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The Trusted Integrator for Sustainable Solutions

31 October 2014

Mr. John Richardson
Remedial Project Management Section
Illinois Environmental Protection Agency
1021 N. Grand Avenue East
Springfield, IL 62794-9276

Via Electronic Mail

Re: Hydraulic Conductivity Testing Results
0998290003/LaSalle
Hoxsey/Wedron
Superfund/Tech
HWA-8317, Work Order No. 13

Dear Mr. Richardson:

Weston Solutions, Inc., (WESTON®) is pleased to submit the results of the hydraulic conductivity testing (slug testing) conducted at two of the Hoxsey property monitoring wells. Falling and rising head tests were conducted in wells IMW-103 and IMW-104 by inserting a PVC pipe (slug) and displacing water. Water levels were recorded with a pressure transducer as the water column returned to its static, pre-testing level. The rising head test was conducted immediately thereafter by removing the PVC slug from the well and measuring the rise of groundwater. A second falling-head test was conducted by instantaneously releasing approximately 1.5 gallons of distilled water to the well and monitoring the drop in water level.

Aqtesolv® version 4.50 software was used to evaluate the resulting water level data. The Bouwer-Rice[1] method of analysis was used to evaluate the data and estimate hydraulic conductivity. Table 1 presents the estimated hydraulic conductivities and Attachment 1 presents output from AQTESOLV.

WESTON is pleased to assist IEPA with this important assignment. If you have any questions or require additional information, please call either of the undersigned.

Very truly yours,

WESTON SOLUTIONS, INC.

Andris J. Slesers
Project Manager
(224) 864-7201

AS\tg

Attachment

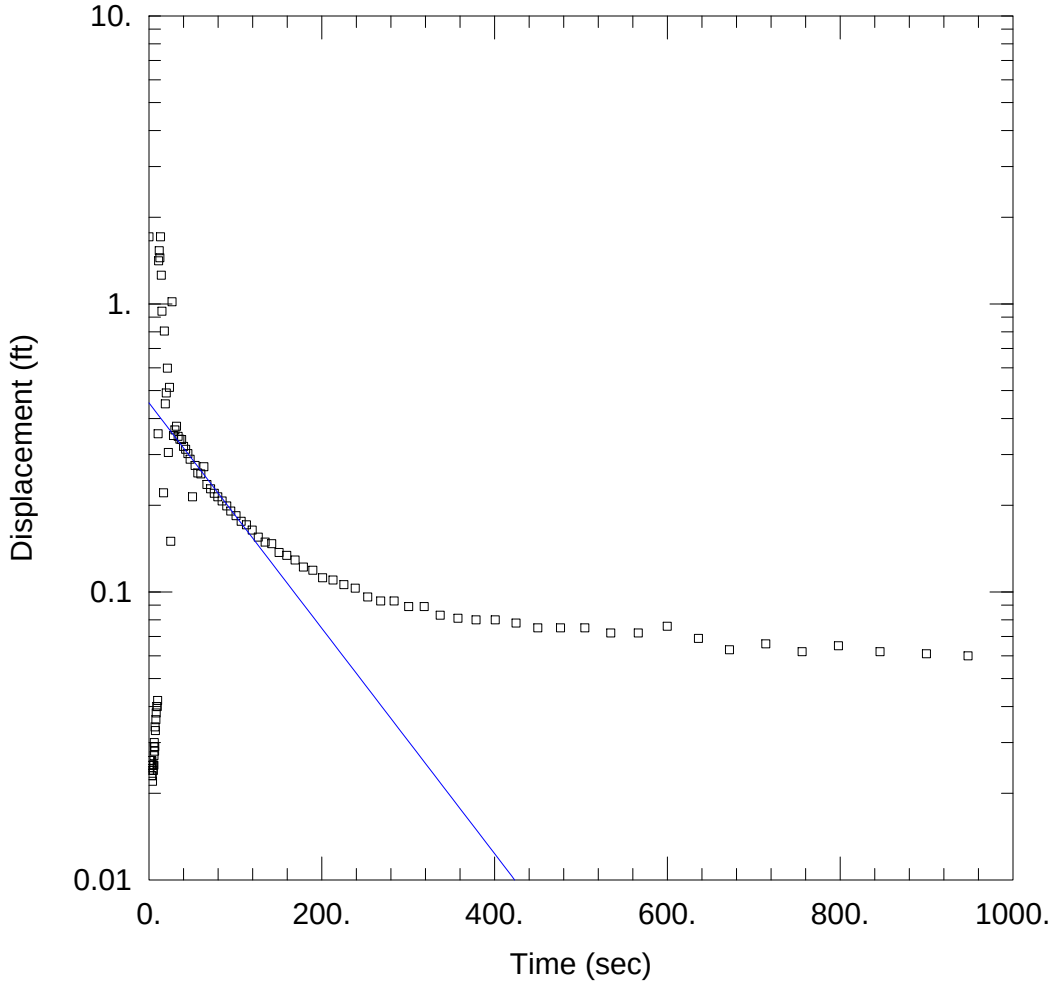
[1] Bouwer, H. and R.C. Rice, 1976. A slug test method for determining hydraulic conductivity of unconfined aquifers with completely or partially penetrating wells, Water Resources Research, vol. 12, no. 3, pp. 423-428.

Table 1

Hydraulic Conductivity Testing Results
Illinois Environmental Protection Agency
Wedron, LaSalle County, Illinois

Well ID	Falling Head Test (cm/s)		Rising Head Test (cm/s)
	PVC Slug	Water Slug	
IMW-103	3.0E-04	2.7E-04	4.3E-04
IMW-104	7.7E-04	2.4E-04	2.3E-04

Average Hydraulic Conductivity: **3.7E-04 cm/sec**



IMW-103 FALLING HEAD TEST - PVC SLUG

Data Set: K:\State\IEPA2007\Wedron\2014 Fall Sampling\Field\Slug Test Data\IMW-103Fall1-PVC.aqt
Date: 10/31/14 Time: 10:21:51

PROJECT INFORMATION

Company: Weston Solutions, Inc.
Client: IEPA
Project: 01104.020.006
Location: Wedron, IL
Test Well: Falling Head Test
Test Date: 10/2/2014

AQUIFER DATA

Saturated Thickness: 20. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (IMW-103)

Initial Displacement: 1.71 ft
Total Well Penetration Depth: 45. ft
Casing Radius: 0.083 ft
Static Water Column Height: 12.84 ft
Screen Length: 15. ft
Well Radius: 0.083 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.0002993 cm/sec
y0 = 0.4531 ft

Data Set: K:\State\IEPA2007\Wedron\2014 Fall Sampling\Field\Slug Test Data\IMW-103Fall1-PVC.aqt
Title: IMW-103 Falling Head Test - PVC Slug
Date: 10/31/14
Time: 10:22:07

PROJECT INFORMATION

Company: Weston Solutions, Inc.
Client: IEPA
Project: 01104.020.006
Location: Wedron, IL
Test Date: 10/2/2014
Test Well: Falling Head Test

AQUIFER DATA

Saturated Thickness: 20. ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: IMW-103

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: 1.71 ft
Static Water Column Height: 12.84 ft
Casing Radius: 0.083 ft
Well Radius: 0.083 ft
Well Skin Radius: 0.33 ft
Screen Length: 15. ft
Total Well Penetration Depth: 45. ft

No. of Observations: 112

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
0.25	0.025	40.08	0.32
0.5	0.024	42.48	0.313
0.75	0.026	45.	0.302
1.	0.025	47.64	0.289
1.25	0.024	50.46	0.214
1.5	0.026	53.46	0.275
1.75	0.026	56.64	0.259
2.	0.026	60.	0.257
2.25	0.026	63.6	0.272
2.5	0.025	67.2	0.236
2.75	0.026	71.4	0.228
3.	0.025	75.6	0.22
3.25	0.023	79.8	0.214
3.5	0.026	84.78	0.207
3.75	0.023	90.	0.199
4.102	0.022	94.8	0.191
4.322	0.025	100.8	0.184
4.744	0.024	106.8	0.176
5.166	0.024	112.8	0.171
5.386	0.025	119.5	0.164
5.606	0.025	126.6	0.155
5.827	0.027	134.6	0.149
6.046	0.029	142.2	0.147
6.266	0.03	150.6	0.137
6.488	0.028	159.6	0.134
6.72	0.029	169.2	0.129
7.14	0.034	178.8	0.122
7.56	0.033	189.7	0.119
7.98	0.036	201.	0.112

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
8.46	0.038	213.	0.11
9.102	0.04	225.6	0.106
9.525	0.04	238.8	0.103
10.08	0.042	253.2	0.096
10.68	0.354	268.2	0.093
11.28	1.412	283.8	0.093
11.94	1.53	300.6	0.089
12.66	1.447	318.6	0.089
13.44	1.71	337.2	0.083
14.4	1.258	357.6	0.081
15.06	0.944	378.6	0.08
15.96	-0.295	400.8	0.08
16.92	0.221	425.	0.078
17.88	0.805	450.	0.075
18.96	0.45	476.4	0.075
20.1	0.491	504.6	0.075
21.3	0.598	534.6	0.072
22.56	0.305	566.4	0.072
23.88	0.513	600.	0.076
25.32	0.15	636.	0.069
26.82	1.018	672.	0.063
28.38	0.349	714.	0.066
30.06	0.365	756.	0.062
31.86	0.376	798.	0.065
33.72	0.347	846.2	0.062
35.76	0.339	900.	0.061
37.86	0.338	948.	0.06

SOLUTION

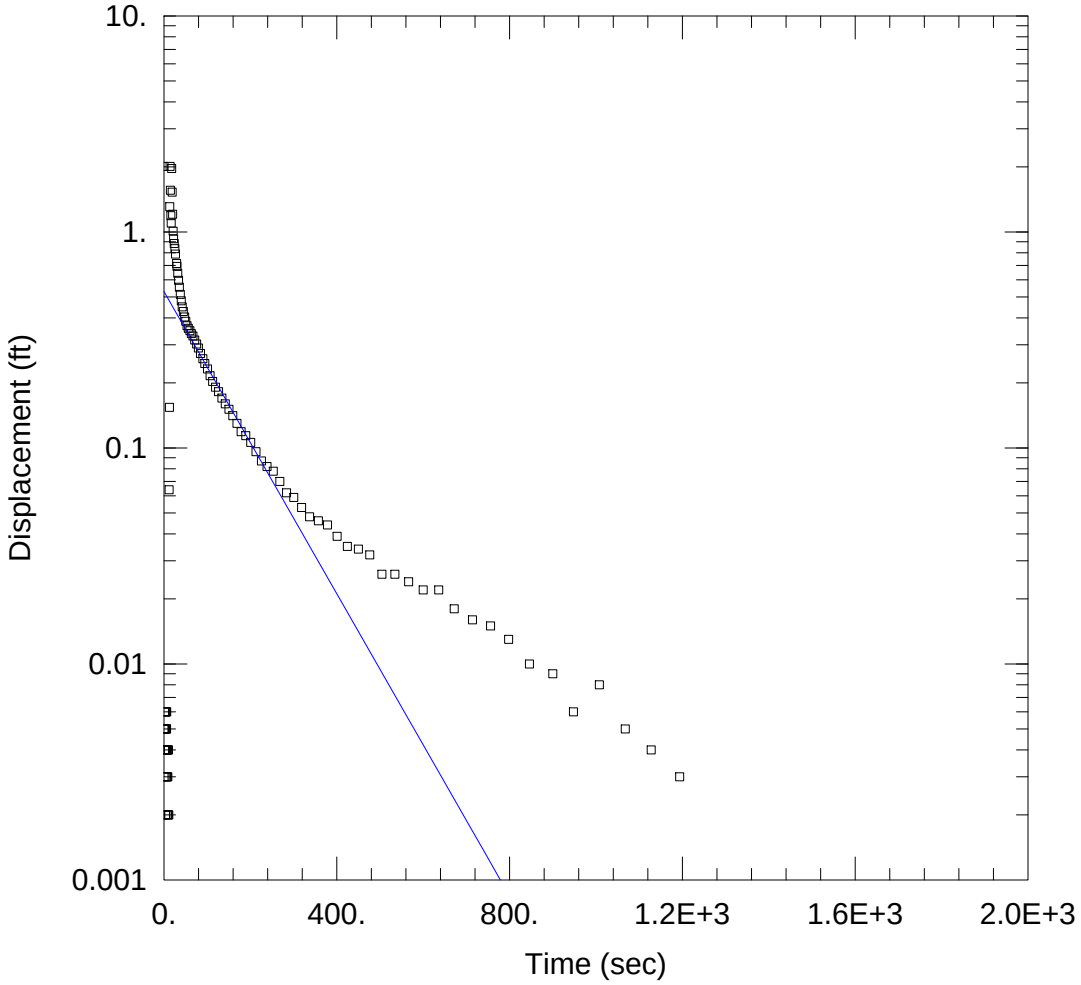
Slug Test
Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
ln(Re/rw): 4.748

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.0002993	cm/sec
y0	0.4531	ft

T = K*b = 0.1825 cm²/sec



IMW-103 FALLING HEAD TEST - WATER SLUG

Data Set: K:\...\IMW-103Fall2-Water.aqt
Date: 10/31/14 Time: 10:21:16

PROJECT INFORMATION

Company: Weston Solutions, Inc.
Client: IEPA
Project: 01104.020.006
Location: Wedron, IL
Test Well: Falling Head Test
Test Date: 10/2/2014

AQUIFER DATA

Saturated Thickness: 20. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (IMW-103)

Initial Displacement: 2.011 ft Static Water Column Height: 12.84 ft
Total Well Penetration Depth: 45. ft Screen Length: 15. ft
Casing Radius: 0.083 ft Well Radius: 0.083 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.0002676 cm/sec y0 = 0.5294 ft

Data Set: K:\State\IEPA2007\Wedron\2014 Fall Sampling\Field\Slug Test Data\IMW-103Fall2-Water.aqt
Title: IMW-103 Falling Head Test - Water Slug
Date: 10/31/14
Time: 10:21:28

PROJECT INFORMATION

Company: Weston Solutions, Inc.
Client: IEPA
Project: 01104.020.006
Location: Wedron, IL
Test Date: 10/2/2014
Test Well: Falling Head Test

AQUIFER DATA

Saturated Thickness: 20. ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: IMW-103

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: 2.011 ft
Static Water Column Height: 12.84 ft
Casing Radius: 0.083 ft
Well Radius: 0.083 ft
Well Skin Radius: 0.33 ft
Screen Length: 15. ft
Total Well Penetration Depth: 45. ft

No. of Observations: 124

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
0.251	0.003	56.64	0.358
0.501	0.005	60.	0.349
0.751	0.005	63.6	0.338
1.001	0.005	67.2	0.33
1.251	0.006	71.4	0.316
1.501	0.004	75.6	0.303
1.751	0.004	79.8	0.29
2.001	0.005	84.6	0.274
2.251	0.004	90.	0.259
2.604	0.003	94.8	0.246
2.824	0.005	100.8	0.232
3.245	0.005	106.8	0.216
3.67	0.002	112.9	0.203
3.89	0.004	119.4	0.191
4.11	0.004	126.6	0.182
4.33	0.006	134.4	0.17
4.55	0.006	142.2	0.16
4.77	0.002	150.6	0.151
4.99	0.004	159.6	0.141
5.21	0.006	169.2	0.13
5.43	0.003	178.8	0.119
5.649	0.004	189.6	0.114
5.868	0.005	201.	0.106
6.088	0.005	213.1	0.096
6.361	0.006	225.6	0.087
6.721	0.003	238.8	0.082
7.141	0.004	253.2	0.078
7.561	0.003	268.2	0.07
7.981	0.004	283.8	0.062

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
8.461	0.002	300.6	0.059
9.16	0.003	318.6	0.053
9.481	0.004	337.2	0.048
10.08	0.002	357.6	0.046
10.68	0.004	378.6	0.044
11.28	0.002	400.8	0.039
11.94	0.064	424.8	0.035
12.79	0.154	450.	0.034
13.44	1.309	476.4	0.032
14.22	2.011	504.6	0.026
15.06	1.559	534.6	0.026
15.96	1.19	566.4	0.024
16.92	1.099	600.	0.022
18.08	1.967	636.	0.022
18.96	1.527	672.	0.018
20.1	1.208	714.1	0.016
21.3	1.008	756.	0.015
22.56	0.93	798.	0.013
23.88	0.883	846.	0.01
25.32	0.837	900.	0.009
26.82	0.789	948.	0.006
29.38	0.714	1008.	0.008
30.06	0.692	1068.	0.005
31.86	0.644	1128.	0.004
33.72	0.597	1194.	0.003
35.76	0.555	1266.	0.
37.86	0.514	1344.	-0.003
40.08	0.48	1422.	-0.008
42.56	0.45	1506.	-0.01
45.	0.428	1596.	-0.011
47.84	0.404	1692.	-0.018
50.46	0.386	1788.	-0.017
53.46	0.368	1896.	-0.018

SOLUTION

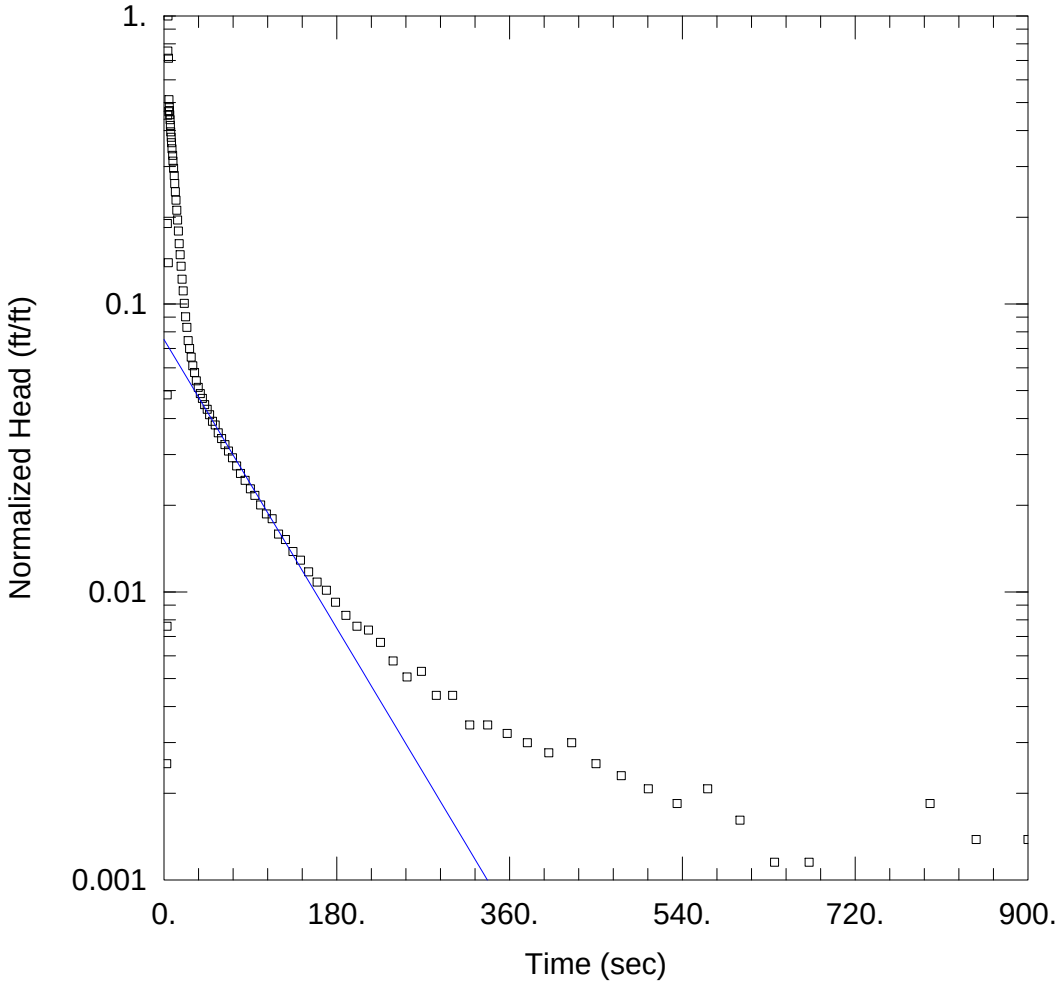
Slug Test
Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
ln(Re/rw): 4.748

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.0002676	cm/sec
y0	0.5294	ft

T = K*b = 0.1631 cm²/sec



IMW-103 RISING HEAD TEST - PVC SLUG

Data Set: K:\State\IEPA2007\Wedron\2014 Fall Sampling\Field\Slug Test Data\IMW-103Rising.aqt
Date: 10/31/14 Time: 10:22:21

PROJECT INFORMATION

Company: Weston Solutions, Inc.
Client: IEPA
Project: 01104.020.006
Location: Wedron, IL
Test Well: Falling Head Test
Test Date: 10/2/2014

AQUIFER DATA

Saturated Thickness: 20. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (IMW-103)

Initial Displacement: -4.343 ft
Total Well Penetration Depth: 45. ft
Casing Radius: 0.083 ft
Static Water Column Height: 12.84 ft
Screen Length: 15. ft
Well Radius: 0.083 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.0004262 cm/sec
y0 = -0.3268 ft

Data Set: K:\State\IEPA2007\Wedron\2014 Fall Sampling\Field\Slug Test Data\IMW-103Rising.aqt
Title: IMW-103 Rising Head Test - PVC Slug
Date: 10/31/14
Time: 10:22:31

PROJECT INFORMATION

Company: Weston Solutions, Inc.
Client: IEPA
Project: 01104.020.006
Location: Wedron, IL
Test Date: 10/2/2014
Test Well: Falling Head Test

AQUIFER DATA

Saturated Thickness: 20. ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: IMW-103

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: -4.343 ft
Static Water Column Height: 12.84 ft
Casing Radius: 0.083 ft
Well Radius: 0.083 ft
Well Skin Radius: 0.33 ft
Screen Length: 15. ft
Total Well Penetration Depth: 45. ft

No. of Observations: 111

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
0.251	0.003	40.08	-0.204
0.501	0.003	42.48	-0.194
0.751	0.001	45.09	-0.187
1.001	0.002	47.64	-0.179
1.251	0.005	50.65	-0.17
1.501	0.005	53.46	-0.165
1.751	0.002	56.64	-0.155
2.001	0.003	60.11	-0.148
2.251	0.004	63.6	-0.141
2.501	0.007	67.2	-0.134
2.961	-0.011	71.4	-0.127
3.182	-0.033	75.69	-0.119
3.403	-0.21	79.8	-0.112
3.623	-0.826	84.6	-0.106
3.842	-1.964	90.	-0.099
4.065	-3.279	94.8	-0.094
4.294	-4.343	100.8	-0.087
4.525	-0.604	106.8	-0.081
4.751	-3.097	112.8	-0.078
5.001	-2.021	119.4	-0.069
5.251	-2.223	126.6	-0.066
5.501	-2.103	134.4	-0.06
5.751	-2.038	142.2	-0.056
6.001	-1.972	150.8	-0.051
6.361	-1.894	159.6	-0.047
6.721	-1.809	169.2	-0.044
7.141	-1.719	178.8	-0.04
7.561	-1.645	189.6	-0.036
7.981	-1.575	201.	-0.033

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
8.461	-1.501	213.	-0.032
9.001	-1.425	225.6	-0.029
9.481	-1.361	238.8	-0.025
10.08	-1.284	253.2	-0.022
10.68	-1.212	268.2	-0.023
11.28	-1.137	283.8	-0.019
11.94	-1.066	300.7	-0.019
12.66	-0.995	318.6	-0.015
13.44	-0.919	337.2	-0.015
14.22	-0.849	357.6	-0.014
15.06	-0.778	378.6	-0.013
15.96	-0.703	400.9	-0.012
16.92	-0.644	424.8	-0.013
17.88	-0.587	450.	-0.011
18.96	-0.529	476.4	-0.01
20.1	-0.482	504.6	-0.009
21.3	-0.436	534.6	-0.008
22.56	-0.392	566.4	-0.009
23.88	-0.36	600.	-0.007
25.32	-0.324	636.	-0.005
26.82	-0.304	672.	-0.005
28.38	-0.284	714.	-0.004
30.06	-0.265	756.1	-0.003
31.86	-0.251	798.	-0.008
33.72	-0.235	846.	-0.006
35.76	-0.223	900.	-0.006
37.86	-0.212		

SOLUTION

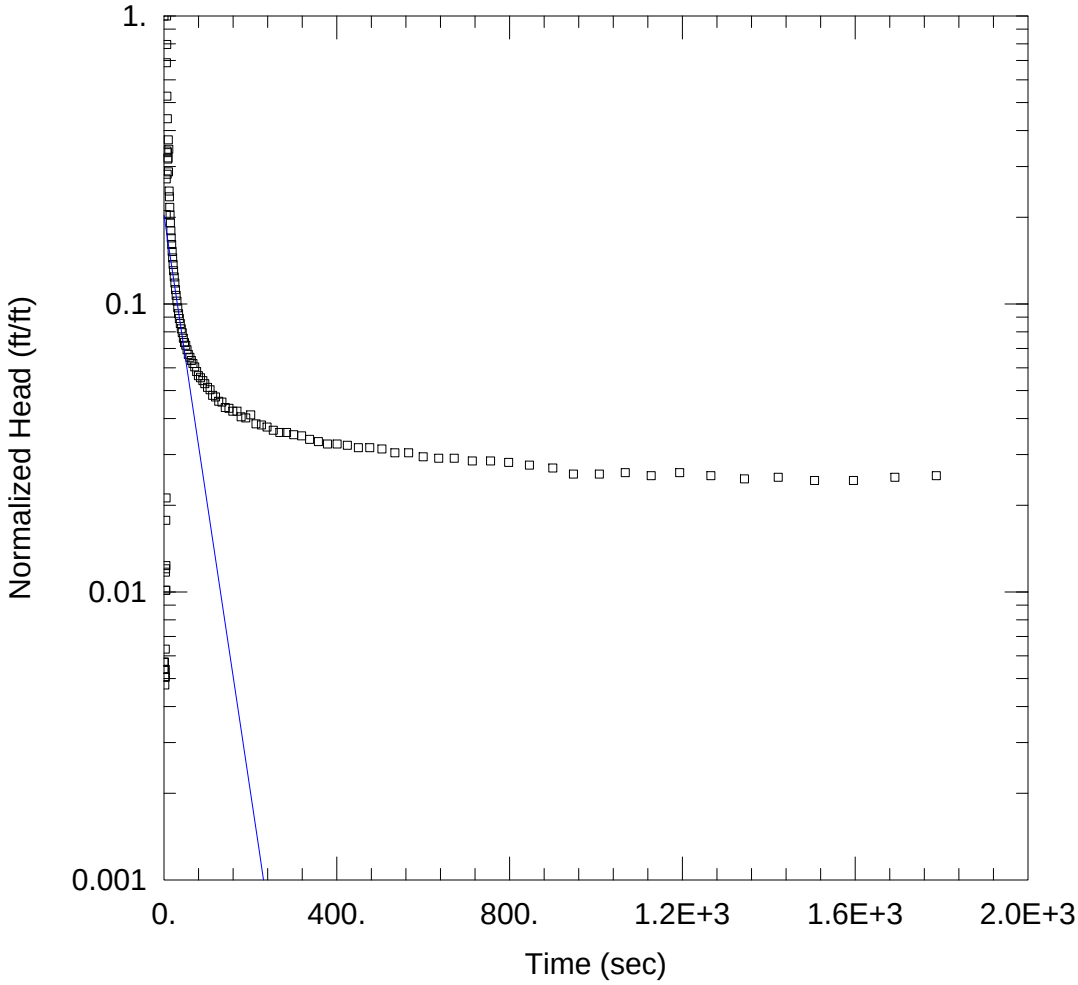
Slug Test
Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
ln(Re/rw): 4.748

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.0004262	cm/sec
y0	-0.3268	ft

T = K*b = 0.2598 cm²/sec



IMW-104 FALLING HEAD TEST - PVC SLUG

Data Set: K:\State\IEPA2007\Wedron\2014 Fall Sampling\Field\Slug Test Data\IMW-104Fall1-PVC.aqt
Date: 10/31/14 Time: 10:20:38

PROJECT INFORMATION

Company: Weston Solutions, Inc.
Client: IEPA
Project: 01104.020.006
Location: Wedron, IL
Test Well: Falling Head Test
Test Date: 10/2/2014

AQUIFER DATA

Saturated Thickness: 20. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (IMW-104)

Initial Displacement: 3.158 ft
Static Water Column Height: 14.79 ft
Total Well Penetration Depth: 45. ft
Screen Length: 15. ft
Casing Radius: 0.083 ft
Well Radius: 0.083 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.0007661 cm/sec
y0 = 0.643 ft

Data Set: K:\State\IEPA2007\Wedron\2014 Fall Sampling\Field\Slug Test Data\IMW-104Fall1-PVC.aqt
Title: IMW-104 Falling Head Test - PVC Slug
Date: 10/31/14
Time: 10:20:53

PROJECT INFORMATION

Company: Weston Solutions, Inc.
Client: IEPA
Project: 01104.020.006
Location: Wedron, IL
Test Date: 10/2/2014
Test Well: Falling Head Test

AQUIFER DATA

Saturated Thickness: 20. ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: IMW-104

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: 3.158 ft
Static Water Column Height: 14.79 ft
Casing Radius: 0.083 ft
Well Radius: 0.083 ft
Well Skin Radius: 0.33 ft
Screen Length: 15. ft
Total Well Penetration Depth: 45. ft

No. of Observations: 123

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
0.251	0.017	56.64	0.211
0.501	0.018	60.	0.206
0.751	0.018	63.6	0.201
1.102	0.018	67.2	0.196
1.321	0.017	71.4	0.191
1.743	0.017	75.6	0.184
2.166	0.015	79.8	0.178
2.385	0.016	84.6	0.175
2.604	0.016	90.	0.171
2.824	0.016	94.8	0.167
3.043	0.017	100.8	0.162
3.263	0.02	106.8	0.159
3.484	0.032	112.8	0.152
3.703	0.037	119.4	0.15
3.923	0.038	126.7	0.145
4.144	0.056	134.4	0.144
4.363	-0.005	142.2	0.138
4.582	0.039	150.6	0.137
4.802	0.032	159.6	0.134
5.023	0.067	169.2	0.134
5.251	0.645	178.8	0.128
5.501	0.858	189.6	0.127
5.751	2.172	201.	0.13
6.102	3.158	213.	0.121
6.53	2.513	225.6	0.12
6.751	1.663	238.8	0.118
7.176	1.072	253.2	0.115
7.561	0.891	268.2	0.113
7.981	1.389	283.8	0.113

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
8.461	1.058	300.6	0.111
9.001	1.006	318.6	0.11
9.481	1.015	337.2	0.107
10.08	1.173	357.6	0.105
10.68	0.908	378.6	0.103
11.31	1.087	400.8	0.103
11.94	0.779	424.8	0.102
12.66	0.744	450.	0.1
13.44	0.683	476.4	0.1
14.22	0.643	504.6	0.099
15.06	0.604	534.6	0.096
15.98	0.567	566.4	0.096
16.92	0.535	600.	0.093
17.88	0.508	636.	0.092
18.96	0.48	672.2	0.092
20.1	0.456	714.	0.09
21.3	0.433	756.	0.09
22.56	0.412	798.	0.089
23.88	0.392	846.	0.087
25.32	0.373	900.	0.085
26.82	0.354	948.	0.081
28.38	0.338	1008.	0.081
30.06	0.323	1068.	0.082
31.86	0.306	1128.1	0.08
33.72	0.292	1194.	0.082
35.76	0.281	1266.	0.08
37.86	0.27	1344.	0.078
40.08	0.259	1422.	0.079
42.48	0.251	1506.	0.077
45.	0.24	1596.	0.077
47.64	0.232	1692.	0.079
50.46	0.227	1788.	0.08
53.46	0.219		

SOLUTION

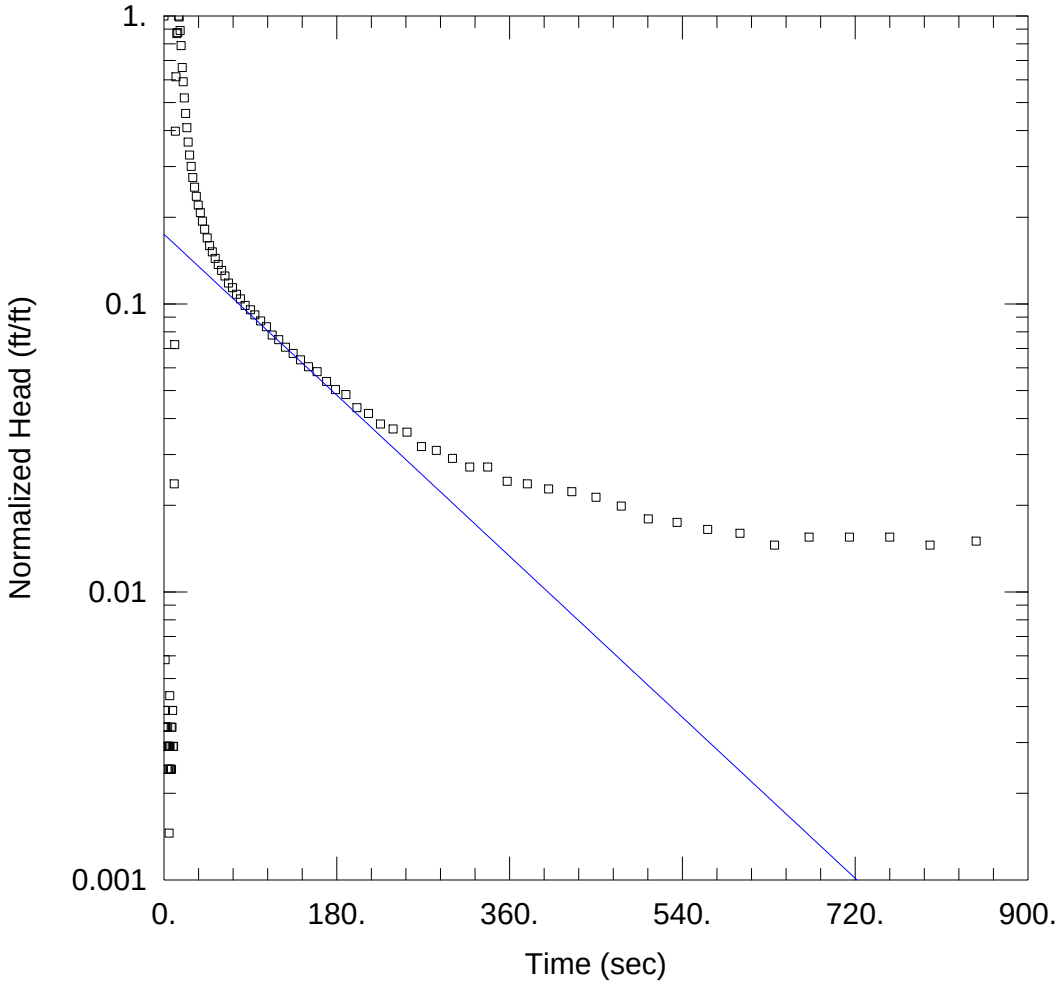
Slug Test
Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
ln(Re/rw): 4.748

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.0007661	cm/sec
y0	0.643	ft

T = K*b = 0.467 cm²/sec



IMW-104 FALLING HEAD TEST - WATER SLUG

Data Set: K:\...\IMW-104Fall2-Water.aqt
Date: 10/31/14 Time: 10:20:01

PROJECT INFORMATION

Company: Weston Solutions, Inc.
Client: IEPA
Project: 01104.020.006
Location: Wedron, IL
Test Well: Falling Head Test
Test Date: 10/2/2014

AQUIFER DATA

Saturated Thickness: 20. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (IMW-104)

Initial Displacement: 2.064 ft
Static Water Column Height: 14.79 ft
Total Well Penetration Depth: 45. ft
Screen Length: 15. ft
Casing Radius: 0.083 ft
Well Radius: 0.083 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 0.0002377 cm/sec
y0 = 0.3605 ft

Data Set: K:\State\IEPA2007\Wedron\2014 Fall Sampling\Field\Slug Test Data\IMW-104Fall2-Water.aqt
Title: IMW-104 Falling Head Test - Water Slug
Date: 10/31/14
Time: 10:20:19

PROJECT INFORMATION

Company: Weston Solutions, Inc.
Client: IEPA
Project: 01104.020.006
Location: Wedron, IL
Test Date: 10/2/2014
Test Well: Falling Head Test

AQUIFER DATA

Saturated Thickness: 20. ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: IMW-104

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: 2.064 ft
Static Water Column Height: 14.79 ft
Casing Radius: 0.083 ft
Well Radius: 0.083 ft
Well Skin Radius: 0.33 ft
Screen Length: 15. ft
Total Well Penetration Depth: 45. ft

No. of Observations: 110

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
0.251	0.006	37.86	0.428
0.501	0.007	40.08	0.4
0.751	0.008	42.48	0.375
1.001	0.007	45.	0.35
1.251	0.012	47.64	0.329
1.501	0.008	50.46	0.313
1.751	0.007	53.46	0.297
2.001	0.007	56.64	0.283
2.251	0.007	60.	0.27
2.501	0.006	63.6	0.258
2.751	0.006	67.2	0.244
3.001	0.006	71.4	0.235
3.251	0.005	75.6	0.223
3.501	0.006	79.8	0.215
3.852	0.007	84.6	0.204
4.072	0.005	90.	0.197
4.493	0.006	94.8	0.189
4.916	0.005	100.8	0.18
5.135	0.006	106.8	0.172
5.354	0.003	112.8	0.161
5.574	0.006	119.6	0.155
5.793	0.006	126.6	0.146
6.014	0.009	134.6	0.139
6.234	0.005	142.2	0.132
6.456	0.006	150.6	0.125
6.721	0.005	159.6	0.12
7.141	0.005	169.4	0.111
7.561	0.007	178.8	0.104
7.981	0.005	189.6	0.1

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
8.461	0.007	201.	0.09
9.143	0.008	213.	0.086
9.572	0.006	225.6	0.079
10.08	0.006	238.8	0.076
10.68	0.049	253.2	0.074
11.28	0.149	268.2	0.066
11.94	0.821	283.8	0.064
12.66	1.269	300.6	0.06
13.44	1.792	318.6	0.056
14.42	1.805	337.2	0.056
15.06	2.064	357.6	0.05
15.96	2.046	378.6	0.049
16.92	1.837	400.8	0.047
17.88	1.627	425.	0.046
19.14	1.367	450.	0.044
20.1	1.219	476.4	0.041
21.3	1.072	504.6	0.037
22.56	0.946	534.6	0.036
23.88	0.845	566.4	0.034
25.32	0.753	600.	0.033
26.82	0.679	636.	0.03
28.38	0.62	672.	0.032
30.06	0.567	714.	0.032
31.86	0.525	756.	0.032
33.72	0.488	798.	0.03
35.76	0.455	846.	0.031

SOLUTION

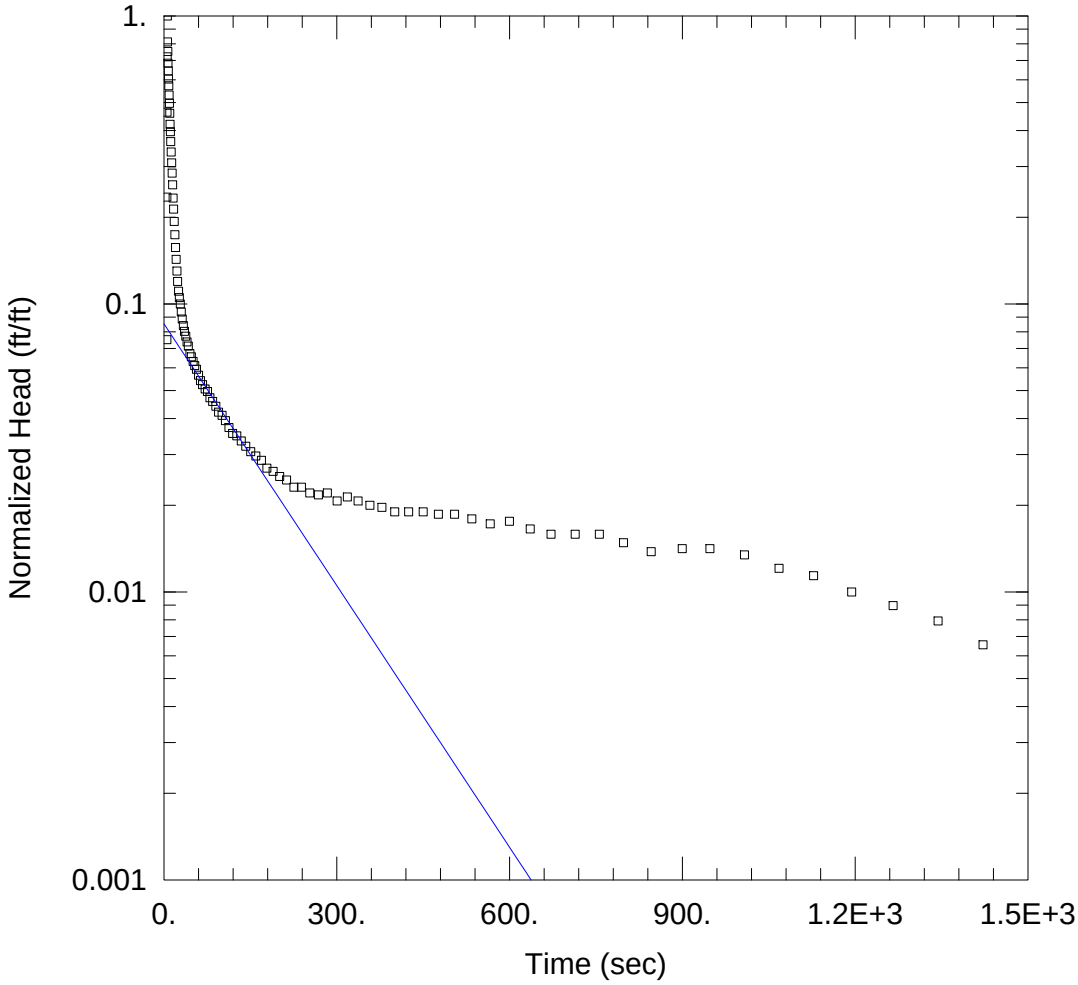
Slug Test
Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
ln(Re/rw): 4.748

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.0002377	cm/sec
y0	0.3605	ft

T = K*b = 0.1449 cm²/sec



IMW-104 RISING HEAD TEST - PVC SLUG

Data Set: K:\State\IEPA2007\Wedron\2014 Fall Sampling\Field\Slug Test Data\IMW-104Rising.aqt
Date: 10/31/14 Time: 10:18:55

PROJECT INFORMATION

Company: Weston Solutions, Inc.
Client: IEPA
Project: 01104.020.006
Location: Wedron, IL
Test Well: Falling Head Test
Test Date: 10/2/2014

AQUIFER DATA

Saturated Thickness: 20. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (IMW-104)

Initial Displacement: -2.9 ft Static Water Column Height: 14.79 ft
Total Well Penetration Depth: 45. ft Screen Length: 15. ft
Casing Radius: 0.083 ft Well Radius: 0.083 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.0002318 cm/sec y0 = -0.2473 ft

Data Set: K:\State\IEPA2007\Wedron\2014 Fall Sampling\Field\Slug Test Data\IMW-104Rising.aqt
Title: IMW-104 Rising Head Test - PVC Slug
Date: 10/31/14
Time: 10:19:31

PROJECT INFORMATION

Company: Weston Solutions, Inc.
Client: IEPA
Project: 01104.020.006
Location: Wedron, IL
Test Date: 10/2/2014
Test Well: Falling Head Test

AQUIFER DATA

Saturated Thickness: 20. ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: IMW-104

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: -2.9 ft
Static Water Column Height: 14.79 ft
Casing Radius: 0.083 ft
Well Radius: 0.083 ft
Well Skin Radius: 0.33 ft
Screen Length: 15. ft
Total Well Penetration Depth: 45. ft

No. of Observations: 125

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
0.25	0.006	60.	-0.164
0.605	0.007	63.6	-0.157
0.825	0.006	67.2	-0.152
1.247	0.006	71.4	-0.147
1.671	0.004	75.63	-0.144
1.89	0.006	79.8	-0.137
2.109	0.007	84.6	-0.133
2.329	0.005	90.	-0.128
2.549	0.007	94.8	-0.122
2.768	0.004	100.9	-0.119
2.988	0.005	106.8	-0.114
3.208	0.005	112.8	-0.108
3.437	0.005	119.4	-0.103
3.657	0.006	126.6	-0.101
3.876	0.004	134.4	-0.097
4.095	0.004	142.2	-0.093
4.315	0.004	150.7	-0.089
4.534	0.004	159.6	-0.086
4.753	0.004	169.2	-0.083
5.	-0.218	178.8	-0.078
5.25	-0.681	189.6	-0.076
5.5	-1.344	201.1	-0.073
5.75	-2.091	213.	-0.071
6.	-2.9	225.6	-0.067
6.36	-2.355	238.8	-0.067
6.72	-2.182	253.2	-0.064
7.142	-1.986	268.2	-0.063
7.566	-1.869	283.8	-0.064
7.98	-1.75	300.6	-0.06

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
8.46	-1.659	318.6	-0.062
9.	-1.54	337.2	-0.06
9.48	-1.441	357.6	-0.058
10.08	-1.332	378.6	-0.057
10.8	-1.219	400.8	-0.055
11.28	-1.149	424.8	-0.055
11.94	-1.062	450.	-0.055
12.66	-0.977	476.5	-0.054
13.44	-0.896	504.6	-0.054
14.22	-0.825	534.6	-0.052
15.06	-0.752	566.4	-0.05
16.09	-0.676	600.	-0.051
16.92	-0.619	636.	-0.048
17.88	-0.561	672.1	-0.046
18.96	-0.504	714.	-0.046
20.1	-0.455	756.	-0.046
21.3	-0.414	798.	-0.043
22.56	-0.377	846.	-0.04
23.88	-0.347	900.	-0.041
25.32	-0.321	948.	-0.041
26.82	-0.305	1008.	-0.039
28.38	-0.29	1068.	-0.035
30.06	-0.272	1128.	-0.033
31.86	-0.257	1194.	-0.029
33.72	-0.244	1266.	-0.026
35.83	-0.233	1344.	-0.023
37.86	-0.224	1422.	-0.019
40.08	-0.214	1506.	-0.018
42.48	-0.207	1596.	-0.015
45.	-0.195	1692.	-0.012
47.64	-0.19	1788.1	-0.011
50.58	-0.183	1896.	-0.012
53.46	-0.177	2010.	-0.012
56.64	-0.172		

SOLUTION

Slug Test
Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
ln(Re/rw): 4.748

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.0002318	cm/sec
y0	-0.2473	ft

T = K*b = 0.1413 cm²/sec