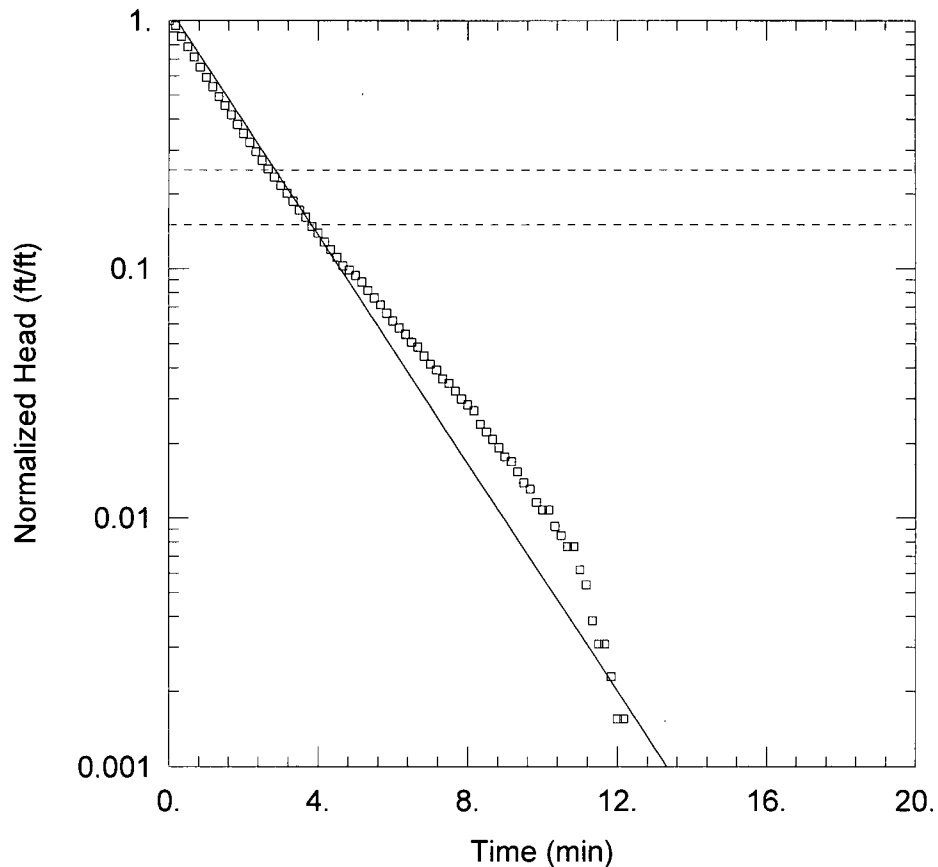
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 11.77 ft/day

y0 = 6.523 ft



MW-63 TEST13

Data Set: J:\...MW-63 T13.aqt

Date: 04/26/07

Time: 23:20:53

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-63 (186.0-201.0)

Test Date: 11/9/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-63 Test13)

Initial Displacement: 18.76 ft

Static Water Column Height: 188.5 ft

Total Well Penetration Depth: 188.5 ft

Screen Length: 9.7 ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

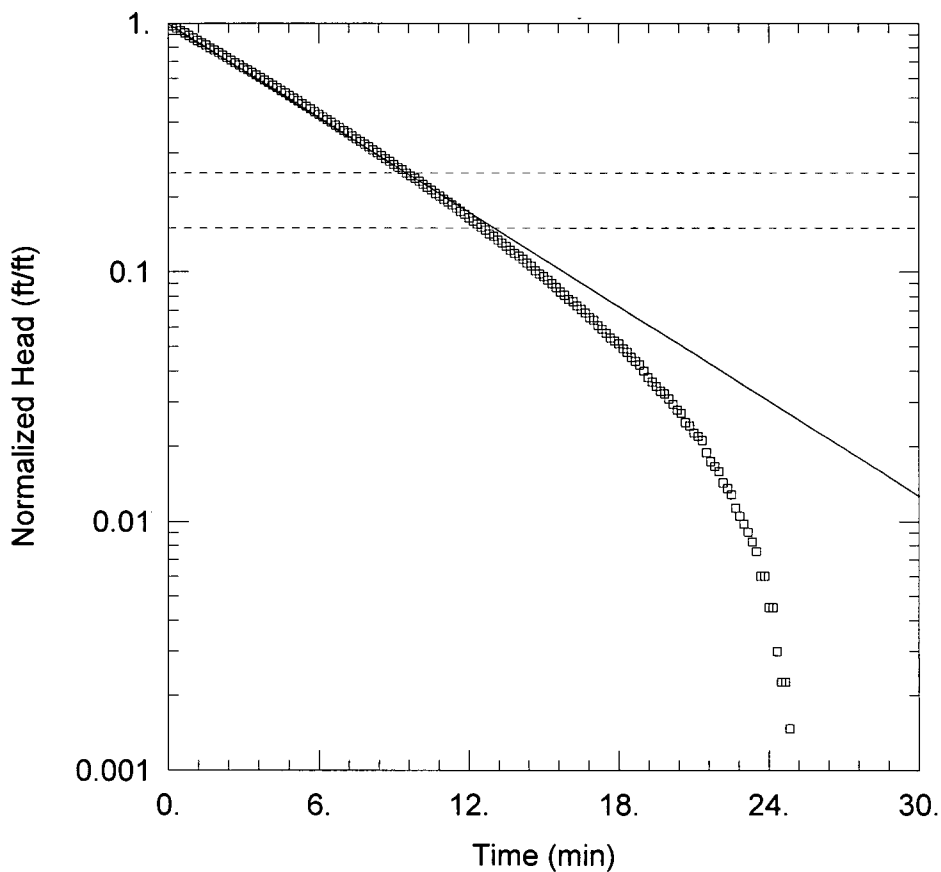
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 1.43 ft/day

y0 = 21.07 ft



MW-63 TEST12

Data Set: J:\...\MW-63 T12.aqt
 Date: 04/23/07

Time: 16:44:37

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-63 (165.0-174.7)
 Test Date: 11/10/06

AQUIFER DATA

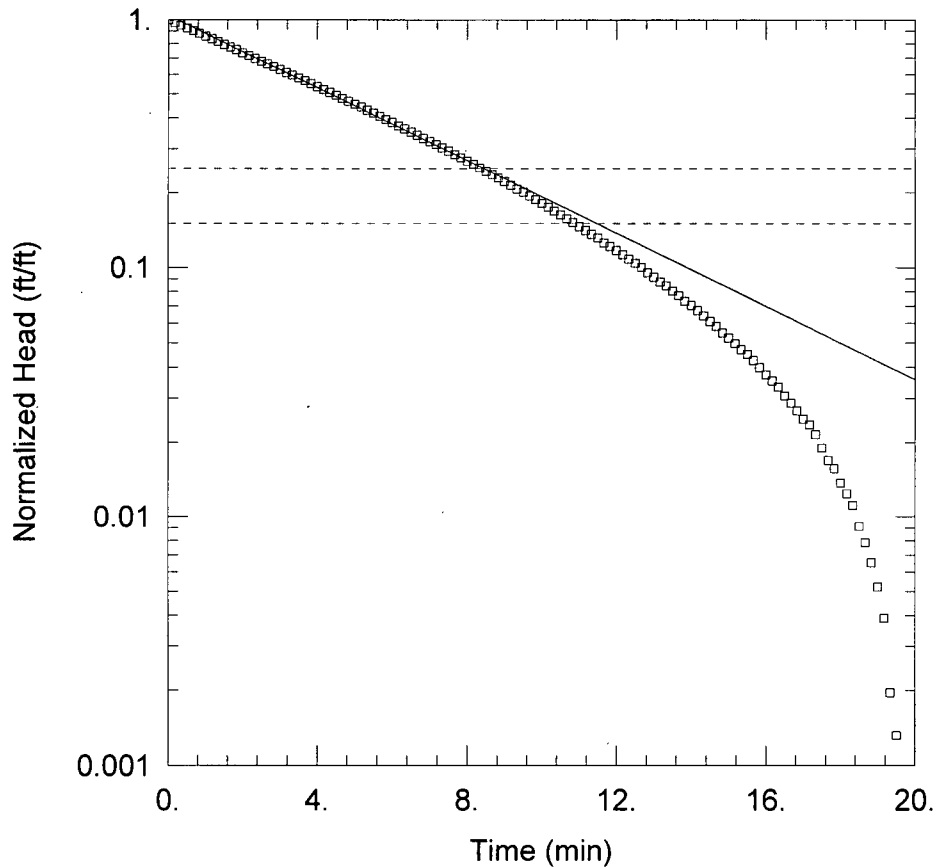
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-63 Test12)

Initial Displacement: 19.08 ft Static Water Column Height: 162.2 ft
 Total Well Penetration Depth: 162.2 ft Screen Length: 9.7 ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 0.3945 ft/day y0 = 19.02 ft



MW-63 TEST11

Data Set: J:\...MW-63 T11.aqt
 Date: 04/26/07

Time: 23:20:45

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-63 (155.0-164.7)
 Test Date: 11/10/06

AQUIFER DATA

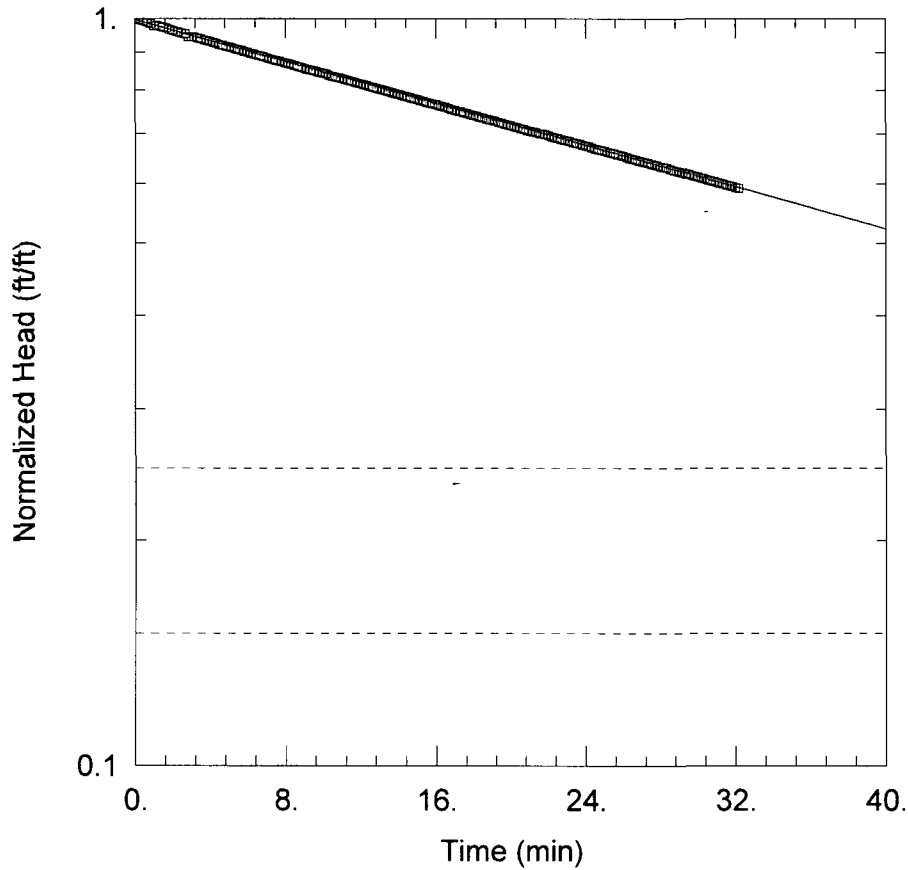
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-63 Test11)

Initial Displacement: 22.03 ft Static Water Column Height: 152.2 ft
 Total Well Penetration Depth: 152.2 ft Screen Length: 9.7 ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 0.4578 ft/day y0 = 22.99 ft



MW-63 TEST10

Data Set: J:\...MW-63 T10.aqt
 Date: 04/23/07

Time: 16:43:54

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-63 (145.0-154.7)
 Test Date: 11/10/06

AQUIFER DATA

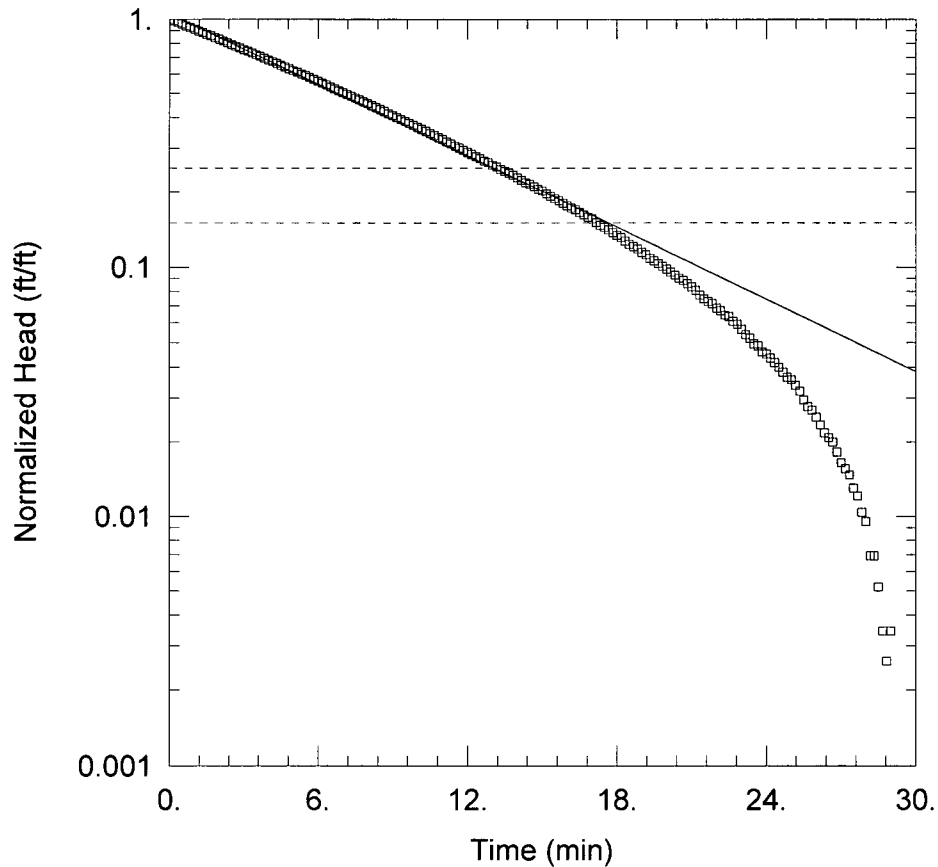
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-63 Test10)

Initial Displacement: 18.81 ft Static Water Column Height: 141.1 ft
 Total Well Penetration Depth: 141.1 ft Screen Length: 9.7 ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 0.04377 ft/day y0 = 18.75 ft



MW-63 TEST9

Data Set: J:\...MW-63 T9.aqt
 Date: 04/26/07

Time: 23:20:30

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-63 (123.5-133.2)
 Test Date: 11/10/06

AQUIFER DATA

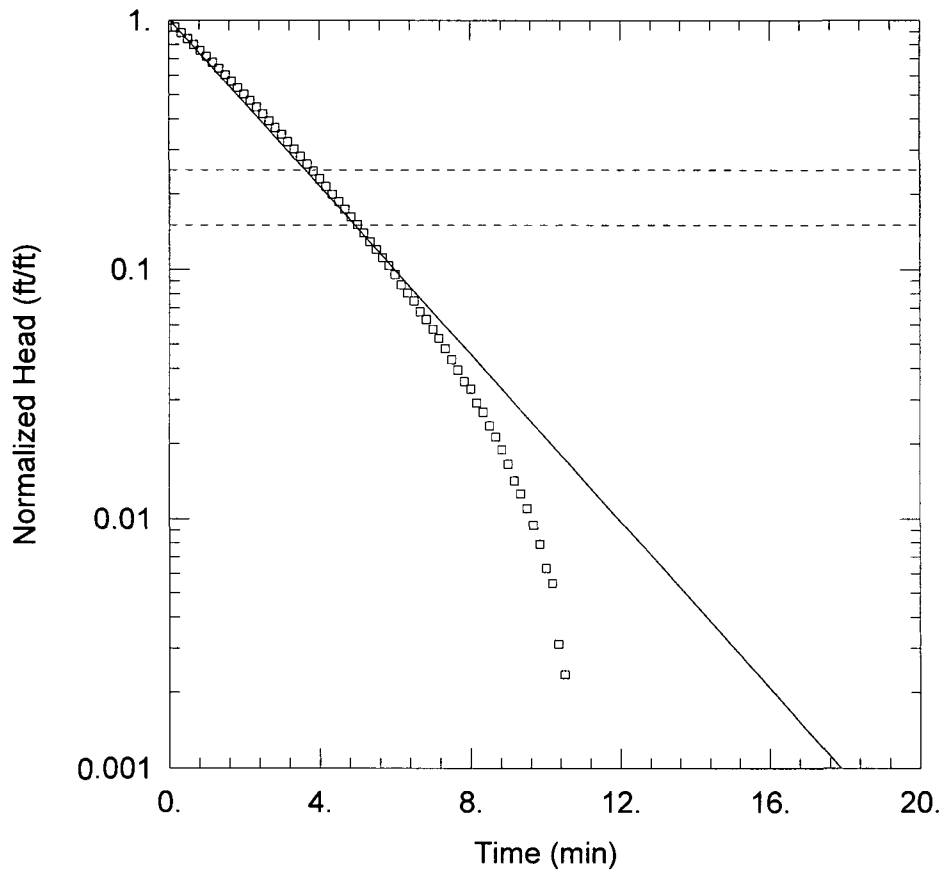
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-63 Test 9)

Initial Displacement: 16.57 ft Static Water Column Height: 120.7 ft
 Total Well Penetration Depth: 120.7 ft Screen Length: 9.7 ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 0.2997 ft/day y0 = 17.53 ft



MW-63 TEST8

Data Set: J:\...MW-63 T8.aqt
 Date: 04/26/07

Time: 23:20:20

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-63 (110.0-119.7)
 Test Date: 11/10/06

AQUIFER DATA

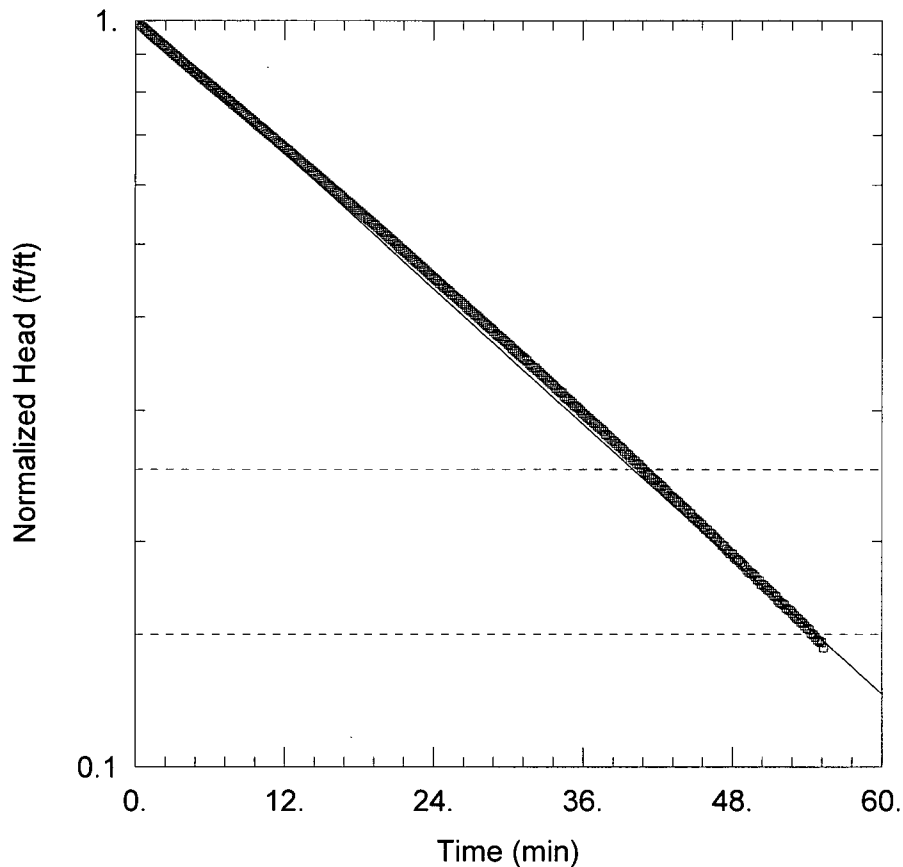
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-63 Test 8)

Initial Displacement: 18.24 ft Static Water Column Height: 107.2 ft
 Total Well Penetration Depth: 107.2 ft Screen Length: 9.7 ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 1.049 ft/day y0 = 18.44 ft



MW-63 TEST7

Data Set: J:\...MW-63 T7.aqt
 Date: 04/26/07

Time: 23:20:12

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-63 (100.0-109.7)
 Test Date: 11/13/06

AQUIFER DATA

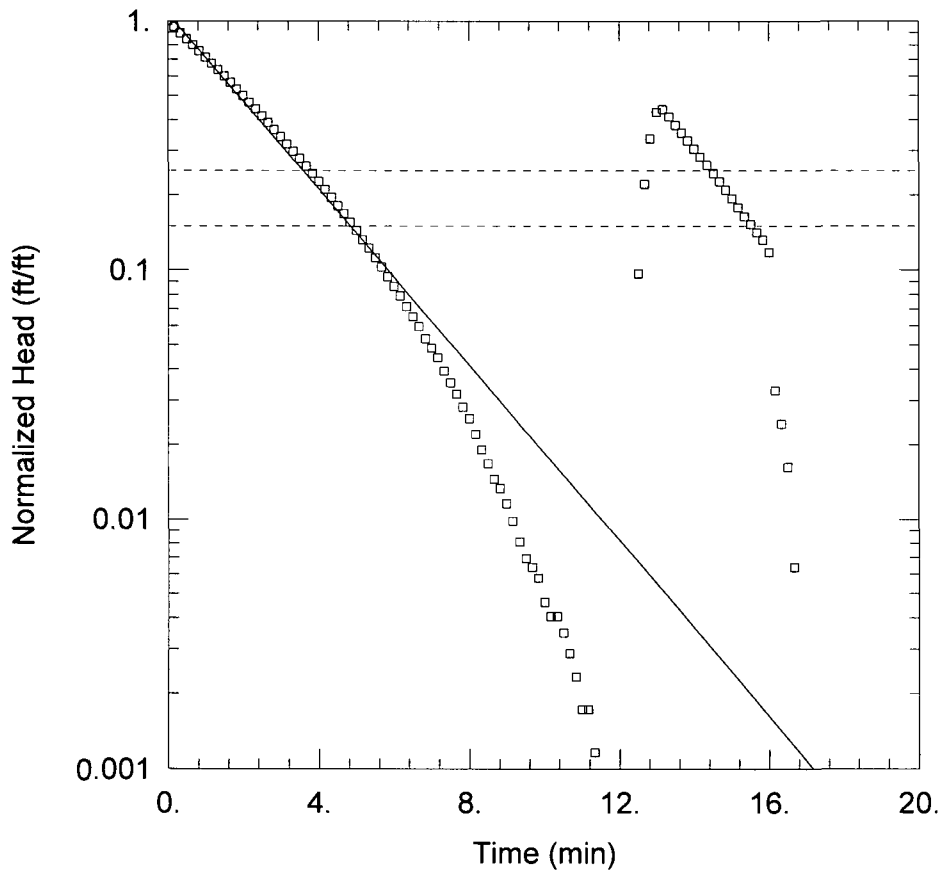
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-63 Test 7)

Initial Displacement: 23.89 ft Static Water Column Height: 97.2 ft
 Total Well Penetration Depth: 97.2 ft Screen Length: 9.7 ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 0.09426 ft/day $y_0 =$ 24.01 ft



MW-63 TEST6

Data Set: J:\...\MW-63 T6.aqt
 Date: 04/23/07

Time: 16:42:33

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-63 (88.3-98.0)
 Test Date: 11/13/06

AQUIFER DATA

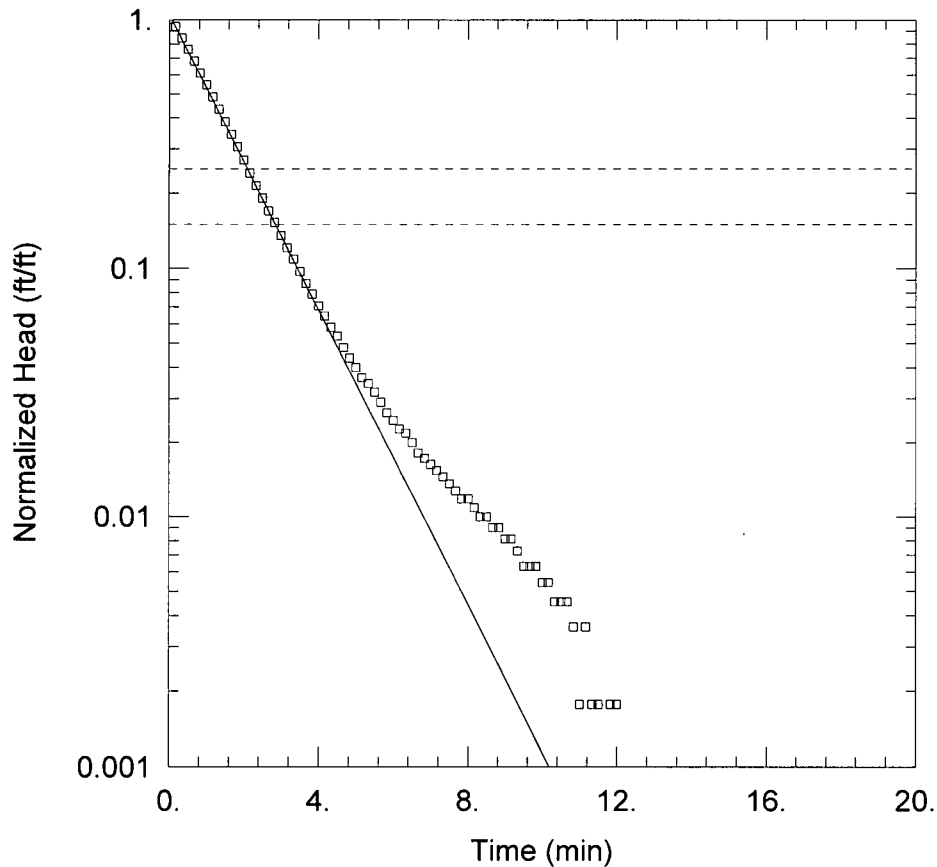
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-63 Test 6)

Initial Displacement: 24.93 ft Static Water Column Height: 85.5 ft
 Total Well Penetration Depth: 85.5 ft Screen Length: 9.7 ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 1.101 ft/day y0 = 26.7 ft



MW-63 TEST5

Data Set: J:\...MW-63 T5.aqt

Date: 04/23/07

Time: 16:42:18

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-63 (78.6-88.3)

Test Date: 11/13/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-63 Test 5)

Initial Displacement: 15.84 ft

Static Water Column Height: 75.8 ft

Total Well Penetration Depth: 75.8 ft

Screen Length: 9.7 ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

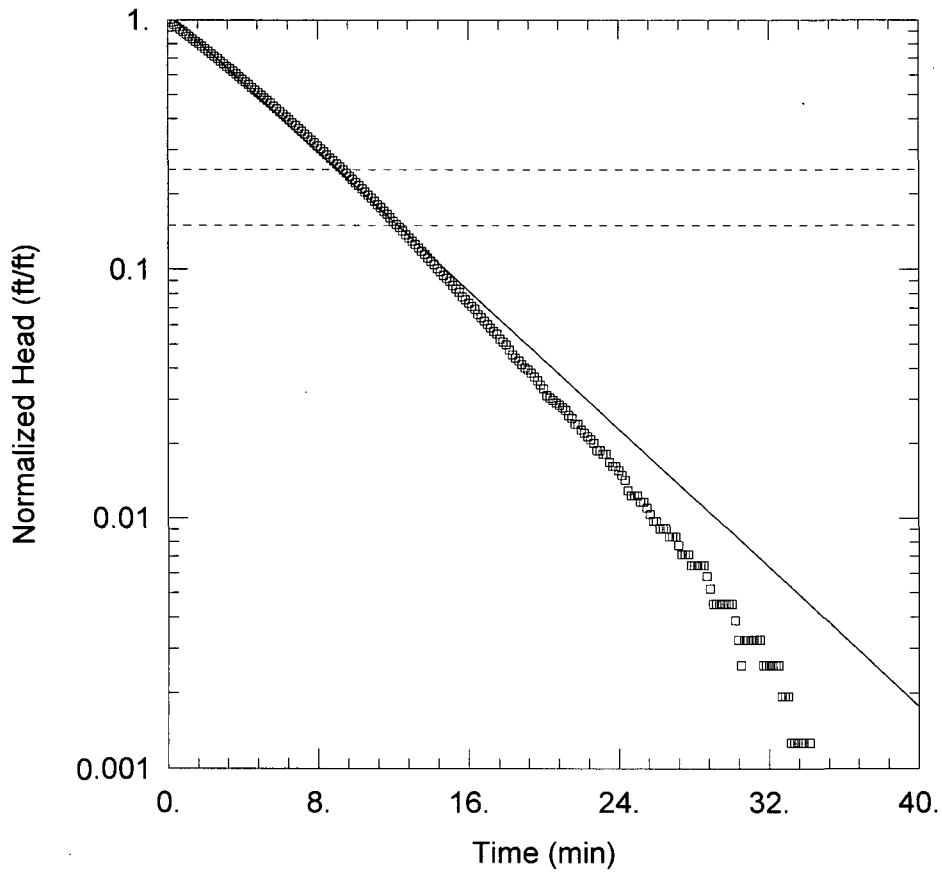
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 1.852 ft/day

y0 = 16.54 ft



MW-63 TEST4

Data Set: J:\...MW-63 T4.aqt
 Date: 04/23/07

Time: 16:41:59

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-63 (71.0-80.7)
 Test Date: 11/13/06

AQUIFER DATA

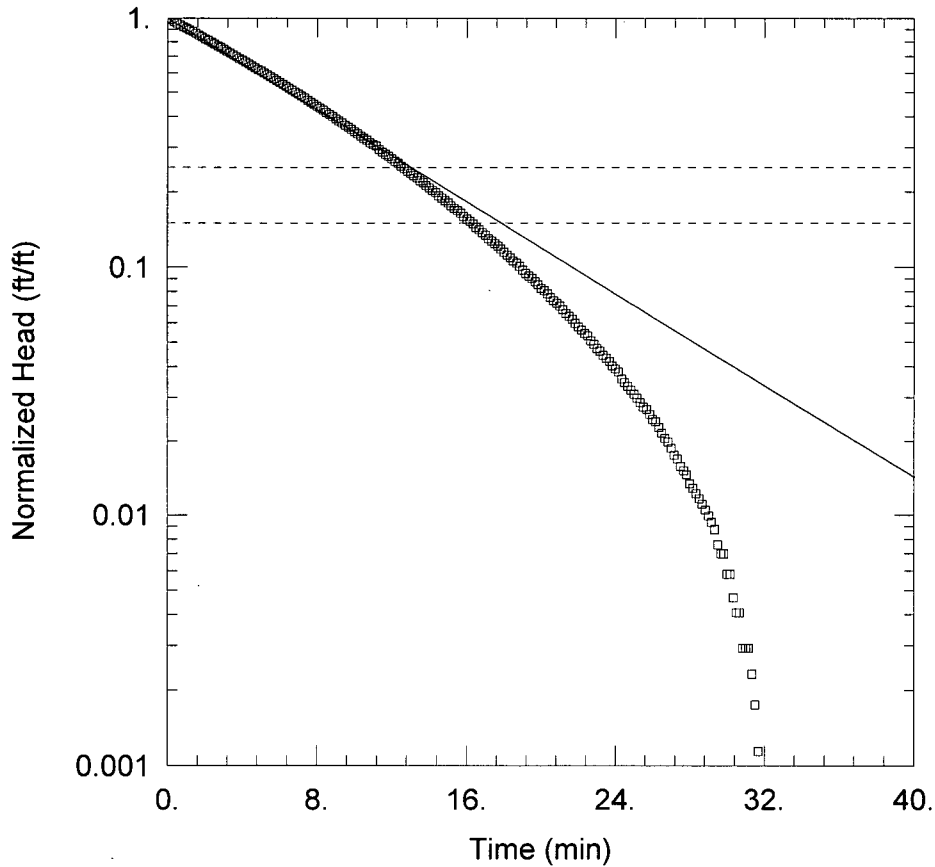
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-63 Test 4)

Initial Displacement: 22.17 ft Static Water Column Height: 68.2 ft
 Total Well Penetration Depth: 68.2 ft Screen Length: 9.7 ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 0.434 ft/day $y_0 =$ 23.58 ft



MW-63 TEST3

Data Set: J:\...MW-63 T3.aqt
 Date: 04/23/07

Time: 16:41:14

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-63 (60.8-70.5)
 Test Date: 11/14/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-63 Test3)

Initial Displacement: 24.62 ft

Static Water Column Height: 58. ft

Total Well Penetration Depth: 58. ft

Screen Length: 9.7 ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

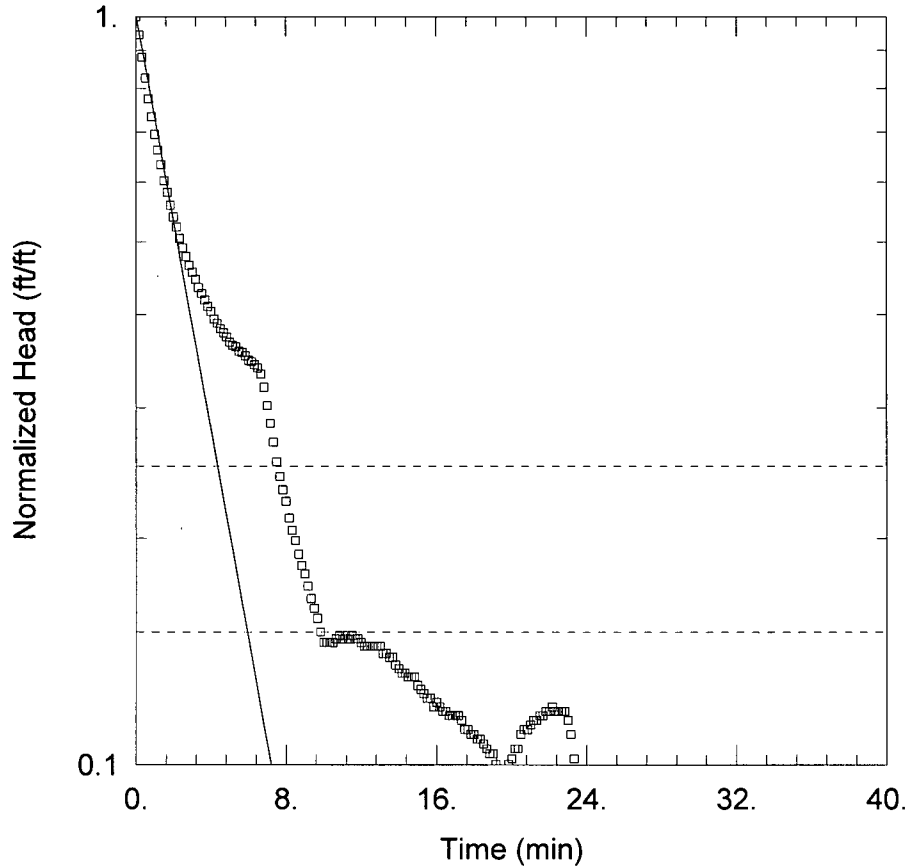
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.2877 ft/day

y0 = 24.56 ft



MW-63 TEST2

Data Set: J:\...\MW-63 T2.aqt
 Date: 04/26/07

Time: 23:20:03

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-63 (50.5-60.2)
 Test Date: 10/17/06

AQUIFER DATA

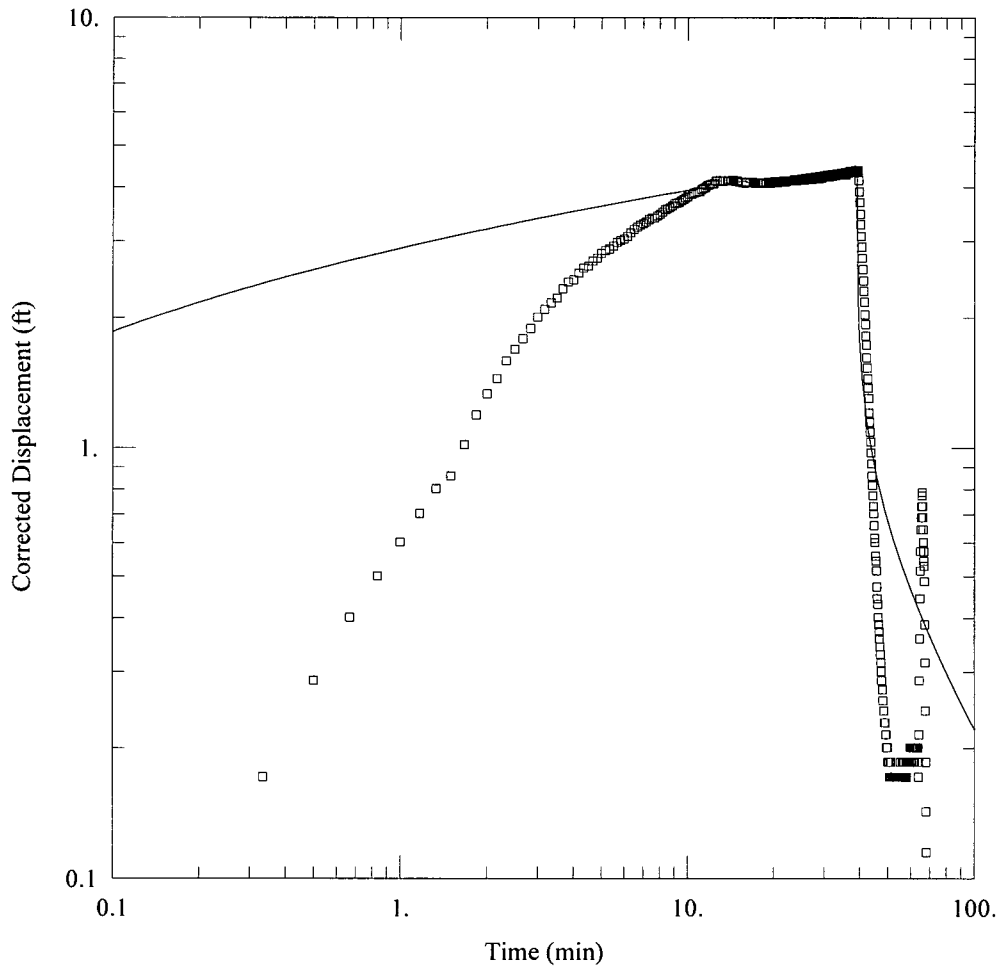
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-63 Test 2)

Initial Displacement: 8.89 ft Static Water Column Height: 47.7 ft
 Total Well Penetration Depth: 47.7 ft Screen Length: 9.7 ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 0.8719 ft/day y_0 = 8.987 ft



MW-63 T1 PACKERED EXTRACTION

Data Set: J:\...MW-63 T1 theis.aqt

Date: 09/10/07

Time: 17:48:55

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, NY

Test Well: MW-63

Test Date: 10/12/06

WELL DATA

Pumping Wells

Observation Wells

Well Name	X (ft)	Y (ft)
MW-63	0	0

Well Name	X (ft)	Y (ft)
□ MW-63	0	0

SOLUTION

Aquifer Model: Unconfined

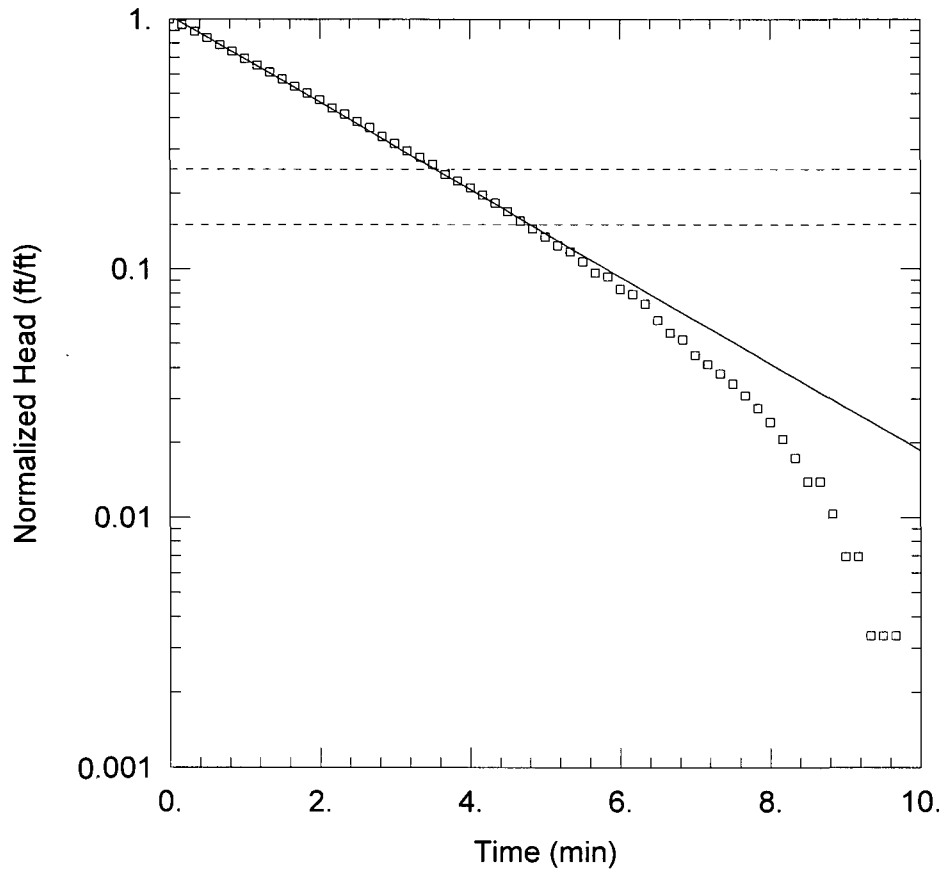
Solution Method: Theis

T = 96.47 ft²/day

S = 0.0099

Kz/Kr = 1.

b = 300. ft



MW-63 TEST1

Data Set: J:\...\MW-63 T1.aqt

Date: 04/23/07

Time: 16:40:20

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-63 (12.5-50.5)

Test Date: 10/12/06

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-63 Test 1)

Initial Displacement: 4.164 ft

Static Water Column Height: 50.5 ft

Total Well Penetration Depth: 50.5 ft

Screen Length: 14. ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

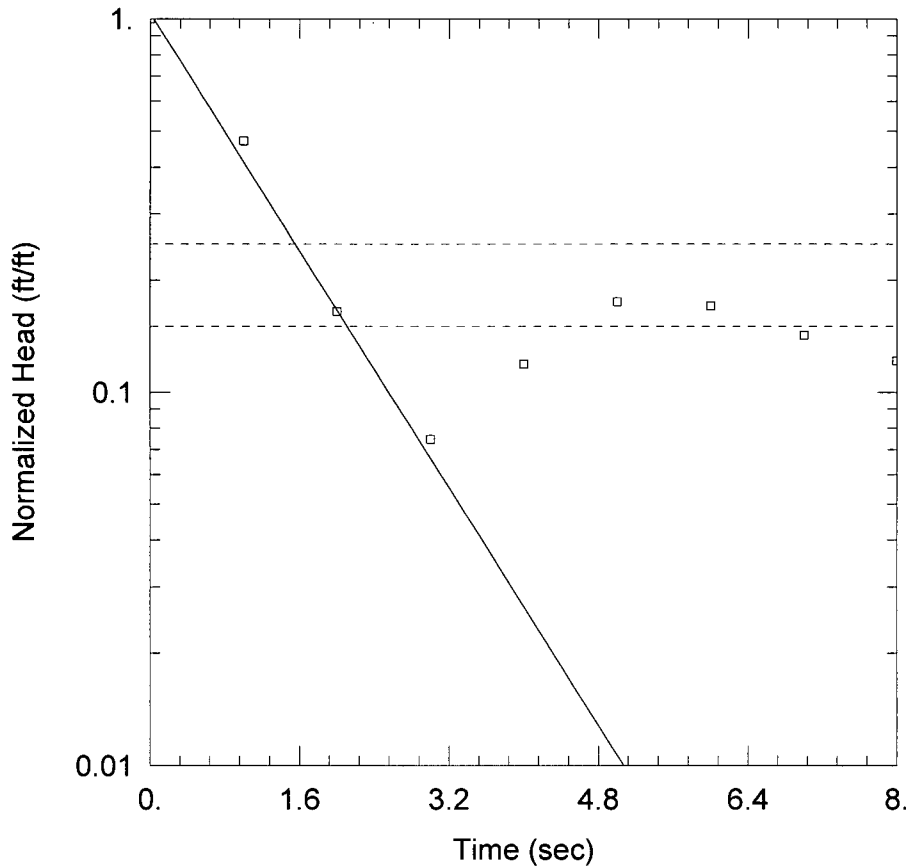
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.8076 ft/day

y0 = 4.312 ft



MW-63-35 MAY07 PNEUMATIC SLUG (TEST1)

Data Set: J:\...MW-63-35 May07 T1.aqt

Date: 07/01/07

Time: 18:13:59

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-63-35

Test Date: 5/9/07

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-63-35)

Initial Displacement: 1.637 ft

Static Water Column Height: 21.57 ft

Total Well Penetration Depth: 21.57 ft

Screen Length: 7. ft

Casing Radius: 0.04167 ft

Wellbore Radius: 0.159 ft

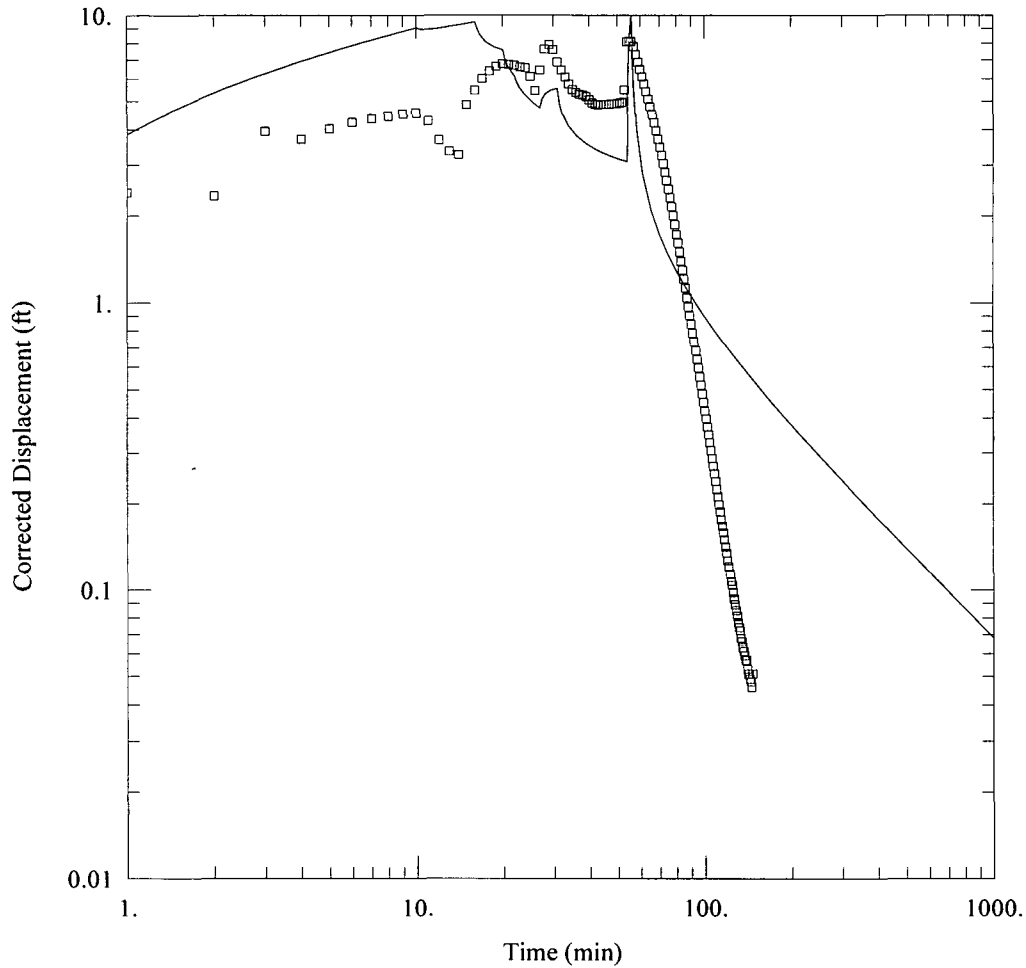
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 48.36 ft/day

y0 = 1.69 ft



MW-65-48 EXTRACTION TEST

Data Set: J:\...MW-65-48theis.aqt
 Date: 09/12/07

Time: 14:26:12

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, NY
 Test Well: MW-65-48
 Test Date: 12/29/06

WELL DATA

Pumping Wells			Observation Wells		
Well Name	X (ft)	Y (ft)	Well Name	X (ft)	Y (ft)
MW-65-48	0	0	□ MW-65-48	0	0

SOLUTION

Aquifer Model: Unconfined

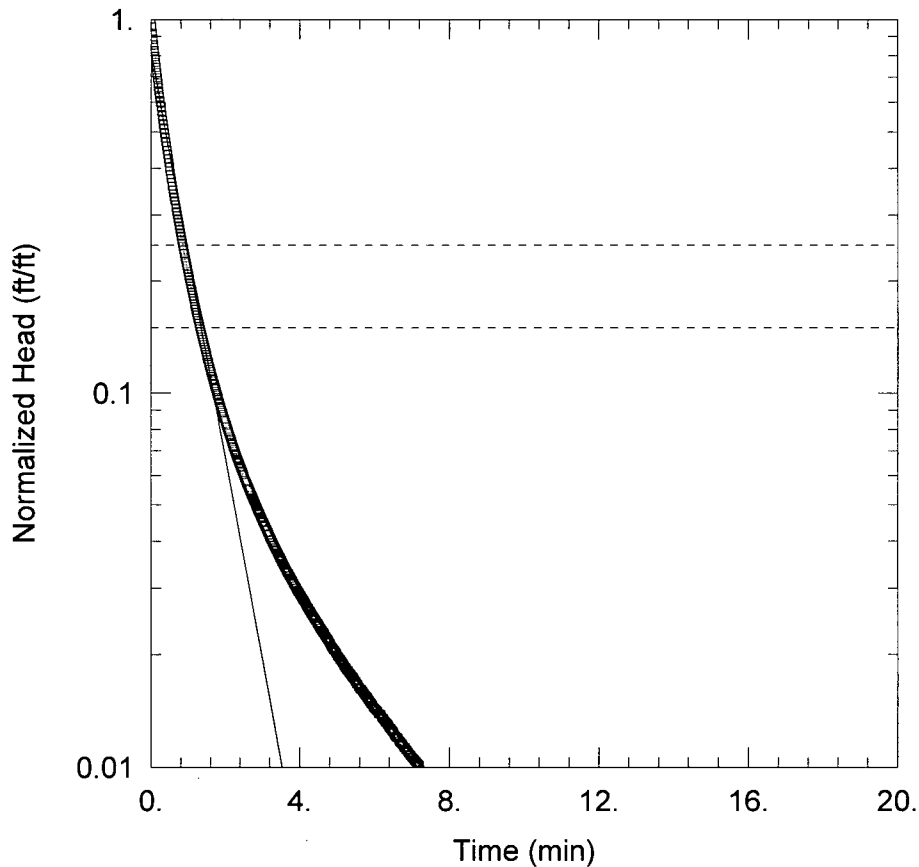
Solution Method: Theis

T = 3.895 ft²/day

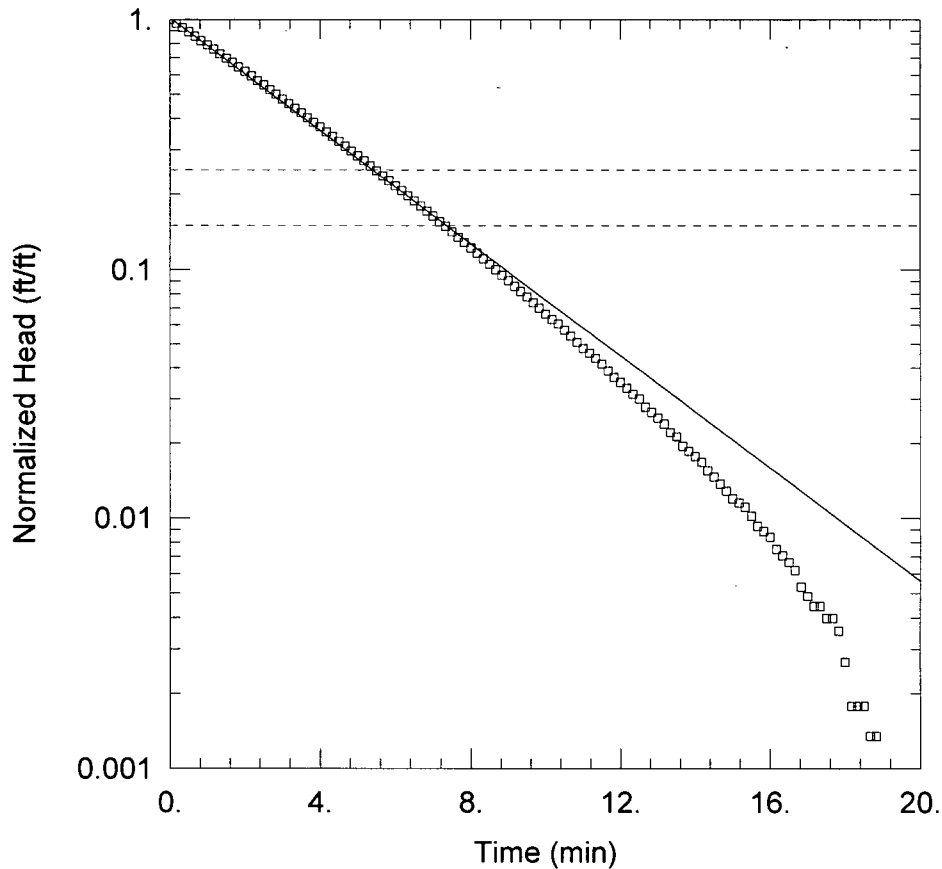
S = 0.05296

Kz/Kr = 1.

b = 300. ft



<u>MW65-80 SLUG TEST</u>	
Data Set: <u>J:\...\MW65-80.aqt</u>	Time: <u>14:26:47</u>
Date: <u>09/12/07</u>	
<u>PROJECT INFORMATION</u>	
Company: <u>GZA GeoEnvironmental</u>	
Client: <u>Indian Point Energy Center</u>	
Project: <u>41.0017869.10</u>	
Location: <u>Buchanan, New York</u>	
Test Well: <u>MW65-80</u>	
Test Date: <u>12/28/06</u>	
<u>AQUIFER DATA</u>	
Saturated Thickness: <u>300. ft</u>	Anisotropy Ratio (Kz/Kr): <u>0.1</u>
<u>WELL DATA (MW-65-80)</u>	
Initial Displacement: <u>19.42 ft</u>	Static Water Column Height: <u>46.9 ft</u>
Total Well Penetration Depth: <u>46.9 ft</u>	Screen Length: <u>24.5 ft</u>
Casing Radius: <u>0.04167 ft</u>	Wellbore Radius: <u>0.159 ft</u>
<u>SOLUTION</u>	
Aquifer Model: <u>Unconfined</u>	Solution Method: <u>Hvorslev</u>
K = <u>0.3931 ft/day</u>	y0 = <u>15.88 ft</u>



MW-66 (TEST1)

Data Set: J:\...MW-66 T1.aqt
 Date: 04/24/07

Time: 08:49:38

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-66
 Test Date: 1/4/07

AQUIFER DATA

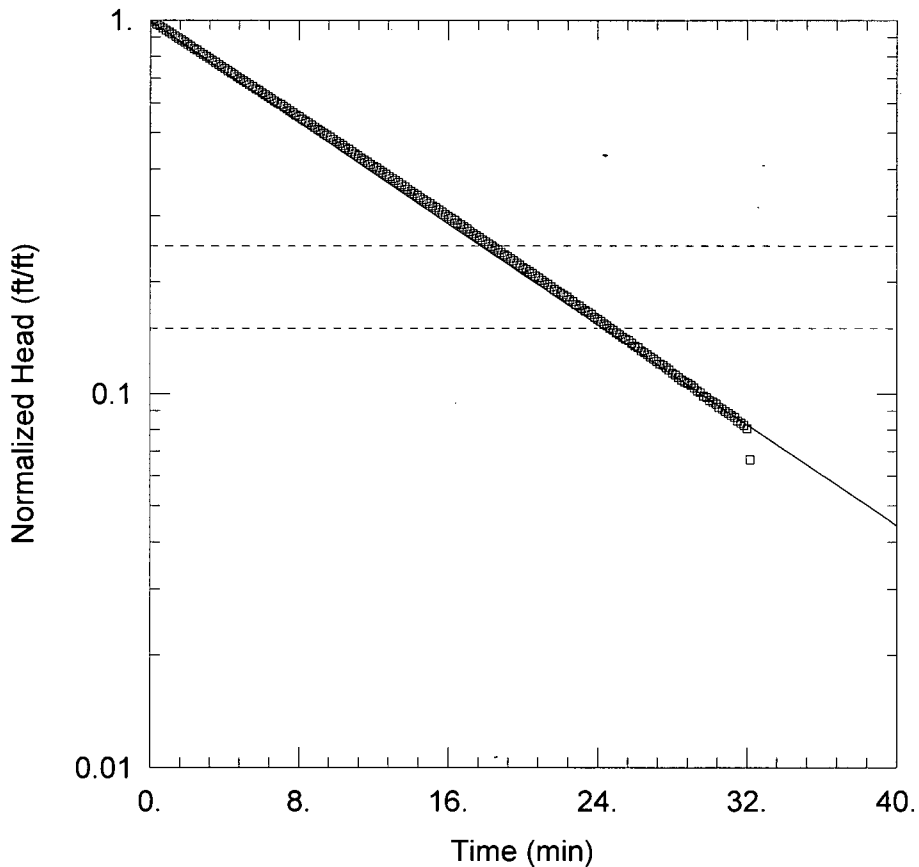
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-66 Test 1)

Initial Displacement: 32.65 ft Static Water Column Height: 188.1 ft
 Total Well Penetration Depth: 188.1 ft Screen Length: 18. ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 0.4248 ft/day y0 = 33.28 ft



MW-66 (TEST2)

Data Set: J:\...MW-66 T2.aqt

Date: 04/26/07

Time: 23:25:00

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-66

Test Date: 1/4/07

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-66 Test 2)

Initial Displacement: 24.73 ft

Static Water Column Height: 169.5 ft

Total Well Penetration Depth: 169.5 ft

Screen Length: 9.7 ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

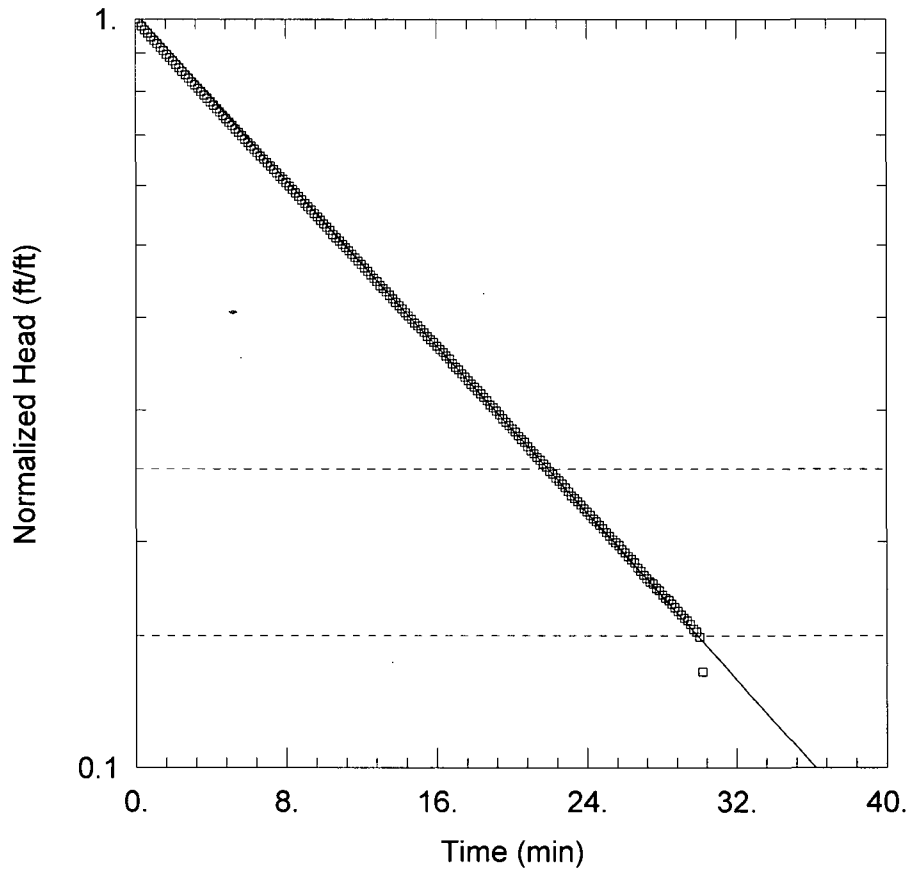
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.2108 ft/day

y0 = 24.57 ft



MW-66 (TEST3)

Data Set: J:\...MW-66 T3.aqt
 Date: 04/26/07

Time: 23:25:08

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-66
 Test Date: 1/4/07

AQUIFER DATA

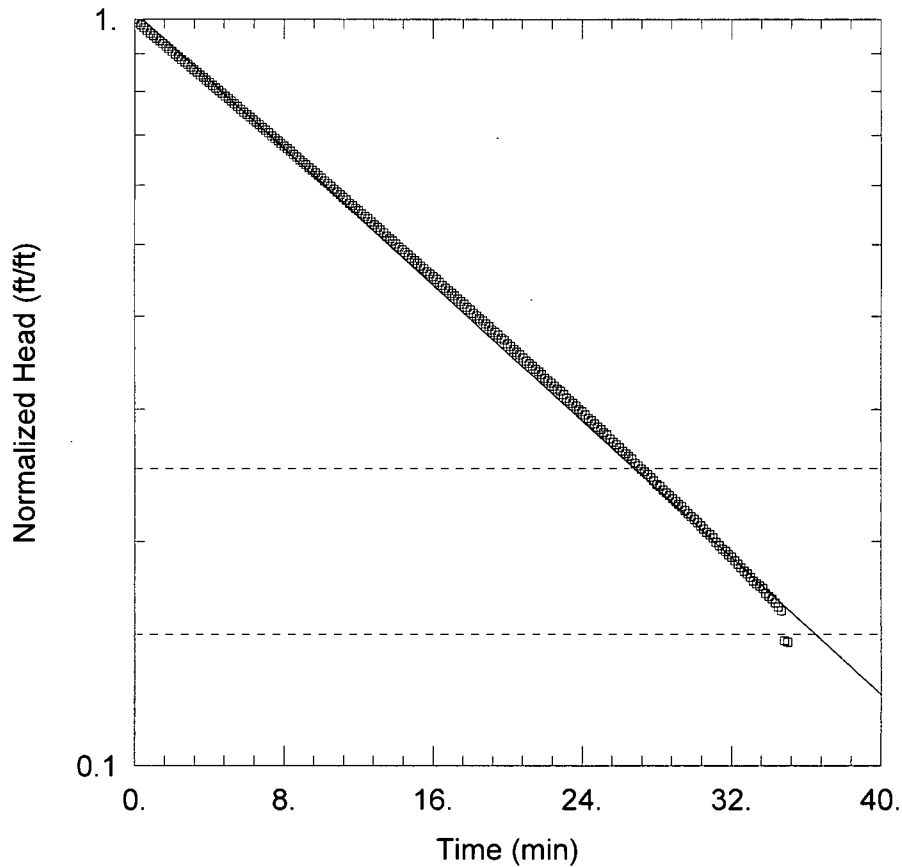
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-66 Test 3)

Initial Displacement: 24.57 ft Static Water Column Height: 159. ft
 Total Well Penetration Depth: 159. ft Screen Length: 9.7 ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 0.1738 ft/day $y_0 =$ 25.04 ft



MW-66 (TEST4)

Data Set: J:\...MW-66 T4.aqt

Date: 04/24/07

Time: 08:50:48

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-66

Test Date: 1/5/07

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-66 Test 4)

Initial Displacement: 21.25 ft

Static Water Column Height: 148.9 ft

Total Well Penetration Depth: 148.9 ft

Screen Length: 9.7 ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

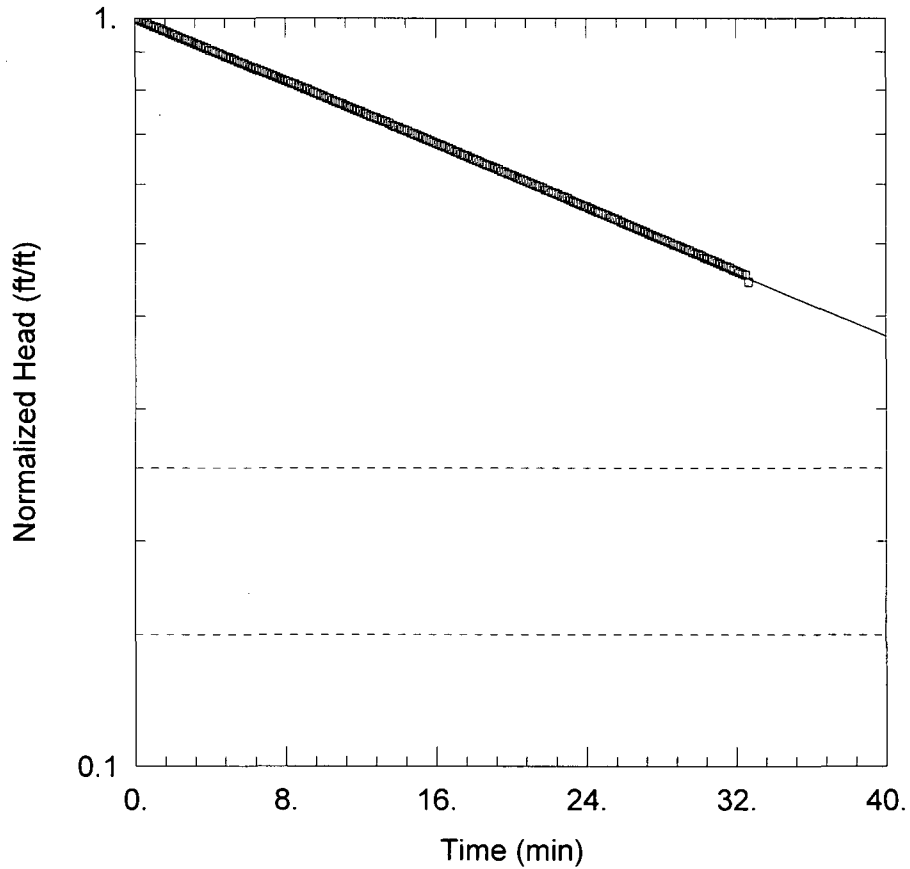
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.1426 ft/day

y0 = 21.73 ft



MW-66 (TEST5)

Data Set: J:\...MW-66 T5.aqt
 Date: 04/26/07

Time: 23:25:15

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-66
 Test Date: 1/5/07

AQUIFER DATA

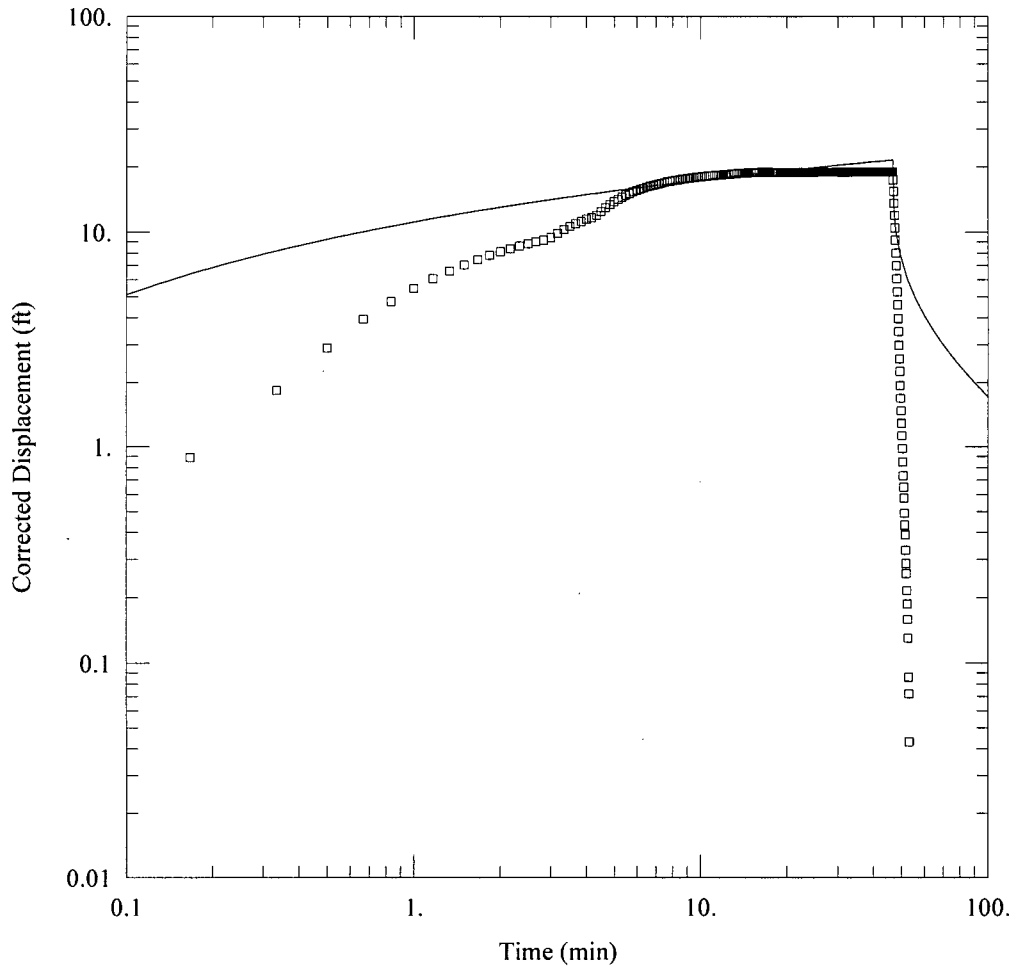
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-66 Test 5)

Initial Displacement: 21.23 ft Static Water Column Height: 139.6 ft
 Total Well Penetration Depth: 139.6 ft Screen Length: 9.7 ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 0.06558 ft/day y0 = 21.01 ft



MW-66 (TEST6)

Data Set: C:\Documents and Settings\administrator.GZA\Desktop\pdf\MW-66 T6 this.aqt

Date: 04/25/07

Time: 22:40:28

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, NY

Test Well: MW-66

Test Date: 1/5/07

WELL DATA

Pumping Wells

Observation Wells

Well Name	X (ft)	Y (ft)
MW-66	0	0

Well Name	X (ft)	Y (ft)
□ MW-66	0	0

SOLUTION

Aquifer Model: Unconfined

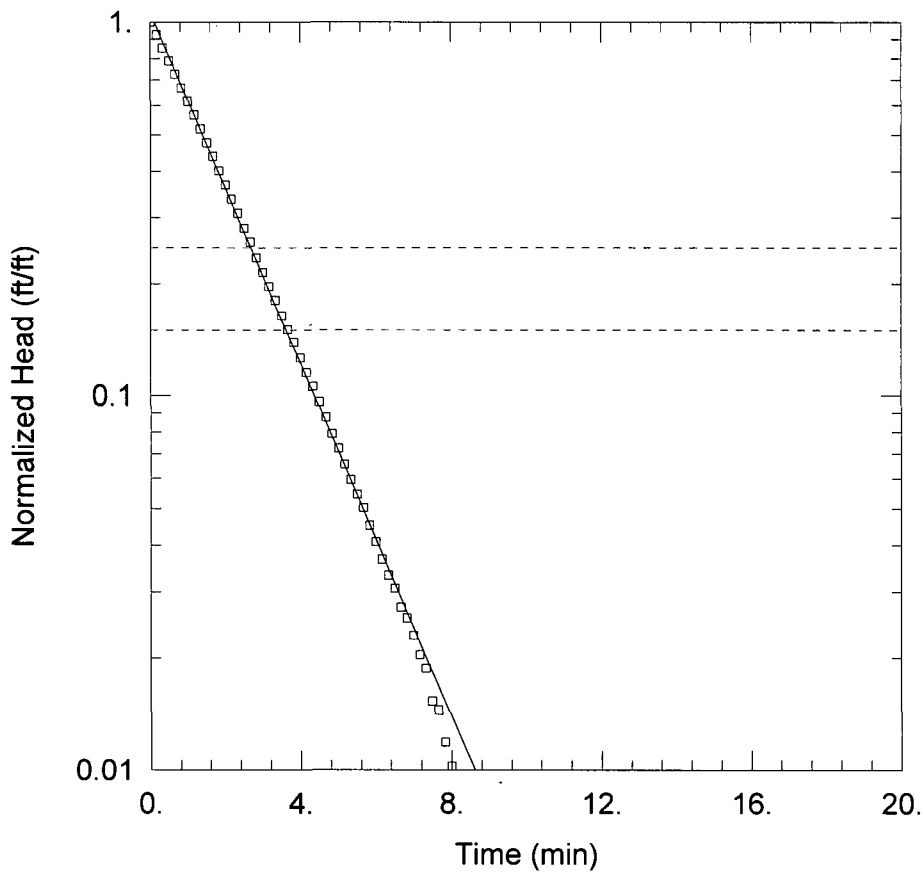
Solution Method: Thisis

T = 14.03 ft²/day

S = 0.01463

Kz/Kr = 1.

b = 300. ft



MW-66 (TEST7)

Data Set: J:\...\MW-66 T7.aqt

Date: 04/26/07

Time: 23:25:22

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-66

Test Date: 1/5/07

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-66 Test7)

Initial Displacement: 16.9 ft

Static Water Column Height: 107.4 ft

Total Well Penetration Depth: 107.4 ft

Screen Length: 9.7 ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

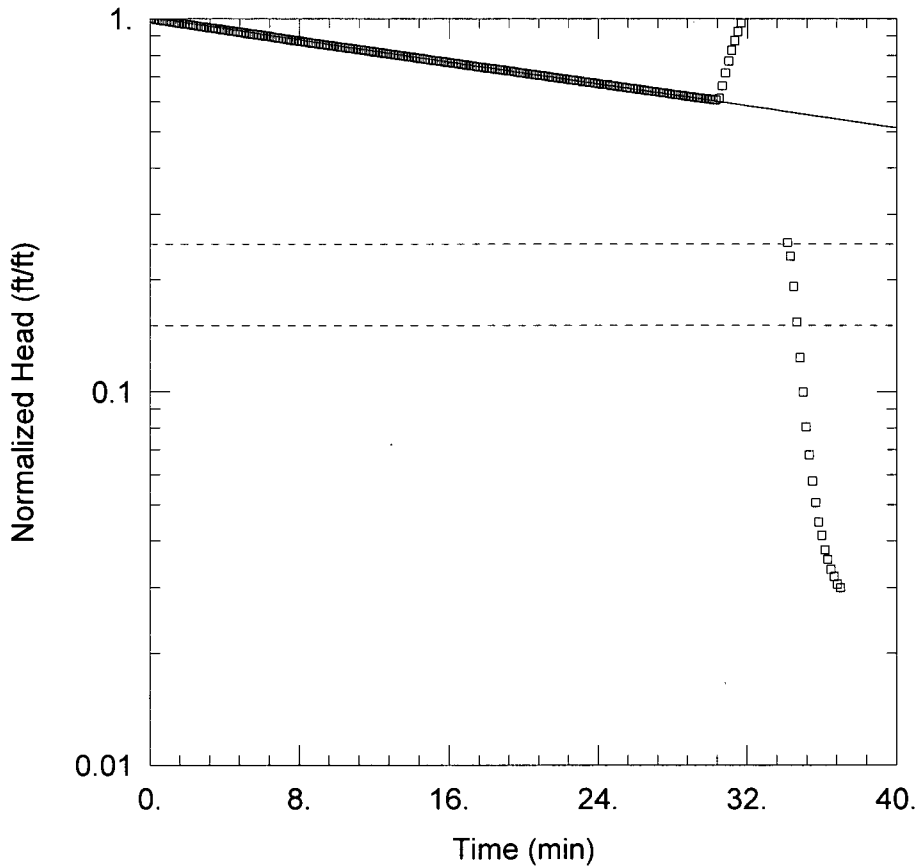
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 1.467 ft/day

y0 = 17.97 ft



MW-66 (TEST8)

Data Set: J:\...MW-66 T8.aqt

Date: 04/24/07

Time: 08:53:27

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-66

Test Date: 1/5/07

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-66 Test8)

Initial Displacement: 20.19 ft

Static Water Column Height: 95.4 ft

Total Well Penetration Depth: 95.4 ft

Screen Length: 9.7 ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

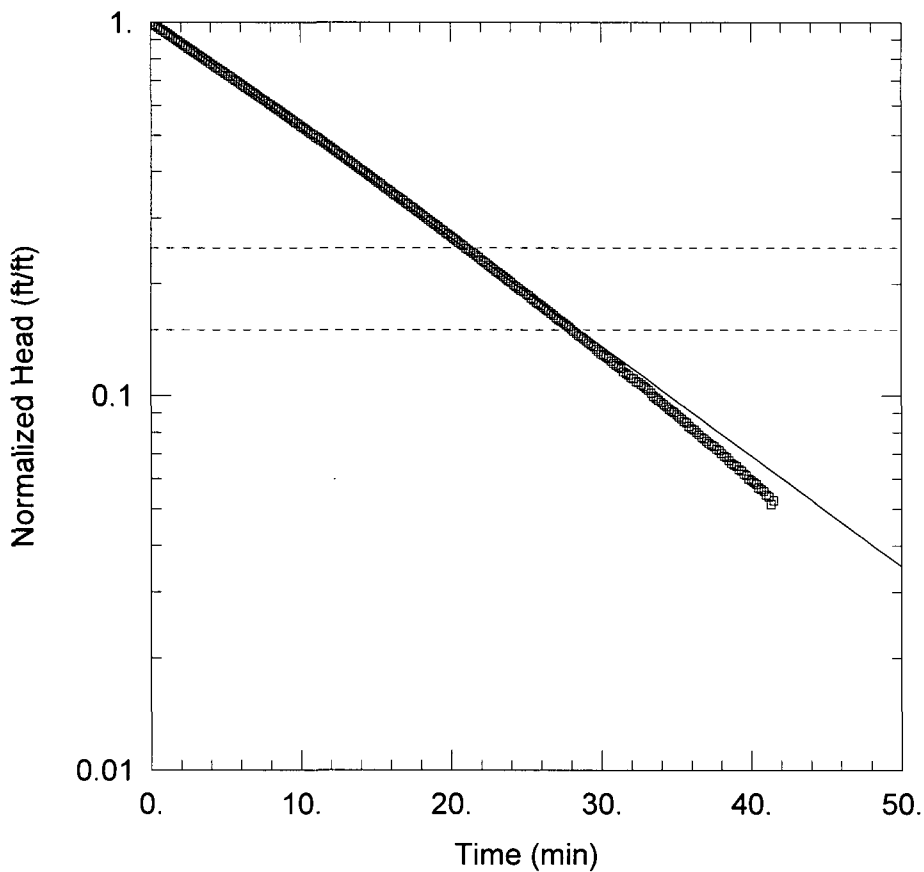
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.04596 ft/day

y0 = 20.37 ft



MW-66 (TEST9)

Data Set: J:\...\MW-66 T9.aqt

Date: 04/26/07

Time: 23:25:30

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-66

Test Date: 1/8/07

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-66 Test9)

Initial Displacement: 23.52 ft

Static Water Column Height: 81. ft

Total Well Penetration Depth: 81. ft

Screen Length: 9.7 ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

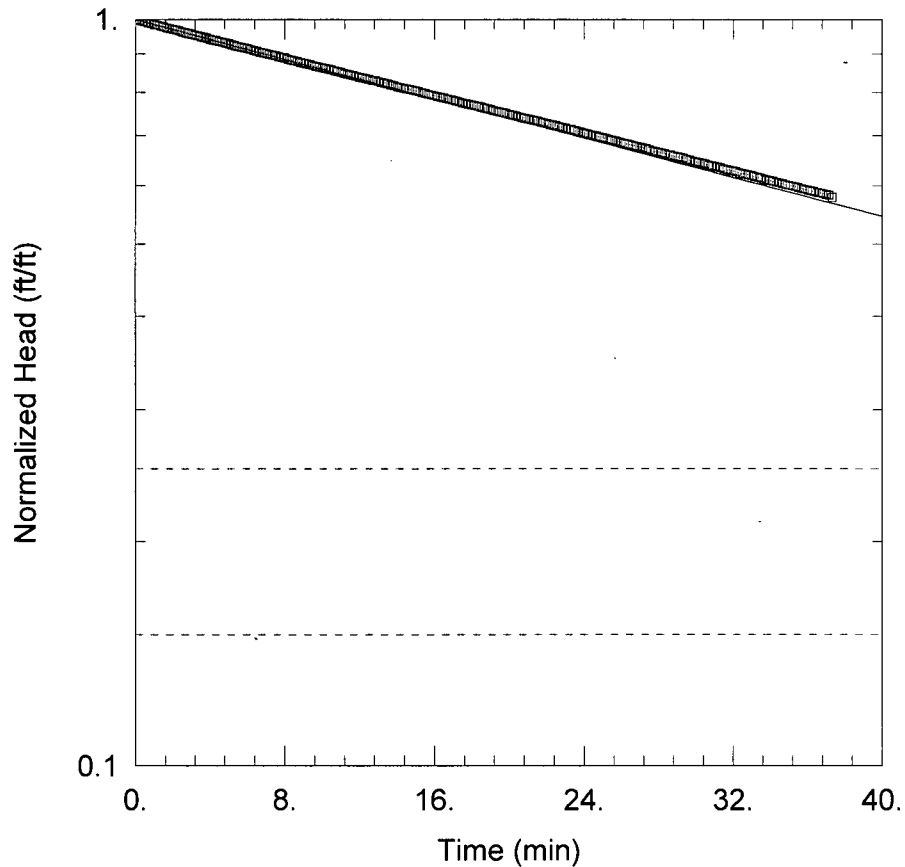
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.183 ft/day

y0 = 24.15 ft



MW-66 (TEST10)

Data Set: J:\...MW-66 T10.aqt

Date: 04/26/07

Time: 23:25:37

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-66

Test Date: 1/8/07

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-66 Test10)

Initial Displacement: 21.26 ft

Static Water Column Height: 60.4 ft

Total Well Penetration Depth: 60.4 ft

Screen Length: 9.7 ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

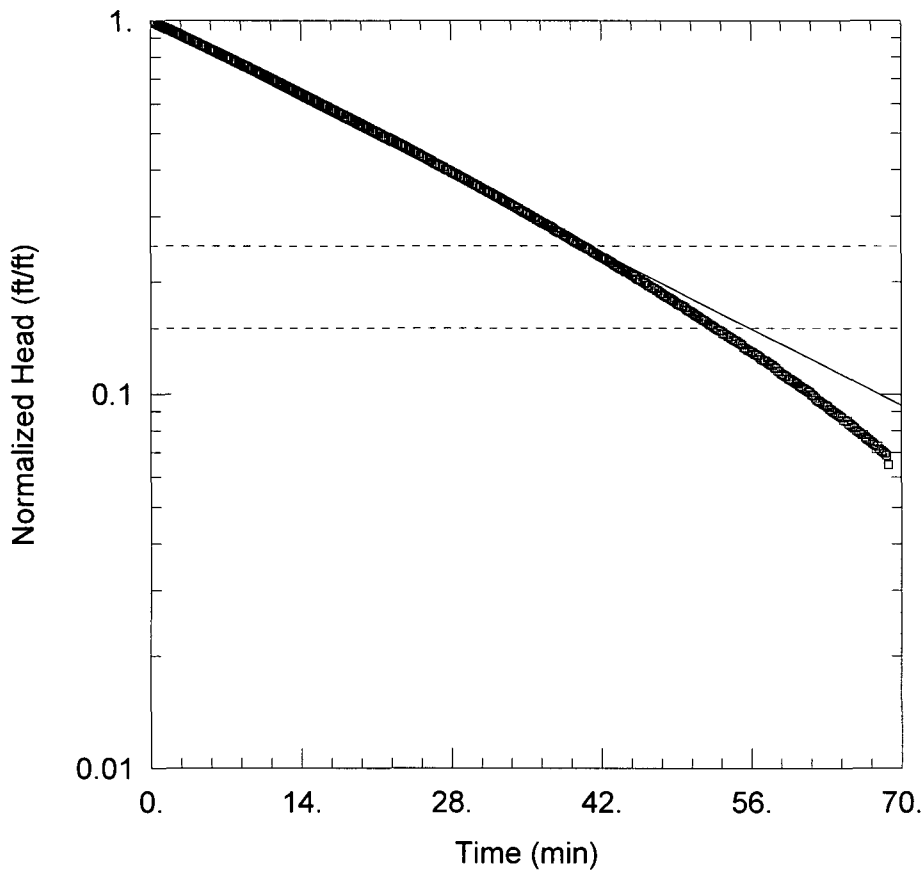
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.04106 ft/day

y0 = 21.26 ft



MW-66 (TEST11)

Data Set: J:\...MW-66 T11.aqt

Date: 04/26/07

Time: 23:25:47

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-66

Test Date: 1/8/07

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-66 Test11)

Initial Displacement: 21.71 ft

Static Water Column Height: 40.6 ft

Total Well Penetration Depth: 40.6 ft

Screen Length: 9.7 ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

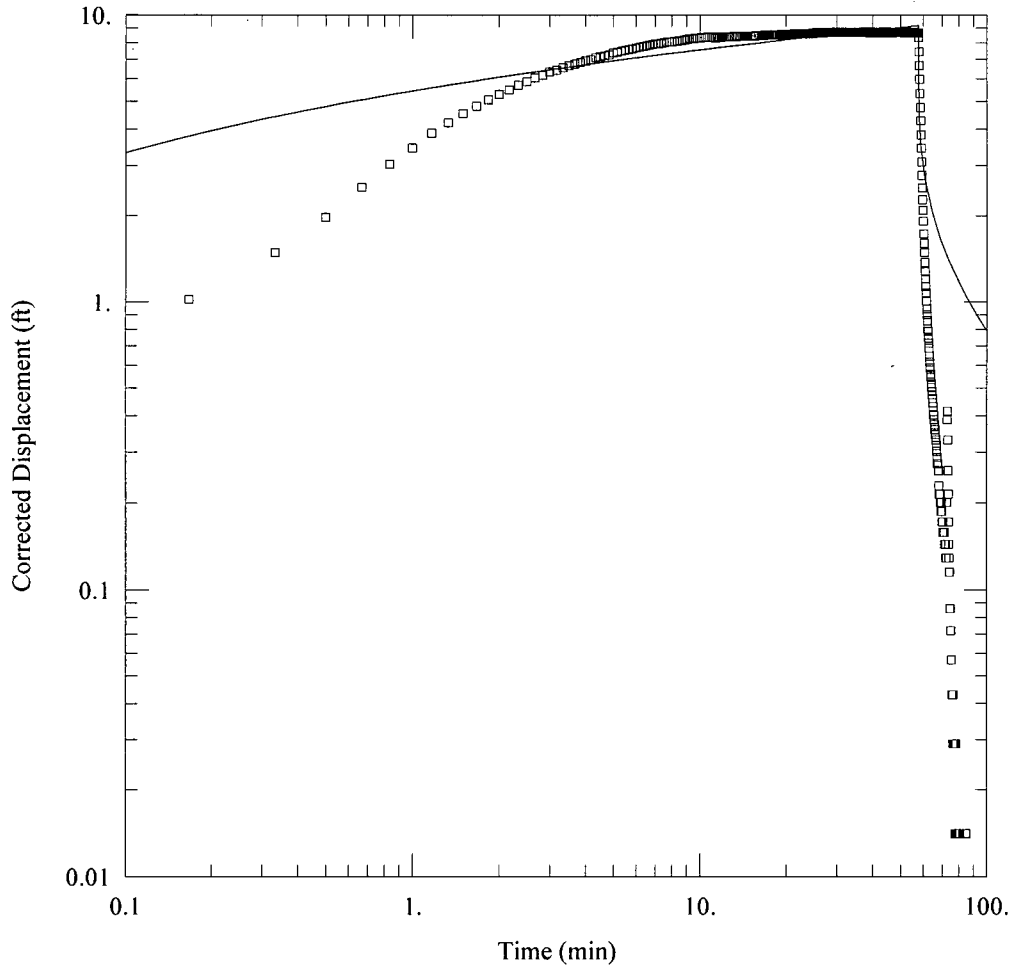
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.09119 ft/day

y0 = 21.35 ft



MW-66 (TEST12)

Data Set: C:\Documents and Settings\administrator.GZA\Desktop\pdf\MW-66 T12 thisis.aqt
 Date: 04/25/07 Time: 22:15:21

PROJECT INFORMATION

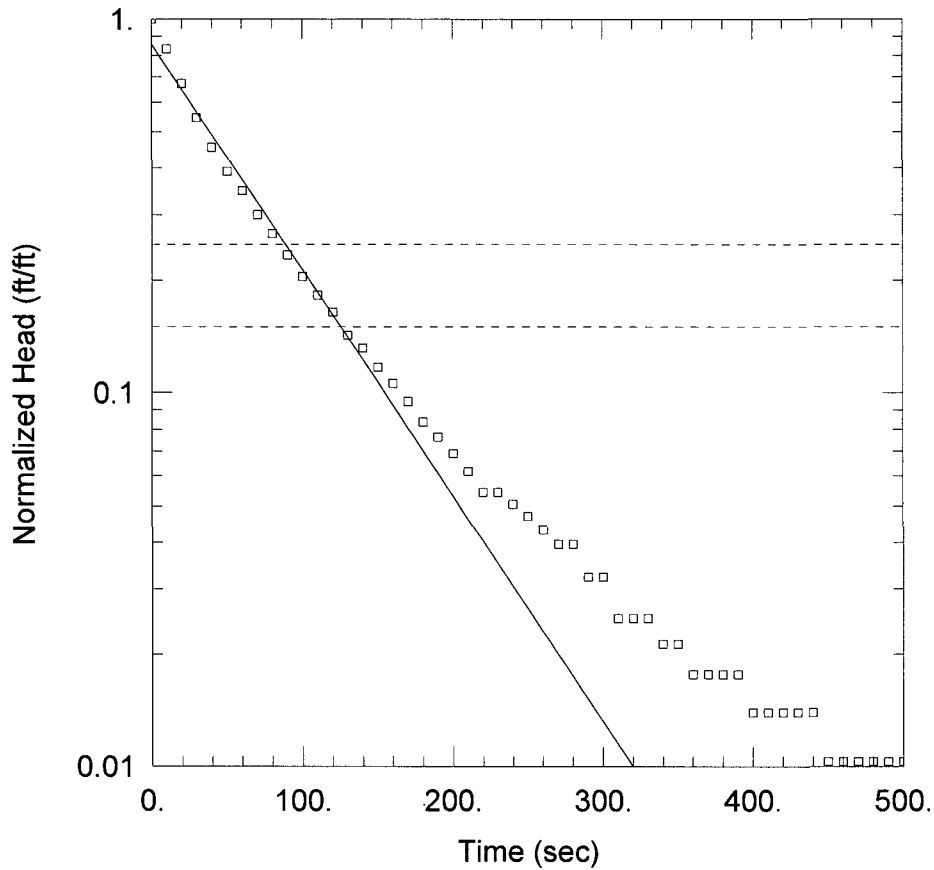
Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, NY
 Test Well: MW-66
 Test Date: 1/8/07

WELL DATA

Pumping Wells			Observation Wells		
Well Name	X (ft)	Y (ft)	Well Name	X (ft)	Y (ft)
MW-66	0	0	MW-66	0	0

SOLUTION

Aquifer Model: <u>Unconfined</u>	Solution Method: <u>Theis</u>
T = <u>62.98 ft²/day</u>	S = <u>0.01067</u>
Kz/Kr = <u>1.</u>	b = <u>300. ft</u>



MW-67 (TEST1)

Data Set: J:\...\MW-67 T1.aqt
 Date: 08/22/07

Time: 10:55:12

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-67
 Test Date: 8/7/07

AQUIFER DATA

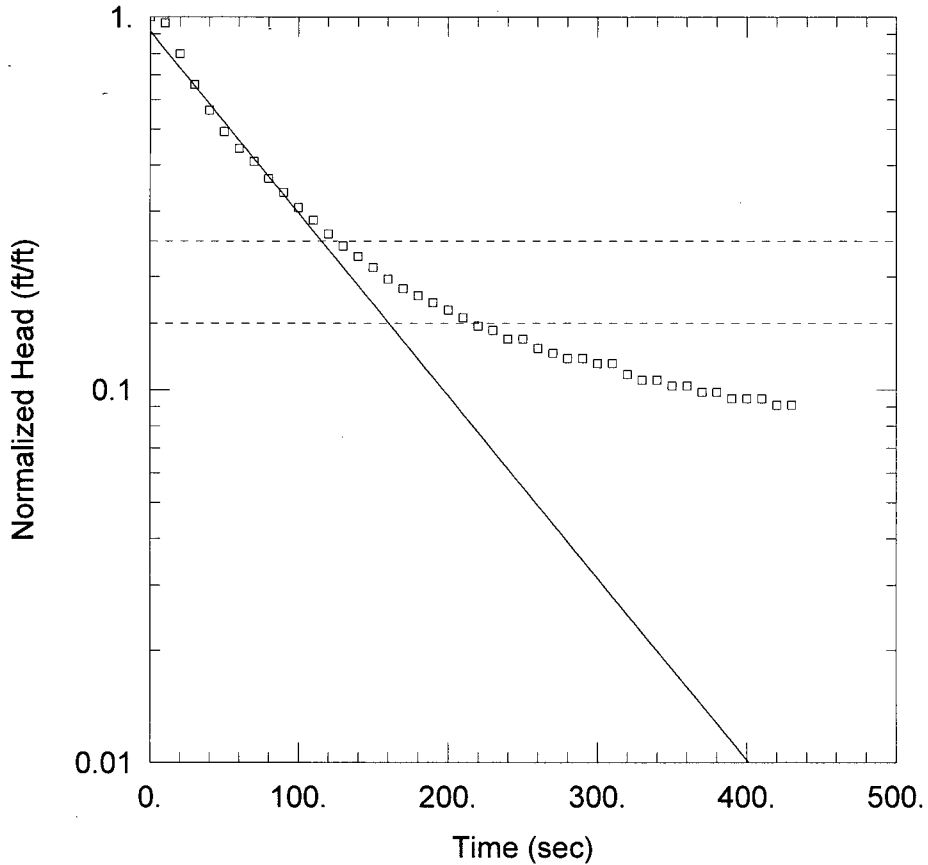
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-67 Test 1)

Initial Displacement: 9.8 ft Static Water Column Height: 336.6 ft
 Total Well Penetration Depth: 336.6 ft Screen Length: 18.65 ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 1.323 ft/day $y_0 =$ 8.407 ft



MW-67 (TEST1 EXTRACTION RECOVERY)

Data Set: J:\...MW-67 T1 (R2).aqt

Date: 08/22/07

Time: 10:56:18

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-67

Test Date: 8/7/07

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-67 Test 1)

Initial Displacement: 9.48 ft

Static Water Column Height: 336.6 ft

Total Well Penetration Depth: 336.6 ft

Screen Length: 18.65 ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

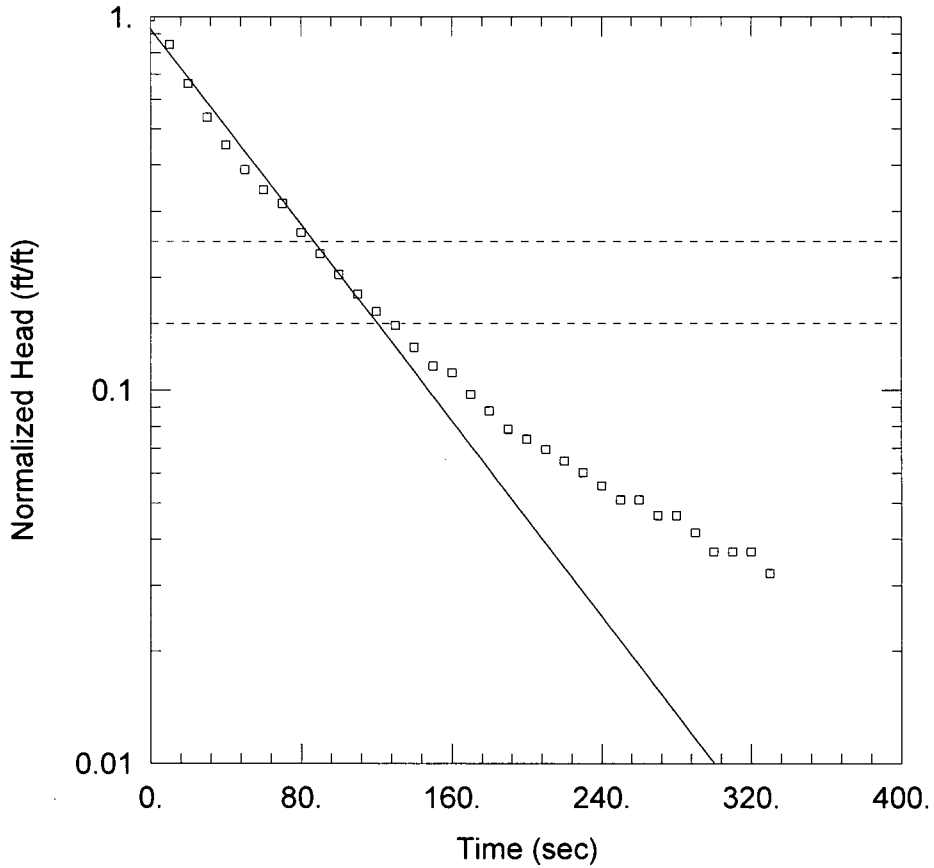
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 1.071 ft/day

y0 = 8.682 ft



MW-67 (TEST2)

Data Set: J:\...MW-67 T2B.aqt
 Date: 08/22/07

Time: 10:56:49

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-67
 Test Date: 8/9/07

AQUIFER DATA

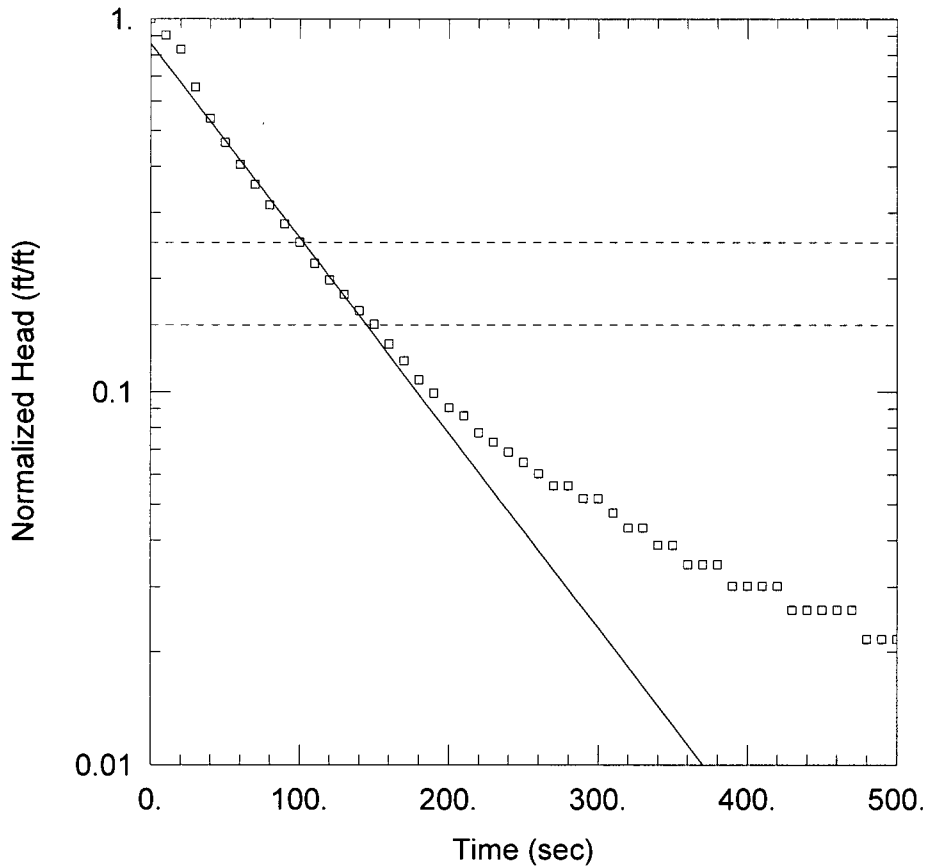
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-67 Test 2)

Initial Displacement: 7.75 ft Static Water Column Height: 325.1 ft
 Total Well Penetration Depth: 325.1 ft Screen Length: 30.15 ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 0.9602 ft/day $y_0 =$ 7.183 ft



MW-67 (TEST2 EXTRACTION RECOVERY)

Data Set: J:\...MW-67 T2B (R2).agt

Date: 08/22/07

Time: 10:57:23

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-67

Test Date: 8/9/07

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-67 Test 2)

Initial Displacement: 8.324 ft

Static Water Column Height: 325.1 ft

Total Well Penetration Depth: 325.1 ft

Screen Length: 30.15 ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

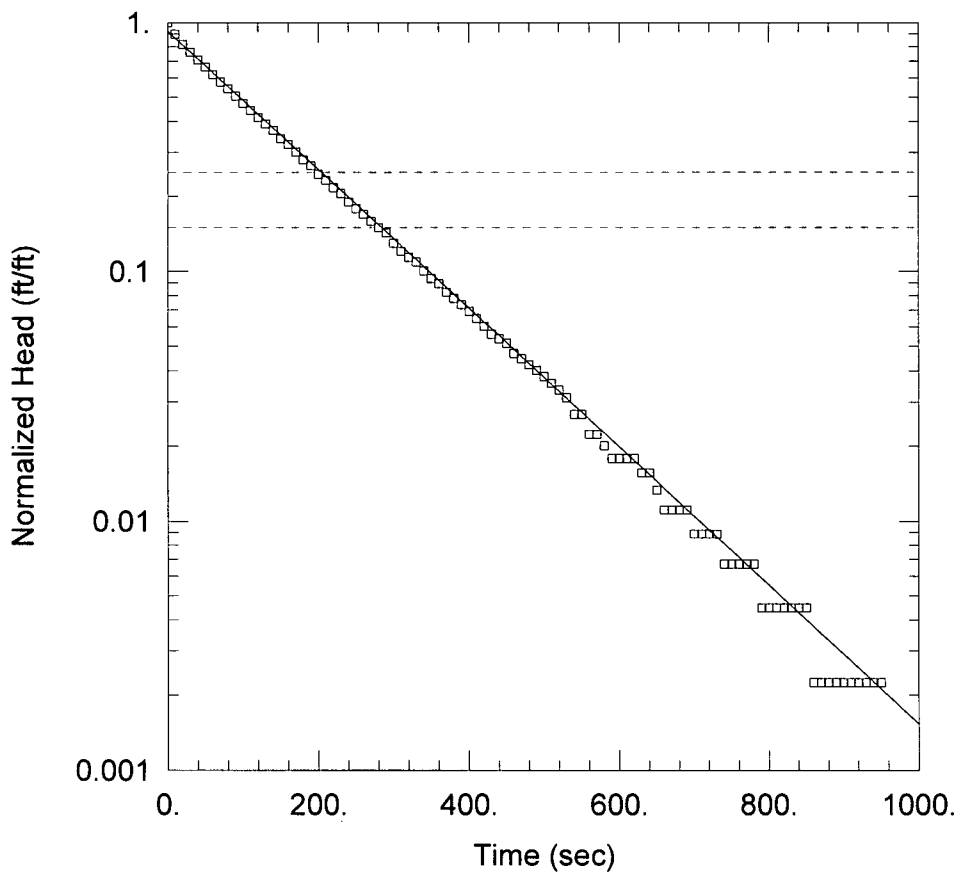
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.7659 ft/day

y0 = 7.151 ft



MW-67 (TEST3)

Data Set: J:\...\MW-67 T3.aqt
 Date: 08/22/07

Time: 10:57:48

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-67
 Test Date: 8/9/07

AQUIFER DATA

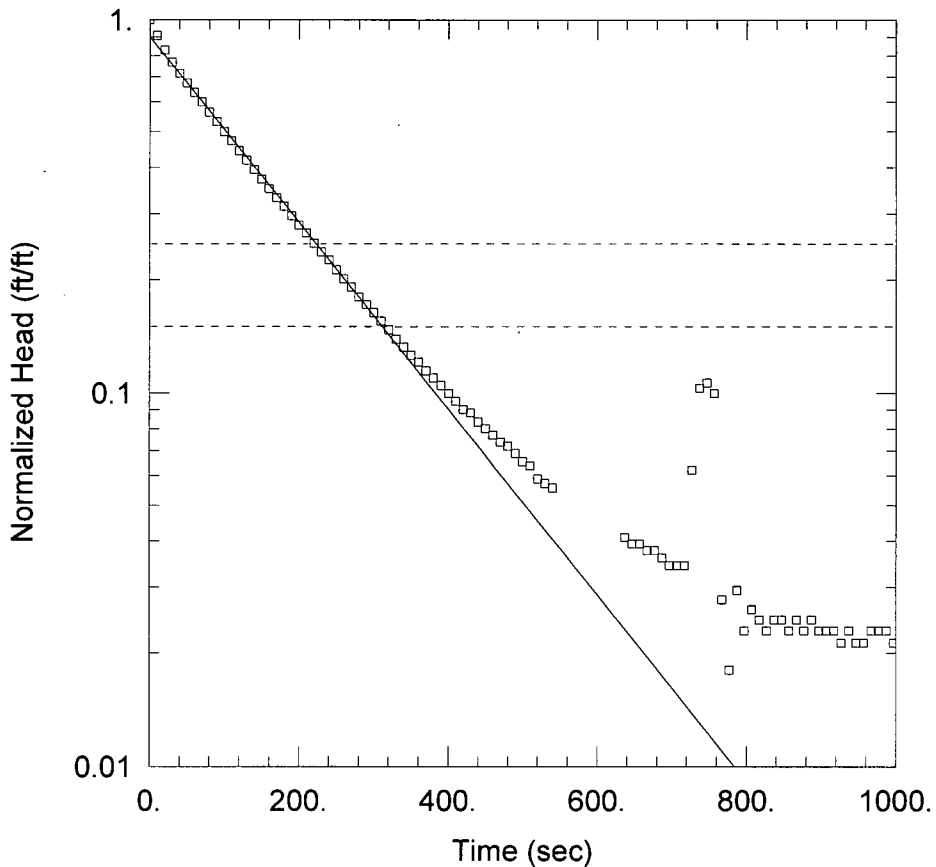
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-67 Test 3)

Initial Displacement: 16.09 ft Static Water Column Height: 316.8 ft
 Total Well Penetration Depth: 336.6 ft Screen Length: 14.75 ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 0.7394 ft/day $y_0 =$ 14.87 ft



MW-67 (TEST3 EXTRACTION RECOVERY)

Data Set: J:\...MW-67 T3 (R2).aqt
 Date: 08/22/07

Time: 10:58:20

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-67
 Test Date: 8/9/07

AQUIFER DATA

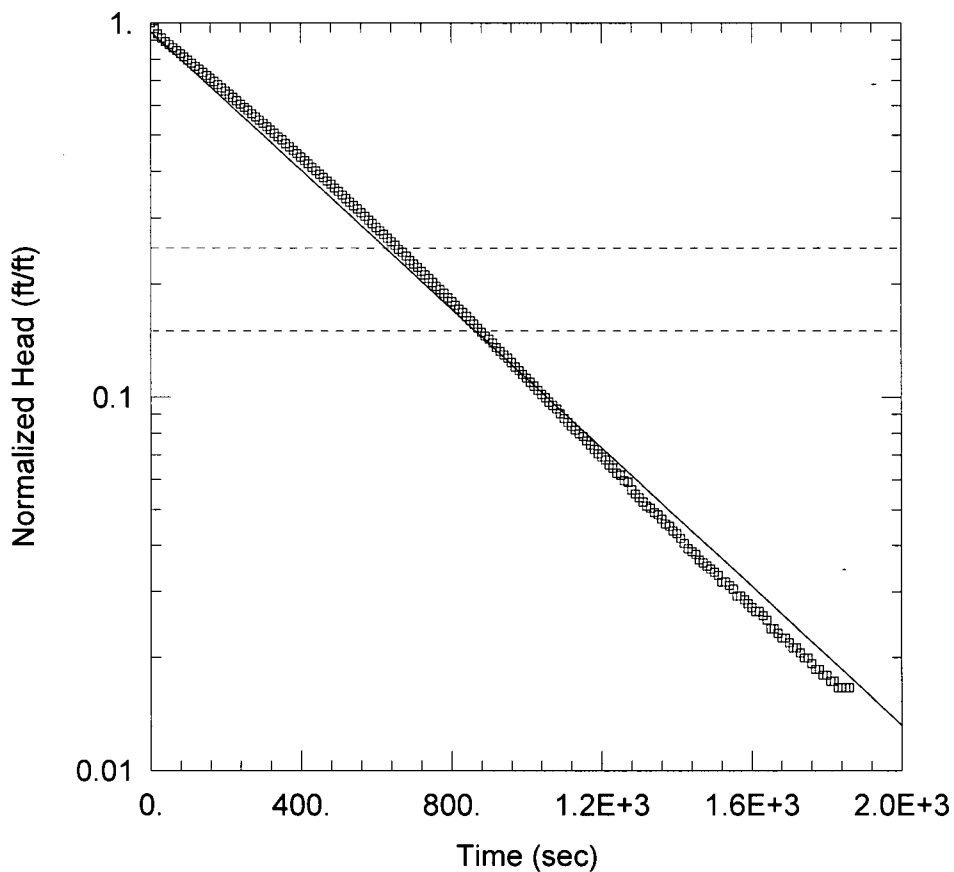
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-67 Test 3)

Initial Displacement: 21.94 ft Static Water Column Height: 316.8 ft
 Total Well Penetration Depth: 316.8 ft Screen Length: 14.75 ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 0.6637 ft/day y0 = 19.75 ft



MW-67 (TEST4 EXTRACTION RECOVERY)

Data Set: J:\...\MW-67 T4.aqt

Date: 08/22/07

Time: 10:58:38

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-67

Test Date: 8/10/07

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-67 Test 4)

Initial Displacement: 54.08 ft

Static Water Column Height: 311. ft

Total Well Penetration Depth: 311. ft

Screen Length: 14.75 ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

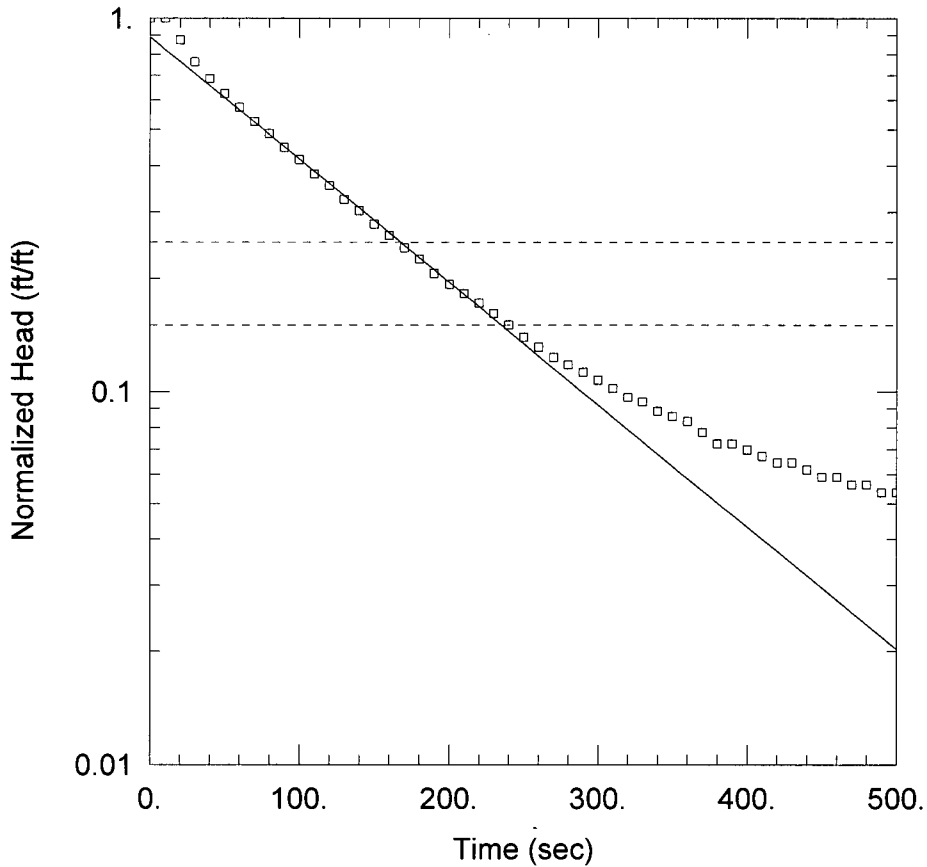
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.2468 ft/day

y0 = 51.32 ft



MW-67 (TEST5 EXTRACTION RECOVERY)

Data Set: J:\...MW-67 T5.aqt

Date: 08/22/07

Time: 10:59:12

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-67

Test Date: 8/10/07

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-67 Test 5)

Initial Displacement: 13.39 ft

Static Water Column Height: 298.6 ft

Total Well Penetration Depth: 298.6 ft

Screen Length: 14.75 ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

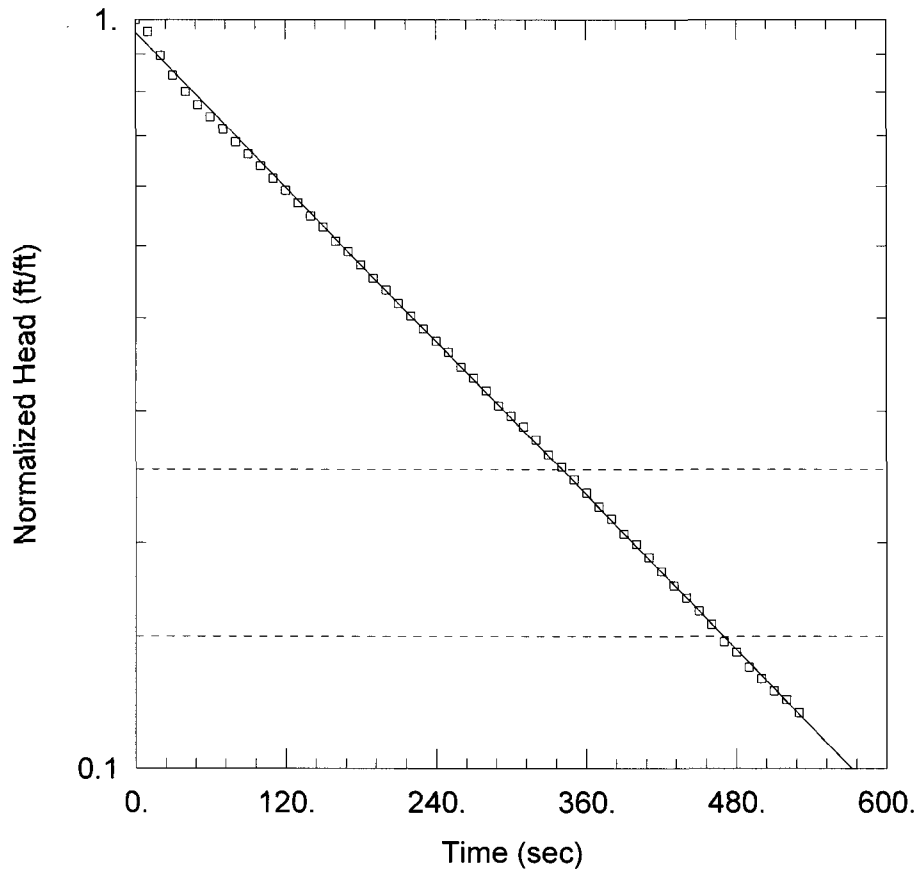
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.874 ft/day

y0 = 11.9 ft



MW-67 (TEST6)

Data Set: J:\...MW-67 T6.aqt
 Date: 08/22/07

Time: 10:59:36

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-67
 Test Date: 8/14/07

AQUIFER DATA

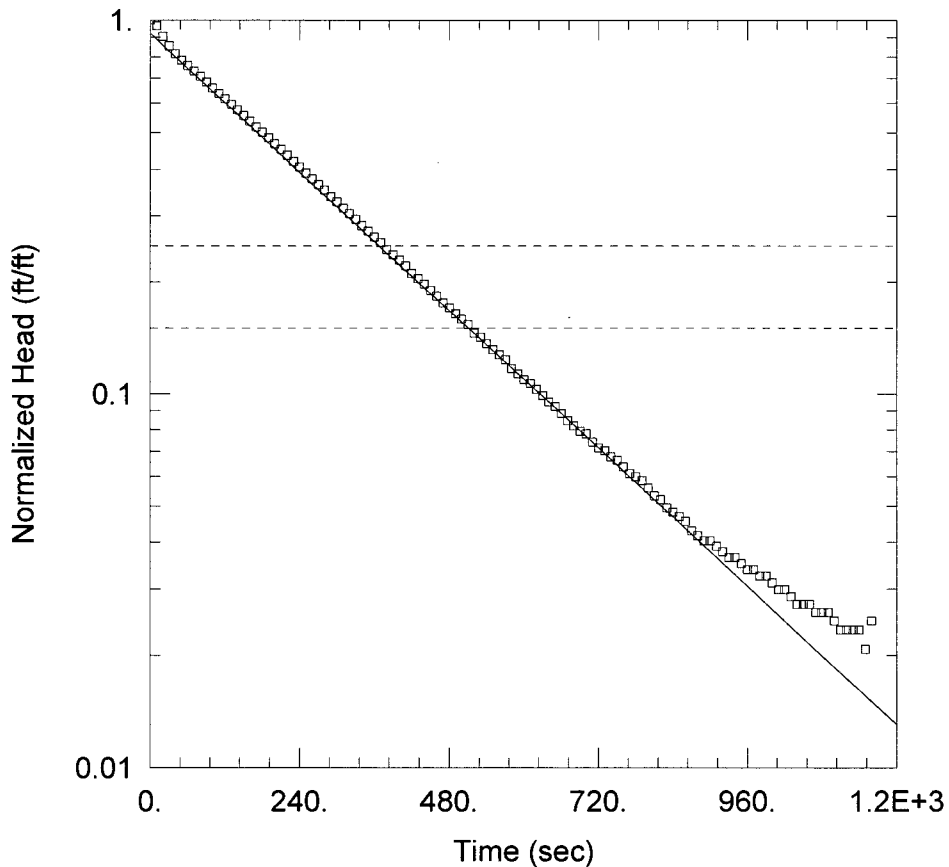
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-67 Test 6)

Initial Displacement: 22.35 ft Static Water Column Height: 287.4 ft
 Total Well Penetration Depth: 287.4 ft Screen Length: 14.75 ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 0.4572 ft/day $y_0 =$ 21.5 ft



MW-67 (TEST6 EXTRACTION RECOVERY)

Data Set: J:\...MW-67 T6 (R2).aqt

Date: 08/22/07

Time: 11:00:05

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-67

Test Date: 8/14/07

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-67 Test 6)

Initial Displacement: 27.59 ft

Static Water Column Height: 287.4 ft

Total Well Penetration Depth: 287.4 ft

Screen Length: 14.75 ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

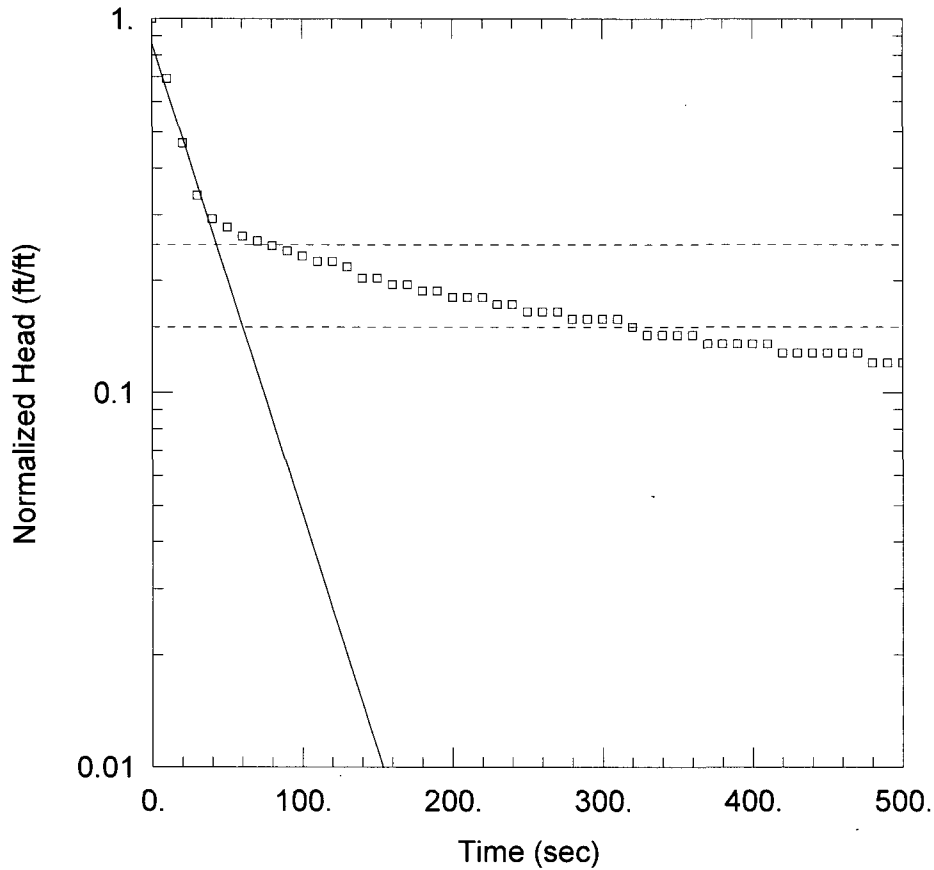
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.4099 ft/day

y0 = 25.41 ft



MW-67 (TEST8 EXTRACTION RECOVERY)

Data Set: J:\...\MW-67 T8.aqt

Date: 08/22/07

Time: 11:00:49

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-67

Test Date: 8/15/07

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-67 Test 8)

Initial Displacement: 4.769 ft

Static Water Column Height: 260.8 ft

Total Well Penetration Depth: 260.8 ft

Screen Length: 14.75 ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

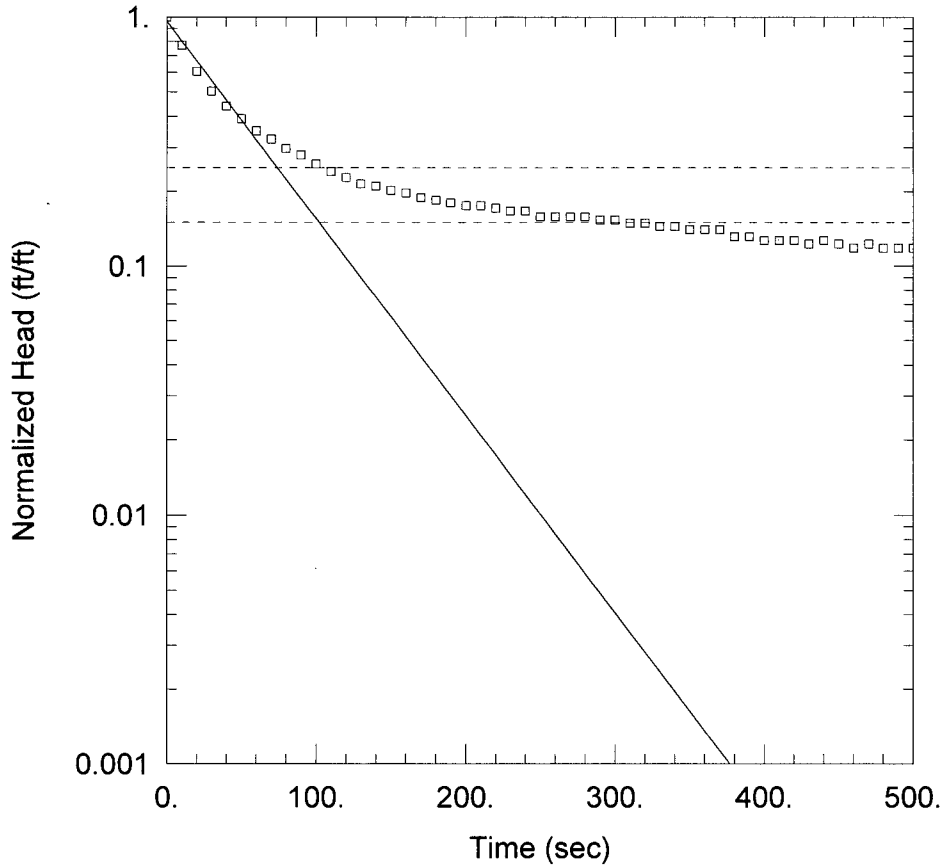
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 3.35 ft/day

y0 = 4.111 ft



MW-67 (TEST9 EXTRACTION RECOVERY)

Data Set: J:\...MW-67 T9.aqt
 Date: 08/22/07

Time: 11:01:27

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-67
 Test Date: 8/16/07

AQUIFER DATA

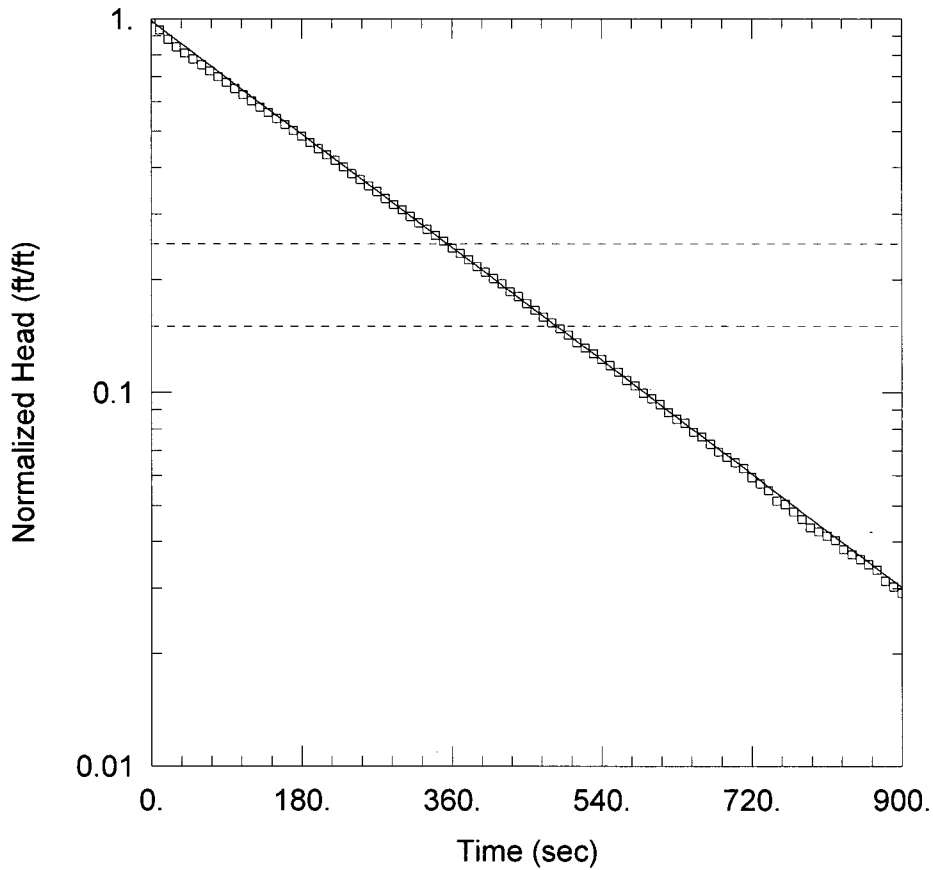
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-67 Test 9)

Initial Displacement: 8.174 ft Static Water Column Height: 250.8 ft
 Total Well Penetration Depth: 250.8 ft Screen Length: 14.75 ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 2.106 ft/day $y_0 =$ 7.85 ft



MW-67 (TEST10)

Data Set: J:\...\MW-67 T10.aqt
 Date: 08/22/07

Time: 11:01:48

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-67
 Test Date: 8/16/07

AQUIFER DATA

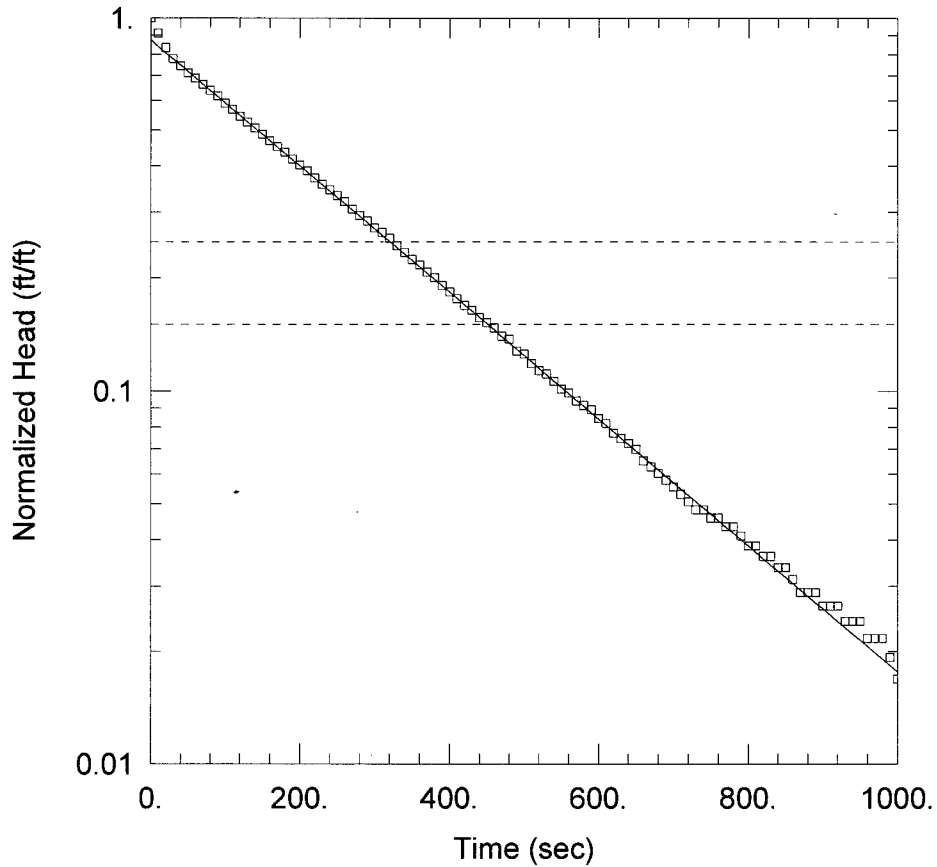
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-67 Test10)

Initial Displacement: 32. ft Static Water Column Height: 236. ft
 Total Well Penetration Depth: 236. ft Screen Length: 14.75 ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 0.4478 ft/day y0 = 31.61 ft



MW-67 (TEST10 EXTRACTION RECOVERY)

Data Set: J:\...\MW-67 T10 (R2).aqt

Date: 08/22/07

Time: 11:02:10

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-67

Test Date: 8/16/07

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-67 Test10)

Initial Displacement: 14.87 ft

Static Water Column Height: 236. ft

Total Well Penetration Depth: 236. ft

Screen Length: 14.75 ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

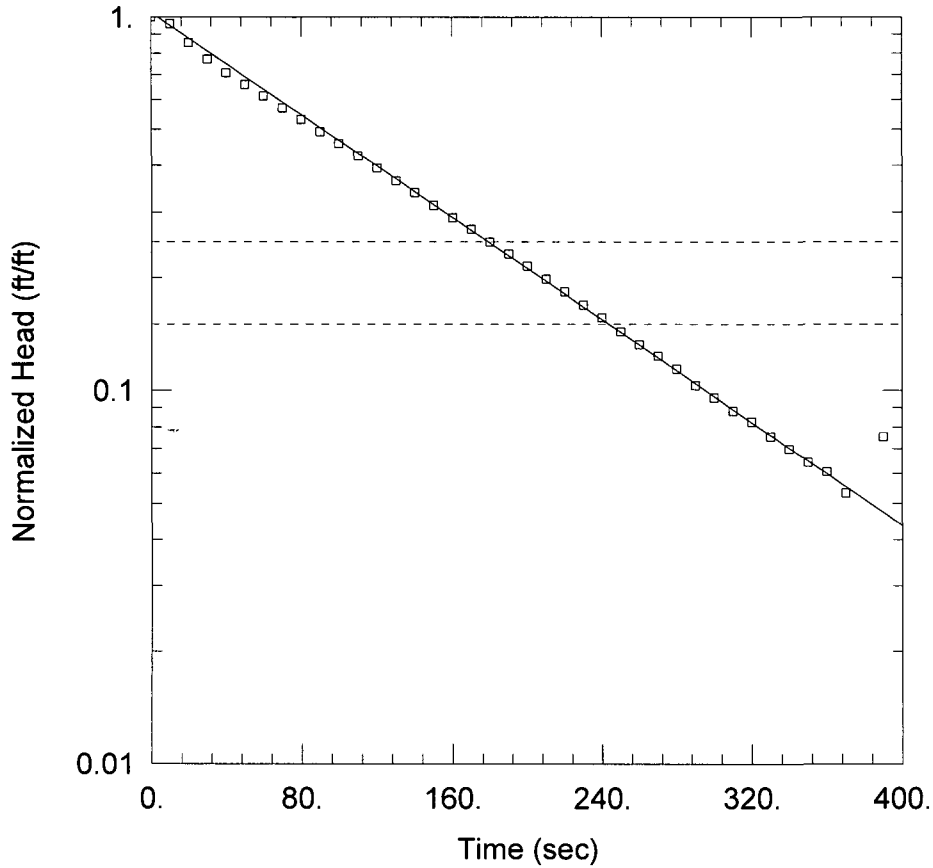
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.4509 ft/day

y0 = 13. ft



MW-67 (TEST11)

Data Set: J:\...MW-67 T11.aqt

Date: 08/23/07

Time: 12:17:17

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-67

Test Date: 8/17/07

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-67 Test11)

Initial Displacement: 19.5 ft

Static Water Column Height: 218.1 ft

Total Well Penetration Depth: 218.1 ft

Screen Length: 14.75 ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

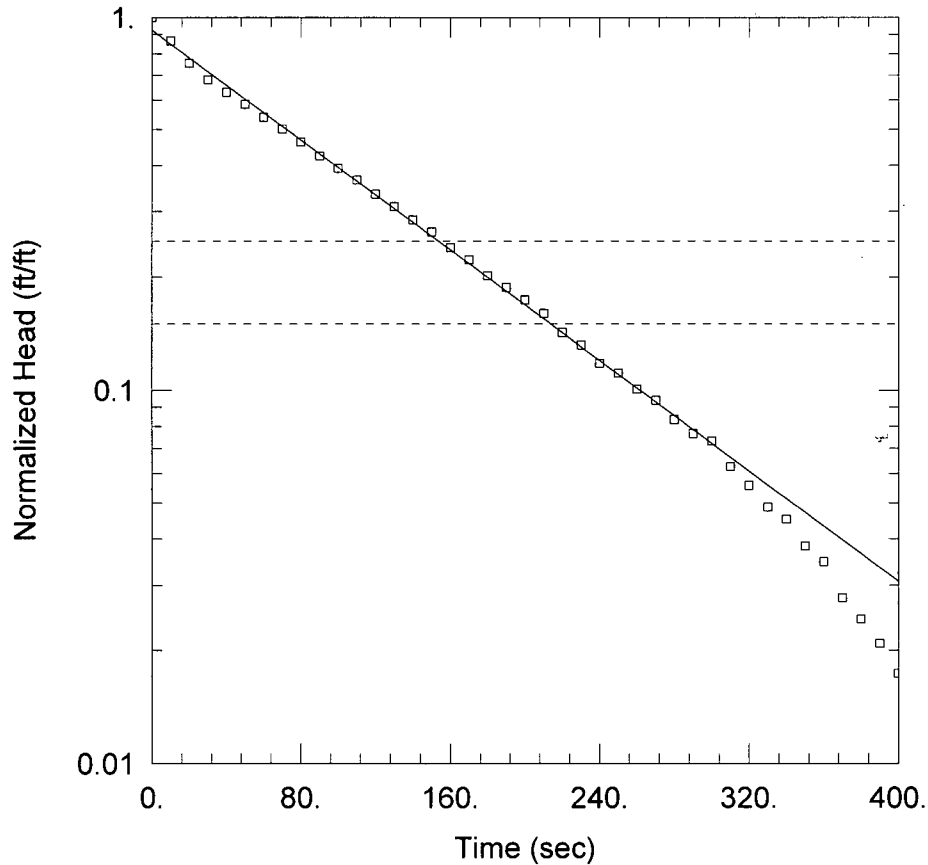
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.9122 ft/day

y0 = 20.07 ft



MW-67 (TEST11 EXTRACTION RECOVERY)

Data Set: J:\...\MW-67 T11(R2).aqt

Date: 08/23/07

Time: 12:18:27

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-67

Test Date: 8/17/07

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (K_z/K_r): 0.1

WELL DATA (MW-67 Test11)

Initial Displacement: 10.3 ft

Static Water Column Height: 218.1 ft

Total Well Penetration Depth: 218.1 ft

Screen Length: 14.75 ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

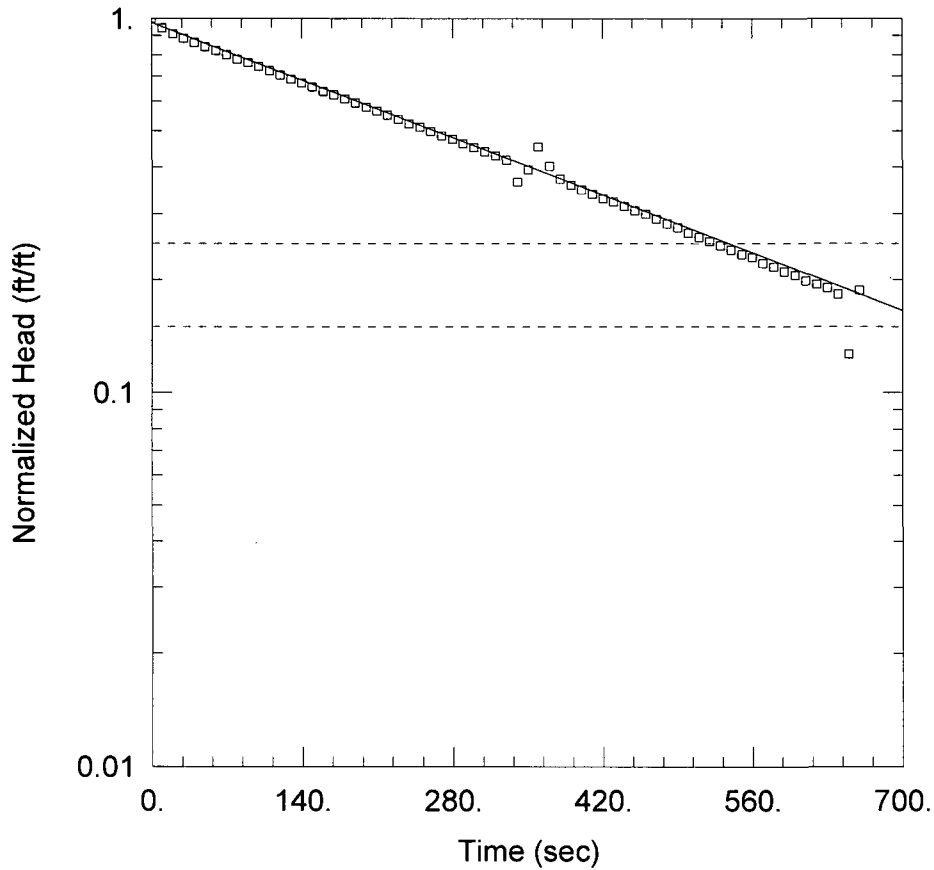
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

$K = 0.9827$ ft/day

$y_0 = 9.528$ ft



MW-67 (TEST12)

Data Set: J:\...MW-67 T12.aqt
 Date: 08/23/07

Time: 12:18:39

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-67
 Test Date: 8/20/07

AQUIFER DATA

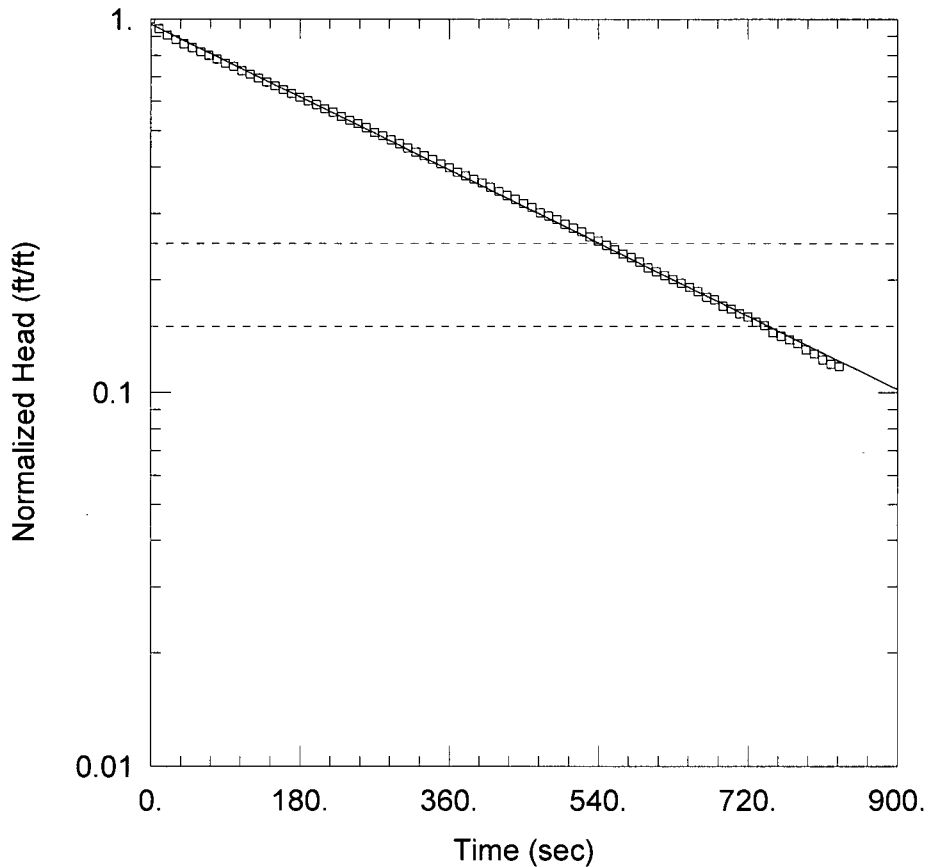
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-67 Test12)

Initial Displacement: 16.4 ft Static Water Column Height: 202.4 ft
 Total Well Penetration Depth: 202.4 ft Screen Length: 14.75 ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 0.2924 ft/day $y_0 =$ 16. ft



MW-67 (TEST12 EXTRACTION RECOVERY)

Data Set: J:\...MW-67 T12(R2).aqt

Date: 08/23/07

Time: 12:18:52

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-67

Test Date: 8/20/07

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-67 Test12)

Initial Displacement: 22.3 ft

Static Water Column Height: 202.4 ft

Total Well Penetration Depth: 202.4 ft

Screen Length: 14.75 ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

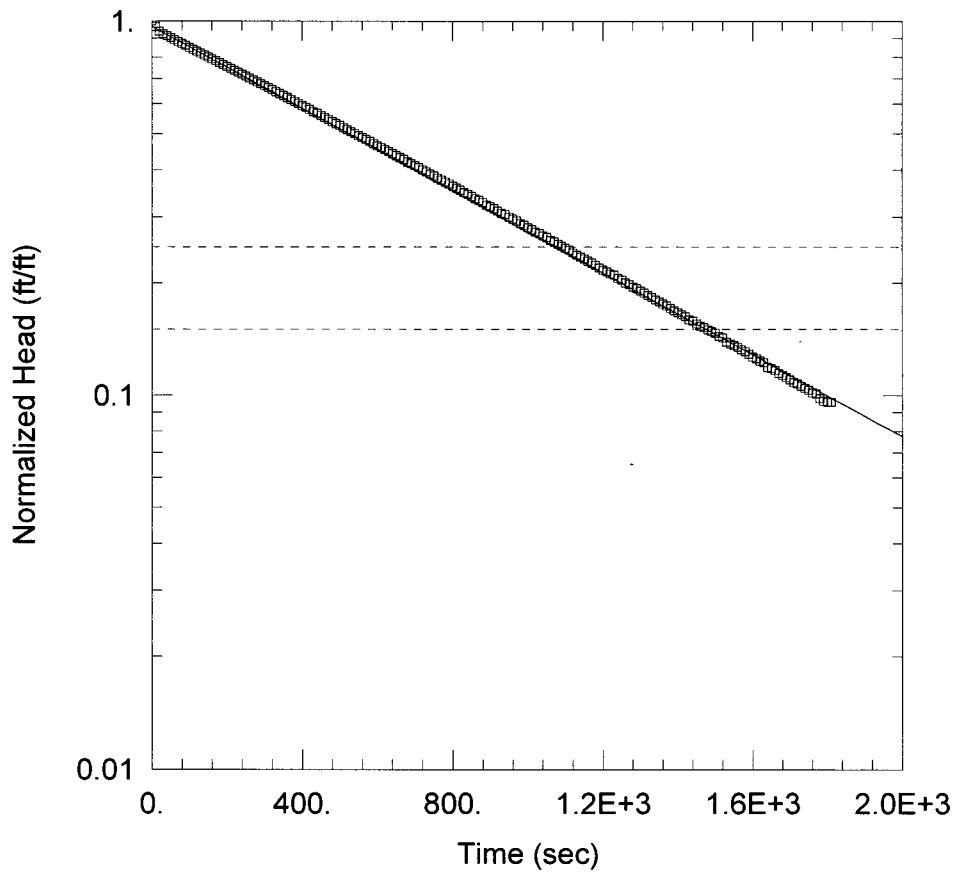
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.2894 ft/day

y0 = 21.64 ft



MW-67 (TEST13 EXTRACTION RECOVERY)

Data Set: J:\...MW-67 T13 (R2).aqt

Date: 08/23/07

Time: 12:19:15

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-67

Test Date: 8/20/07

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-67 Test13)

Initial Displacement: 50. ft

Static Water Column Height: 171.3 ft

Total Well Penetration Depth: 171.3 ft

Screen Length: 14.75 ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

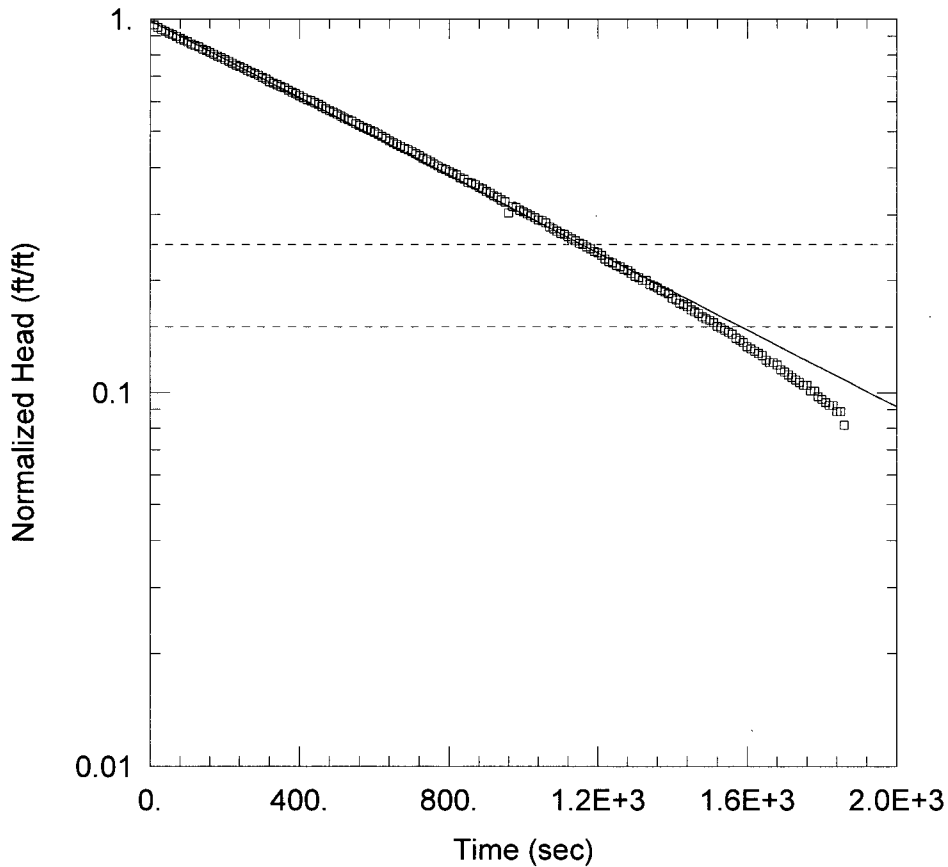
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.1459 ft/day

y0 = 48.39 ft



MW-67 (TEST14)

Data Set: J:\...MW-67 T14.aqt

Date: 08/23/07

Time: 12:19:26

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-67

Test Date: 8/20/07

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-67 Test14)

Initial Displacement: 20.17 ft

Static Water Column Height: 155.2 ft

Total Well Penetration Depth: 155.2 ft

Screen Length: 14.75 ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

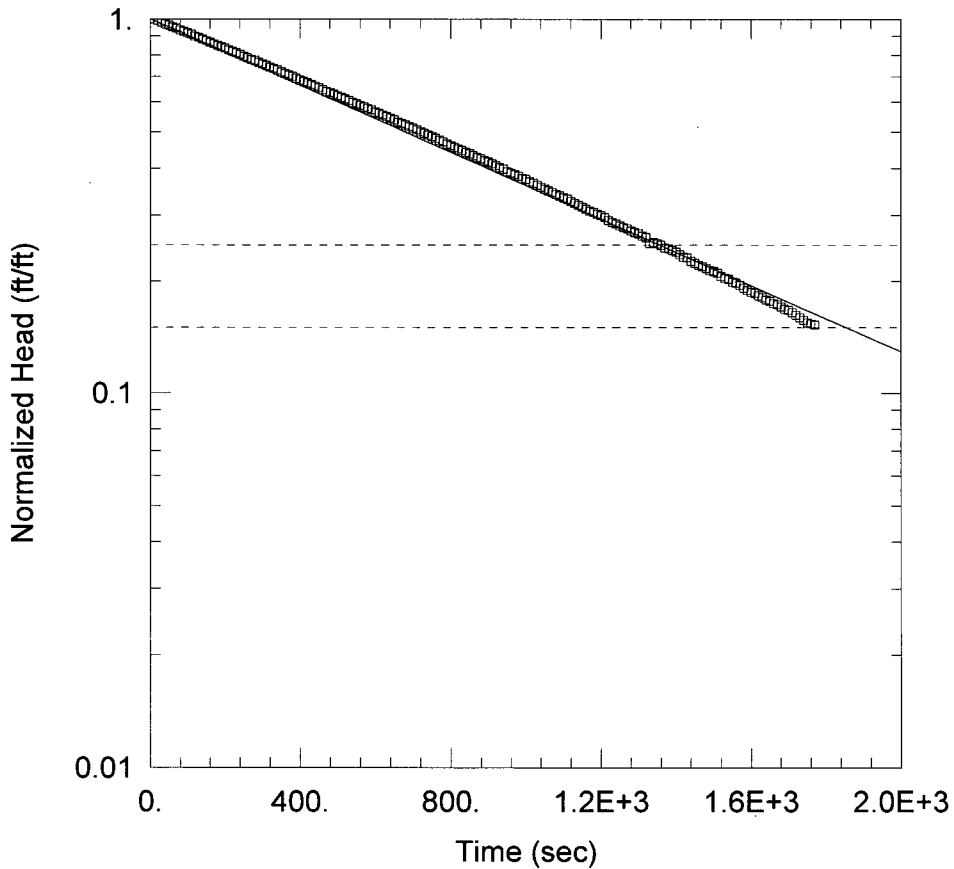
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.1375 ft/day

y0 = 19.98 ft



MW-67 (TEST14 EXTRACTION RECOVERY)

Data Set: J:\...\MW-67 T14 (R2).aqt

Date: 08/23/07

Time: 12:19:35

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-67

Test Date: 8/20/07

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-67 Test14)

Initial Displacement: 29.1 ft

Static Water Column Height: 155.2 ft

Total Well Penetration Depth: 155.2 ft

Screen Length: 14.75 ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

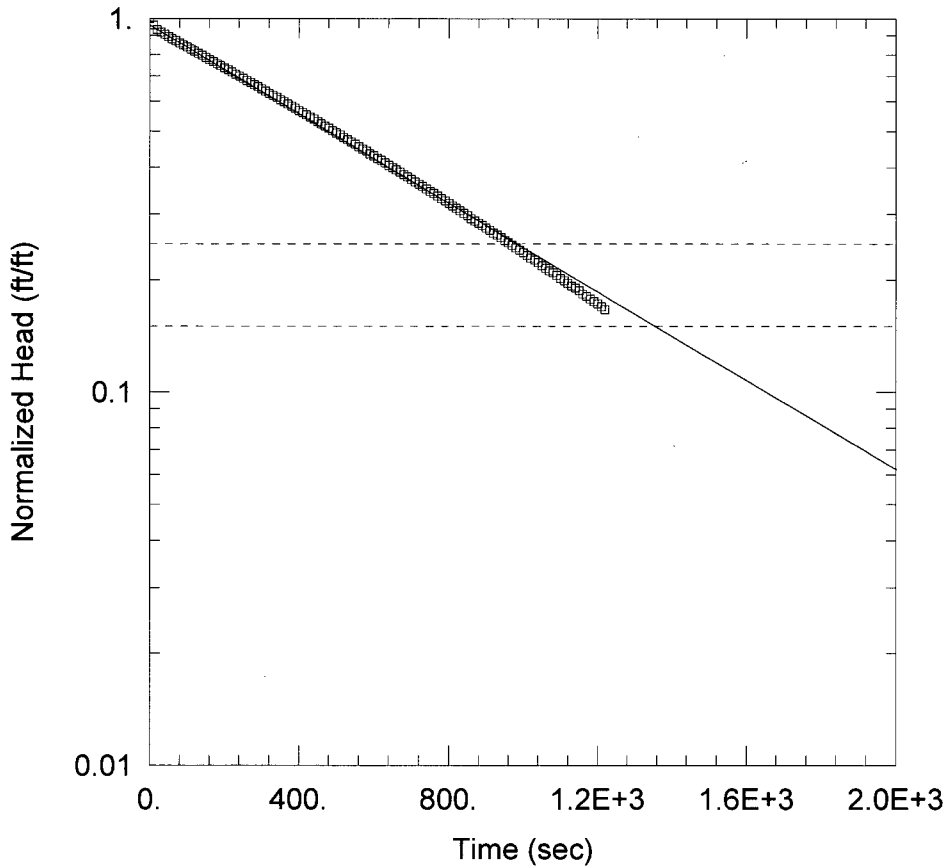
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.1184 ft/day

y0 = 29.2 ft



MW-67 (TEST15)

Data Set: J:\...MW-67 T15.aqt

Date: 08/23/07

Time: 12:19:46

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-67

Test Date: 8/20/07

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-67 Test15)

Initial Displacement: 54.38 ft

Static Water Column Height: 135.1 ft

Total Well Penetration Depth: 135.1 ft

Screen Length: 14.75 ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

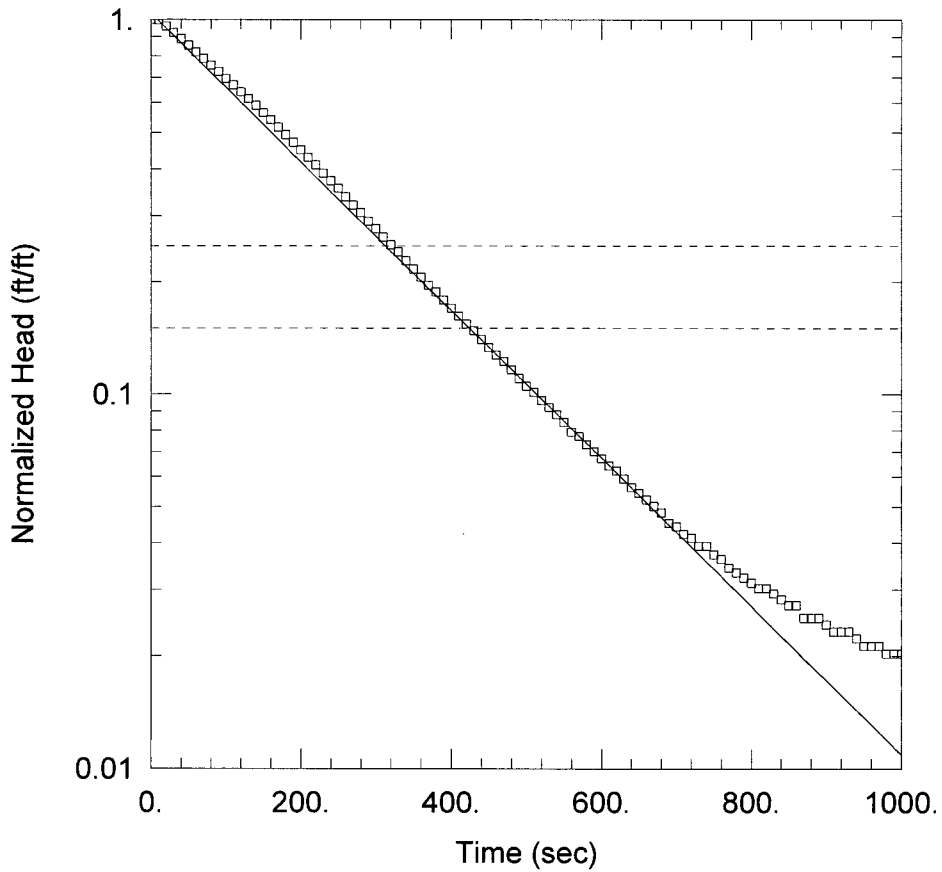
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.1582 ft/day

y0 = 52.25 ft



MW-67 (TEST15 EXTRACTION RECOVERY)

Data Set: J:\...MW-67 T15(R2).aqt

Date: 08/23/07

Time: 12:19:59

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-67

Test Date: 8/20/07

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-67 Test15)

Initial Displacement: 35.83 ft

Static Water Column Height: 135.1 ft

Total Well Penetration Depth: 135.1 ft

Screen Length: 14.75 ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

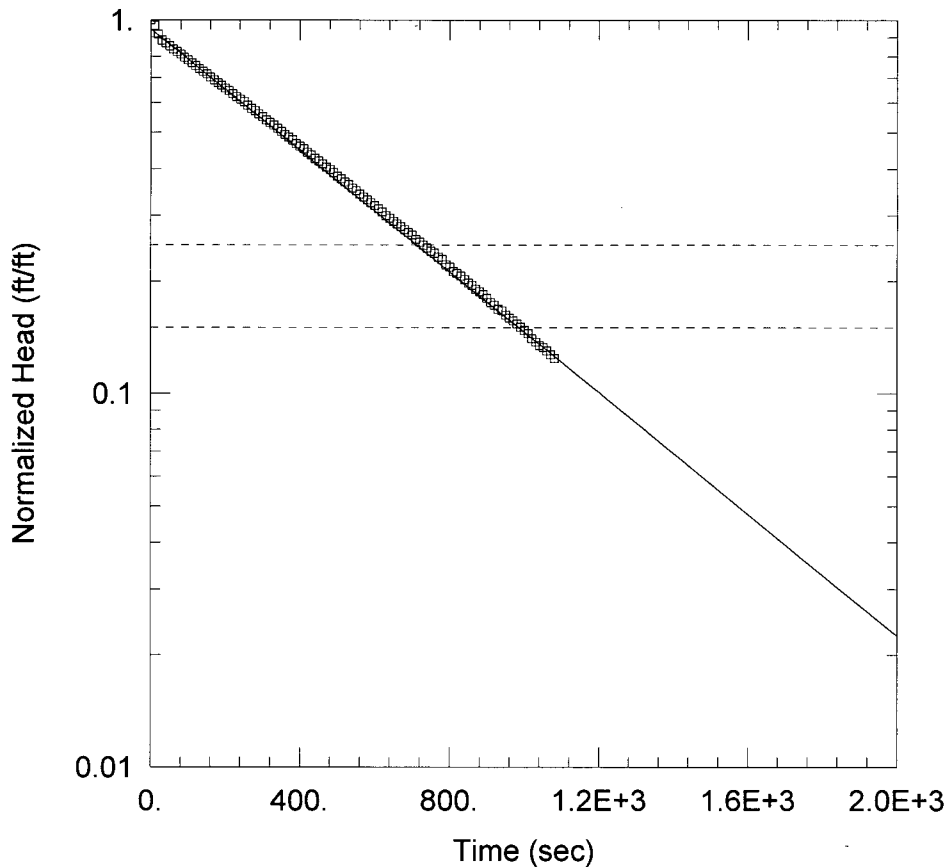
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.5267 ft/day

y0 = 37.26 ft



MW-67 (TEST16)

Data Set: J:\...MW-67 T16.aqt

Date: 08/23/07

Time: 12:20:09

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-67

Test Date: 8/21/07

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-67 Test16)

Initial Displacement: 24.19 ft

Static Water Column Height: 129.5 ft

Total Well Penetration Depth: 129.5 ft

Screen Length: 14.75 ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

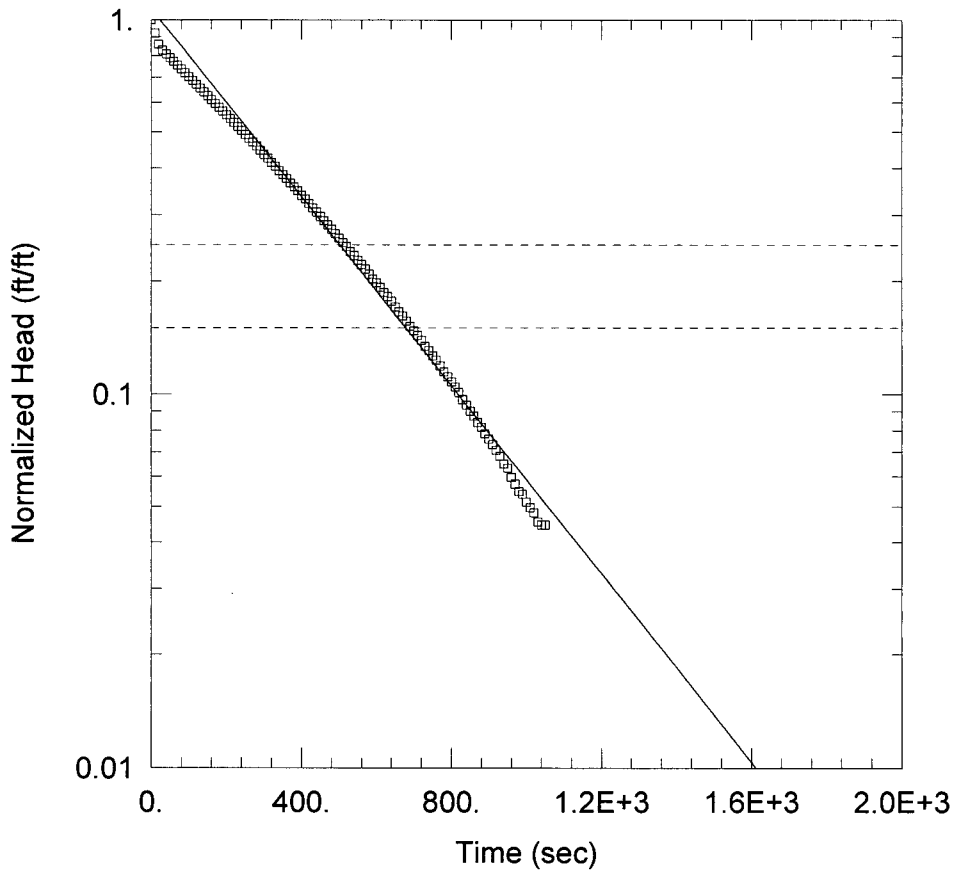
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.2159 ft/day

y0 = 22.89 ft



MW-67 (TEST16 EXTRACTION RECOVERY)

Data Set: J:\...MW-67 T16.aqt
 Date: 08/24/07

Time: 17:06:06

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-67
 Test Date: 8/24/07

AQUIFER DATA

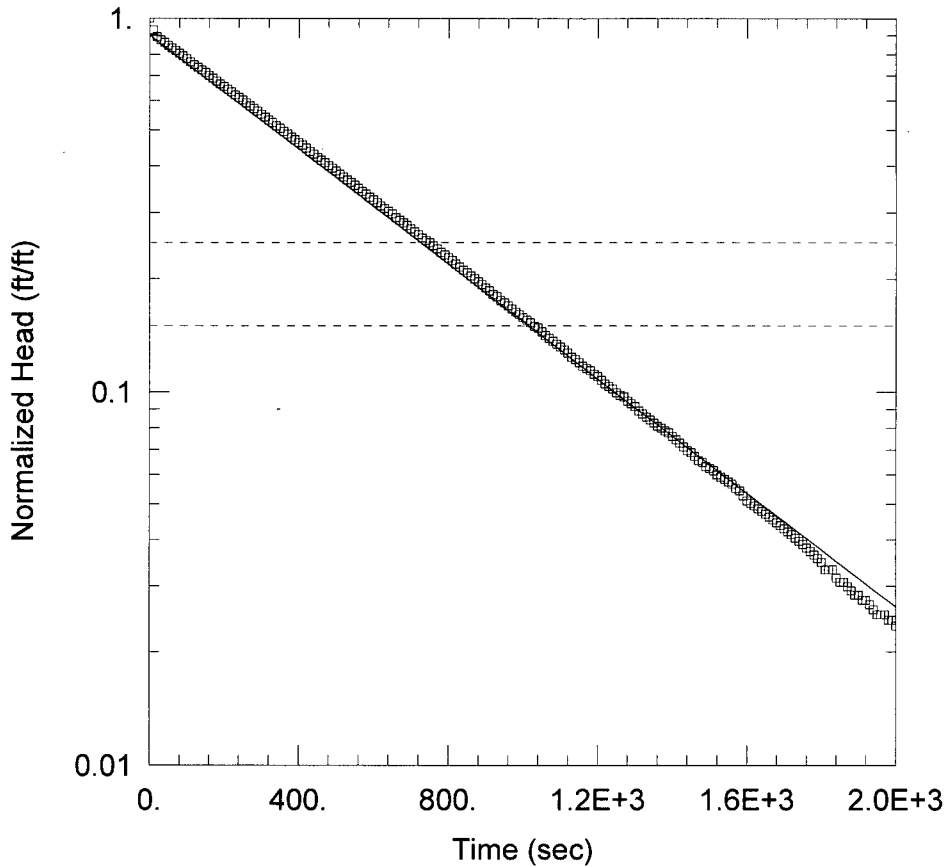
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-67 Test16)

Initial Displacement: 17.1 ft Static Water Column Height: 129.5 ft
 Total Well Penetration Depth: 129.5 ft Screen Length: 14.75 ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 0.3351 ft/day y0 = 18.33 ft



MW-67 (TEST17 EXTRACTION RECOVERY)

Data Set: J:\...MW-67 T17.aqt

Date: 01/03/08

Time: 12:44:37

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-67

Test Date: 8/24/07

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-67 Test17)

Initial Displacement: 17.77 ft

Static Water Column Height: 118.5 ft

Total Well Penetration Depth: 118.5 ft

Screen Length: 14.75 ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

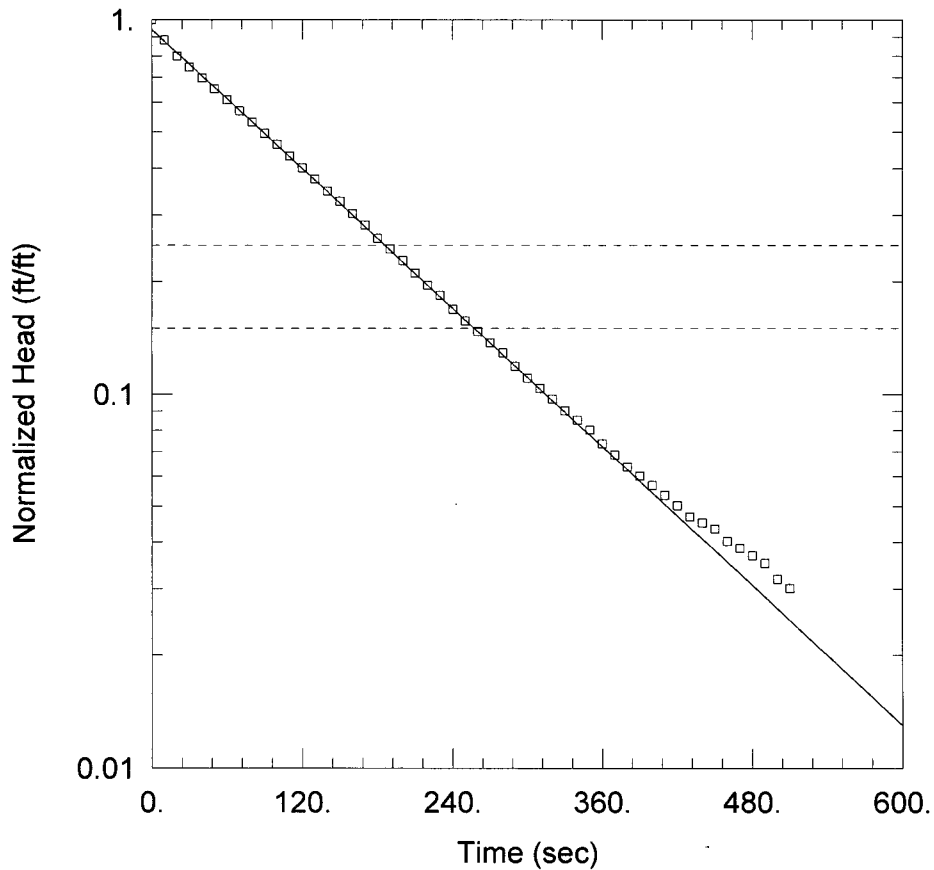
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.204 ft/day

y0 = 16.01 ft



MW-67 (TEST18)

Data Set: J:\...\MW-67 T18.aqt

Date: 08/23/07

Time: 12:21:23

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-67

Test Date: 8/21/07

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-67 Test18)

Initial Displacement: 21.36 ft

Static Water Column Height: 102. ft

Total Well Penetration Depth: 102. ft

Screen Length: 14.75 ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

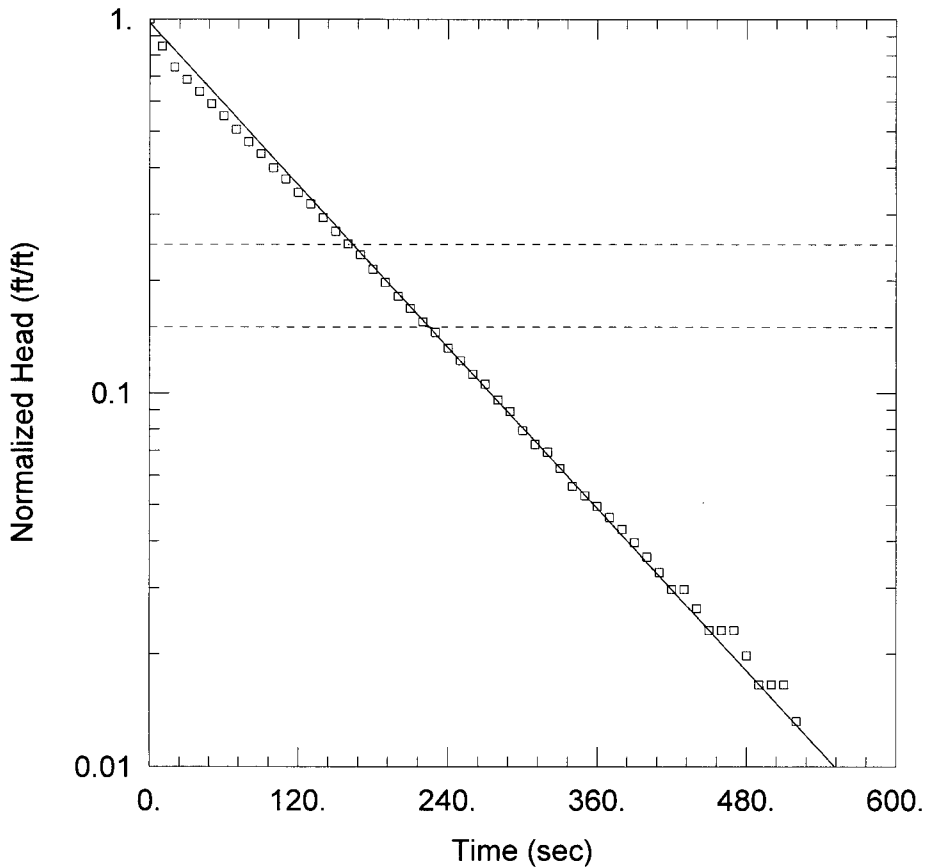
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.8239 ft/day

y0 = 20.09 ft



MW-67 (TEST18 EXTRACTION RECOVERY)

Data Set: J:\...MW-67 T18(R2).aqt

Date: 08/23/07

Time: 12:21:33

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-67

Test Date: 8/21/07

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-67 Test18)

Initial Displacement: 10.82 ft

Static Water Column Height: 102. ft

Total Well Penetration Depth: 102. ft

Screen Length: 14.75 ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

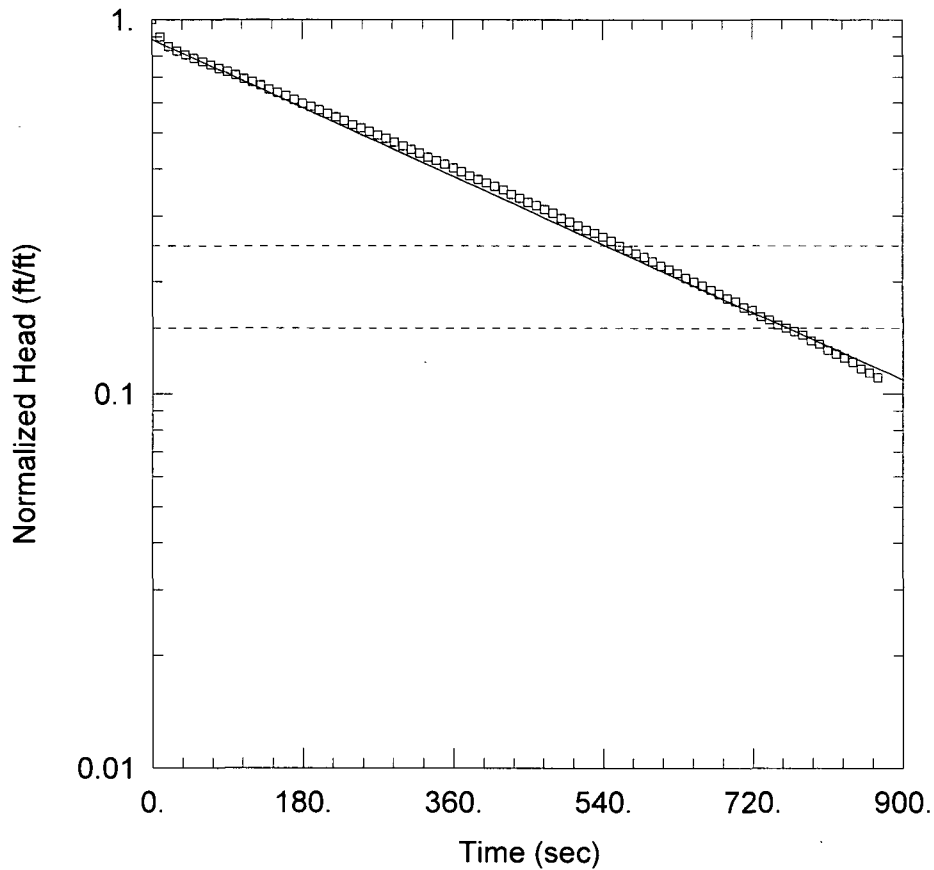
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.9609 ft/day

y0 = 10.57 ft



MW-67 (TEST19)

Data Set: J:\...MW-67 T19.aqt

Date: 08/23/07

Time: 12:21:42

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-67

Test Date: 8/21/07

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-67 Test19)

Initial Displacement: 22.35 ft

Static Water Column Height: 86.8 ft

Total Well Penetration Depth: 86.8 ft

Screen Length: 14.75 ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

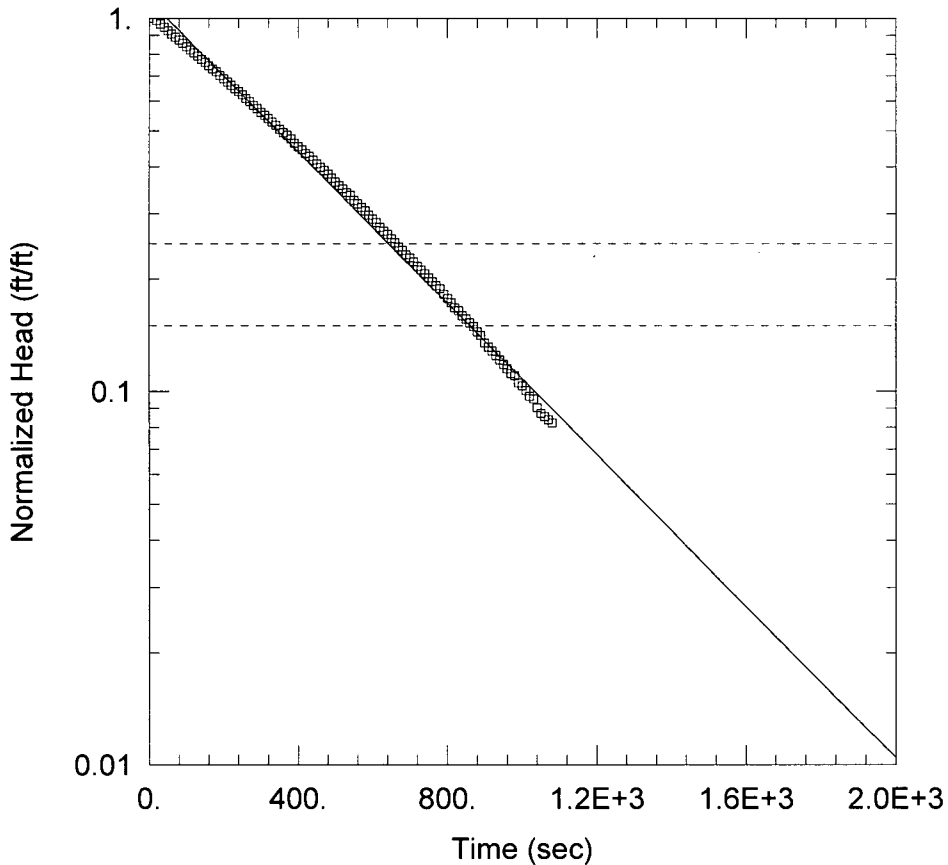
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.269 ft/day

y0 = 19.79 ft



MW-67 (TEST19 EXTRACTION RECOVERY)

Data Set: J:\...MW-67 T19(R2).aqt

Date: 08/23/07

Time: 12:22:00

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-67

Test Date: 8/21/07

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-67 Test19)

Initial Displacement: 21.74 ft

Static Water Column Height: 86.8 ft

Total Well Penetration Depth: 86.8 ft

Screen Length: 14.75 ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

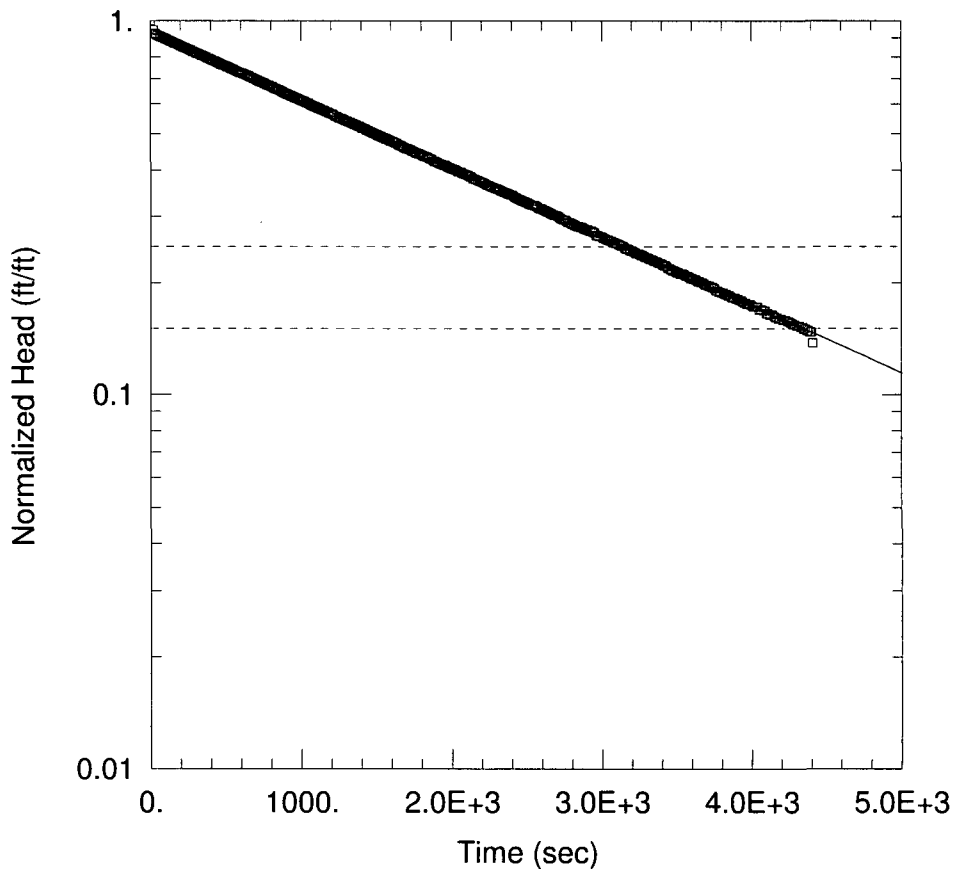
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.2699 ft/day

y0 = 24.33 ft



MW-67 (TEST20)

Data Set: J:\...MW-67 T20A.aqt

Date: 01/02/08

Time: 15:57:05

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-67

Test Date: 8/22/07

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-67 Test20)

Initial Displacement: 25.48 ft

Static Water Column Height: 60. ft

Total Well Penetration Depth: 60. ft

Screen Length: 14.75 ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

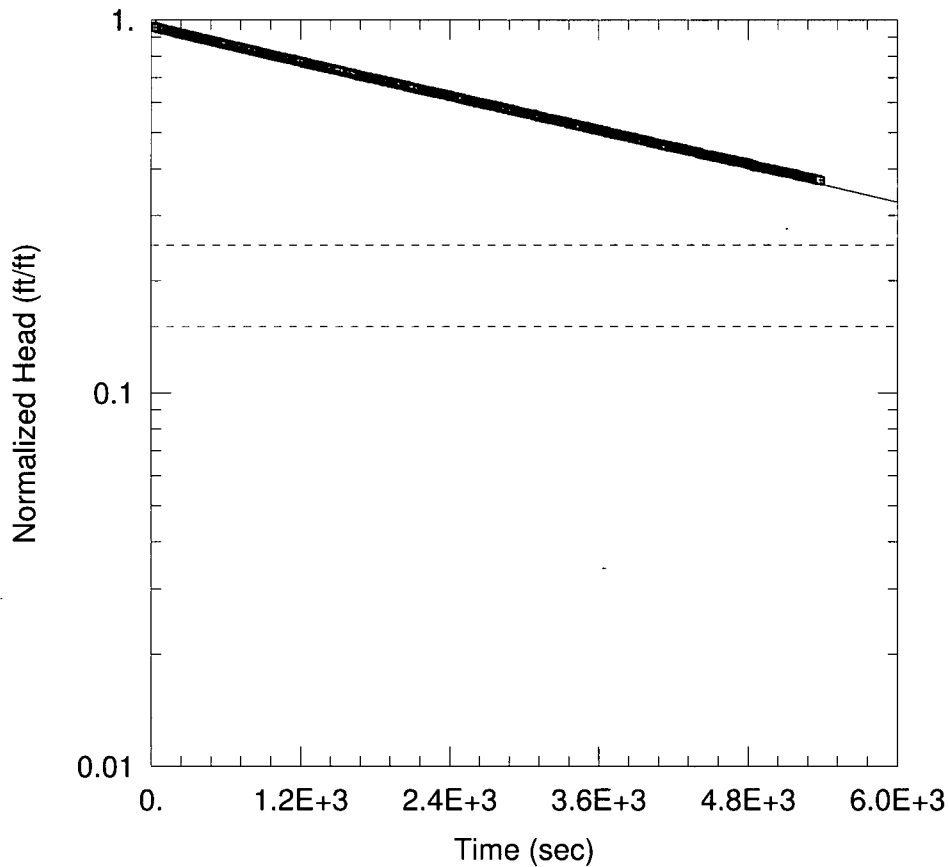
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.0485 ft/day

y0 = 23.76 ft



MW-67 (TEST21)

Data Set: J:\...MW-67 T21A.aqt

Date: 01/02/08

Time: 16:00:27

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-67

Test Date: 8/22/07

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-67 Test21)

Initial Displacement: 21.4 ft

Static Water Column Height: 44. ft

Total Well Penetration Depth: 44. ft

Screen Length: 14.75 ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

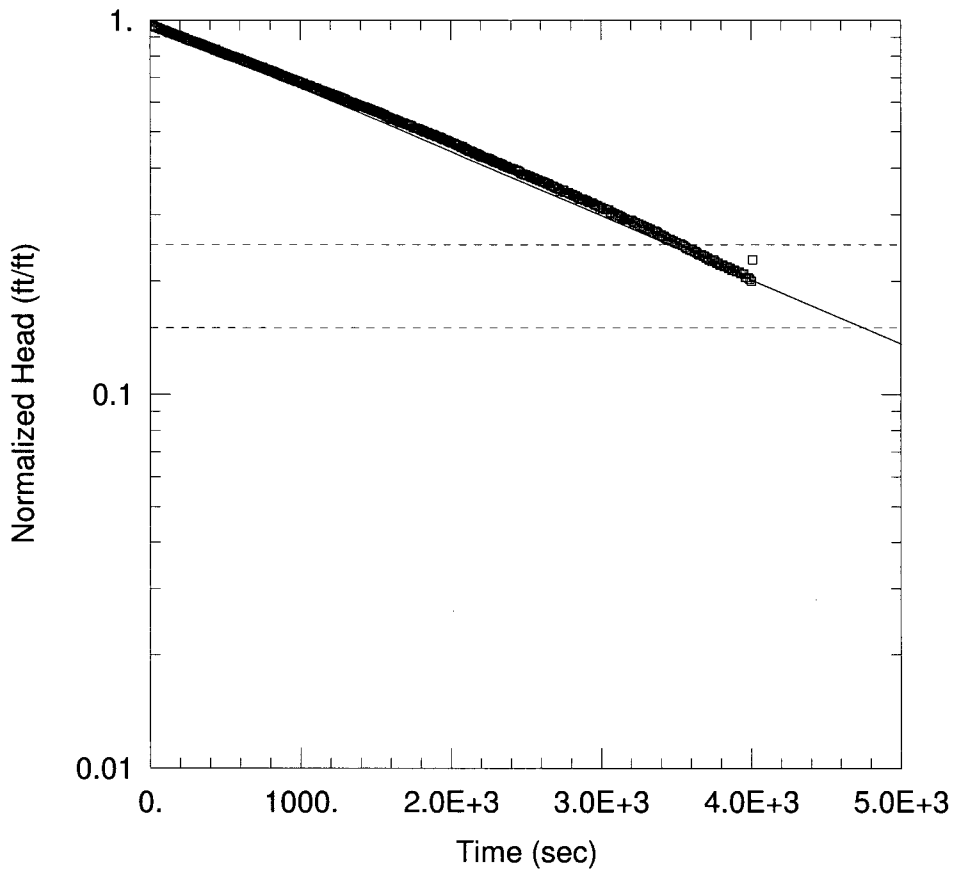
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.02087 ft/day

y0 = 20.61 ft



MW-67 (TEST22)

Data Set: J:\...\MW-67 T22A.aqt

Date: 01/02/08

Time: 16:02:16

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-67

Test Date: 8/22/07

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-67 Test22)

Initial Displacement: 15.34 ft

Static Water Column Height: 34.5 ft

Total Well Penetration Depth: 34.5 ft

Screen Length: 14.75 ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

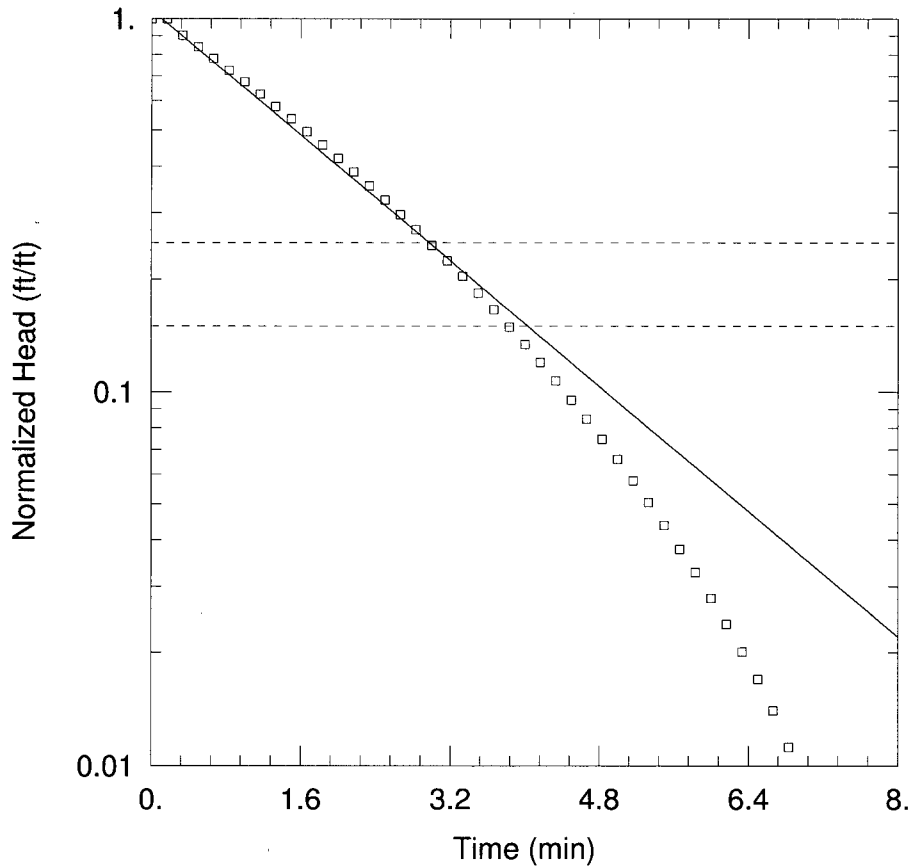
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.04545 ft/day

y0 = 14.93 ft



MW-67 (TEST23)

Data Set: J:\...MW-67 T23.aqt

Date: 01/02/08

Time: 21:23:58

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, New York

Test Well: MW-67

Test Date: 8/25/07

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-67Test23)

Initial Displacement: 13.83 ft

Static Water Column Height: 24.4 ft

Total Well Penetration Depth: 24.4 ft

Screen Length: 14.75 ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.159 ft

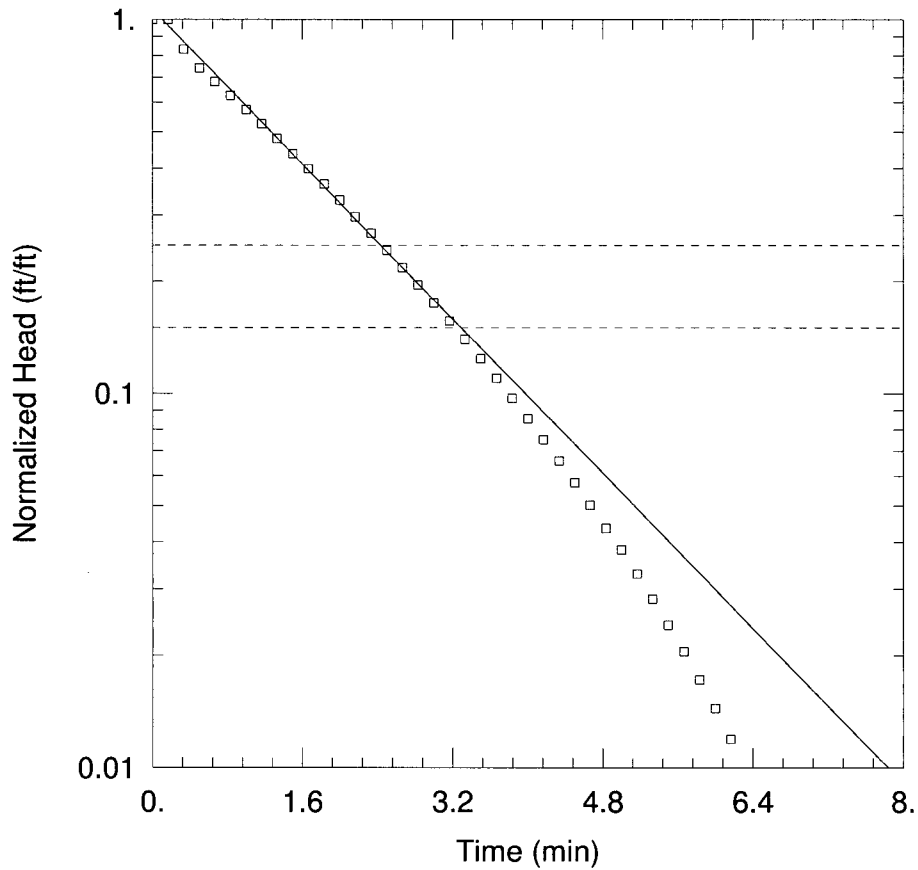
SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.931 ft/day

y0 = 14.58 ft



MW-67 (TEST24)

Data Set: J:\...\MW-67 T24.aqt
 Date: 01/02/08

Time: 21:53:37

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: MW-67
 Test Date: 8/25/07

AQUIFER DATA

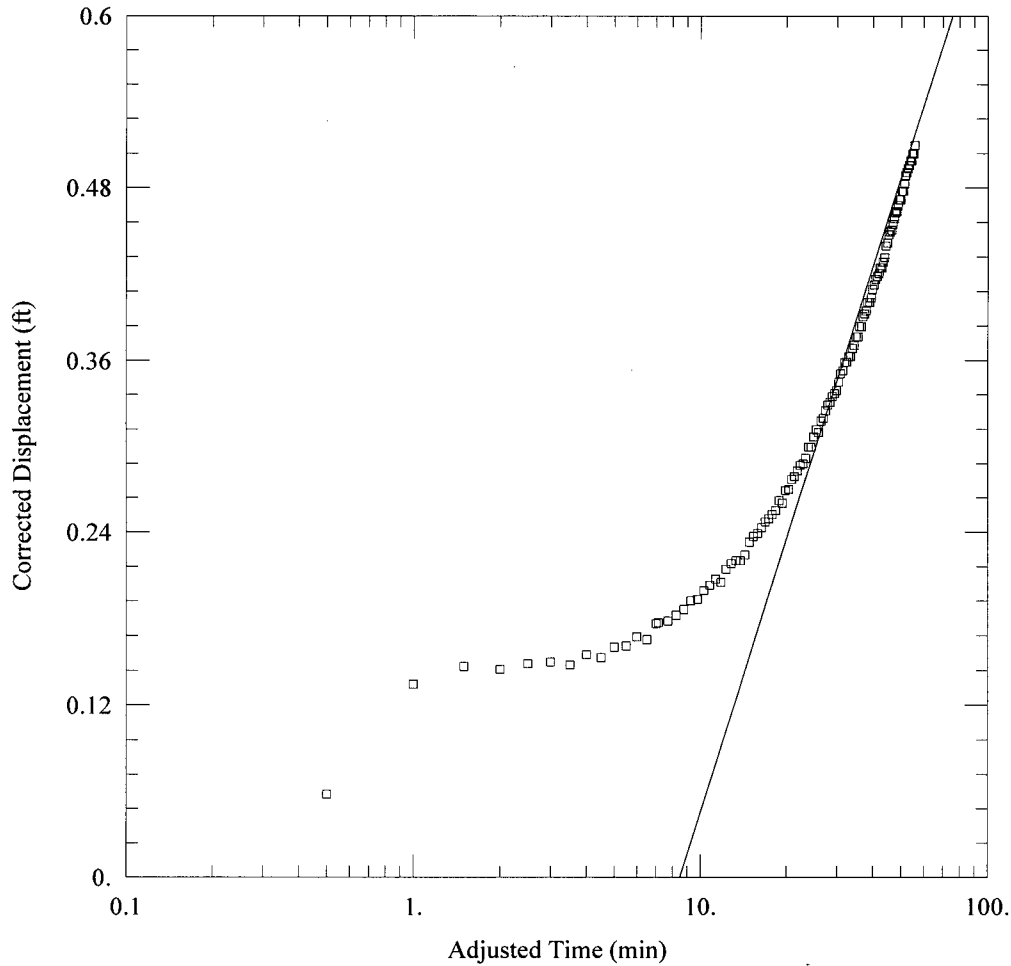
Saturated Thickness: 300. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-67Test24A)

Initial Displacement: 14.8 ft Static Water Column Height: 16.9 ft
 Total Well Penetration Depth: 16.9 ft Screen Length: 14.75 ft
 Casing Radius: 0.08333 ft Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev
 K = 1.146 ft/day y0 = 15.75 ft



MW-109 EXTRACTION

Data Set: J:\...MW-109 sy May07 theis.aqt

Date: 09/12/07

Time: 14:28:16

PROJECT INFORMATION

Company: GZA GeoEnvironmental

Client: Indian Point Energy Center

Project: 41.0017869.10

Location: Buchanan, NY

Test Well: MW-109

Test Date: 5/10/07

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 1.

WELL DATA

Pumping Wells

Observation Wells

Well Name	X (ft)	Y (ft)
MW-109	0	0

Well Name	X (ft)	Y (ft)
□ MW-109	0	0

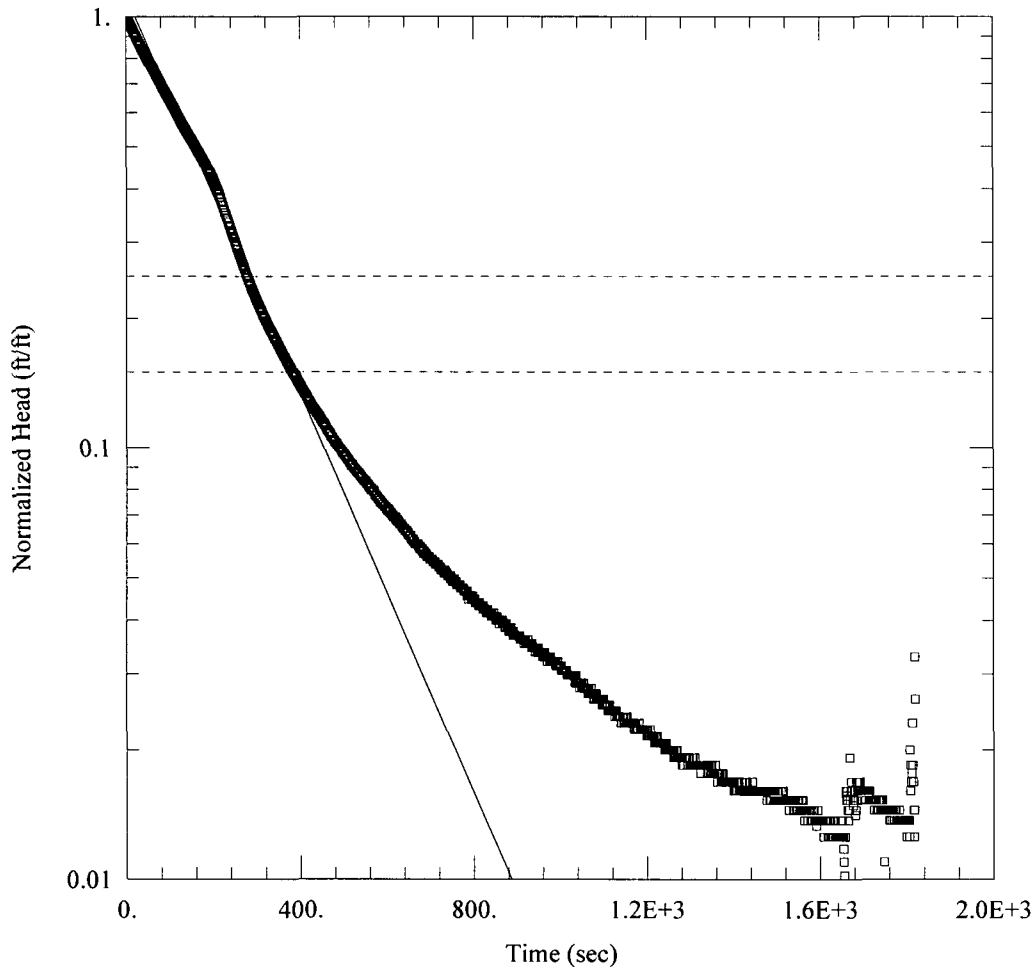
SOLUTION

Aquifer Model: Unconfined

Solution Method: Cooper-Jacob

T = 301.2 ft²/day

S = 142.9



MW-111 EXTRACTION TEST RECOVERY

Data Set: J:\...sy111MW111 recovery.aqt
 Date: 09/11/07

Time: 18:41:38

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, NY
 Test Well: MW-111
 Test Date: 5/30/06

AQUIFER DATA

Saturated Thickness: 300 ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (MW-111)

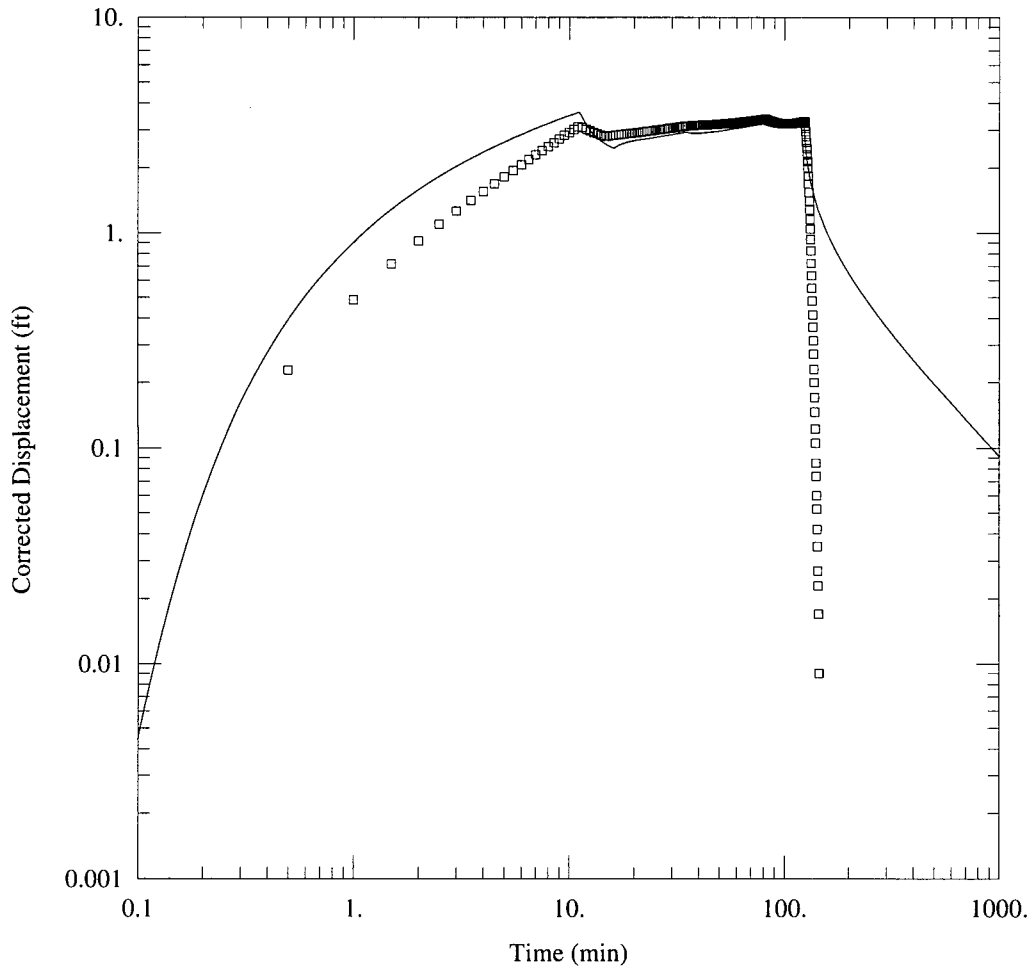
Initial Displacement: 2.552 ft
 Total Well Penetration Depth: 8.47 ft
 Casing Radius: 0.159 ft

Static Water Column Height: 5.5 ft
 Screen Length: 8.47 ft
 Wellbore Radius: 0.159 ft

SOLUTION

Aquifer Model: Unconfined
 K = 3.518 ft/day

Solution Method: Hvorslev
 y0 = 2.859 ft



U3-3 EXTRACTION

Data Set: J:\...\U3-3 sy May07 theis.aqt
 Date: 01/03/08

Time: 15:10:17

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, NY
 Test Well: U3-3
 Test Date: 5/11/07

WELL DATA

Pumping Wells			Observation Wells		
Well Name	X (ft)	Y (ft)	Well Name	X (ft)	Y (ft)
U3-3	0	0	□ U3-3	0	0

SOLUTION

Aquifer Model: Unconfined

Solution Method: Theis

T = 15.05 ft²/day

S = 0.1398

Kz/Kr = 1.

b = 300. ft

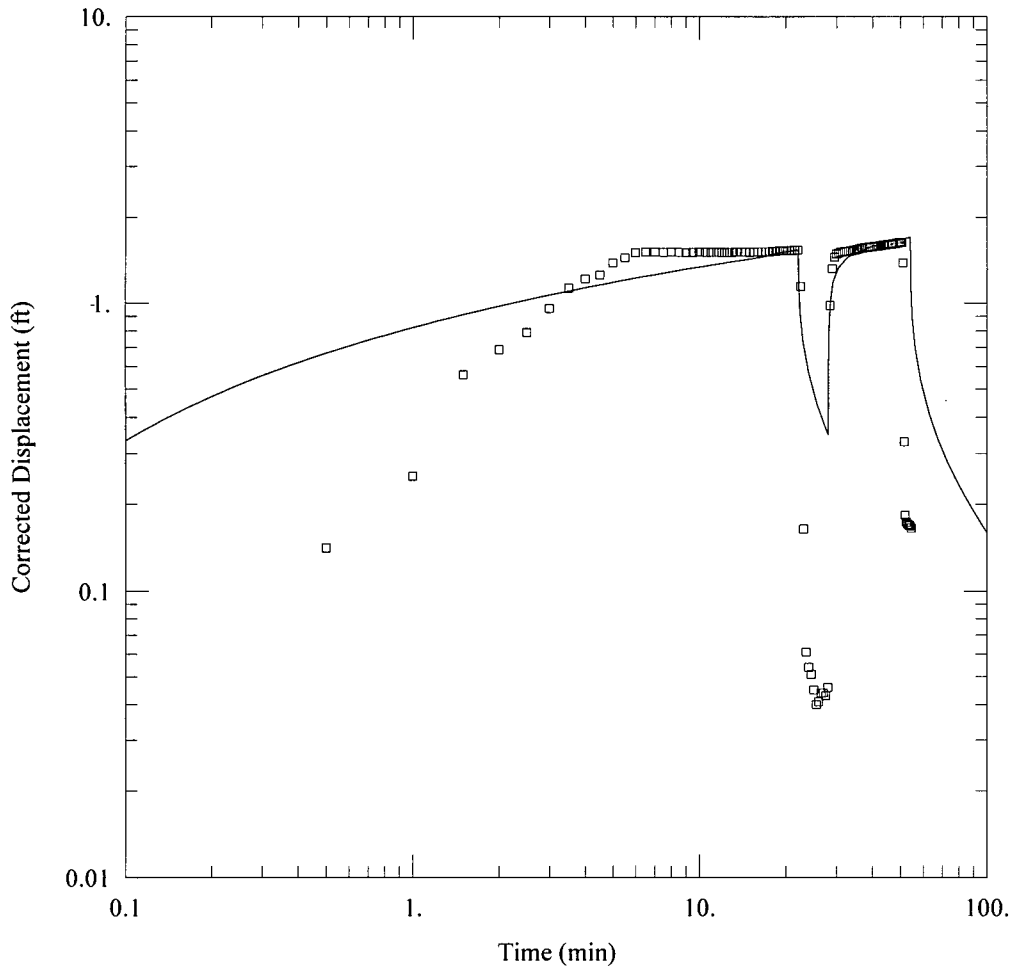
Estimate Transmissivity from Specific Capacity Data

$R_w := 0.125$	Radius of Well (FT.)
$S_w := 0.01$	Storage Coefficient, Assumed
$t := \frac{30}{1440}$	Pumping Duration (Days.)
$T_w := 100$	Transmissivity (GPD/FT) <i>Initial Guess</i>
$Q_p := 0.225$	Pumping Rate (GPM)
$s_w := 6.5$	Drawdown (FT.)
$\frac{Q_p}{s} = 0.035$	Specific Capacity (GPM/FT)

$$aT := \text{root} \left(\frac{Q_p}{s} - \frac{T}{264 \cdot \log \left(\frac{0.3 \cdot T \cdot t}{R_w^2 \cdot S} \right)}, T \right)$$

Groundwater Resource Evaluation
William C. Walton Mc-Graw-hill 1970

$T_w := aT$	
$Tft := \frac{T}{7.48}$	$T = 28$ Computed Transmissivity (GPD/ Ft)
	$Tft = 4$ Computed Transmissivity (Sq.ft./Day)



U3-4S EXTRACTION

Data Set: J:\...\U3-4S sy May07 theis.aqt
 Date: 09/12/07

Time: 14:29:51

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, NY
 Test Well: U3-4S
 Test Date: 5/14/07

WELL DATA

Pumping Wells			Observation Wells		
Well Name	X (ft)	Y (ft)	Well Name	X (ft)	Y (ft)
U3-4S	0	0	□ U3-4S	0	0

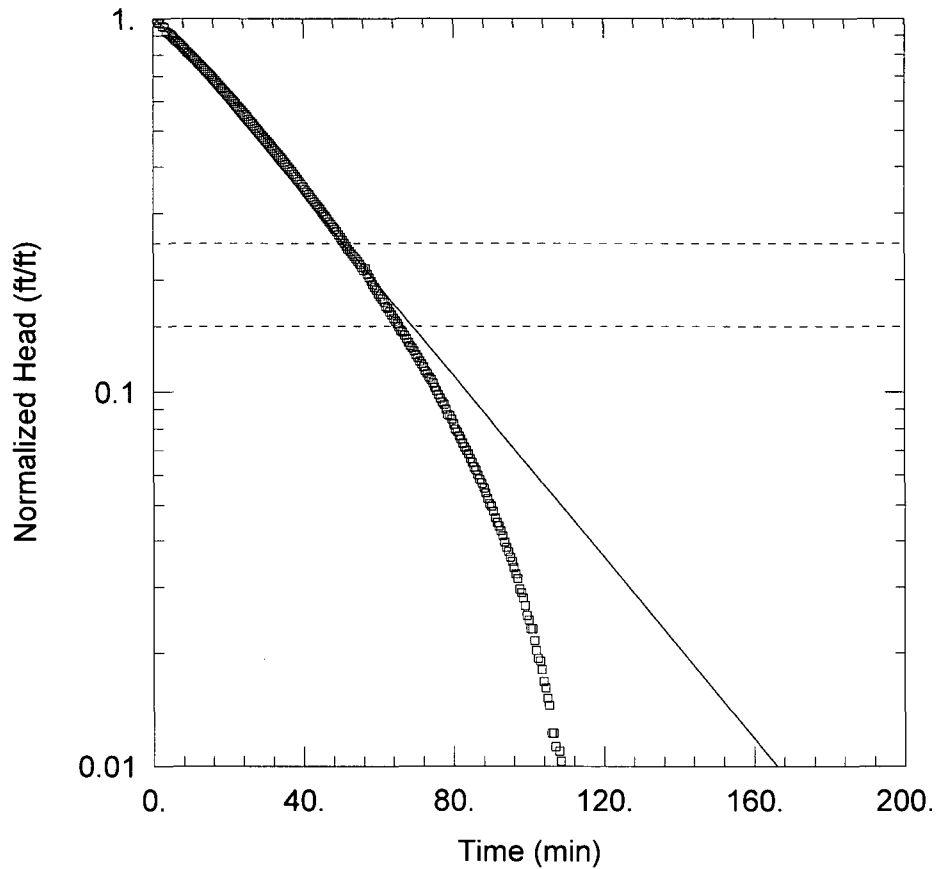
SOLUTION

Aquifer Model: Unconfined

Solution Method: Theis

T = 333.5 ft²/day
 Kz/Kr = 1.

S = 0.2194
 b = 300. ft



I-2 EXTRACTION TEST RECOVERY

Data Set: J:\...I-2 recovery.aqt
 Date: 07/01/07

Time: 18:20:27

PROJECT INFORMATION

Company: GZA GeoEnvironmental
 Client: Indian Point Energy Center
 Project: 41.0017869.10
 Location: Buchanan, New York
 Test Well: I-2
 Test Date: 5/22/07

AQUIFER DATA

Saturated Thickness: 300. ft

Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (I-2)

Initial Displacement: 3.102 ft

Static Water Column Height: 9.16 ft

Total Well Penetration Depth: 9.16 ft

Screen Length: 9.16 ft

Casing Radius: 0.08333 ft

Wellbore Radius: 0.167 ft

SOLUTION

Aquifer Model: Unconfined

Solution Method: Hvorslev

K = 0.07849 ft/day

y0 = 3.198 ft