MALCOLM PIRNIE

[redacted]

HYDROGEOLOGIC ASSESSMENT
TECHNICAL MEMORANDUM
VOLUME III of III
APPENDICES E - H

FOR THE
SPRING HILL CAMP STUDY AREA
OSCEOLA COUNTY, MICHIGAN

PREPARED FOR
GREAT SPRING WATERS OF AMERICA

OCTOBER 2000

PREPARED BY
MALCOLM PIRNIE, INC.
1500 ABBOTT ROAD, SUITE 210
EAST LANSING, MICHIGAN 48823

RECYCLED PAPER

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test

Well No: MW-4s

Sheet 3 of 3

Date	Time	Δ Time	DTW	Δs	Remarks
08/28/2000	19:05	7625	6.91	0.91	
08/28/2000	20:38	7718	6.92	0.92	
08/28/2000	22:13	7813	6.95	0.95	
08/28/2000	23:52	7912	6.9	0.9	
08/29/2000	1:33	8013	6.97	0.97	
08/29/2000	3:16	8116	6.99	0.99	
08/29/2000	4:57	8217	7	1	
08/29/2000	6:35	8315	7.01	1.01	
08/29/2000	8:25	8425	7.03	1.03	
08/29/2000	13:30	8730	7.04	1.04	
08/29/2000	15:13	8833	7.04	1.04	
08/29/2000	17:39	8979	7.09	1.09	
08/29/2000	18:30	9030	7.07	1.07	
08/29/2000	20:00	9120	7.09	1.09	
08/29/2000	21:33	9213	7.11	1.11	
08/29/2000	23:09	9309	7.12	1.12	
08/30/2000	0:52	9412	7.12	1.12	
08/30/2000	2:34	9514	7.13	1.13	
08/30/2000	3:15	9555	7.14	1.14	
08/30/2000	6:57	9777	7.15	1.15	
08/30/2000	7:50	9830	7.15	1.15	
08/30/2000	9:12	9912	7.17	1.17	
08/30/2000	10:48	10008	7.17	1.17	
08/30/2000	12:27	10107	7.7	1.7	
08/30/2000	14:10	10210	7.18	1.18	
08/30/2000	14:26	10226	7.8	1.8	
08/30/2000	14:39	10239	7.18	1.18	
08/30/2000	14:53	10253	7.17	1.17	
08/30/2000	15:09	10269	7.17	1.17	
08/30/2000	15:30	10290	7.17	1.17	
08/30/2000	16:15	10335	7.17	1.17	
08/30/2000	16:30	10350	7.17	1.17	
08/30/2000	16:53	10373	7.15	1.15	
08/30/2000	17:13	10393	7.1	1.1	
08/30/2000	17:51	10431	7.07	1.07	
08/30/2000	18:08	10448	7.07	1.07	
08/30/2000	18:34	10474	7.01	1.01	
08/30/2000	18:58	10498	6.98	0.98	

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test
4065-001-AT1

Well No.: MW-5d
Pumping Well: PW-1, 2, 3
Start Date: 08/23/2000 Start time: 12:00
Initial Depth to Water: 52.24
Pumping Rate: 730 gpm

Test No. : 7-Day Test
Test Information:

Date	Time	Δ Time	DTW	Δs	Remarks
08/23/2000	10:49	-70.08333	52.24	0	
08/23/2000	11:19	-41	52.26	0.02	
08/23/2000	12:01	1	52.24	0	
08/23/2000	12:21	21	52.28	0.04	
08/23/2000	12:42	42	52.34	0.1	
08/23/2000	13:25	85	52.53	0.29	
08/23/2000	14:03	123	52.51	0.27	
08/23/2000	14:20	140	52.91	0.67	
08/23/2000	14:28	148	53.03	0.79	
08/23/2000	14:48	168	53.22	0.98	
08/23/2000	15:06	186	53.32	1.08	
08/23/2000	15:34	214	53.425	1.185	
08/23/2000	16:02	242	53.49	1.25	
08/23/2000	16:25	265	53.65	1.41	
08/23/2000	17:23	323	53.61	1.37	
08/23/2000	18:14	374	53.64	1.4	
08/23/2000	19:02	422	53.68	1.44	
08/23/2000	19:52	472	53.71	1.47	
08/23/2000	20:38	518	53.75	1.51	
08/23/2000	21:27	567	53.77	1.53	
08/23/2000	22:18	618	53.81	1.57	
08/23/2000	22:30	630	53.84	1.6	
08/24/2000	0:43	763	53.86	1.62	
08/24/2000	1:35	815	53.89	1.65	
08/24/2000	2:37	877	53.92	1.68	
08/24/2000	3:18	918	53.93	1.69	
08/24/2000	4:08	968	53.94	1.7	
08/24/2000	4:58	1018	53.97	1.73	
08/24/2000	5:50	1070	53.99	1.75	
08/24/2000	7:21	1161	54.03	1.79	
08/24/2000	9:04	1264	54.08	1.84	
08/24/2000	10:15	1335	54.1	1.86	
08/24/2000	12:07	1447	54.14	1.9	
08/24/2000	13:26	1526	54.16	1.92	
08/24/2000	15:22	1642	54.18	1.94	
08/24/2000	17:40	1780	54.24	2	
08/24/2000	18:37	1837	54.25	2.01	
08/24/2000	20:22	1942	54.28	2.04	
08/24/2000	21:55	2035	54.32	2.08	
08/24/2000	23:26	2126	54.34	2.1	
08/25/2000	1:06	2226	54.35	2.11	
08/25/2000	2:47:00	2327	54.39	2.15	

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test

Well No: MW-5d

Date	Time	Δ Time	DTW	Δs	Remarks
08/25/2000	4:27	2427	54.4	2.16	
08/25/2000	6:07	2527	54.44	2.2	
08/25/2000	7:52	2632	54.47	2.23	
08/25/2000	9:27	2727	54.5	2.26	
08/25/2000	11:09	2829	54.52	2.28	
08/25/2000	12:47	2927	54.53	2.29	
08/25/2000	14:36	3036	54.56	2.32	
08/25/2000	16:18	3138	54.58	2.34	
08/25/2000	17:53	3233	54.6	2.36	
08/25/2000	19:37	3337	54.625	2.385	
08/25/2000	21:24	3444	54.655	2.415	
08/25/2000	22:51	3531	54.66	2.42	
08/26/2000	0:26	3626	54.685	2.445	
08/26/2000	2:10	3730	54.7	2.46	
08/26/2000	3:52	3832	54.72	2.48	
08/26/2000	5:35	3935	54.74	2.5	
08/26/2000	7:13	4033	54.775	2.535	
08/26/2000	8:45	4125	54.82	2.58	
08/26/2000	10:34	4234	54.83	2.59	
08/26/2000	12:12	4332	54.835	2.595	
08/26/2000	13:52	4432	54.86	2.62	
08/26/2000	15:35	4535	54.87	2.63	
08/26/2000	17:11	4631	54.88	2.64	
08/26/2000	18:52	4732	54.92	2.68	
08/26/2000	20:44	4844	54.95	2.71	
08/26/2000	22:10	4930	54.94	2.7	
08/26/2000	23:50	5030	54.97	2.73	
08/27/2000	1:31	5131	54.98	2.74	
08/27/2000	3:24	5244	55.02	2.78	
08/27/2000	4:47	5327	55.04	2.8	
08/27/2000	6:28	5428	55.05	2.81	
08/27/2000	8:09	5529	55.09	2.85	
08/27/2000	9:54	5634	55.1	2.86	
08/27/2000	11:33	5733	55.13	2.89	
08/27/2000	13:15	5835	55.15	2.91	
08/27/2000	14:52	5932	55.18	2.94	
08/27/2000	16:33	6033	55.17	2.93	
08/27/2000	18:14	6134	55.18	2.94	
08/27/2000	19:53	6233	55.19	2.95	
08/27/2000	21:43	6343	55.21	2.97	
08/27/2000	23:10	6430	55.25	3.01	
08/28/2000	0:48	6528	55.23	2.99	
08/28/2000	2:30	6630	55.25	3.01	
08/28/2000	4:08	6728	55.26	3.02	
08/28/2000	5:50	6830	55.27	3.03	
08/28/2000	7:27	6927	55.29	3.05	
08/28/2000	9:06	7133	55.33	3.09	
08/28/2000	10:53	7228	55.34	3.1	
08/28/2000	12:28	7423	55.36	3.12	
08/28/2000	15:43	6480	54.84	2.6	

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GSWA - Spring Hill Seven Day Pumping Test

MW-5d

Sheet 3 of 3

Date	Time	Δ Time	DTW	Δs	Remarks
08/28/2000	16:12	7452	54.96	2.72	
08/28/2000	17:31	7531	55.26	3.02	
08/28/2000	19:14	7634	55.36	3.12	
08/28/2000	20:55	7735	55.38	3.14	
08/28/2000	22:29	7829	55.43	3.19	
08/29/2000	0:10	7930	55.46	3.22	
08/29/2000	1:49	8029	55.47	3.23	
08/29/2000	3:30	8130	55.48	3.24	
08/29/2000	5:11	8231	55.5	3.26	
08/29/2000	6:51	8331	55.56	3.32	
08/29/2000	8:44	8444	55.48	3.24	
08/29/2000	10:12	8532	55.51	3.27	
08/29/2000	11:51	8631	55.54	3.3	
08/29/2000	13:35	8735	55.55	3.31	
08/29/2000	15:15	8835	55.57	3.33	
08/29/2000	17:07	8947	55.58	3.34	
08/29/2000	18:31	9031	55.59	3.35	
08/29/2000	20:15	9135	55.6	3.36	
08/29/2000	21:51	9231	55.61	3.37	
08/29/2000	23:28	9328	55.66	3.42	
08/30/2000	1:14	9434	55.68	3.44	
08/30/2000	2:51	9531	55.69	3.45	
08/30/2000	4:31	9631	55.7	3.46	
08/30/2000	6:14	9734	55.72	3.48	
08/30/2000	7:48	9828	55.72	3.48	
08/30/2000	9:32	9932	55.72	3.48	
08/30/2000	11:12	10032	55.73	3.49	
08/30/2000	13:05	10145	55.73	3.49	
08/30/2000	14:00	10200	56.03	3.79	Recovery
08/30/2000	14:16	10216	55.54	3.3	
08/30/2000	14:33	10233	55.33	3.09	
08/30/2000	15:00	10260	55.15	2.91	
08/30/2000	15:11	10271	55.1	2.86	
08/30/2000	15:22	10282	55.02	2.78	
08/30/2000	15:32	10292	54.95	2.71	
08/30/2000	15:43	10303	54.9	2.66	
08/30/2000	16:02	10322	54.81	2.57	
08/30/2000	16:21	10341	54.7	2.46	
08/30/2000	16:44	10364	54.58	2.34	
08/30/2000	17:18	10398	54.44	2.2	
08/30/2000	17:54	10434	54.34	2.1	
08/30/2000	18:45	10485	54.3	2.06	

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test
4065-001-AT1

Well No.: MW-5i

Page 1 of 3

Pumping Well:

Test No. : 7-Day Test

Start Date: 08/23/2000 Start time: 12:00

Test Information:

Initial Depth to Water: 52.76

Pumping Rate:

Date	Time	Δ Time	DTW	Δs	Remarks
08/23/2000	10:49	-71	52.76	0	
08/23/2000	11:18	-42	52.82	0.06	
08/23/2000	12:00	0	52.76	0	
08/23/2000	12:20	20	52.95	0.19	
08/23/2000	12:42	42	53.02	0.26	
08/23/2000	13:25	85	53.46	0.7	Hermit - Test 1A is complete.
08/23/2000	14:03	123	64.08	11.32	Test 1B running.
08/23/2000	14:20	140	65.22	12.46	
08/23/2000	14:29	149	65.31	12.55	
08/23/2000	14:47	167	65.4	12.64	
08/23/2000	15:05	185	65.45	12.69	
08/23/2000	15:33	213	65.5	12.74	
08/23/2000	16:01	241	65.56	12.8	
08/23/2000	16:23	263	65.61	12.85	
08/23/2000	17:21	321	65.69	12.93	
08/23/2000	18:11	371	65.75	12.99	
08/23/2000	19:01	421	65.82	13.06	
08/23/2000	19:51	471	65.87	13.11	
08/23/2000	20:56	536	65.92	13.16	
08/23/2000	21:20	560	65.97	13.21	
08/23/2000	22:17	617	66.02	13.26	
08/23/2000	23:28	688	66.08	13.32	
08/24/2000	0:43	763	66.12	13.36	
08/24/2000	1:36	816	66.16	13.4	
08/24/2000	2:38	878	66.21	13.45	
08/24/2000	3:19	919	66.25	13.49	
08/24/2000	4:09	969	66.29	13.53	
08/24/2000	4:59	1019	66.33	13.57	
08/24/2000	5:50	1070	66.36	13.6	
08/24/2000	7:22	1162	66.45	13.69	
08/24/2000	9:04	1264	66.5	13.74	
08/24/2000	10:12	1332	66.52	13.76	
08/24/2000	12:06	1446	66.61	13.85	
08/24/2000	13:25	1525	66.64	13.88	
08/24/2000	15:20	1640	66.69	13.93	
08/24/2000	17:35	1775	66.78	14.02	
08/24/2000	18:35	1835	66.82	14.06	
08/24/2000	20:21	1941	66.88	14.12	
08/24/2000	20:54	1974	66.94	14.18	
08/24/2000	23:27	2127	66.98	14.22	
08/25/2000	1:06	2226	67.02	14.26	
08/25/2000	2:47	2327	67.08	14.32	

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test

Well No: MW-5i

Sheet 2 of 3

Date	Time	Δ Time	DTW	Δs	Remarks
08/25/2000	4:28	2428	67.12	14.36	
08/25/2000	6:03	2523	67.17	14.41	
08/25/2000	7:53	2633	67.22	14.46	
08/25/2000	9:29	2729	67.26	14.5	
08/25/2000	11:09	2829	67.29	14.53	
08/25/2000	12:49	2929	67.33	14.57	
08/25/2000	14:35	3035	67.37	14.61	
08/25/2000	16:17	3137	67.42	14.66	
08/25/2000	17:52	3232	67.46	14.7	
08/25/2000	19:36	3336	67.51	14.75	
08/25/2000	21:21	3441	67.54	14.78	
08/25/2000	22:51	3531	67.57	14.81	
08/26/2000	0:26	3626	67.615	14.855	
08/26/2000	2:10	3730	67.655	14.895	
08/26/2000	3:53	3833	67.7	14.94	
08/26/2000	5:35	3935	67.72	14.96	
08/26/2000	7:11	4031	67.715	14.955	
08/26/2000	8:45	4125	67.8	15.04	
08/26/2000	10:33	4233	67.85	15.09	
08/26/2000	12:11	4331	67.86	15.1	
08/26/2000	13:51	4431	67.9	15.14	
08/26/2000	15:33	4533	67.94	15.18	
08/26/2000	17:07	4627	67.97	15.21	
08/26/2000	18:51	4731	68.02	15.26	
08/26/2000	20:43	4843	68.07	15.31	
08/26/2000	22:11	4931	68.08	15.32	
08/26/2000	23:50	5030	68.12	15.36	
08/27/2000	1:31	5131	68.15	15.39	
08/27/2000	3:26	5246	68.18	15.42	
08/27/2000	4:47	5327	68.22	15.46	
08/27/2000	6:29	5429	68.26	15.5	
08/27/2000	8:09	5529	68.3	15.54	
08/27/2000	9:52	5632	68.31	15.55	
08/27/2000	11:32	5732	68.355	15.595	
08/27/2000	13:15	5835	68.36	15.6	
08/27/2000	14:51	5931	68.4	15.64	
08/27/2000	16:31	6031	68.43	15.67	
08/27/2000	18:12	6132	68.46	15.7	
08/27/2000	19:52	6232	68.47	15.71	
08/27/2000	21:44	6344	68.5	15.74	
08/27/2000	23:11	6431	68.55	15.79	
08/28/2000	0:50	6530	68.56	15.8	
08/28/2000	2:30	6630	68.58	15.82	
08/28/2000	4:09	6729	68.6	15.84	
08/28/2000	5:42	6822	68.63	15.87	
08/28/2000	7:26	6926	68.66	15.9	
08/28/2000	9:07	7027	68.71	15.95	
08/28/2000	10:52	7132	68.73	15.97	
08/28/2000	12:26	7226	68.74	15.98	
08/28/2000	15:41	7421	68.08	15.32	

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test

Well No: MW-5i

Date	Time	Δ Time	DTW	Δs	Remarks
08/28/2000	16:11	7451	68.57	15.81	
08/28/2000	17:27	7527	66.73	13.97	
08/28/2000	19:12	7632	68.77	16.01	
08/28/2000	20:56	7736	68.82	16.06	
08/28/2000	22:30	7830	68.89	16.13	
08/29/2000	0:10	7930	68.91	16.15	
08/29/2000	1:49	8029	68.95	16.19	
08/29/2000	3:30	8130	68.97	16.21	
08/29/2000	5:12	8232	68.92	16.16	
08/29/2000	6:51	8331	69.02	16.26	
08/29/2000	8:45	8445	69	16.24	
08/29/2000	10:11	8531	69.02	16.26	
08/29/2000	11:51	8631	69.07	16.31	
08/29/2000	13:33	8733	69.07	16.31	
08/29/2000	15:12	8832	69.09	16.33	
08/29/2000	17:05	8945	69.13	16.37	
08/29/2000	18:28	9028	69.15	16.39	
08/29/2000	20:15	9135	69.18	16.42	
08/29/2000	20:50	9170	69.19	16.43	
08/29/2000	23:31	9331	69.27	16.51	
08/30/2000	1:14	9434	69.28	16.52	
08/30/2000	2:51	9531	69.3	16.54	
08/30/2000	4:31	9631	69.3	16.54	
08/30/2000	6:14	9734	69.34	16.58	
08/30/2000	7:47	9827	69.33	16.57	
08/30/2000	9:31	9931	69.36	16.6	
08/30/2000	11:08	10028	69.36	16.6	
08/30/2000	13:04	10144	69.36	16.6	
08/30/2000	14:00	10200	60.11	7.35	Recovery Test
08/30/2000	14:17	10217	57.84	5.08	
08/30/2000	14:34	10234	57.74	4.98	
08/30/2000	15:00	10260	57.63	4.87	
08/30/2000	15:12	10272	57.38	4.62	
08/30/2000	15:23	10283	57.29	4.53	
08/30/2000	15:31	10291	57.25	4.49	
08/30/2000	15:39	10299	57.21	4.45	
08/30/2000	16:01	10321	57.14	4.38	
08/30/2000	16:22	10342	56.94	4.18	
08/30/2000	16:45	10365	56.85	4.09	
08/30/2000	17:18	10398	56.74	3.98	
08/30/2000	17:55	10435	56.68	3.92	
08/30/2000	18:44	10484	56.62	3.86	

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test
4065-001-AT1

Well No.: MW-6
Pumping Well: PW-1, 2, 3
Start Date: 08/23/2000 Start time: 12:00
Initial Depth to Water: 43.73
Pumping Rate: 730 GPM

Test No. : 7-Day Test
Test Information:

Date	Time	Δ Time	DTW	Δs	Remarks
08/23/2000	11:04	-55.25	43.73	0	
08/23/2000	11:29	-30.66667	43.74	0.01	
08/23/2000	12:10	10.333333	43.82	0.09	
08/23/2000	12:30	30.416667	43.97	0.24	
08/23/2000	13:11	71.383333	44.25	0.52	
08/23/2000	13:36	96.333333	44.40	0.67	
08/23/2000	14:25	145.41667	45.57	1.84	
08/23/2000	15:51	231.25	45.74	2.01	
08/23/2000	17:00	300	45.83	2.1	
08/23/2000	18:37	397.83333	45.92	2.19	
08/23/2000	20:50	530.25	46.01	2.28	
08/23/2000	23:44	704	46.10	2.37	
08/24/2000	0:28	748	46.14	2.41	
08/24/2000	4:30	990	46.21	2.48	
08/24/2000	7:39	1179	46.31	2.58	
08/24/2000	8:50	1250	46.35	2.62	
08/24/2000	11:14	1394	46.37	2.64	
08/24/2000	12:31	1471	46.40	2.67	
08/24/2000	13:59	1559	46.43	2.7	
08/24/2000	15:35	1655	46.45	2.72	
08/24/2000	18:12	1812	46.51	2.78	
08/24/2000	18:49	1849	46.53	2.8	
08/24/2000	20:52	1972	46.58	2.85	
08/24/2000	21:59	2039	46.61	2.88	
08/24/2000	23:35	2135	46.65	2.92	
08/25/2000	1:15	2235	46.66	2.93	
08/25/2000	4:42	2442	46.74	3.01	
08/25/2000	8:02	2642	46.80	3.07	
08/25/2000	11:41	2861	46.83	3.1	
08/25/2000	13:05	2945	46.85	3.12	
08/25/2000	14:53	3053	46.88	3.15	
08/25/2000	16:30	3150	46.91	3.18	
08/25/2000	18:07	3247	46.94	3.21	
08/25/2000	19:51	3351	46.97	3.24	
08/25/2000	23:07	3547	47.01	3.28	
08/26/2000	0:36	3636	47.04	3.31	
08/26/2000	2:17	3737	47.07	3.335	
08/26/2000	5:43	3943	47.12	3.39	
08/26/2000	8:51	4131	47.18	3.45	
08/26/2000	10:50	4250	47.20	3.47	
08/26/2000	12:18	4338	47.21	3.48	
08/26/2000	14:04	4444	47.25	3.52	
08/26/2000	15:39	4539	47.26	3.53	
08/26/2000	17:23	4643	47.31	3.58	
08/26/2000	19:06	4746	47.34	3.61	
08/25/2000	20:53	3413	47.38	3.65	

MALCOLM PIRNIE

Well No: MW-6

GSWA - Spring Hill Seven Day Pumping Test

Date	Time	Δ Time	DTW	Δs	Remarks
08/26/2000	22:20	4940	47.37	3.64	
08/26/2000	23:59	5039	47.42	3.69	
08/27/2000	1:39	5139	47.44	3.71	
08/27/2000	4:59	5339	47.50	3.77	
08/27/2000	8:17	5537	47.55	3.82	
08/27/2000	10:21	5661	47.56	3.83	
08/27/2000	11:48	5748	47.58	3.85	
08/27/2000	13:23	5843	47.61	3.88	
08/27/2000	15:01	5941	47.62	3.89	
08/27/2000	16:44	6044	47.64	3.91	
08/27/2000	18:29	6149	47.66	3.93	
08/27/2000	19:59	6239	47.67	3.94	
08/27/2000	21:54	6354	47.70	3.97	
08/28/2000	0:58	6538	47.74	4.01	
08/28/2000	4:16	6736	47.78	4.05	
08/28/2000	7:35	6935	47.81	4.08	
08/28/2000	11:07	7147	47.85	4.12	
08/28/2000	12:39	7239	47.86	4.13	
08/28/2000	15:54	7434	47.53	3.8	
08/28/2000	17:43	7543	47.86	4.13	
08/28/2000	19:29	7649	47.89	4.16	
08/29/2000	0:22	7942	48.10	4.37	
08/29/2000	3:41	8141	48.04	4.31	
08/29/2000	7:00	8340	48.08	4.35	
08/29/2000	8:58	8458	48.08	4.35	
08/29/2000	10:24	8544	48.10	4.37	
08/29/2000	12:02	8642	48.12	4.39	
08/29/2000	13:49	8749	48.14	4.41	
08/29/2000	15:27	8847	48.16	4.43	
08/29/2000	17:14	8954	48.18	4.45	
08/29/2000	18:40	9040	48.19	4.46	
08/29/2000	20:23	9143	48.21	4.48	
08/29/2000	23:39	9339	48.58	4.85	
08/30/2000	2:58	9538	48.31	4.58	
08/30/2000	6:21	9741	48.36	4.63	
08/30/2000	8:03	9843	48.35	4.62	
08/30/2000	9:43	9943	48.35	4.62	
08/30/2000	11:21	10041	48.36	4.63	
08/30/2000	13:12	10152	48.34	4.61	
08/30/2000	14:06	10206	47.55	3.82	
08/30/2000	14:21	10221	47.26	3.53	
08/30/2000	15:05	10265	47.10	3.37	
08/30/2000	15:17	10277	46.92	3.19	
08/30/2000	15:54	10314	46.82	3.09	
08/30/2000	16:28	10348	46.58	2.85	
08/30/2000	16:58	10378	46.46	2.73	
08/30/2000	17:29	10409	46.44	2.71	
08/30/2000	18:05	10445	46.40	2.67	
08/30/2000	19:08	10508	46.33	2.6	

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test
4065-001-AT1

Well No.: MW-7

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Pumping Well:

Test No. : 7-Day Test

Start Date: 08/23/2000 Start time: 12:00

Test Information:

Initial Depth to Water: 53.06

Pumping Rate:

Date	Time	Δ Time	DTW	Δs	Remarks
08/23/2000	11:14:20	-45.67	53.28	0.22	
08/23/2000	11:27:05	-32.92	53.06	0	
08/23/2000	12:07:30	7.50	53.68	0.62	
08/23/2000	12:28:10	28.17	54.38	1.32	
08/23/2000	13:09:00	69.00	55.17	2.11	
08/23/2000	13:33:05	93.08	55.69	2.63	
08/23/2000	14:23:10	143.17	56.19	3.13	
08/23/2000	16:53:10	293.17	56.43	3.37	
08/23/2000	16:54:15	294.25	56.74	3.68	
08/23/2000	18:38:50	398.83	56.64	3.58	
08/23/2000	20:51:30	531.50	56.74	3.68	
08/23/2000	21:45:15	585.25	56.81	3.75	
08/23/2000	23:34	694	56.87	3.81	
08/24/2000	0:19	739	56.92	3.86	
08/24/2000	2:52	892	56.95	3.89	
08/24/2000	4:24	984	57	3.94	
08/24/2000	6:01	1081	57.07	4.01	
08/24/2000	7:35	1175	57.11	4.05	
08/24/2000	8:49	1249	57.15	4.09	
08/24/2000	11:11	1391	57.19	4.13	
08/24/2000	12:19	1459	57.27	4.21	
08/24/2000	13:57	1557	57.3	4.24	
08/24/2000	15:39	1659	57.33	4.27	
08/24/2000	17:19	1759	57.37	4.31	
08/24/2000	18:55	1855	57.41	4.35	
08/24/2000	20:35	1955	57.46	4.4	
08/24/2000	23:32	2132	57.5	4.44	
08/25/2000	1:11	2231	57.53	4.47	
08/25/2000	2:52	2332	57.56	4.5	
08/25/2000	4:39	2439	57.6	4.54	
08/25/2000	5:40	2500	57.64	4.58	
08/25/2000	7:59	2639	57.66	4.6	
08/25/2000	9:21	2721	57.7	4.64	
08/25/2000	11:39	2859	57.725	4.665	
08/25/2000	13:00	2940	57.75	4.69	
08/25/2000	15:15	3075	57.79	4.73	
08/25/2000	15:58	3118	57.83	4.77	
08/25/2000	17:42	3222	57.87	4.81	
08/25/2000	19:15	3315	57.91	4.85	
08/25/2000	21:01	3421	57.93	4.87	
08/25/2000	23:05	3545	57.92	4.86	
08/25/2000		2160		-53.06	

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test

Well No: MW-7

Date	Time	Δ Time	DTW	Δs	Remarks
08/26/2000	0:34	3634	57.96	4.9	
08/26/2000	2:10	3730	57.99	4.93	
08/26/2000	3:58	3838	58.02	4.96	
08/26/2000	5:38	3938	58.04	4.98	
08/26/2000	7:15	4035	58	4.94	
08/26/2000	8:49	4129	58.1	5.04	
08/26/2000	11:02	4262	58.13	5.07	
08/26/2000	12:09	4329	58.18	5.12	
08/26/2000	13:41	4421	58.2	5.14	
08/26/2000	15:19	4519	58.23	5.17	
08/26/2000	17:03	4623	58.25	5.19	
08/26/2000	18:42	4722	58.29	5.23	
08/26/2000	20:41	4841	58.32	5.26	
08/26/2000	23:56	5036	58.33	5.27	
08/27/2000	1:36	5136	58.36	5.3	
08/27/2000	3:39	5259	58.4	5.34	
08/27/2000	4:56	5336	58.41	5.35	
08/27/2000	6:37	5437	58.45	5.39	
08/27/2000	8:14	5534	58.48	5.42	
08/27/2000	9:42	5622	58.48	5.42	
08/27/2000	11:24	5724	58.5	5.44	
08/27/2000	13:05	5825	58.5	5.44	
08/27/2000	14:47	5927	58.54	5.48	
08/27/2000	16:25	6025	58.54	5.48	
08/27/2000	18:09	6129	58.56	5.5	
08/27/2000	19:50	6230	58.6	5.54	
08/27/2000	21:50	6350	58.64	5.58	
08/27/2000	23:15	6435	58.67	5.61	
08/28/2000	0:54	6534	58.67	5.61	
08/28/2000	2:35	6635	58.71	5.65	
08/28/2000	4:13	6733	58.71	5.65	
08/28/2000	5:55	6835	58.72	5.66	
08/28/2000	7:32	6932	58.74	5.68	
08/28/2000	9:10	7030	58.78	5.72	
08/28/2000	11:04	7144	58.79	5.73	
08/28/2000	12:36	7236	58.8	5.74	
08/28/2000	12:51	7251	57.3	4.24	
08/28/2000	17:40	7540	58.69	5.63	
08/28/2000	19:25	7645	58.79	5.73	
08/28/2000	21:06	7746	58.87	5.81	
08/28/2000	22:35	7835	58.91	5.85	
08/29/2000	0:19	7939	58.91	5.85	
08/29/2000	1:58	8038	58.94	5.88	
08/29/2000	3:40	8140	58.97	5.91	
08/29/2000	5:17	8237	58.99	5.93	
08/29/2000	6:58	8338	59	5.94	
08/29/2000	8:55	8455	58.98	5.92	
08/29/2000	10:20	8540	59.01	5.95	
08/29/2000	11:57	8637	59.03	5.97	
08/29/2000	13:44	8744	59.05	5.99	

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test

Well No: MW-7

Date	Time	Δ Time	DTW	Δs	Remarks
08/29/2000	15:23	8843	59.07	6.01	
08/29/2000	17:12	8952	59.09	6.03	
08/29/2000	18:37	9037	59.11	6.05	
08/29/2000	20:20	9140	59.12	6.06	
08/29/2000	21:57	9237	59.15	6.09	
08/29/2000	23:35	9335	59.2	6.14	
08/30/2000	1:19	9439	59.21	6.15	
08/30/2000	2:55	9535	59.24	6.18	
08/30/2000	4:35	9635	59.24	6.18	
08/30/2000	6:19	9739	59.27	6.21	
08/30/2000	8:00	9840	59.26	6.2	
08/30/2000	9:40	9940	59.27	6.21	
08/30/2000	11:19	10039	59.27	6.21	
08/30/2000	13:29	10169	59.26	6.2	
08/30/2000	14:15	10215	59.06	6	
08/30/2000	14:30	10230	58.99	5.93	
08/30/2000	14:43	10243	58.95	5.89	
08/30/2000	15:21	10281	58.18	5.12	
08/30/2000	15:34	10294	58.05	4.99	
08/30/2000	15:51	10311	57.96	4.9	
08/30/2000	16:55	10375	56.35	3.29	
08/30/2000	17:25	10405	56.2	3.14	
08/30/2000	18:02	10442	56.1	3.04	
08/30/2000	19:07	10507	55.96	2.9	

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test
4065-001-AT1

Well No.: MW-8
Pumping Well:
Start Date: 08/23/2000 Start time: 12:00
Initial Depth to Water: 18.22
Pumping Rate:

Test No. : 7-Day Test
Test Information:

Date	Time	Δ Time	DTW	Δs	Remarks
08/23/2000	11:13	-47	18.22	0	
08/23/2000	12:12	12	18.5	0.28	
08/23/2000	12:40	40	18.95	0.73	
08/23/2000	13:05	65	19.29	1.07	
08/23/2000	13:49	109	19.62	1.4	
08/23/2000	14:25	145	19.78	1.56	
08/23/2000	14:48	168	19.96	1.74	
08/23/2000	15:36	216	19.95	1.73	
08/23/2000	16:50	290	20.04	1.82	
08/23/2000	18:30	390	20.1	1.88	
08/23/2000	20:12	492	20.18	1.96	
08/23/2000	22:16	616	20.25	2.03	
08/23/2000	23:06	666	20.27	2.05	
08/24/2000	0:59	779	20.31	2.09	
08/24/2000	3:27	927	20.36	2.14	
08/24/2000	7:02	1142	20.46	2.24	
08/24/2000	10:42	1362	20.52	2.3	
08/24/2000	12:17	1457	20.55	2.33	
08/24/2000	13:54	1554	20.57	2.35	
08/24/2000	15:37	1657	20.61	2.39	
08/24/2000	17:16	1756	20.62	2.4	
08/24/2000	18:52	1852	20.66	2.44	
08/24/2000	20:32	1952	20.69	2.47	
08/24/2000	22:15	2055	20.74	2.52	
08/25/2000	1:55	2275	20.78	2.56	
08/25/2000	4:56	2456	20.83	2.61	
08/25/2000	8:31	2671	20.89	2.67	
08/25/2000	10:05	2765	20.9	2.68	
08/25/2000	13:24	2964	20.93	2.71	
08/25/2000	13:31	2971	20.93	2.71	
08/25/2000	14:15	3015	20.95	2.73	
08/25/2000	15:55	3115	20.98	2.76	
08/25/2000	17:38	3218	21	2.78	
08/25/2000	19:13	3313	21.04	2.82	
08/25/2000	20:58	3418	21.07	2.85	
08/26/2000	4:15	3855	21.13	2.91	
08/26/2000	7:46	4066	21.18	2.96	
08/26/2000	10:19	4219	21.24	3.02	
08/26/2000	12:06	4326	21.24	3.02	
08/26/2000	13:39	4419	21.26	3.04	
08/26/2000	15:16	4516	21.28	3.06	
08/26/2000	17:00	4620	21.3	3.08	
08/26/2000	18:38	4718	21.31	3.09	
08/26/2000	20:38	4838	21.34	3.12	
08/27/2000	0:11	5051	21.37	3.15	
08/27/2000	3:54	5274	21.43	3.21	

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test

Well No: MW-8

Date	Time	Δ Time	DTW	Δs	Remarks
08/27/2000	6:49	5449	21.47	3.25	
08/27/2000	9:38	5618	21.5	3.28	
08/27/2000	11:20	5720	21.51	3.29	
08/27/2000	13:01	5821	21.51	3.29	
08/27/2000	14:44	5924	21.54	3.32	
08/27/2000	16:22	6022	21.54	3.32	
08/27/2000	18:06	6126	21.57	3.35	
08/27/2000	19:46	6226	21.58	3.36	
08/27/2000	23:29	6449	21.64	3.42	
08/28/2000	2:50	6650	21.66	3.44	
08/28/2000	6:14	6854	21.69	3.47	
08/28/2000	9:15	7035	21.73	3.51	
08/28/2000	10:36	7116	21.73	3.51	
08/28/2000	12:17	7217	21.73	3.51	
08/28/2000	17:23	7523	21.62	3.4	
08/28/2000	19:02	7622	21.73	3.51	
08/28/2000	21:25	7765	21.8	3.58	
08/29/2000	0:44	7964	21.83	3.61	
08/29/2000	3:55	8155	21.85	3.63	
08/29/2000	7:40	8380	21.9	3.68	
08/29/2000	8:21	8421	21.9	3.68	
08/29/2000	9:47	8507	21.91	3.69	
08/29/2000	11:45	8625	21.94	3.72	
08/29/2000	13:26	8726	21.95	3.73	
08/29/2000	15:10	8830	21.98	3.76	
08/29/2000	18:06	9006	21.98	3.76	
08/29/2000	20:24	9144	22.02	3.8	
08/29/2000	23:56	9356	22.04	3.82	
08/30/2000	3:11	9551	22.08	3.86	
08/30/2000	6:37	9757	22.1	3.88	
08/30/2000	7:44	9824	22.11	3.89	
08/30/2000	9:09	9909	22.12	3.9	
08/30/2000	10:43	10003	22.14	3.92	
08/30/2000	13:25	10165	22.12	3.9	
08/30/2000	14:12	10212	22.1	3.88	
08/30/2000	14:28	10228	22.08	3.86	
08/30/2000	14:41	10241	22.05	3.83	
08/30/2000	14:54	10254	22.04	3.82	
08/30/2000	15:19	10279	21.86	3.64	
08/30/2000	15:32	10292	21.17	2.95	
08/30/2000	15:48	10308	21.7	3.48	
08/30/2000	16:22	10342	21.11	2.89	
08/30/2000	16:32	10352	20.18	1.96	
08/30/2000	16:54	10374	20.8	2.58	
08/30/2000	17:24	10404	20.67	2.45	
08/30/2000	17:45	10425	20.61	2.39	
08/30/2000	18:05	10445	20.54	2.32	
08/30/2000	18:24	10464	20.52	2.3	

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test
4065-001-AT1

Well No.: MW-9
Pumping Well: PW-1, 2, 3
Start Date: 08/23/2000 Start time: 12:00
Initial Depth to Water: 28.4
Pumping Rate:

Test No. : 7-Day Test
Test Information:

Date	Time	Δ Time	DTW	Δs	Remarks
08/23/2000	11:08	-51.166667	28.4	0	
08/23/2000	11:34	-25.666667	28.39	-0.01	
08/23/2000	12:15	15	28.41	0.01	
08/23/2000	12:34	34.833333	28.41	0.01	
08/23/2000					
08/23/2000	13:16	76.75	28.42	0.02	
08/23/2000	13:41	101.91667	28.44	0.04	
08/23/2000	14:40	160.16667	28.62	0.22	
08/23/2000	16:06	246.16667	28.67	0.27	
08/23/2000	17:40	340.5	28.72	0.32	
08/23/2000	20:11	491.16667	28.765	0.365	
08/23/2000	21:06	546.25	28.78	0.38	
08/23/2000	21:58	598.91667	28	-0.4	
08/23/2000	23:58	718	28.82	0.42	
08/24/2000	1:44	824	28.89	0.49	
08/24/2000	2:45	885	28.85	0.45	
08/24/2000	4:14	974	28.86	0.46	
08/24/2000	5:56	1076	28.91	0.51	
08/24/2000	7:29	1169	28.9	0.5	
08/24/2000	9:11	1271	28.93	0.53	
08/24/2000	11:02	1382	28.95	0.55	
08/24/2000	12:43	1483	28.97	0.57	
08/24/2000	14:10	1570	28.98	0.58	
08/24/2000	15:48	1668	29	0.6	
08/24/2000	18:25	1825	29.02	0.62	
08/24/2000	18:53	1853	29.03	0.63	
08/24/2000	20:00	1920	29.05	0.65	
08/24/2000	22:03	2043	29.07	0.67	
08/24/2000	23:56	2156	29.06	0.66	
08/25/2000	1:25	2245	29.09	0.69	
08/25/2000	2:59	2339	29.09	0.69	
08/25/2000	4:49	2449	29.11	0.71	
08/25/2000	5:45	2505	29.13	0.73	
08/25/2000	8:13	2653	29.15	0.75	
08/25/2000	9:15	2715	29.16	0.76	
08/25/2000	11:31	2851	29.17	0.77	
08/25/2000	13:12	2952	29.18	0.78	
08/25/2000	15:02	3062	29.195	0.795	
08/25/2000	16:36	3156	29.215	0.815	
08/25/2000	18:17	3257	29.235	0.835	
08/25/2000	20:05	3365	29.24	0.84	
08/25/2000	21:37	3457	29.25	0.85	

MALCOLM PIRNIE

Well No: MW-9

Date	Time	Δ Time	DTW	Δs	Remarks
08/25/2000	23:15	3555	29.27	0.87	
08/26/2000	0:48	3648	29.285	0.885	
08/26/2000	2:26	3746	29.285	0.885	
08/26/2000	4:10	3850	29.295	0.895	
08/26/2000	5:48	3948	29.315	0.915	
08/26/2000	7:21	4041	29.33	0.93	
08/26/2000	9:02	4142	29.34	0.94	
08/26/2000	11:23	4283	29.35	0.95	
08/26/2000	12:35	4355	29.36	0.96	
08/26/2000	14:13	4453	29.33	0.93	
08/26/2000	15:46	4546	29.38	0.98	
08/26/2000	17:30	4650	29.41	1.01	
08/26/2000	19:13	4753	29.43	1.03	
08/26/2000	22:29	4949	29.44	1.04	
08/27/2000	0:07	5047	29.44	1.04	
08/27/2000	1:49	5149	29.48	1.08	
08/27/2000	3:49	5269	29.48	1.08	
08/27/2000	5:10	5350	29.51	1.11	
08/27/2000	6:46	5446	29.5	1.1	
08/27/2000	8:24	5544	29.52	1.12	
08/27/2000	10:32	5672	29.53	1.13	
08/27/2000	11:57	5757	29.54	1.14	
08/27/2000	13:34	5854	29.53	1.13	
08/27/2000	15:08	5948	29.57	1.17	
08/27/2000	16:55	6055	29.57	1.17	
08/27/2000	18:36	6156	29.58	1.18	
08/27/2000	20:05	6245	29.57	1.17	
08/27/2000	22:06	6366	29.58	1.18	
08/27/2000	23:24	6444	29.6	1.2	
08/28/2000	1:09	6549	29.6	1.2	
08/28/2000	2:45	6645	29.6	1.2	
08/28/2000	4:24	6744	29.62	1.22	
08/28/2000	6:08	6848	29.63	1.23	
08/28/2000	7:43	6943	29.65	1.25	
08/28/2000	9:20	7040	29.66	1.26	
08/28/2000	11:12	7152	29.69	1.29	
08/28/2000	12:45	7245	29.69	1.29	
08/28/2000	16:02	7442	29.69	1.29	
08/28/2000	17:50	7550	29.7	1.3	
08/28/2000	19:35	7655	29.72	1.32	
08/28/2000	21:18	7758	29.75	1.35	
08/28/2000	22:43	7843	29.76	1.36	
08/29/2000	0:37	7957	29.75	1.35	
08/29/2000	2:05	8045	29.78	1.38	
08/29/2000	3:50	8150	29.28	0.88	
08/29/2000	5:27	8247	29.8	1.4	
08/29/2000	7:09	8349	29.81	1.41	
08/29/2000	9:06	8466	29.8	1.4	
08/29/2000	10:32	8552	29.81	1.41	
08/29/2000	12:09	8649	29.83	1.43	

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test

Well No: MW-9

Date	Time	Δ Time	DTW	Δs	Remarks
08/29/2000	14:02	8762	29.84	1.44	
08/29/2000	15:33	8853	29.85	1.45	
08/29/2000	17:28	8968	29.87	1.47	
08/29/2000	18:48	9048	29.87	1.47	
08/29/2000	20:29	9149	29.85	1.45	
08/29/2000	22:04	9244	29.86	1.46	
08/29/2000	23:50	9350	29.89	1.49	
08/30/2000	1:29	9449	29.9	1.5	
08/30/2000	3:07	9547	29.9	1.5	
08/30/2000	4:41	9641	29.9	1.5	
08/30/2000	6:31	9751	29.93	1.53	
08/30/2000	8:09	9849	29.94	1.54	
08/30/2000	9:54	9954	29.94	1.54	
08/30/2000	11:30	10050	29.95	1.55	
08/30/2000	13:19	10159	29.93	1.53	
08/30/2000	14:10	10210	29.86	1.46	
08/30/2000	14:27	10227	29.81	1.41	
08/30/2000	15:09	10269	29.78	1.38	
08/30/2000	15:26	10286	29.76	1.36	
08/30/2000	16:07	10327	29.75	1.35	
08/30/2000	17:06	10386	29.72	1.32	
08/30/2000	17:37	10417	29.71	1.31	
08/30/2000	18:11	10451	29.7	1.3	
08/30/2000	19:00	10500	29.68	1.28	

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test
4065-001-AT1

Well No.: MW-10
Pumping Well:
Start Date: 08/23/2000 Start time: 12:00
Initial Depth to Water: 19.9
Pumping Rate:

Test No. : 7-Day Test
Test Information:

Date	Time	Δ Time	DTW	Δs	Remarks
08/23/2000	11:07	-52.93	19.9	0	
08/23/2000	11:31	-28.08	19.9	0	
08/23/2000	12:12	12.75	19.9	0	
08/23/2000	12:32	32.92	19.91	0.01	
08/23/2000	13:14	74.33	19.91	0.01	
08/23/2000	13:39	99.42	19.92	0.02	
08/23/2000	14:37	157.08	19.99	0.09	
08/23/2000	16:03	243.83	20.02	0.12	
08/23/2000	19:08	428.25	20.06	0.16	
08/23/2000	21:01	541.75	20.07	0.17	
08/23/2000	21:54	594.08	20.09	0.19	
08/23/2000	23:56	716	20.11	0.21	
08/24/2000	1:46	826	20.1	0.2	
08/24/2000	2:49	889	20.12	0.22	
08/24/2000	4:16	976	20.11	0.21	
08/24/2000	5:54	1074	20.13	0.23	
08/24/2000	7:31	1171	20.16	0.26	
08/24/2000	9:05	1265	20.17	0.27	
08/24/2000	11:06	1386	20.16	0.26	
08/24/2000	12:40	1480	10.175	-9.725	
08/24/2000	14:06	1566	20.18	0.28	
08/24/2000	15:44	1664	20.19	0.29	
08/24/2000	18:20	1820	20.21	0.31	
08/24/2000	18:53	1853	20.21	0.31	
08/24/2000	20:57	1977	20.22	0.32	
08/24/2000	22:05	2045	20.24	0.34	
08/24/2000	23:54	2154	20.24	0.34	
08/25/2000	1:21	2241	20.25	0.35	
08/25/2000	2:56	2336	20.24	0.34	
08/25/2000	4:46	2446	20.25	0.35	
08/25/2000	5:44	2504	20.26	0.36	
08/25/2000	8:10	2650	20.29	0.39	
08/25/2000	9:16	2716	20.29	0.39	
08/25/2000	11:30	2850	20.29	0.39	
08/25/2000	13:09	2949	20.29	0.39	
08/25/2000	14:58	3058	20.3	0.4	
08/25/2000	16:33	3153	20.31	0.41	
08/25/2000	18:13	3253	20.325	0.425	
08/25/2000	19:56	3356	20.33	0.43	
08/25/2000	21:41	3461	20.33	0.43	
08/25/2000	23:11	3551	20.34	0.44	
08/26/2000	0:45	3645	20.35	0.45	

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test

Well No: MW-10

Date	Time	Δ Time	DTW	Δs	Remarks
08/26/2000	2:24	3744	20.35	0.45	
08/26/2000	4:08	3848	20.355	0.455	
08/26/2000	5:28	3928	20.36	0.46	
08/26/2000	7:20	4040	20.385	0.485	
08/26/2000	8:59	4139	20.38	0.48	
08/26/2000	11:18	4278	20.39	0.49	
08/26/2000	12:22	4342	20.39	0.49	
08/26/2000	14:10	4450	20.4	0.5	
08/26/2000	15:43	4543	20.41	0.51	
08/26/2000	17:27	4647	20.43	0.53	
08/26/2000	19:10	4750	20.44	0.54	
08/26/2000	20:58	4858	20.44	0.54	
08/26/2000	21:01	4861	20.43	0.53	
08/26/2000	22:26	4946	20.445	0.545	
08/27/2000	0:04	5044	20.45	0.55	
08/27/2000	1:47	5147	20.45	0.55	
08/27/2000	3:47	5267	20.48	0.58	
08/27/2000	5:08	5348	20.47	0.57	
08/27/2000	6:43	5443	20.51	0.61	
08/27/2000	8:22	5542	20.51	0.61	
08/27/2000	10:25	5665	20.51	0.61	
08/27/2000	11:54	5754	20.51	0.61	
08/27/2000	13:31	5851	20.53	0.63	
08/27/2000	15:05	5945	20.53	0.63	
08/27/2000	16:52	6052	20.53	0.63	
08/27/2000	18:33	6153	20.54	0.64	
08/27/2000	20:03	6243	20.53	0.63	
08/27/2000	22:03	6363	20.55	0.65	
08/27/2000	23:20	6440	20.55	0.65	
08/28/2000	1:07	6547	20.55	0.65	
08/28/2000	2:42	6642	20.55	0.65	
08/28/2000	4:21	6741	20.56	0.66	
08/28/2000	6:05	6845	20.58	0.68	
08/28/2000	7:40	6940	20.58	0.68	
08/28/2000	9:16	7036	20.6	0.7	
08/28/2000	11:10	7150	20.6	0.7	
08/28/2000	12:43	7243	20.6	0.7	
08/28/2000	15:59	7439	20.6	0.7	
08/28/2000	17:47	7547	20.62	0.72	
08/28/2000	19:32	7652	20.61	0.71	
08/28/2000	21:15	7755	20.64	0.74	
08/28/2000	22:40	7840	20.65	0.75	
08/29/2000	0:32	7952	20.66	0.76	
08/29/2000	2:02	8042	20.65	0.75	
08/29/2000	3:48	8148	20.66	0.76	
08/29/2000	5:22	8242	20.67	0.77	
08/29/2000	7:06	8346	20.69	0.79	
08/29/2000	9:01	8461	20.68	0.78	
08/29/2000	10:29	8549	20.69	0.79	
08/29/2000	12:05	8645	20.7	0.8	

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test

Well No: MW-10

Date	Time	Δ Time	DTW	Δs	Remarks
08/29/2000	13:52	8752	20.7	0.8	
08/29/2000	15:31	8851	20.71	0.81	
08/29/2000	17:26	8966	20.72	0.82	
08/29/2000	18:45	9045	20.72	0.82	
08/29/2000	20:26	9146	20.73	0.83	
08/29/2000	22:02	9242	20.74	0.84	
08/29/2000	23:46	9346	20.74	0.84	
08/29/2000	1:26	8006	20.76	0.86	
08/29/2000	3:03	8103	20.76	0.86	
08/29/2000	4:39	8199	20.76	0.86	
08/29/2000	6:26	8306	20.78	0.88	
08/29/2000	8:06	8406	20.78	0.88	
08/29/2000	9:49	8509	20.78	0.88	
08/29/2000	11:28	8608	20.79	0.89	
08/29/2000	13:15	8715	20.78	0.88	
08/29/2000	14:08	8768	20.74	0.84	
08/29/2000	14:25	8785	20.72	0.82	
08/29/2000	15:07	8827	20.71	0.81	
08/29/2000	15:25	8845	20.7	0.8	
08/29/2000	16:04	8884	20.68	0.78	
08/29/2000	16:30	8910	20.68	0.78	
08/29/2000	17:02	8942	20.66	0.76	
08/29/2000	17:35	8975	20.68	0.78	
08/29/2000	18:09	9009	20.66	0.76	
08/29/2000	19:06	9066	20.68	0.78	

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test
4065-001-AT1

Well No.: MW-11
Pumping Well: PW-1, 2, 3
Start Date: 08/23/2000 Start time: 12:00
Initial Depth to Water: 50.91
Pumping Rate: 730 gpm

Test No. : 7-Day Test
Test Information:

Date	Time	Δ Time	DTW	Δs	Remarks
08/23/2000	17:14	314	50.91	0	
08/23/2000	20:00	480	50.91	0	
08/24/2000	1:52	832	51.92	1.01	
08/24/2000	9:21	1281	50.95	0.04	
08/24/2000	16:17	1697	50.89	-0.02	
08/24/2000	19:40	1900	50.9	-0.01	
08/25/2000	2:04	2284	50.91	0	
08/25/2000	7:17	2597	50.93	0.02	
08/25/2000	10:15	2775	50.92	0.01	
08/25/2000	13:38	2978	50.89	-0.02	
08/25/2000	17:02	3182	50.89	-0.02	
08/25/2000	23:21	3561	50.895	-0.015	
08/26/2000	9:16	4156	50.94	0.03	
08/26/2000	16:08	4568	50.91	0	
08/26/2000	19:44	4784	50.94	0.03	
08/27/2000	8:44	5564	51.03	0.12	
08/27/2000	12:35	5795	50.99	0.08	
08/27/2000	19:15	6195	51	0.09	
08/27/2000	23:38	6458	51.02	0.11	
08/28/2000	4:34	6754	51	0.09	
08/28/2000	13:08	7268	50.99	0.08	
08/28/2000	18:21	7581	50.96	0.05	
08/28/2000	21:35	7775	51.04	0.13	
08/29/2000	9:37	8497	51.01	0.1	
08/29/2000	16:19	8899	51.03	0.12	
08/29/2000	19:36	9096	51.03	0.12	
08/30/2000	7:17	9797	51.09	0.18	
08/30/2000	11:36	10056	51.09	0.18	
08/30/2000	13:46	10186	51.02	0.11	
08/30/2000	14:44	10244	51.02	0.11	
08/30/2000	19:21	10521	51.02	0.11	

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test
4065-001-AT1

Well No.: MW-12d
Pumping Well:
Start Date: 08/23/2000 Start time: 12:00
Initial Depth to Water: 6
Pumping Rate:

Test No. : 7-Day Test
Test Information:

Date	Time	Δ Time	DTW	Δs	Remarks
08/23/2000	17:20	320	6	0	
08/23/2000	20:38	518	6	0	
08/24/2000	2:00	840	6.1	0.1	
08/24/2000	9:27	1287	6	0	
08/24/2000	16:23	1703	6.1	0.1	
08/24/2000	19:47	1907	6.01	0.01	
08/25/2000	2:10	2290	6.01	0.01	
08/25/2000	7:24	2604	6.02	0.02	
08/25/2000	10:22	2782	6.04	0.04	
08/25/2000	13:45	2985	6.05	0.05	
08/25/2000	17:10	3190	6.06	0.06	
08/25/2000	23:26	3566	6.1	0.1	
08/26/2000	9:22	4162	6.09	0.09	
08/26/2000	16:16	4576	6.11	0.11	
08/26/2000	19:50	4790	6.11	0.11	
08/27/2000	8:50	5570	6.13	0.13	
08/27/2000	12:45	5805	6.15	0.15	
08/27/2000	19:25	6205	6.17	0.17	
08/27/2000	23:45	6465	6.19	0.19	
08/28/2000	4:40	6760	6.21	0.21	
08/28/2000	13:17	7277	6.23	0.23	
08/28/2000	18:35	7595	6.26	0.26	
08/28/2000	21:41	7781	6.26	0.26	
08/29/2000	9:33	8493	6.28	0.28	
08/29/2000	16:29	8909	6.29	0.29	
08/29/2000	19:43	9103	6.3	0.3	
08/30/2000	7:30	9810	6.32	0.32	
08/30/2000	11:51	10071	6.34	0.34	
08/30/2000	13:36	10176	6.35	0.35	
08/30/2000	14:55	10255	6.36	0.36	
08/30/2000	19:15	10515	6.38	0.38	

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test
4065-001-AT1

Well No.: MW-12i
Pumping Well: MPW-1, 2, 3
Start Date: 08/23/2000 Start time: 12:00
Initial Depth to Water: 45.19
Pumping Rate: 730 gpm

Test No. : 7-Day Test
Test Information:

Date	Time	Δ Time	DTW	Δs	Remarks
08/23/2000	17:20	320	45.19	0	
08/23/2000	20:39	519	45.22	0.03	
08/24/2000	2:00	840	45.17	-0.02	
08/24/2000	9:27	1287	45.18	-0.01	
08/24/2000	16:26	1706	45.15	-0.04	
08/24/2000	19:49	1909	45.18	-0.01	
08/25/2000	2:10	2290	45.17	-0.02	
08/25/2000	7:24	2604	45.21	0.02	
08/25/2000	10:21	2781	45.19	0	
08/25/2000	13:43	2983	45.19	0	
08/25/2000	17:09	3189	45.17	-0.02	
08/25/2000	23:28	3568	45.18	-0.01	
08/26/2000	9:16	4156	45.21	0.02	
08/26/2000	16:18	4578	45.17	-0.02	
08/26/2000	19:49	4789	45.21	0.02	
09/27/2000	8:49	50209	45.25	0.06	
09/27/2000	12:46	50446	45.2	0.01	
09/27/2000	19:24	50844	45.24	0.05	
09/27/2000	23:46	51106	45.25	0.06	
08/28/2000	4:41	6761	45.22	0.03	
08/28/2000	13:16	7276	45.22	0.03	
08/28/2000	18:33	7593	45.2	0.01	
08/28/2000	21:41	7781	45.26	0.07	
08/29/2000	9:32	8492	45.26	0.07	
08/29/2000	16:28	8908	45.27	0.08	
08/29/2000	19:44	9104	45.28	0.09	
08/30/2000	7:31	9811	45.31	0.12	
08/30/2000	11:52	10072	45.27	0.08	
08/30/2000	13:36	10176	45.26	0.07	
08/30/2000	14:55	10255	45.24	0.05	
08/30/2000	19:15	10515	45.25	0.06	

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test
4065-001-AT1

Well No.: MW-13
Pumping Well: PW-1, 2, 3
Start Date: 36761.00 Start time: 12:00
Initial Depth to Water: 26.51
Pumping Rate: 230 gpm

Test No. : 7-Day Pumping Test
Test Information:

Date	Time	Δ Time	DTW	Δs	Remarks
08/23/2000	11:01	-59.00	26.51	0	
08/23/2000	11:24	-35.75	26.6	0.09	
08/23/2000	12:05	5.50	26.89	0.38	
08/23/2000	12:25	25.67	27.51	1	
08/23/2000	12:46	46.92	27.65	1.14	
08/23/2000	12:54	54.33	27.68	1.17	
08/23/2000	12:58	58.33	27.69	1.18	
08/23/2000	13:03	63.00	30.63	4.12	
08/23/2000	13:05	65.00	30.79	4.28	
08/23/2000	13:06	66.08	30.91	4.4	
08/23/2000	13:30	90.67	31.46	4.95	
08/23/2000	13:56	116.75	31.58	5.07	
08/23/2000	14:17	137.67	32.07	5.56	
08/23/2000	14:55	175.75	32.26	5.75	
08/23/2000	15:08	188.83	32.3	5.79	
08/23/2000	15:40	220.75	32.38	5.87	
08/23/2000	16:43	283.08	32.51	6	
08/23/2000	17:11	311.50	32.61	6.1	
08/23/2000	18:01	361.25	32.66	6.15	
08/23/2000	18:32	392.50	32.7	6.19	
08/23/2000	18:50	410.50	32.74	6.23	
08/23/2000	19:41	461.00	32.81	6.3	
08/23/2000	20:31	511.25	32.89	6.38	
08/23/2000	21:12	552.25	32.94	6.43	
08/23/2000	22:08	608.50	33.01	6.5	
08/23/2000	23:02	662.50	33.08	6.57	
08/23/2000	23:48	708.00	33.11	6.6	
08/24/2000	0:40	760.00	33.16	6.65	
08/24/2000	1:32	812.00	33.21	6.7	
08/24/2000	2:19	859.00	33.25	6.74	
08/24/2000	3:10	910.00	33.3	6.79	
08/24/2000	4:00	960.00	33.35	6.84	
08/24/2000	4:50	1010.00	33.39	6.88	
08/24/2000	5:40	1060.00	33.44	6.93	
08/24/2000	6:35	1115.00	33.49	6.98	
08/24/2000	7:20	1160.00	33.52	7.01	
08/24/2000	9:00	1260.00	33.6	7.09	
08/24/2000	10:52	1372.00	33.69	7.18	
08/24/2000	12:25	1465.00	33.75	7.24	
08/24/2000	13:22	1522.00	33.79	7.28	
08/24/2000	15:16	1636.00	33.86	7.35	
08/24/2000	17:00	1740.00	33.94	7.43	
08/24/2000	18:35	1835.00	34	7.49	
08/24/2000	20:28	1948.00	34.07	7.56	
08/24/2000	21:51	2031.00	34.11	7.6	
08/24/2000	23:25	2125.00	34.16	7.65	
08/25/2000	1:05	2225.00	34.22	7.71	
08/25/2000	2:45	2325.00	34.27	7.76	

MALCOLM PIRNIE

MW-13

Date	Time	Δ Time	DTW	Δs	Remarks
08/25/2000	4:25	2425.00	34.32	7.81	
08/25/2000	6:03	2523.00	34.37	7.86	
08/25/2000	7:48	2628.00	34.44	7.93	
08/25/2000	9:25	2725.00	34.48	7.97	
08/25/2000	11:07	2827.00	34.53	8.02	
08/25/2000	12:41	2921.00	34.57	8.06	
08/25/2000	14:28	3028.00	34.61	8.1	
08/25/2000	16:07	3127.00	34.66	8.15	
08/25/2000	17:46	3226.00	34.7	8.19	
08/25/2000	19:23	3323.00	34.755	8.245	
08/25/2000	21:28	3448.00	34.79	8.28	
08/25/2000	22:48	3528.00	34.83	8.32	
08/26/2000	0:25	3625.00	34.88	8.37	
08/26/2000	2:06	3726.00	34.915	8.405	
08/26/2000	3:50	3830.00	34.96	8.45	
08/26/2000	5:31	3931.00	34.99	8.48	
08/26/2000	7:09	4029.00	35.03	8.52	
08/26/2000	8:43	4123.00	35.065	8.555	
08/26/2000	10:26	4226.00	35.11	8.6	
08/26/2000	12:06	4326.00	35.14	8.63	
08/26/2000	13:42	4422.00	35.18	8.67	
08/26/2000	15:26	4526.00	35.21	8.7	
08/26/2000	17:03	4623.00	35.25	8.74	
08/26/2000	18:47	4727.00	35.3	8.79	
08/26/2000	20:31	4831.00	35.33	8.82	
08/26/2000	22:08	4928.00	35.38	8.87	
08/26/2000	23:44	5024.00	35.38	8.87	
08/27/2000	1:27	5127.00	35.42	8.91	
08/27/2000	3:22	5242.00	35.46	8.95	
08/27/2000	4:44	5324.00	35.49	8.98	
08/27/2000	6:26	5426.00	35.52	9.01	
08/27/2000	8:05	5525.00	35.55	9.04	
08/27/2000	10:47	5687.00	35.6	9.09	
08/27/2000	11:26	5726.00	35.63	9.12	
08/27/2000	13:06	5826.00	35.66	9.15	
08/27/2000	14:46	5926.00	35.71	9.2	
08/27/2000	16:22	6022.00	35.71	9.2	
08/27/2000	18:07	6127.00	35.74	9.23	
08/27/2000	17:47	6107.00	35.77	9.26	
08/27/2000	21:39	6339.00	35.78	9.27	
08/27/2000	23:07	6427.00	35.81	9.3	
08/28/2000	0:45	6525.00	35.84	9.33	
08/28/2000	2:25	6625.00	35.86	9.35	
08/28/2000	4:06	6726.00	35.89	9.38	
08/28/2000	5:47	6827.00	35.91	9.4	
08/28/2000	7:25	6925.00	35.96	9.45	
08/28/2000	9:05	7025.00	35.99	9.48	
08/28/2000	10:41	7121.00	36.01	9.5	
08/28/2000	12:22	7222.00	36.03	9.52	
08/28/2000	15:35	7415.00	31.21	4.7	
08/28/2000	17:21	7521.00	34.84	8.33	
08/28/2000	19:06	7626.00	36.99	10.48	

MALCOLM PIRNIE

MW-13

GSWA - Spring Hill Seven Day Pumping Test

Sheet 3 of 3

Date	Time	Δ Time	DTW	Δs	Remarks
08/28/2000	20:52	7732.00	36.04	9.53	
08/28/2000	22:26	7826.00	36.12	9.61	
08/29/2000	0:05	7925.00	36.15	9.64	
08/29/2000	1:45	8025.00	36.17	9.66	
08/29/2000	3:25	8125.00	36.21	9.7	
08/29/2000	5:10	8230.00	36.23	9.72	
08/29/2000	6:45	8325.00	36.26	9.75	
08/29/2000	8:36	8436.00	36.28	9.77	
08/29/2000	10:06	8526.00	36.3	9.79	
08/29/2000	11:47	8627.00	36.33	9.82	
08/29/2000	13:27	8727.00	36.35	9.84	
08/29/2000	15:07	8827.00	36.37	9.86	
08/29/2000	17:02	8942.00	36.4	9.89	
08/29/2000	18:24	9024.00	36.44	9.93	
08/29/2000	20:14	9134.00	36.44	9.93	
08/29/2000	21:45	9225.00	36.46	9.95	
08/29/2000	23:20	9320.00	36.49	9.98	
08/30/2000	1:06	9426.00	36.54	10.03	
08/30/2000	2:45	9525.00	36.56	10.05	
08/30/2000	4:26	9626.00	36.57	10.06	
08/30/2000	6:09	9729.00	36.61	10.1	
08/30/2000	7:43	9823.00	36.61	10.1	
08/30/2000	9:26	9926.00	36.63	10.12	
08/30/2000	11:01	10021.00	36.65	10.14	
08/30/2000	13:04	10144.00	36.67	10.16	
08/30/2000	13:57	10197.00	36.68	10.17	
08/30/2000	14:16	10216.00	36.3	9.79	PW-3 Off
08/30/2000	14:32	10232.00	36.22	9.71	
08/30/2000	14:47	10247.00	36.18	9.67	
08/30/2000	15:00	10260.00	35.01	8.5	PW-2 Off
08/30/2000	15:01	10261.00	34.5	7.99	
08/30/2000	15:02	10262.00	33.69	7.18	
08/30/2000	15:03	10263.00	33.47	6.96	
08/30/2000	15:04	10264.00	33.32	6.81	
08/30/2000	15:05	10265.00	33.22	6.71	
08/30/2000	15:06	10266.00	33.15	6.64	
08/30/2000	15:07	10267.00	33.1	6.59	
08/30/2000	15:08	10268.00	33.06	6.55	
08/30/2000	15:25	10285.00	32.67	6.16	
08/30/2000	15:40	10300.00	32.58	6.07	
08/30/2000	16:01	10321.00	32.33	5.82	PW-1 Off
08/30/2000	16:20	10340.00	31.53	5.02	
08/30/2000	16:31	10351.00	31.37	4.86	
08/30/2000	16:46	10366.00	31.26	4.75	
08/30/2000	17:00	10380.00	31.15	4.64	
08/30/2000	17:22	10402.00	31.07	4.56	
08/30/2000	17:42	10422.00	30.98	4.47	
08/30/2000	18:01	10441.00	30.94	4.43	
08/30/2000	18:20	10460.00	30.86	4.35	

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test
4065-001-AT1

Well No.: HO-1
Pumping Well:
Start Date: 08/23/2000 Start time: 12:00
Initial Depth to Water: 84.86
Pumping Rate:

Test No. : 7-Day Test
Test Information:

Date	Time	Δ Time	DTW	Δs	Remarks
08/23/2000	18:15	375	84.86	0	
08/23/2000	21:22	562	84.82	-0.04	as copied from field book
08/24/2000	14:32	1592	84.85	-0.01	
08/24/2000	16:38	1718	84.81	-0.05	
08/25/2000	10:32	2792	84.82	-0.04	
08/25/2000	13:15	2955	84.81	-0.05	
08/25/2000	17:18	3198	84.81	-0.05	
08/26/2000	11:42	4302	84.81	-0.05	
08/26/2000	14:56	4496	84.82	-0.04	
08/26/2000	19:59	4799	84.82	-0.04	
08/27/2000	10:41	5681	84.82	-0.04	
08/27/2000	13:49	5869	84.83	-0.03	
08/27/2000	17:07	6067	84.82	-0.04	
08/28/2000	11:24	7164	84.83	-0.03	
08/28/2000	18:02	7562	84.82	-0.04	
08/29/2000	9:27	8487	84.83	-0.03	
08/29/2000	15:44	8864	84.83	-0.03	
08/29/2000	19:00	9060	84.84	-0.02	
08/30/2000	10:33	9993	84.84	-0.02	
08/30/2000	13:30	10170	84.81	-0.05	

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test
4065-001-AT1

Well No.: Seep 1
Pumping Well: PW-1, 2, 3
Start Date: 08/23/2000 Start time: 12:00
Initial Depth to Water: 2.55
Pumping Rate: 730 GPM

Test No. : 7-Day Pumping Test
Test Information:

Date	Time	Δ Time	DTW	Δs	Remarks
08/23/2000	11:07	-53	2.56	0.01	
08/23/2000	11:28	-32	2.55	0	
08/23/2000	11:46	-14	2.55	0	
08/23/2000	12:06	6	2.55	0	
08/23/2000	12:22	22	2.61	0.06	
08/23/2000	12:35	35	2.64	0.09	
08/23/2000	12:51	51	2.66	0.11	
08/23/2000	13:08	68	2.75	0.2	
08/23/2000	13:30	90	2.8	0.25	
08/23/2000	13:45	105	2.85	0.3	
08/23/2000	14:15	135	2.9	0.35	
08/23/2000	14:34	154	2.95	0.4	
08/23/2000	14:52	172	2.96	0.41	
08/23/2000	15:10	190	3	0.45	
08/23/2000	15:51	231	3.04	0.49	
08/23/2000	16:15	255	3.06	0.51	
08/23/2000	17:04	304	3.11	0.56	
08/23/2000	17:51	351	3.15	0.6	
08/23/2000	18:42	402	3.2	0.65	
08/23/2000	19:27	447	3.14	0.59	
08/23/2000	20:21	501	3.19	0.64	
08/23/2000	23:18	678	3.41	0.86	
08/24/2000	1:10	790	3.5	0.95	
08/24/2000	2:29	869	3.55	1	
08/24/2000	3:36	936	3.6	1.05	
08/24/2000	5:15	1035	3.65	1.1	
08/24/2000	7:10	1150	3.7	1.15	
08/24/2000	8:40	1240	3.76	1.21	
08/24/2000	10:51	1371	3.81	1.26	
08/24/2000	12:28	1468	3.87	1.32	
08/24/2000	14:07	1567	3.91	1.36	
08/24/2000	15:49	1669	3.96	1.41	
08/24/2000	17:33	1773	4	1.45	
08/24/2000	19:08	1868	4.04	1.49	
08/24/2000	20:48	1968	4.07	1.52	
08/24/2000	22:29	2069	4.11	1.56	
08/25/2000	0:11	2171	4.16	1.61	
08/25/2000	1:47	2267	4.2	1.65	
08/25/2000	3:15	2355	4.22	1.67	
08/25/2000	5:07	2467	4.27	1.72	
08/25/2000	5:57	2517	4.27	1.72	
08/25/2000	7:42	2622	4.32	1.77	

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test

Well No: Seep 1

Sheet 2 of 3

Date	Time	Δ Time	DTW	Δs	Remarks
08/25/2000	9:02	2702	4.33	1.78	
08/25/2000	11:02	2822	4.38	1.83	
08/25/2000	12:23	2903	4.42	1.87	
08/25/2000	14:44	3044	4.43	1.88	
08/25/2000	16:14	3134	4.47	1.92	
08/25/2000	18:00	3240	4.51	1.96	
08/25/2000	19:25	3325	4.53	1.98	
08/25/2000	21:12	3432	4.56	2.01	
08/25/2000	22:41	3521	4.585	2.035	
08/26/2000	0:16	3616	4.62	2.07	
08/26/2000	1:55	3715	4.66	2.11	
08/26/2000	3:44	3824	4.68	2.13	
08/26/2000	5:25	3925	4.71	2.16	
08/26/2000	7:01	4021	4.74	2.19	
08/26/2000	8:36	4116	4.755	2.205	
08/26/2000	10:33	4233	4.79	2.24	
08/26/2000	12:21	4341	4.82	2.27	
08/26/2000	14:00	4440	4.85	2.3	
08/26/2000	15:32	4532	4.87	2.32	
08/26/2000	17:16	4532	4.9	2.35	
08/26/2000	18:59	4636	4.92	2.37	
08/26/2000	20:51	4739	4.94	2.39	
08/26/2000	21:59	4851	4.99	2.44	
08/26/2000	23:38	4919	5	2.45	
08/27/2000	1:21	6458	5.02	2.47	
08/27/2000	3:14	5121	5.07	2.52	
08/27/2000	4:38	5234	5.07	2.52	
08/27/2000	6:18	5318	5.11	2.56	
08/27/2000	7:59	5418	5.12	2.57	
08/27/2000	9:59	5519	5.14	2.59	
08/27/2000	11:38	5639	5.17	2.62	
08/27/2000	13:18	5738	5.2	2.65	
08/27/2000	15:07	5838	5.23	2.68	
08/27/2000	16:40	5947	5.24	2.69	
08/27/2000	18:22	6040	5.26	2.71	
08/27/2000	20:06	6142	5.28	2.73	
08/27/2000	21:28	6246	5.31	2.76	
08/27/2000	22:59	6328	5.31	2.76	
08/28/2000	0:37	7859	5.35	2.8	
08/28/2000	2:21	6517	5.37	2.82	
08/28/2000	3:59	6621	5.39	2.84	
08/28/2000	5:40	6719	5.4	2.85	
08/28/2000	7:18	6820	5.42	2.87	
08/28/2000	8:55	6918	5.44	2.89	
08/28/2000	10:56	7015	5.46	2.91	
08/28/2000	12:32	7136	5.49	2.94	
08/28/2000	15:43	7232	5.03	2.48	
08/28/2000	16:04	7423	5.125	2.575	
08/28/2000	17:38	7444	5.31	2.76	
08/28/2000	19:24	7538	5.42	2.87	

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test

Well No: Seep 1

Sheet 3 of 3

Date	Time	Δ Time	DTW	Δs	Remarks
08/28/2000	20:44	7724	5.47	2.92	
08/28/2000	22:20	7820	5.51	2.96	
08/29/2000	0:01	7921	5.54	2.99	
08/29/2000	1:40	8020	5.56	3.01	
08/29/2000	3:22	8122	5.57	3.02	
08/29/2000	5:04	8224	5.58	3.03	
08/29/2000	6:42	8322	5.61	3.06	
08/29/2000	8:36	8436	5.61	3.06	
08/29/2000	10:12	8532	5.64	3.09	
08/29/2000	12:03	8643	5.66	3.11	
08/29/2000	13:41	8741	5.69	3.14	
08/29/2000	15:23	8843	5.7	3.15	
08/29/2000	17:46	8986	5.75	3.2	
08/29/2000	18:39	9039	5.74	3.19	
08/29/2000	20:07	9127	5.78	3.23	
08/29/2000	21:40	9220	5.78	3.23	
08/29/2000	23:15	9315	5.86	3.31	
08/30/2000	1:01	9421	5.82	3.27	
08/30/2000	2:40	9520	5.83	3.28	
08/30/2000	4:21	9621	5.85	3.3	
08/30/2000	6:04	9724	5.86	3.31	
08/30/2000	8:00	9840	5.87	3.32	
08/30/2000	9:26	9926	5.89	3.34	
08/30/2000	10:56	10016	5.9	3.35	
08/30/2000	12:32	10112	5.91	3.36	
08/30/2000	13:09	10149	5.92	3.37	
08/30/2000	14:03	10203	5.94	3.39	Pump 3 Off
08/30/2000	14:20	10220	5.94	3.39	
08/30/2000	14:35	10235	5.93	3.38	
08/30/2000	15:10	10270	5.86	3.31	Pump 2 Off
08/30/2000	15:26	10286	5.76	3.21	
08/30/2000	15:46	10306	5.7	3.15	
08/30/2000	16:05	10325	5.64	3.09	Pump 1 Off
08/30/2000	16:22	10342	5.56	3.01	
08/30/2000	16:41	10361	5.5	2.95	
08/30/2000	17:05	10385	5.43	2.88	
08/30/2000	17:28	10408	5.38	2.83	
08/30/2000	17:58	10438	5.33	2.78	
08/30/2000	18:20	10460	5.28	2.73	

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test
4065-001-AT1

Well No.: Seep 2

Pumping Well:

Start Date: 08/23/2000 Start time: 12:00

Initial Depth to Water: 4.51

Pumping Rate: 730 gpm

Test No. : 7-Day Pumping Test

Test Information:

Date	Time	Δ Time	DTW	Δs	Remarks
08/23/2000	11:05	-55	4.51	0	
08/23/2000	11:25	-35	4.5	-0.01	
08/23/2000	11:43	-17	4.51	0	
08/23/2000	12:04	4	4.51	0	
08/23/2000	12:20	20	4.56	0.05	
08/23/2000	12:32	32	4.56	0.05	
08/23/2000	12:47	47	4.51	0	
08/23/2000	13:06	66	4.51	0	
08/23/2000	13:26	86	4.55	0.04	
08/23/2000	13:41	101	4.52	0.01	
08/23/2000	14:11	131	4.51	0	
08/23/2000	14:31	151	4.51	0	
08/23/2000	14:49	169	4.5	-0.01	
08/23/2000	15:07	187	4.5	-0.01	
08/23/2000	15:46	226	4.5	-0.01	
08/23/2000	16:11	251	4.51	0	
08/23/2000	17:00	300	4.5	-0.01	
08/23/2000	17:48	348	4.5	-0.01	
08/23/2000	18:38	398	4.5	-0.01	
08/23/2000	19:24	444	4.5	-0.01	
08/23/2000	20:18	498	4.5	-0.01	
08/23/2000	22:25	625	4.51	0	
08/23/2000	23:14	674	4.51	0	
08/24/2000	1:07	787	4.51	0	
08/24/2000	2:25	865	4.53	0.02	
08/24/2000	3:38	938	4.5	-0.01	
08/24/2000	5:11	1031	4.51	0	
08/24/2000	7:08	1148	4.51	0	
08/24/2000	8:38	1238	4.52	0.01	
08/24/2000	10:49	1369	4.51	0	
08/24/2000	12:25	1465	4.51	0	
08/24/2000	14:04	1564	4.52	0.01	
08/24/2000	15:46	1666	4.52	0.01	
08/24/2000	17:24	1764	4.51	0	
08/24/2000	19:01	1861	4.53	0.02	
08/24/2000	20:41	1961	4.54	0.03	
08/24/2000	22:23	2063	4.54	0.03	
08/25/2000	0:07	2167	4.55	0.04	
08/25/2000	1:45	2265	4.57	0.06	
08/25/2000	3:12	2352	4.58	0.07	
08/25/2000	5:04	2464	4.59	0.08	
08/25/2000	5:55	2515	4.61	0.1	

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test

Well No: Seep 2

Date	Time	Δ Time	DTW	Δs	Remarks
08/25/2000	7:39	2619	4.61	0.1	
08/25/2000	9:00	2700	4.63	0.12	
08/25/2000	11:00	2820	4.63	0.12	
08/25/2000	12:21	2901	4.65	0.14	
08/25/2000	14:39	3039	4.65	0.14	
08/25/2000	16:05	3125	4.67	0.16	
08/25/2000	17:53	3233	4.68	0.17	
08/25/2000	19:20	3320	4.69	0.18	
08/25/2000	21:08	3428	4.7	0.19	
08/25/2000	22:36	3516	4.715	0.205	
08/26/2000	0:15	3615	4.715	0.205	
08/26/2000	1:51	3711	4.726	0.216	
08/26/2000	3:40	3820	4.74	0.23	
08/26/2000	6:59	4019	4.76	0.25	
08/26/2000	8:34	4114	4.765	0.255	
08/26/2000	10:26	4226	4.78	0.27	
08/26/2000	12:15	4335	4.79	0.28	
08/26/2000	13:53	4433	4.79	0.28	
08/26/2000	15:26	4526	4.8	0.29	
08/26/2000	17:09	4629	4.81	0.3	
08/26/2000	18:52	4732	4.82	0.31	
08/26/2000	20:48	4848	4.83	0.32	
08/26/2000	21:56	4916	4.855	0.345	
08/26/2000	23:35	5015	4.86	0.35	
08/27/2000	1:18	5118	4.87	0.36	
08/27/2000	3:11	5231	4.89	0.38	
08/27/2000	4:35	5315	4.88	0.37	
08/27/2000	6:15	5415	4.89	0.38	
08/27/2000	7:57	5517	4.9	0.39	
08/27/2000	9:50	5630	4.89	0.38	
08/27/2000	11:31	5731	4.91	0.4	
08/27/2000	13:14	5834	4.92	0.41	
08/27/2000	14:58	5938	4.93	0.42	
08/27/2000	16:32	6032	4.94	0.43	
08/27/2000	18:15	6135	4.95	0.44	
08/27/2000	19:59	6239	4.96	0.45	
08/27/2000	21:26	6326	4.96	0.45	
08/27/2000	22:55	6415	4.97	0.46	
08/28/2000	0:35	6515	4.98	0.47	
08/28/2000	2:19	6619	4.98	0.47	
08/28/2000	3:55	6715	4.98	0.47	
08/28/2000	5:36	6816	5	0.49	
08/28/2000	7:16	6916	5	0.49	
08/28/2000	8:51	7011	5.02	0.51	
08/28/2000	10:48	7128	5.02	0.51	
08/28/2000	12:25	7225	5.01	0.5	
08/28/2000	15:39	7419	4.83	0.32	
08/28/2000	16:00	7440	4.85	0.34	
08/28/2000	17:30	7530	4.95	0.44	
08/28/2000	19:18	7638	5.01	0.5	

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test

Well No: Seep 2

Date	Time	Δ Time	DTW	Δs	Remarks
08/28/2000	20:41	7721	5.03	0.52	
08/28/2000	22:16	7816	5.04	0.53	
08/28/2000	23:58	7918	5.05	0.54	
08/29/2000	1:37	8017	5.06	0.55	
08/29/2000	3:18	8118	5.06	0.55	
08/29/2000	5:00	8220	5.07	0.56	
08/29/2000	6:40	8320	5.07	0.56	
08/29/2000	8:29	8429	5.08	0.57	
08/29/2000	10:05	8525	5.08	0.57	
08/29/2000	11:56	8636	5.09	0.58	
08/29/2000	13:33	8733	5.1	0.59	
08/29/2000	15:16	8836	5.1	0.59	
08/29/2000	17:42	8982	5.13	0.62	
08/29/2000	18:33	9033	5.12	0.61	
08/29/2000	20:04	9124	5.15	0.64	
08/29/2000	21:36	9216	5.15	0.64	
08/29/2000	23:12	9312	5.14	0.63	
08/30/2000	0:56	9416	5.15	0.64	
08/30/2000	2:36	9516	5.16	0.65	
08/30/2000	6:01	9721	5.17	0.66	
08/30/2000	7:54	9834	5.16	0.65	
08/30/2000	9:14	9914	5.17	0.66	
08/30/2000	10:50	10010	5.18	0.67	
08/30/2000	12:30	10110	5.19	0.68	
08/30/2000	13:15	10155	5.2	0.69	
08/30/2000	14:10	10210	5.2	0.69	Pump 3 Off
08/30/2000	14:26	10226	5.2	0.69	
08/30/2000	14:42	10242	5.2	0.69	
08/30/2000	15:20	10280	5.16	0.65	Pump 2 Off
08/30/2000	15:35	10295	5.16	0.65	
08/30/2000	15:56	10316	5.14	0.63	
08/30/2000	16:12	10332	5.09	0.58	Pump 1 Off
08/30/2000	16:31	10351	5.05	0.54	
08/30/2000	16:52	10372	5	0.49	
08/30/2000	17:15	10395	4.98	0.47	
08/30/2000	17:39	10419	4.96	0.45	
08/30/2000	18:07	10447	4.93	0.42	
08/30/2000	18:29	10469	4.89	0.38	

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test
4065-001-AT1

Well No.: Seep 3
Pumping Well: PW-1, 2, 3
Start Date: 08/23/2000 Start time: 12:00
Initial Depth to Water: 4.91
Pumping Rate: 730 gpm

Test No. : 7-Day Pumping Test
Test Information:

Date	Time	Δ Time	DTW	Δs	Remarks
08/23/2000	11:01	-59	4.91	0	
08/23/2000	11:24	-36	4.92	0.01	
08/23/2000	11:42	-18	4.94	0.03	
08/23/2000	12:04	4	4.94	0.07	
08/23/2000	12:18	18	4.98	0.05	
08/23/2000	12:31	31	4.96	0.07	
08/23/2000	12:46	46	4.98	0.08	
08/23/2000	13:05	65	4.99	0.14	
08/23/2000	13:25	85	5.05	0.64	
08/23/2000	13:40	100	5.55	0.14	
08/23/2000	14:09	129	5.05	0.13	
08/23/2000	14:30	150	5.04	0.17	
08/23/2000	14:47	167	5.08	0.2	
08/23/2000	15:06	186	5.11	0.17	
08/23/2000	15:45	225	5.08	0.18	
08/23/2000	16:10	250	5.09	0.2	
08/23/2000	16:59	299	5.11	0.2	
08/23/2000	17:46	346	5.11	0.22	
08/23/2000	18:39	399	5.13	0.22	
08/23/2000	19:24	444	5.13	0.23	
08/23/2000	20:16	496	5.14	0.25	
08/23/2000	22:23	623	5.16	0.27	
08/23/2000	23:12	672	5.18	0.28	
08/24/2000	1:05	785	5.19	0.3	
08/24/2000	2:24	864	5.21	0.3	
08/24/2000	3:32	932	5.21	0.32	
08/24/2000	5:11	1031	5.23	0.34	
08/24/2000	7:07	1147	5.25	0.34	
08/24/2000	8:37	1237	5.25	0.34	
08/24/2000	10:47	1367	5.25	0.37	
08/24/2000	12:23	1463	5.28	0.38	
08/24/2000	14:03	1563	5.29	0.4	
08/24/2000	15:45	1665	5.31	0.41	
08/24/2000	17:23	1763	5.32	0.42	
08/24/2000	19:00	1860	5.33	0.42	
08/24/2000	20:39	1959	5.33	0.42	
08/24/2000	22:22	2062	5.33	0.44	
08/25/2000	0:06	2166	5.35	0.43	
08/25/2000	1:44	2264	5.34	0.45	
08/25/2000	3:11	2351	5.36	0.45	
08/25/2000	5:02	2462	5.36	0.46	
08/25/2000	5:54	2514	5.37	-4.91	

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test

Well No: Seep 3

Date	Time	Δ Time	DTW	Δs	Remarks
08/25/2000	7:38	2618	6.38	1.47	
08/25/2000	8:59	2699	5.39	0.48	
08/25/2000	11:00	2820	5.4	0.49	
08/25/2000	12:20	2900	5.41	0.5	
08/25/2000	14:38	3038	5.41	0.5	
08/25/2000	16:04	3124	5.41	0.5	
08/25/2000	17:51	3231	5.42	0.51	
08/25/2000	19:19	3319	5.42	0.51	
08/25/2000	21:07	3427	5.43	0.52	
08/25/2000	22:35	3515	5.44	0.53	
08/26/2000	0:12	3612	5.435	0.525	
08/26/2000	1:50	3710	5.45	0.54	
08/26/2000	3:37	3817	5.44	0.53	
08/26/2000	5:17	3917	5.445	0.535	
08/26/2000	6:57	4017	5.455	0.545	
08/26/2000	8:32	4112	5.46	0.55	
08/26/2000	10:24	4224	5.47	0.56	
08/26/2000	12:13	4333	5.48	0.57	
08/26/2000	13:51	4431	5.48	0.57	
08/26/2000	15:24	4524	5.49	0.58	
08/26/2000	17:07	4627	5.5	0.59	
08/26/2000	18:50	4730	5.51	0.6	
08/26/2000	20:46	4846	5.5	0.59	
08/26/2000	21:55	4915	5.51	0.6	
08/26/2000	23:34	5014	5.51	0.6	
08/27/2000	1:15	5115	5.51	0.6	
08/27/2000	3:04	5224	5.51	0.6	
08/27/2000	4:34	5314	5.52	0.61	
08/27/2000	6:14	5414	5.53	0.62	
08/27/2000	7:50	5510	5.54	0.63	
08/27/2000	9:49	5629	5.53	0.62	
08/27/2000	11:29	5729	5.55	0.64	
08/27/2000	13:12	5832	5.55	0.64	
08/27/2000	14:57	5937	5.56	0.65	
08/27/2000	16:31	6031	5.56	0.65	
08/27/2000	18:14	6134	5.57	0.66	
08/27/2000	19:58	6238	5.56	0.65	
08/27/2000	21:25	6325	5.57	0.66	
08/27/2000	22:54	6414	5.58	0.67	
08/28/2000	0:33	6513	5.57	0.66	
08/28/2000	2:17	6617	5.58	0.67	
08/28/2000	3:52	6712	5.58	0.67	
08/28/2000	5:35	6815	5.59	0.68	
08/28/2000	7:15	6915	5.59	0.68	
08/28/2000	8:51	7011	5.6	0.69	
08/28/2000	10:47	7127	5.6	0.69	
08/28/2000	12:24	7224	5.61	0.7	
08/28/2000	15:37	7417	5.5	0.59	
08/28/2000	15:58	7438	5.57	0.66	
08/28/2000	17:29	7529	5.57	0.66	

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GSWA - Spring Hill Seven Day Pumping Test

Well No: Seep 3

Date	Time	Δ Time	DTW	Δs	Remarks
08/28/2000	19:17	7637	5.6	0.69	
08/28/2000	20:40	7720	5.62	0.71	
08/28/2000	22:16	7816	5.62	0.71	
08/28/2000	23:58	7918	5.62	0.71	
08/29/2000	1:36	8016	5.63	0.72	
08/29/2000	3:18	8118	5.63	0.72	
08/29/2000	4:59	8219	5.63	0.72	
08/29/2000	6:38	8318	5.63	0.72	
08/29/2000	8:27	8427	5.65	0.74	
08/29/2000	10:04	8524	5.64	0.73	
08/29/2000	11:55	8635	5.65	0.74	
08/29/2000	13:32	8732	5.66	0.75	
08/29/2000	15:15	8835	5.66	0.75	
08/29/2000	17:41	8981	5.69	0.78	
08/29/2000	18:32	9032	5.67	0.76	
08/29/2000	20:02	9122	5.69	0.78	
08/29/2000	21:35	9215	5.67	0.76	
08/29/2000	23:11	9311	5.7	0.79	
08/30/2000	0:55	9415	5.68	0.77	
08/30/2000	2:36	9516	5.68	0.77	
08/30/2000	4:17	9617	5.68	0.77	
08/30/2000	6:00	9720	5.69	0.78	
08/30/2000	7:52	9832	5.69	0.78	
08/30/2000	9:13	9913	5.70	0.79	
08/30/2000	10:49	10009	5.70	0.79	
08/30/2000	12:28	10108	5.7	0.79	
08/30/2000	13:16	10156	5.72	0.81	
08/30/2000	14:12	10212	5.72	0.81	Pump 3 Off
08/30/2000	14:27	10227	5.73	0.82	
08/30/2000	14:44	10244	5.72	0.81	
08/30/2000	15:21	10281	5.7	0.79	Pump 2 Off
08/30/2000	15:35	10295	5.71	0.8	
08/30/2000	15:58	10318	5.68	0.77	
08/30/2000	16:15	10335	5.65	0.74	Pump 1 Off
08/30/2000	16:31	10351	5.63	0.72	
08/30/2000	16:53	10373	5.62	0.71	
08/30/2000	17:17	10397	5.59	0.68	
08/30/2000	17:40	10420	5.58	0.67	
08/30/2000	18:09	10449	5.56	0.65	
08/30/2000	18:31	10471	5.55	0.64	

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test
4065-001-AT1

Well No.: Seep 4
Pumping Well: PW-1, 2, 3
Start Date: 08/23/2000 Start time: 12:00
Initial Depth to Water: 4.73
Pumping Rate: 730 gpm

Test No. : 7-Day Test
Test Information:

Date	Time	Δ Time	DTW	Δs	Remarks
08/23/2000	11:06	-54	4.73	0	
08/23/2000	11:26	-34	4.71	-0.02	
08/23/2000	11:44	-16	4.73	0	
08/23/2000	12:05	5	4.74	0.01	
08/23/2000	12:21	21	4.76	0.03	
08/23/2000	12:32	32	4.46	-0.27	
08/23/2000	12:50	50	4.77	0.04	
08/23/2000	13:06	66	4.79	0.06	
08/23/2000	13:28	88	4.82	0.09	
08/23/2000	13:43	103	4.84	0.11	
08/23/2000	14:13	133	4.87	0.14	
08/23/2000	14:32	152	4.88	0.15	
08/23/2000	14:51	171	4.88	0.15	
08/23/2000	15:09	189	4.9	0.17	
08/23/2000	15:49	229	4.9	0.17	
08/23/2000	16:12	252	4.92	0.19	
08/23/2000	17:02	302	4.91	0.18	
08/23/2000	17:49	349	4.93	0.2	
08/23/2000	18:41	401	4.94	0.21	
08/23/2000	19:26	446	4.94	0.21	
08/23/2000	4:33	28353.6	4.95	0.22	
08/23/2000	22:29	629	4.99	0.26	
08/23/2000	23:16	676	4.99	0.26	
08/24/2000	1:08	788	5.01	0.28	
08/24/2000	2:27	867	5.03	0.3	
08/24/2000	3:35	935	5.02	0.29	
08/24/2000	5:14	1034	5.05	0.32	
08/24/2000	7:09	1149	5.07	0.34	
08/24/2000	8:39	1239	5.09	0.36	
08/24/2000	10:50	1370	5.1	0.37	
08/24/2000	12:27	1467	5.11	0.38	
08/24/2000	14:06	1566	5.13	0.4	
08/24/2000	15:47	1667	5.15	0.42	
08/24/2000	17:31	1771	5.17	0.44	
08/24/2000	19:07	1867	5.17	0.44	
08/24/2000	20:46	1966	5.17	0.44	
08/24/2000	22:25	2065	5.18	0.45	
08/25/2000	0:10	2170	5.19	0.46	
08/25/2000	1:46	2266	5.2	0.47	
08/25/2000	3:12	2352	5.2	0.47	
08/25/2000	5:06	2466	5.21	0.48	
08/25/2000	5:57	2517	5.24	0.51	

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GSWA - Spring Hill Seven Day Pumping Test

Well No: Seep 4

Date	Time	Δ Time	DTW	Δs	Remarks
08/25/2000	7:40	2620	5.22	0.49	
08/25/2000	9:01	2701	5.23	0.5	
08/25/2000	11:01	2821	5.27	0.54	
08/25/2000	12:22	2902	5.28	0.55	
08/25/2000	14:42	3042	5.28	0.55	
08/25/2000	16:12	3132	5.29	0.56	
08/25/2000	17:59	3239	5.3	0.57	
08/25/2000	19:24	3324	5.3	0.57	
08/25/2000	21:10	3430	5.3	0.57	
08/25/2000	22:40	3520	5.305	0.575	
08/26/2000	0:15	3615	5.31	0.58	
08/26/2000	1:54	3714	5.32	0.59	
08/26/2000	3:42	3822	5.325	0.595	
08/26/2000	5:22	3922	5.35	0.62	
08/26/2000	6:59	4019	5.34	0.61	
08/26/2000	8:35	4115	5.35	0.62	
08/26/2000	10:32	4232	5.36	0.63	
08/26/2000	12:19	4339	5.37	0.64	
08/26/2000	13:59	4439	5.38	0.65	
08/26/2000	15:30	4530	5.38	0.65	
08/26/2000	17:15	4635	5.4	0.67	
08/26/2000	18:57	4737	5.4	0.67	
08/26/2000	20:49	4849	5.41	0.68	
08/26/2000	21:58	4918	5.41	0.68	
08/26/2000	23:37	5017	5.41	0.68	
08/27/2000	1:19	5119	5.42	0.69	
08/27/2000	3:13	5233	5.43	0.7	
08/27/2000	4:36	5316	5.43	0.7	
08/27/2000	6:17	5417	5.45	0.72	
08/27/2000	7:58	5518	5.45	0.72	
08/27/2000	9:58	5638	5.44	0.71	
08/27/2000	11:36	5736	5.48	0.75	
08/27/2000	13:15	5835	5.48	0.75	
08/27/2000	15:06	5946	5.48	0.75	
08/27/2000	16:38	6038	5.5	0.77	
08/27/2000	18:20	6140	5.5	0.77	
08/27/2000	20:05	6245	5.5	0.77	
08/27/2000	21:27	6327	5.5	0.77	
08/27/2000	22:58	6418	5.51	0.78	
08/28/2000	0:36	6516	5.52	0.79	
08/28/2000	2:20	6620	5.52	0.79	
08/28/2000	3:57	6717	5.53	0.8	
08/28/2000	5:39	6819	5.54	0.81	
08/28/2000	7:17	6917	5.54	0.81	
08/28/2000	8:53	7013	5.55	0.82	
08/28/2000	10:54	7134	5.55	0.82	
08/28/2000	12:30	7230	5.55	0.82	
08/28/2000	15:40	7420	5.35	0.62	
08/28/2000	16:02	7442	5.42	0.69	
08/28/2000	17:37	7537	5.5	0.77	

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test

Well No: Seep 4

Date	Time	Δ Time	DTW	Δs	Remarks
08/28/2000	19:23	7643	5.54	0.81	
08/28/2000	20:43	7723	5.5	0.77	
08/28/2000	22:17	7817	5.58	0.85	
08/28/2000	23:59	7919	5.58	0.85	
08/29/2000	1:39	8019	5.58	0.85	
08/29/2000	3:19	8119	5.59	0.86	
08/29/2000	5:01	8221	5.59	0.86	
08/29/2000	6:41	8321	5.61	0.88	
08/29/2000	8:24	19944	5.6	0.87	
08/29/2000	10:11	8531	5.61	0.88	
08/29/2000	13:40	8740	5.61	0.88	
08/29/2000	15:21	8841	5.63	0.9	
08/29/2000	17:44	8984	5.66	0.93	
08/29/2000	18:37	9037	5.65	0.92	
08/29/2000	20:06	9126	5.68	0.95	
08/29/2000	21:38	9218	5.66	0.93	
08/29/2000	23:12	9312	5.69	0.96	
08/30/2000	0:58	9418	5.68	0.95	
08/30/2000	2:38	9518	5.68	0.95	
08/30/2000	4:20	9620	5.69	0.96	
08/30/2000	6:02	9722	5.7	0.97	
08/30/2000	7:59	9839	5.68	0.95	
08/30/2000	9:25	9925	5.7	0.97	
08/30/2000	10:55	10015	5.71	0.98	
08/30/2000	12:31	10111	5.73	1	
08/30/2000	13:11	10151	5.73	1	
08/30/2000	14:05	10205	5.74	1.01	
08/30/2000	14:21	10221	5.73	1	
08/30/2000	14:36	10236	5.73	1	
08/30/2000	15:13	10273	5.69	0.96	
08/30/2000	15:28	10288	5.65	0.92	
08/30/2000	15:47	10307	5.61	0.88	
08/30/2000	16:07	10327	5.58	0.85	
08/30/2000	16:23	10343	5.53	0.8	
08/30/2000	16:43	10363	5.5	0.77	
08/30/2000	17:06	10386	5.47	0.74	
08/30/2000	17:30	10410	5.45	0.72	
08/30/2000	18:00	10440	5.43	0.7	
08/30/2000	18:21	10461	5.41	0.68	

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test
4065-001-AT1

Well No.: Seep 5
Pumping Well: PW-1, 2, 3
Start Date: 08/23/2000 Start time: 12:00
Initial Depth to Water: 5.54
Pumping Rate: 730 gpm

Test No. : 7-Day Test
Test Information:

Date	Time	Δ Time	DTW	Δs	Remarks
08/23/2000	11:11	-48.916667	5.54	0	
08/23/2000	11:37	-22.833333	5.54	0	
08/23/2000	12:16	16.833333	5.54	0	
08/23/2000	12:32	32	5.53	-0.01	
08/23/2000					
08/23/2000	13:18	78.916667	5.53	-0.01	
08/23/2000	13:44	104.91667	5.58	0.04	
08/23/2000	14:42	162.41667	5.54	0	
08/23/2000	16:08	248.33333	5.55	0.01	
08/23/2000	17:44	344.08333	5.59	0.05	
08/23/2000	20:14	494.5	5.66	0.12	
08/24/2000	10:58	1378	5.62	0.08	
08/24/2000	12:46	1486	5.62	0.08	
08/24/2000	14:12	1572	5.63	0.09	
08/24/2000	15:50	1670	5.65	0.11	
08/24/2000	18:30	1830	5.66	0.12	
08/24/2000	18:56	1856	5.66	0.12	
08/25/2000	8:25	2665	5.65	0.11	
08/25/2000	11:35	2855	5.69	0.15	
08/25/2000	13:15	2955	5.68	0.14	
08/25/2000	15:06	3066	5.71	0.17	
08/25/2000	16:41	3161	5.71	0.17	
08/25/2000	20:00	3360	5.72	0.18	
08/26/2000	11:28	4288	5.74	0.2	
08/26/2000	14:16	4456	5.76	0.22	
08/26/2000	17:33	4653	5.78	0.24	
08/26/2000	19:16	4756	5.77	0.23	
08/27/2000	10:30	5670	5.81	0.27	
08/27/2000	12:00	5760	5.82	0.28	
08/27/2000	13:37	5857	5.83	0.29	
08/27/2000	15:14	5954	5.83	0.29	
08/27/2000	16:58	6058	5.84	0.3	
08/27/2000	18:39	6159	5.84	0.3	
08/27/2000	20:08	6248	5.85	0.31	
08/28/2000	11:15	7155	5.84	0.3	
08/28/2000	12:48	7248	5.85	0.31	
08/28/2000	16:04	7444	5.89	0.35	
08/28/2000	17:53	7553	5.89	0.35	
08/28/2000	19:37	7657	5.89	0.35	
08/29/2000	9:13	8473	5.89	0.35	
08/29/2000	10:35	8555	5.9	0.36	
08/29/2000	12:12	8652	5.91	0.37	

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test

Well No: Seep 5

Sheet 2 of 2

Date	Time	Δ Time	DTW	Δs	Remarks
08/29/2000	14:15	8775	5.92	0.38	
08/29/2000	15:36	8856	5.92	0.38	
08/29/2000	17:32	8972	5.94	0.4	
08/29/2000	18:52	9052	5.92	0.38	
08/30/2000	8:11	9851	5.93	0.39	
08/30/2000	9:58	9958	5.94	0.4	
08/30/2000	11:33	10053	5.95	0.41	
08/30/2000	13:21	10161	5.94	0.4	
08/30/2000	14:13	10213	5.95	0.41	
08/30/2000	14:29	10229	5.98	0.44	
08/30/2000	16:10	10330	6.02	0.48	
08/30/2000	17:42	10422	6.01	0.47	
08/30/2000	19:01	10501	6.01	0.47	

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test
4065-001-AT1

Well No.: Seep 6

Page 1 of 1

Pumping Well:

Test No. : 7-Day Test

Start Date: 08/23/2000 Start time: 12:00

Test Information:

Initial Depth to Water: 1.15

Pumping Rate:

Date	Time	Δ Time	DTW	Δs	Remarks
08/23/2000	12:00	0	1.15	0	
08/24/2000	16:11	1691	1.21	0.06	
08/25/2000	7:12	2592	1.08	-0.07	
08/25/2000	10:10	2770	1.2	0.05	
08/25/2000	13:32	2972	1.23	0.08	
08/25/2000	16:58	3178	1.24	0.09	
08/26/2000	16:03	4563	1.24	0.09	
08/26/2000	19:40	4780	1.26	0.11	Hi Flow From Vent
08/27/2000	8:37	5557	1.22	0.07	
08/27/2000	12:40	5800	1.29	0.14	
08/27/2000	19:19	6199	1.32	0.17	
08/28/2000	13:12	7272	1.27	0.12	
08/28/2000	18:24	7584	1.32	0.17	
08/29/2000	9:40	8500	1.27	0.12	
08/29/2000	16:24	8904	1.28	0.13	
08/30/2000	7:22	9802	1.29	0.14	
08/30/2000	11:45	10065	1.3	0.15	
08/30/2000	13:41	10181	1.34	0.19	
08/30/2000	14:49	10249	1.38	0.23	
08/30/2000	19:21	10521	1.38	0.23	

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test
4065-001-AT1

Well No.: Vent 1
Pumping Well: PW-1, 2, 3
Start Date: 08/23/2000 Start time: 12:00
Initial Depth to Water: 3.87
Pumping Rate: 730 gpm

Test No. : 7-Day Test
Test Information:

Date	Time	Δ Time	DTW	Δs	Remarks
08/23/2000	10:53	-66.63333	3.87	0	
08/23/2000	11:21	-38.08333	3.86	-0.01	
08/23/2000	12:03	3.1666667	3.85	-0.02	
08/23/2000	12:23	23.25	3.85	-0.02	
08/23/2000	12:44	44.916667	3.86	-0.01	
08/23/2000	13:28	88.25	3.85	-0.02	
08/23/2000	14:07	127.41667	3.86	-0.01	
08/23/2000	15:28	208.33333	3.86	-0.01	
08/23/2000	16:32	272.16667	3.91	0.04	
08/23/2000	18:23	383.33333	3.89	0.02	
08/23/2000	20:03	483.16667	3.9	0.03	
08/24/2000	10:49	1369	3.9	0.03	Slight bubbling of water
08/24/2000	12:22	1462	3.9	0.03	
08/24/2000	13:35	1535	3.91	0.04	
08/24/2000	15:27	1647	3.91	0.04	
08/24/2000	17:54	1794	3.91	0.04	
08/24/2000	18:43	1843	3.915	0.045	
08/24/2000	20:43	1963	3.92	0.05	
08/25/2000	11:13	2833	3.935	0.065	Bubbling is slowing down but steady (faster than yesterday)
08/25/2000	12:55	2935	3.93	0.06	Faint Intermittent bubbling
08/25/2000	14:46	3046	3.94	0.07	
08/25/2000	16:23	3143	3.95	0.08	Bubbling stopped
08/25/2000	18:00	3240	3.97	0.1	
08/25/2000	19:44	3344	3.99	0.12	
08/26/2000	10:42	4242	4.21	0.34	12" dia. Puddle surrounding
08/26/2000	13:56	4436	4.21	0.34	Vent 1 is dry. Soil remains saturated
08/26/2000	17:17	4637	4.325	0.455	
08/26/2000	18:00	4680	4.36	0.49	
08/26/2000	20:40	4840	4.4	0.53	
08/27/2000	10:10	5650		-3.87	No Reading - can't get probe past transducer/
08/27/2000	11:40	5740		-3.87	troll at a 4.65' below TOC
08/28/2000	16:38	7478	4.65	0.78	
08/28/2000	10:57	7137		-3.87	See remark at 10:10 8/27/00
08/28/2000	15:47	7427		-3.87	Same as above
08/28/2000	17:35	7535		-3.87	"
08/29/2000	8:50	8450		-3.87	Still can't get past transducer @ 4.65
08/29/2000	17:22	8962		-3.87	
08/29/2000	7:55	8395		-3.87	WL still below ~4.65 - No Reading
08/30/2000	13:09	10149		-3.87	"
08/30/2000	14:17	10217		-3.87	"
08/30/2000	15:55	10315		-3.87	"
08/30/2000	16:49	10369		-3.87	"
08/30/2000	18:46	10486		-3.87	"

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test
4065-001-AT1

Well No.: Vent 2
Pumping Well: PW-1, 2, 3
Start Date: 08/23/2000 Start time: 12:00
Initial Depth to Water: 2.47
Pumping Rate: 730 gpm

Test No. : 7-Day Test
Test Information:

Date	Time	Δ Time	DTW	Δs	Remarks
08/23/2000	10:51	-68.666667	2.47	0	
08/23/2000	11:20	-39.583333	2.47	0	
08/23/2000	12:01	1.8333333	2.47	0	
08/23/2000	12:22	22.166667	2.43	-0.04	
08/23/2000	12:43	43.5	2.42	-0.05	
08/23/2000	13:26	86.416667	2.39	-0.08	
08/23/2000	14:05	125.91667	2.39	-0.08	
08/23/2000	15:30	210.5	2.4	-0.07	
08/23/2000	16:27	267.75	2.41	-0.06	
08/23/2000	18:19	379.75	2.41	-0.06	
08/23/2000	19:51	471.5	2.42	-0.05	
08/23/2000	20:41	521.75	2.42	-0.05	
08/23/2000	23:33	693	2.43	-0.04	
08/24/2000	0:45	765	2.43	-0.04	
08/24/2000	1:39	819	2.45	-0.02	
08/24/2000	10:44	1364	2.43	-0.04	
08/24/2000	12:19	1459	2.4	-0.07	
08/24/2000	13:31	1531	2.42	-0.05	
08/24/2000	15:24	1644	2.43	-0.04	
08/24/2000	17:50	1790	2.46	-0.01	
08/24/2000	18:40	1840	2.44	-0.03	
08/24/2000	20:40	1960	2.45	-0.02	
08/25/2000	7:55	2635	2.43	-0.04	
08/25/2000	11:10	2830	2.44	-0.03	
08/25/2000	12:53	2933	2.43	-0.04	
08/25/2000	14:43	3043	2.44	-0.03	
08/25/2000	16:20	3140	2.45	-0.02	
08/25/2000	17:57	3237	2.45	-0.02	
08/25/2000	19:39	3339	2.46	-0.01	
08/26/2000	10:38	4238	2.445	-0.025	
08/26/2000	13:53	4433	2.455	-0.015	
08/26/2000	17:14	4634	2.44	-0.03	
08/26/2000	18:55	4735	2.4	-0.07	
08/26/2000	20:37	4837	2.42	-0.05	
08/27/2000	10:00	5640	2.43	-0.04	
08/27/2000	11:35	5735	2.44	-0.03	
08/27/2000	13:17	5837	2.46	-0.01	
08/27/2000	14:54	5934	2.46	-0.01	
08/27/2000	16:34	6034	2.44	-0.03	
08/27/2000	18:17	6137	2.43	-0.04	
08/27/2000	19:55	6235	2.43	-0.04	
08/28/2000	10:54	7134	2.43	-0.04	

MALCOLM PIRNIE

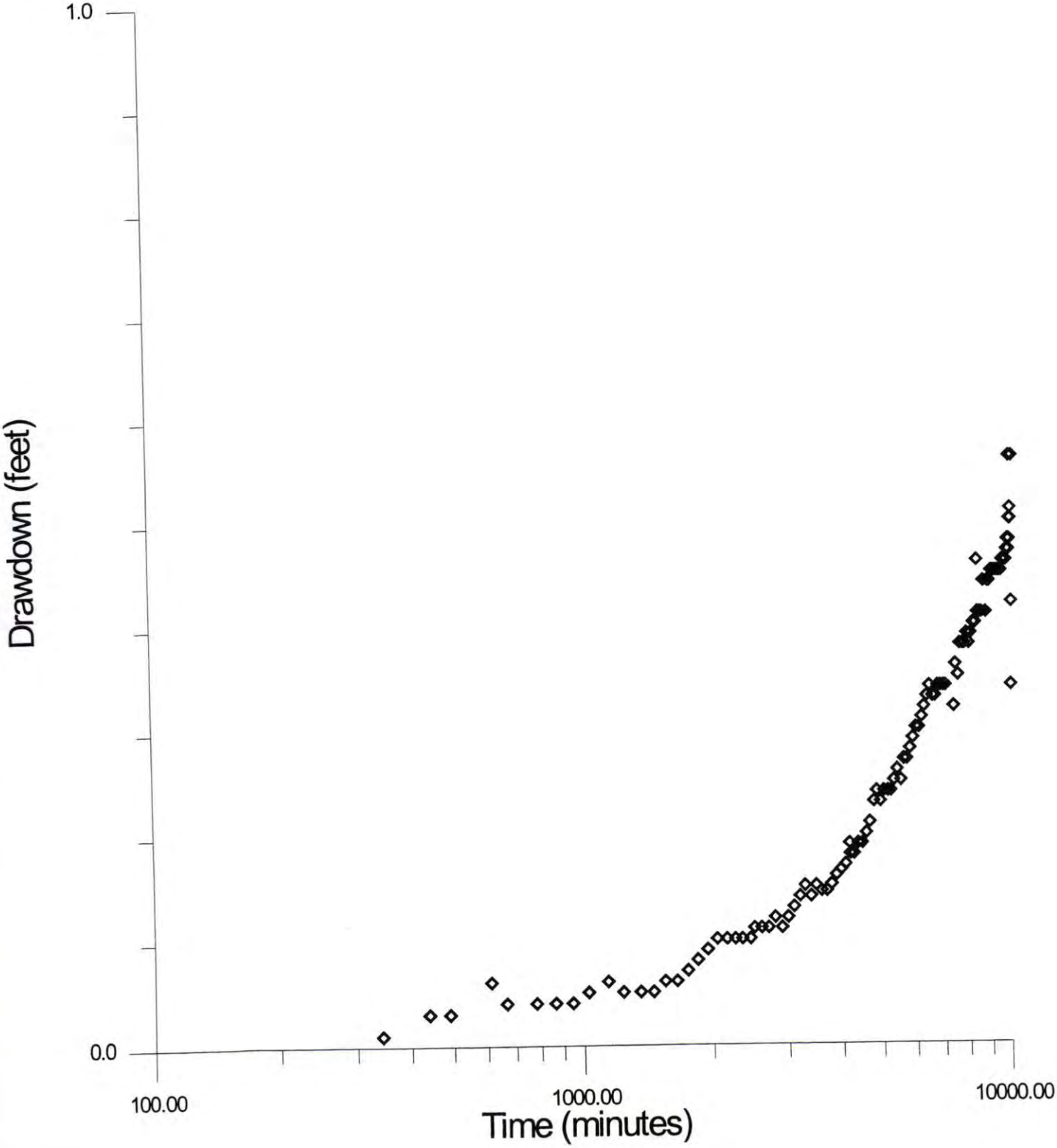
GSWA - Spring Hill Seven Day Pumping Test

Well No: Vent 2

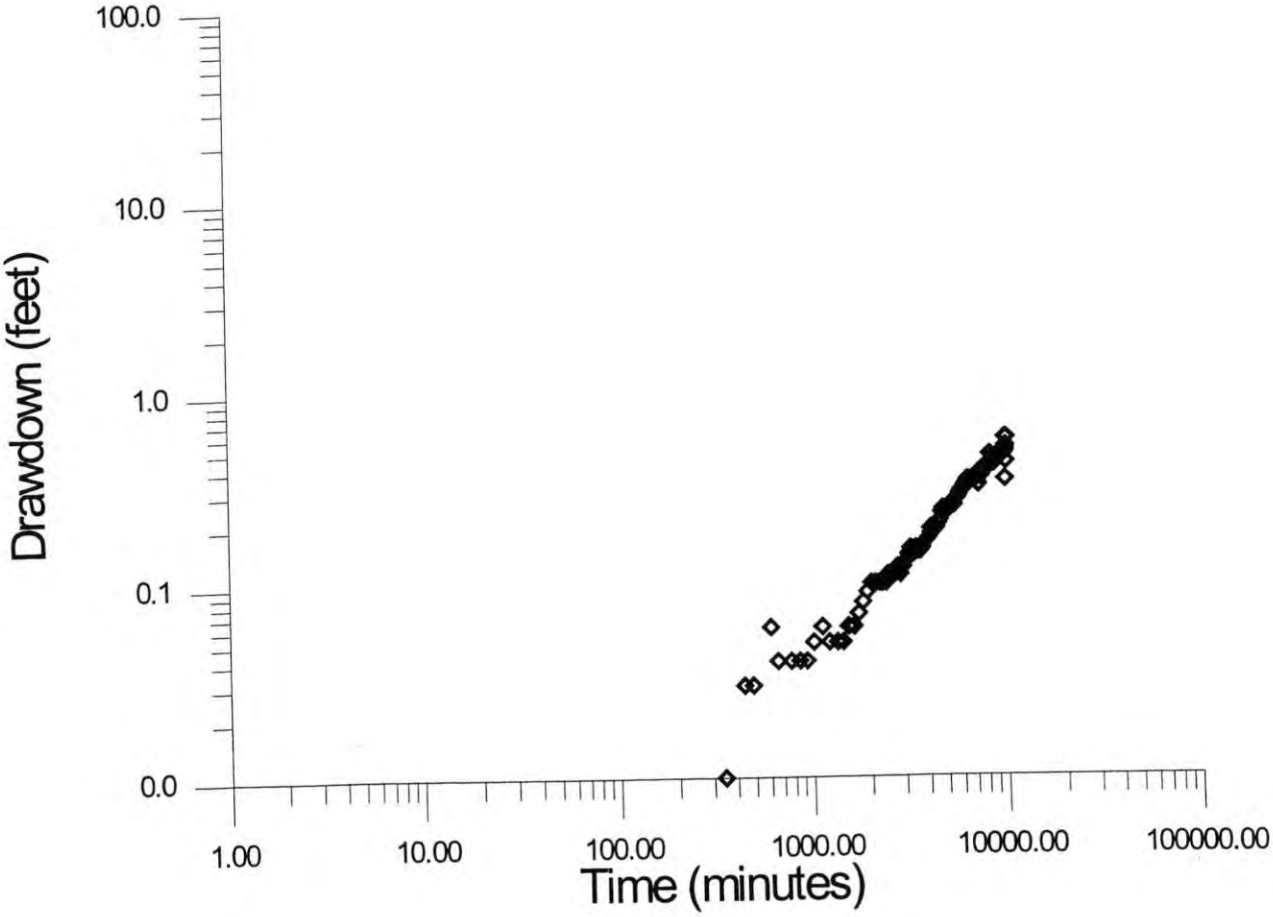
Sheet 2 of 2

Date	Time	Δ Time	DTW	Δs	Remarks
08/28/2000	12:31	7231	2.44	-0.03	
08/28/2000	15:44	7424	2.42	-0.05	
08/28/2000	17:32	7532	2.42	-0.05	
08/28/2000	19:18	7638	2.42	-0.05	
08/29/2000	8:47	8447	2.44	-0.03	
08/29/2000	10:14	8534	2.45	-0.02	
08/29/2000	11:53	8633	2.46	-0.01	
08/29/2000	13:37	8737	2.45	-0.02	
08/29/2000	15:17	8837	2.45	-0.02	
08/29/2000	17:17	8957	2.48	0.01	
08/29/2000	18:32	9032	2.48	0.01	
08/30/2000	7:52	9832	2.5	0.03	
08/30/2000	9:34	9934	2.52	0.05	
08/30/2000	11:13	10033	2.53	0.06	
08/30/2000	13:06	10146	2.54	0.07	
08/30/2000	14:01	10201	2.53	0.06	
08/30/2000	14:17	10217	2.54	0.07	
08/30/2000	14:35	10235	2.64	0.17	
08/30/2000	15:02	10262	2.53	0.06	
08/30/2000	15:13	10273	2.52	0.05	
08/30/2000	15:33	10293	2.53	0.06	
08/30/2000	16:25	10345	2.53	0.06	
08/30/2000	16:46	10366	2.55	0.08	
08/30/2000	17:20	10400	2.53	0.06	
08/30/2000	17:56	10436	2.53	0.06	
08/30/2000	18:44	10484	2.52	0.05	

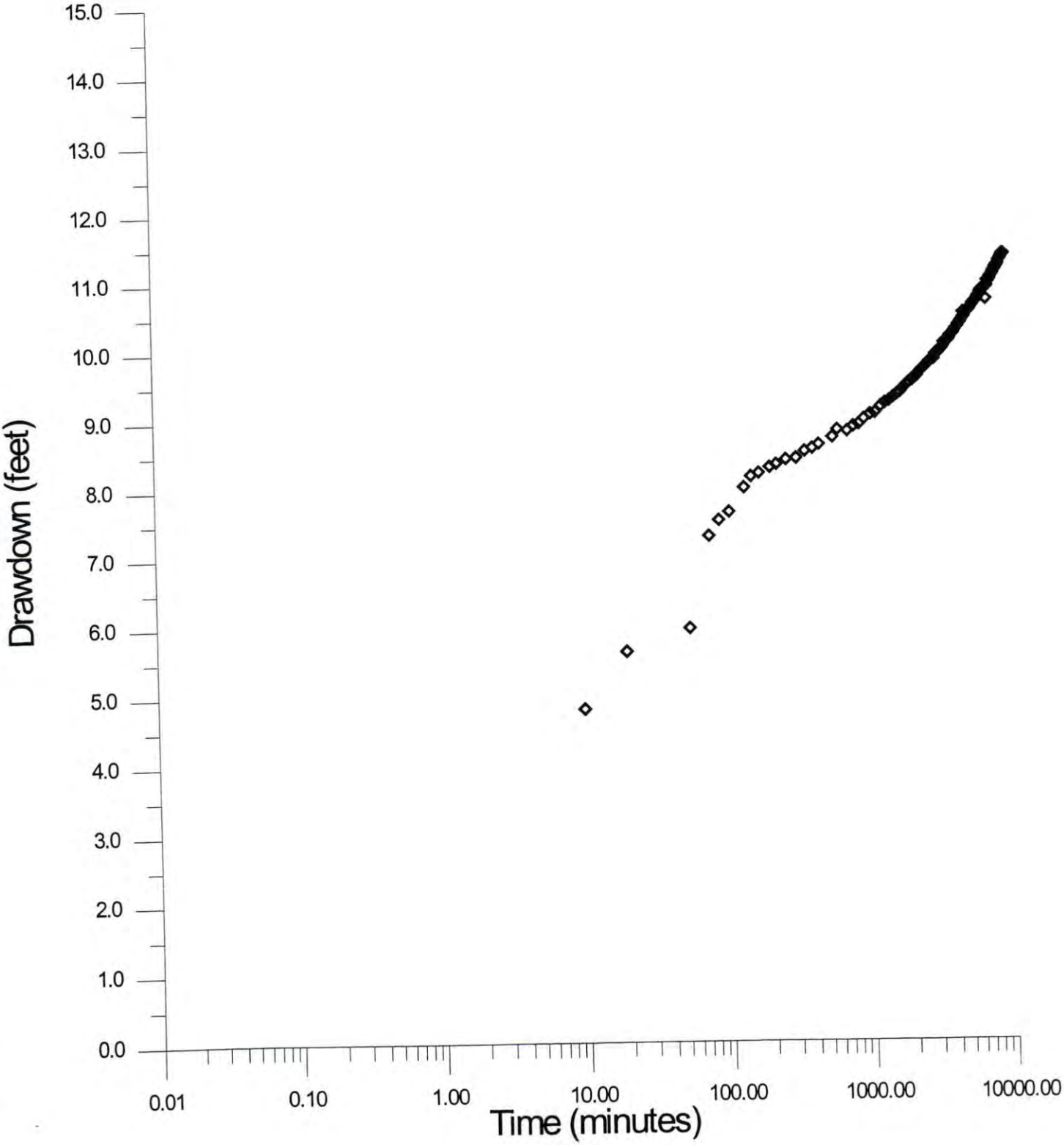
GSWA
Spring Hill
Semi-logorithmic Plot of Drawdown vs. Time for MW-1s



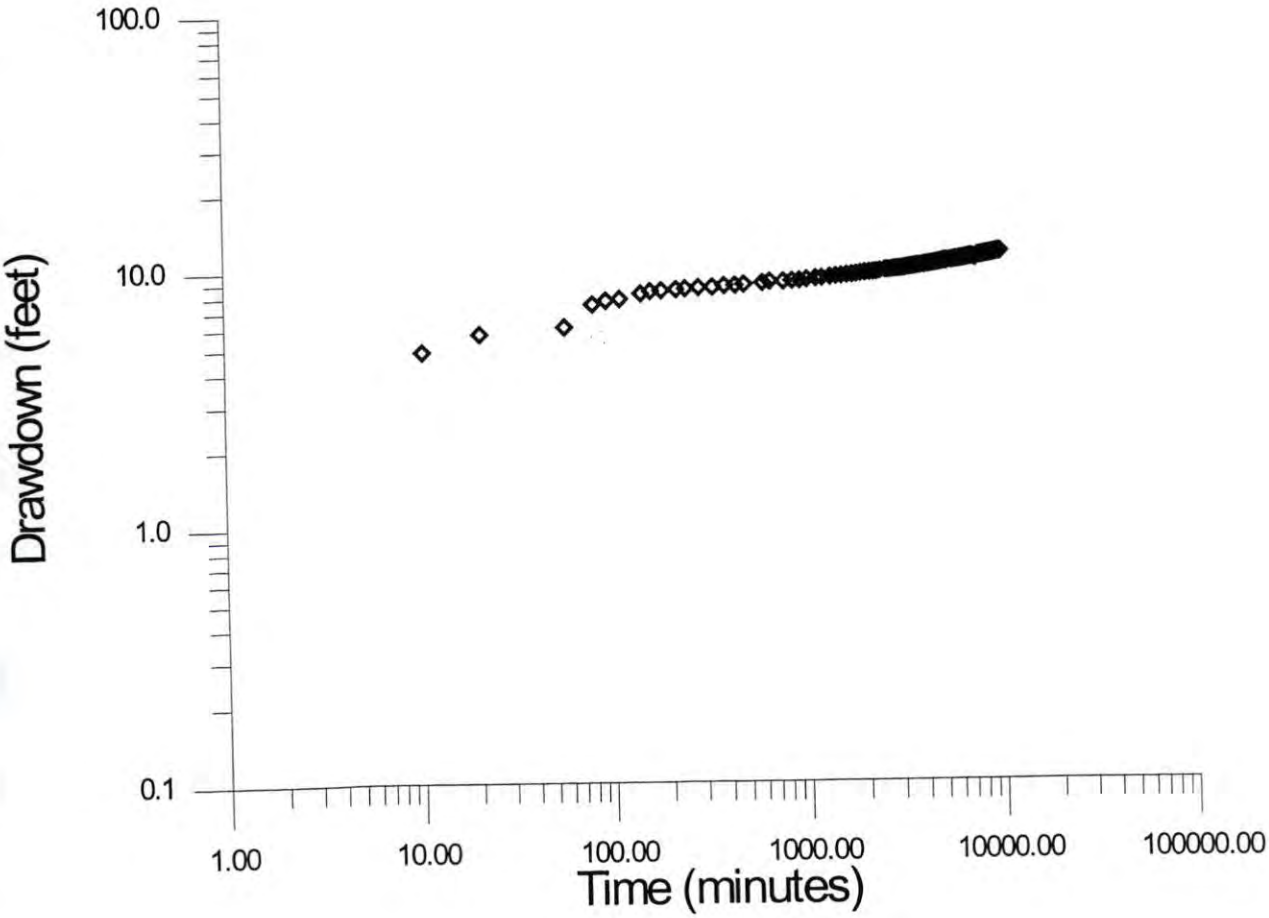
GSWA
Spring Hill
Drawdown vs. Time for MW-1s



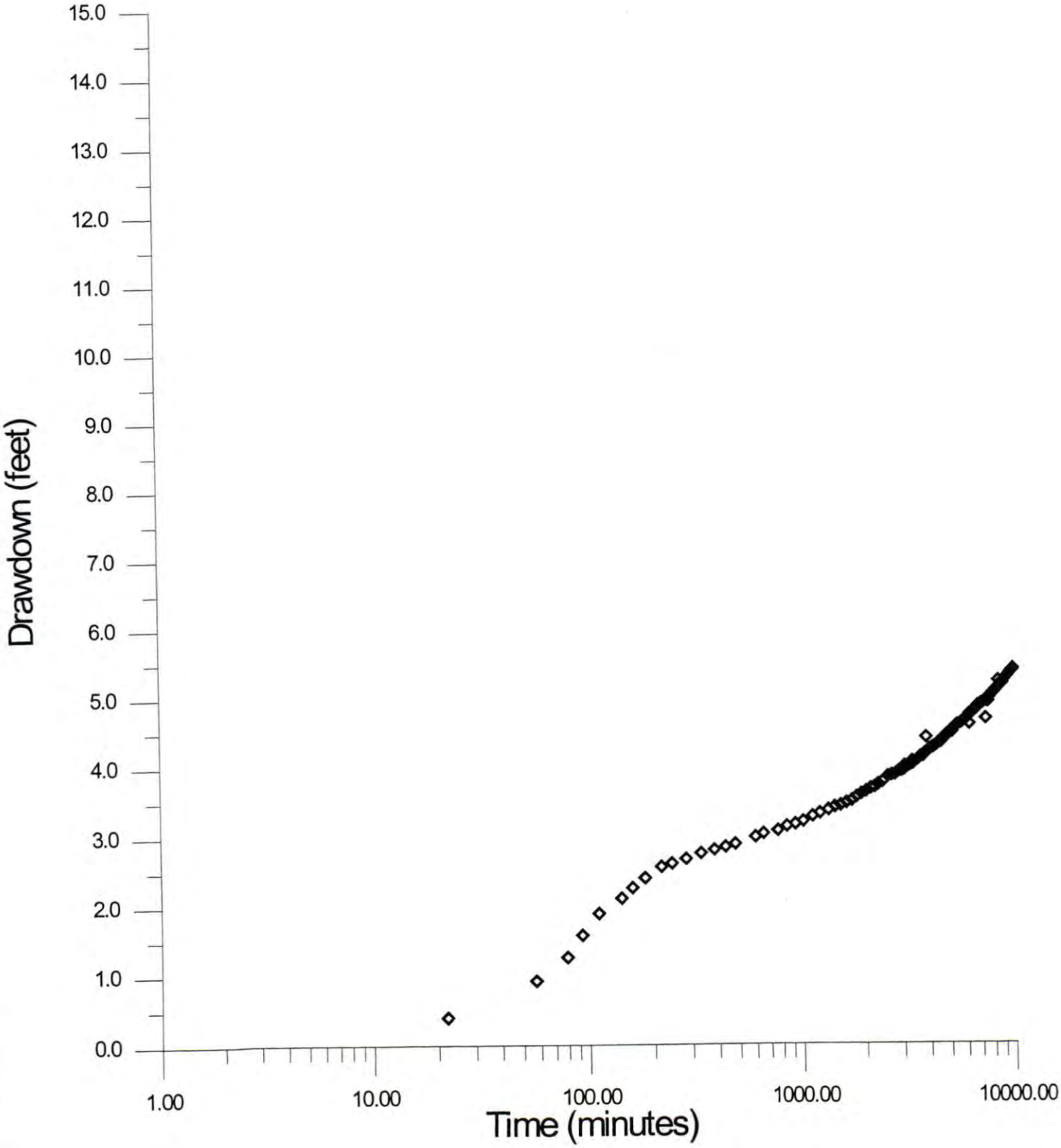
GSWA
Spring Hill
Semi-logorithmic Plot of Drawdown vs. Time for MW-1i



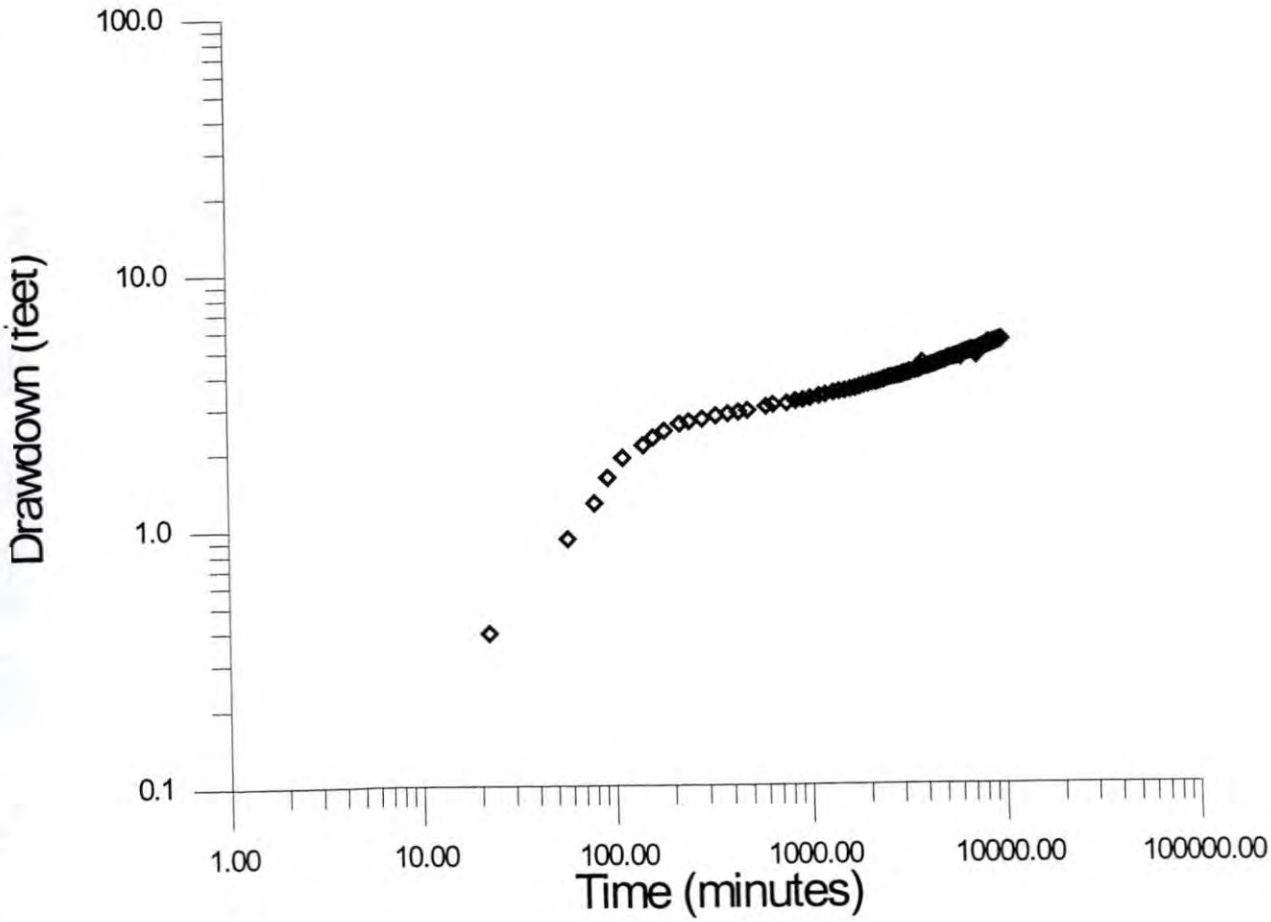
GSWA
Spring Hill
Drawdown vs. Time for MW-1i



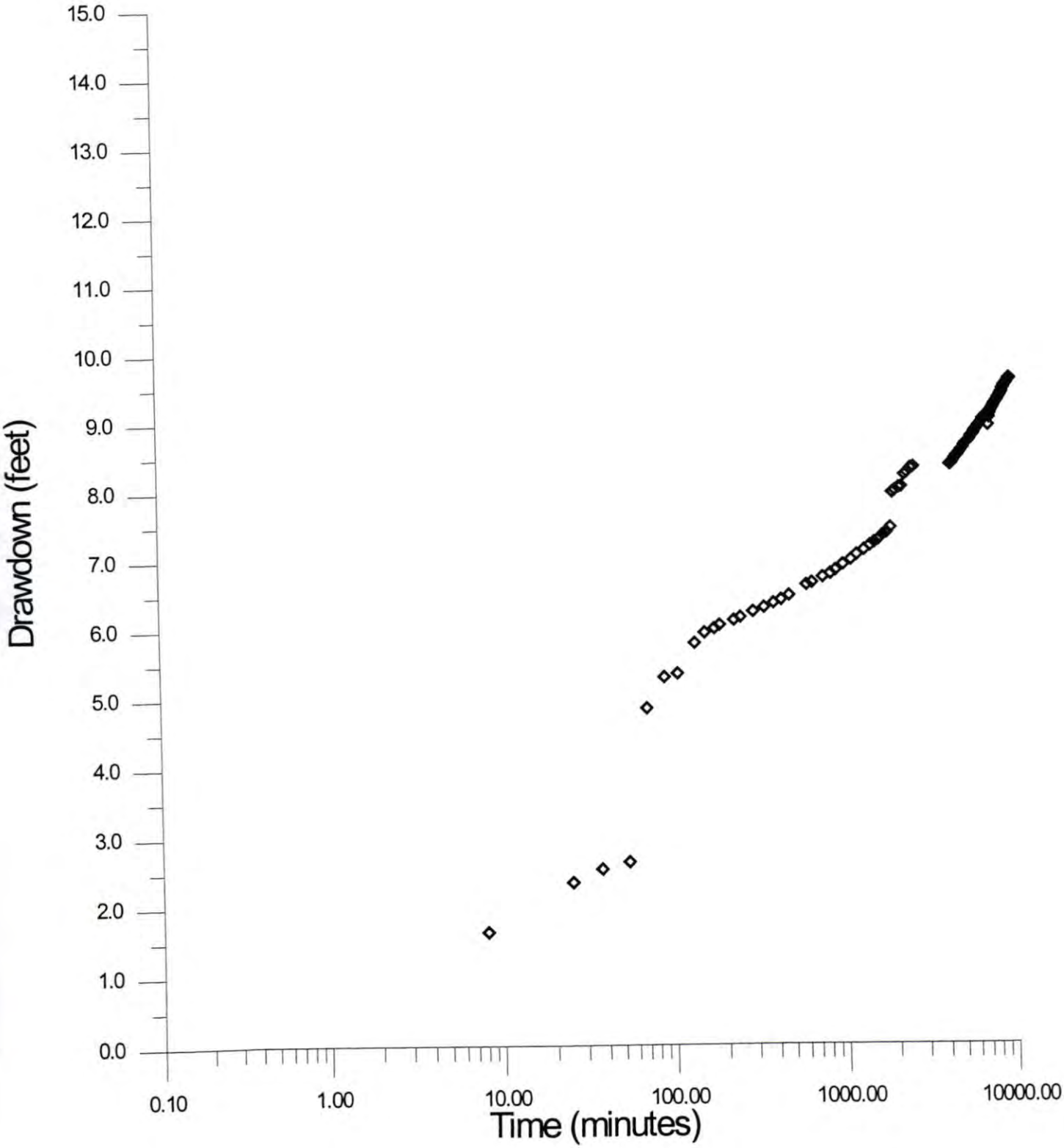
GSWA
Spring Hill
Semi-logorithmic Plot of Drawdown vs. Time for MW-1d



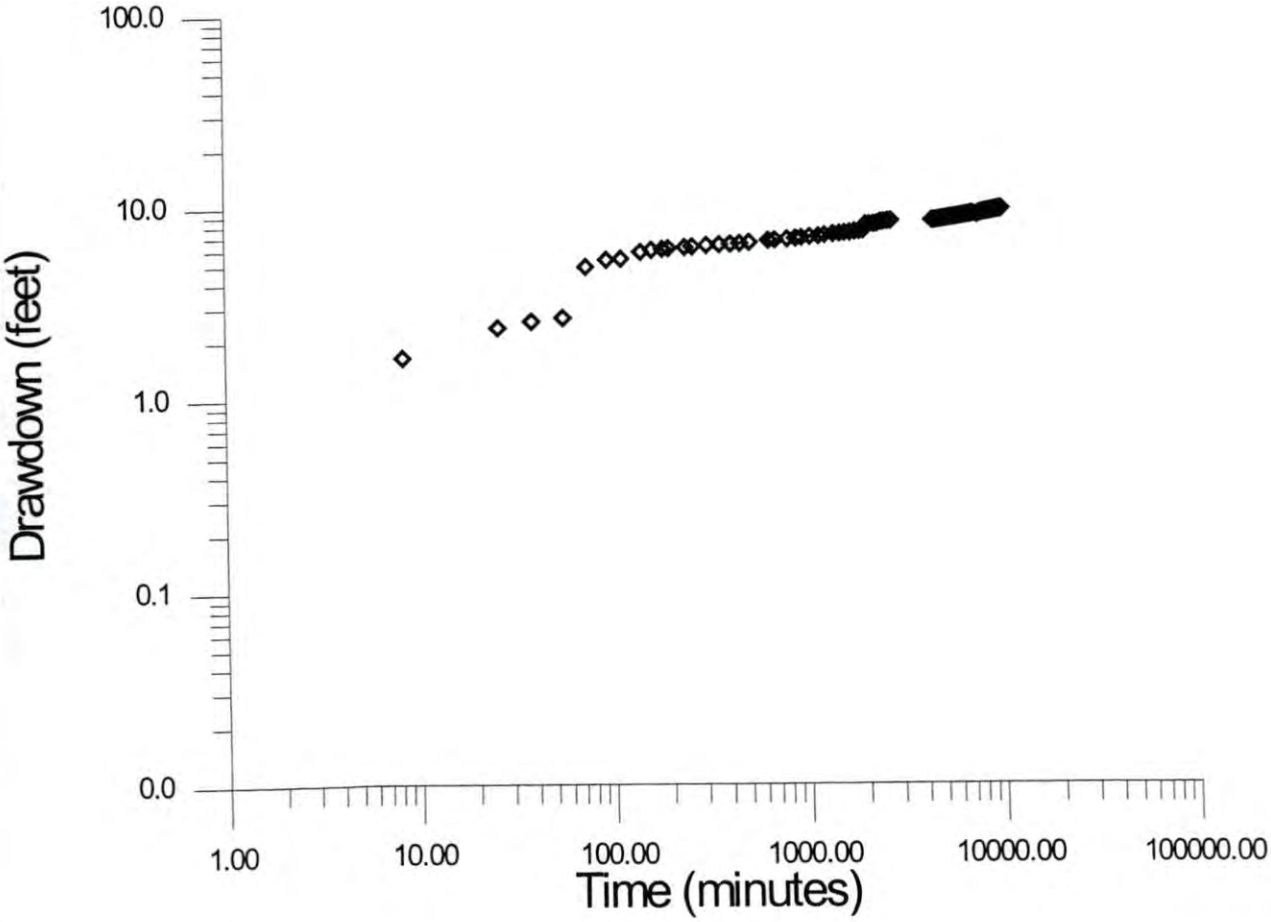
GSWA
Spring Hill
Drawdown vs. Time for MW-1d



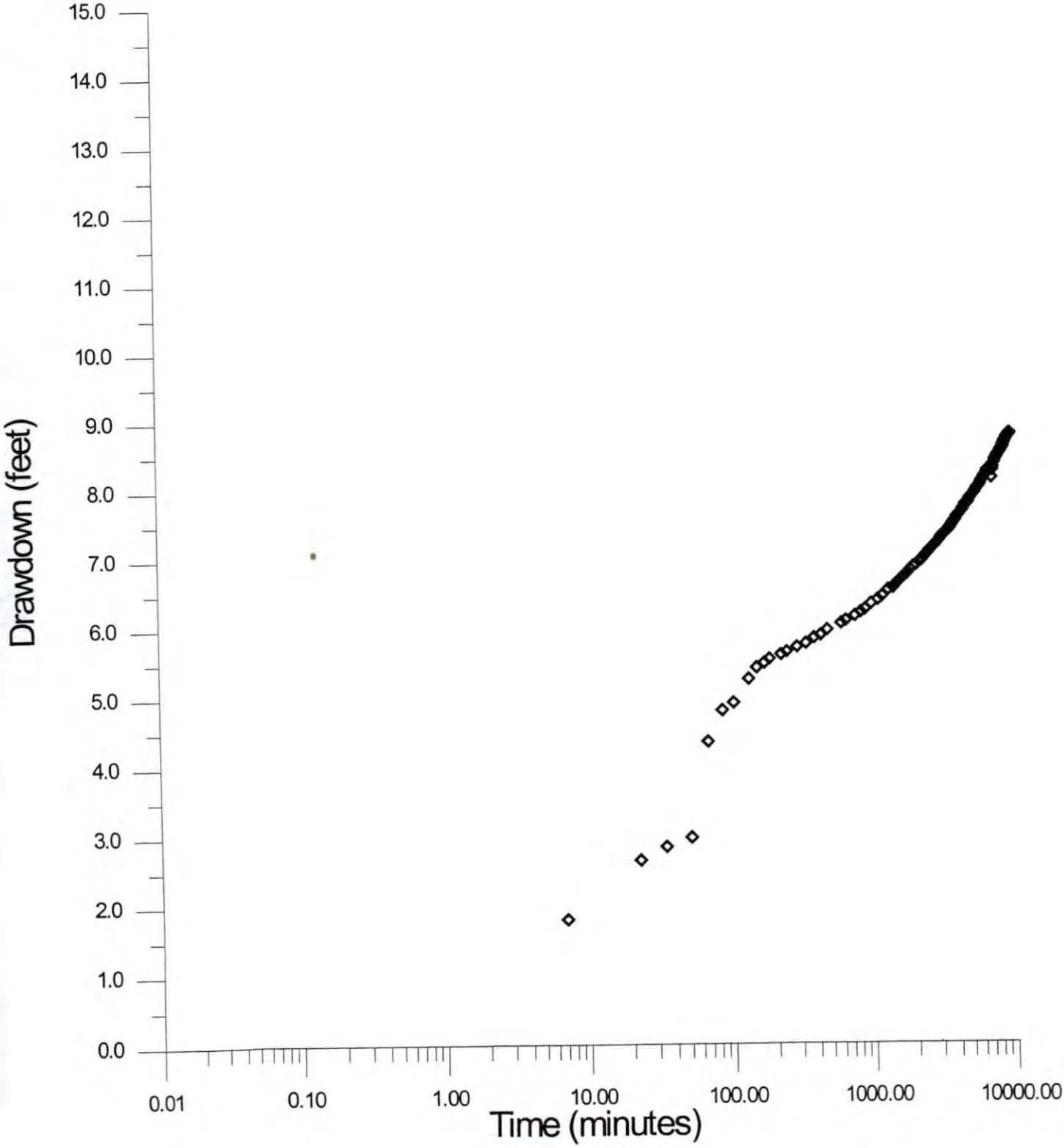
GSWA
Spring Hill
Semi-logorithmic Plot of Drawdown vs. Time for MW-2



GSWA
Spring Hill
Drawdown vs. Time for MW-2



GSWA
Spring Hill
Semi-logorithmic Plot of Drawdown vs. Time for MW-3



APPENDIX E

STEP TEST DATA

APPENDIX E
SINGLE WELL VARIABLE RATE PUMPING TEST DATA
SPRING HILL SITE

Elapsed Time	Depth to Water (ft)	Comments
0	0.72	Step 1 = 25gpm
0.0033	0.77	
0.0066	0.82	
0.0099	0.73	
0.0133	0.65	
0.0166	0.79	
0.02	0.64	
0.0233	0.77	
0.0266	0.7	
0.03	0.69	
0.0333	0.77	
0.05	0.75	
0.0666	0.72	
0.0833	0.64	
0.1	0.78	
0.1166	0.72	
0.1333	0.79	
0.15	0.82	
0.1666	0.64	
0.1833	0.88	
0.2	0.71	
0.2166	0.78	
0.2333	0.74	
0.25	0.75	
0.2666	0.85	
0.2833	0.74	
0.3	0.84	
0.3166	0.78	
0.3333	0.91	
0.4167	0.92	
0.5	0.96	
0.5833	0.94	
0.6667	1	
0.75	1.06	
0.8333	1.03	
0.9167	1.09	
1	0.99	
1.0833	0.97	
1.1667	0.91	
1.25	1.06	
1.3333	1.15	
1.4166	1.19	
1.5	1.09	
1.5833	1.05	
1.6667	1.13	

APPENDIX E
SINGLE WELL VARIABLE RATE PUMPING TEST DATA
SPRING HILL SITE

Elapsed Time	Depth to Water (ft)	Comments
1.75	1.13	
1.8333	1.2	
1.9167	1.06	
2	1.12	
2.5	1.2	
3	1.27	
3.5	1.22	
4	1.19	
4.5	1.22	
5	1.31	
5.5	1.25	
6	1.32	
6.5	1.25	
7	1.21	
7.5	1.27	
8	1.3	
8.5	1.39	
9	1.33	
9.5	1.36	
10	1.26	
12	1.3	
14	1.39	
16	1.44	
18	1.39	
20	1.28	
22	1.39	
24	1.32	
26	1.31	
28	1.45	
30	1.4	
32	1.39	
34	1.39	
36	1.45	
38	1.49	
40	1.4	
42	1.47	
44	1.39	
46	1.41	
48	1.42	
50	1.38	
50.0033	1.39	Step 2 = 50gpm
50.0066	1.44	
50.0099	1.4	
50.0133	1.41	
50.0166	1.41	

APPENDIX E
SINGLE WELL VARIABLE RATE PUMPING TEST DATA
SPRING HILL SITE

Elapsed Time	Depth to Water (ft)	Comments
50.02	1.43	
50.0233	1.54	
50.0266	1.59	
50.03	1.45	
50.0333	1.56	
50.05	1.55	
50.0666	1.6	
50.0833	1.68	
50.1	1.62	
50.1166	1.62	
50.1333	1.77	
50.15	1.82	
50.1666	1.95	
50.1833	1.76	
50.2	1.83	
50.2166	1.98	
50.2333	2.07	
50.25	2.08	
50.2666	2.12	
50.2833	2.07	
50.3	2.18	
50.3166	2.19	
50.3333	2.12	
50.4167	2.26	
50.5	2.26	
50.5833	2.3	
50.6667	2.34	
50.75	2.46	
50.8333	2.4	
50.9167	2.39	
51	2.32	
51.0833	2.44	
51.1667	2.38	
51.25	2.43	
51.3333	2.57	
51.4166	2.45	
51.5	2.49	
51.5833	2.48	
51.6667	2.44	
51.75	2.44	
51.8333	2.5	
51.9167	2.42	
52	2.4	
52.5	2.53	
53	2.46	

APPENDIX E
SINGLE WELL VARIABLE RATE PUMPING TEST DATA
SPRING HILL SITE

Elapsed Time	Depth to Water (ft)	Comments
53.5	2.58	
54	2.56	
54.5	2.65	
55	2.63	
55.5	2.55	
56	2.6	
56.5	2.76	
57	2.64	
57.5	2.65	
58	2.67	
58.5	2.7	
59	2.63	
59.5	2.66	
60	2.69	
62	2.78	
64	2.73	
66	2.65	
68	2.68	
70	2.8	
72	2.77	
74	2.85	
76	2.73	
78	2.78	
80	2.75	
82	2.8	
84	2.84	
86	2.89	
88	2.8	
90	2.89	
92	2.82	
94	2.78	
96	2.92	
98	2.82	
100	2.78	
102	2.77	
104	2.82	
106	2.92	
108	2.83	
110	2.85	
112	2.86	
114	2.92	
116	2.85	
118	2.89	
120	2.83	
120.0033	2.78	Step 3 = 70 gpm

APPENDIX E
SINGLE WELL VARIABLE RATE PUMPING TEST DATA
SPRING HILL SITE

Elapsed Time	Depth to Water (ft)	Comments
120.0066	2.97	
120.0099	2.88	
120.0133	2.87	
120.0166	2.89	
120.02	2.83	
120.0233	2.94	
120.0266	2.92	
120.03	3.06	
120.0333	2.93	
120.05	3.09	
120.0666	3.17	
120.0833	3.21	
120.1	3.15	
120.1166	3.18	
120.1333	3.21	
120.15	3.38	
120.1666	3.28	
120.1833	3.4	
120.2	3.43	
120.2166	3.45	
120.2333	3.49	
120.25	3.44	
120.2666	3.51	
120.2833	3.48	
120.3	3.55	
120.3166	3.52	
120.3333	3.52	
120.4167	3.55	
120.5	3.54	
120.5833	3.62	
120.6667	3.55	
120.75	3.61	
120.8333	3.64	
120.9167	3.6	
121	3.67	
121.0833	3.64	
121.1667	3.64	
121.25	3.65	
121.3333	3.65	
121.4166	3.69	
121.5	3.66	
121.5833	3.72	
121.6667	3.62	
121.75	3.62	
121.8333	3.76	

APPENDIX E
SINGLE WELL VARIABLE RATE PUMPING TEST DATA
SPRING HILL SITE

Elapsed Time	Depth to Water (ft)	Comments
121.9167	3.79	
122	3.72	
122.5	3.75	
123	3.81	
123.5	3.77	
124	3.81	
124.5	3.82	
125	3.71	
125.5	3.83	
126	3.82	
126.5	3.82	
127	3.82	
127.5	3.84	
128	3.84	
128.5	3.91	
129	3.98	
129.5	3.95	
130	3.82	
132	3.96	
134	3.97	
136	4.08	
138	3.89	
140	3.94	
142	3.92	
144	4.01	
146	3.98	
148	3.96	
150	3.88	
152	3.95	
154	3.92	
156	4.06	
158	3.95	
160	3.98	
162	4	
164	3.96	
166	3.91	
168	4.01	
170	4.1	
172	3.91	
174	3.99	
176	4.04	
178	3.95	
180	4.04	
182	3.94	
184	4.01	

APPENDIX E
SINGLE WELL VARIABLE RATE PUMPING TEST DATA
SPRING HILL SITE

Elapsed Time	Depth to Water (ft)	Comments
186	4.03	
188	3.96	
190	4.15	
192	4.02	
194	4	
196	4.04	
198	3.99	
200	3.98	
202	3.91	
204	4.01	
206	3.98	
208	4.01	
210	3.95	
212	4.01	
214	4.03	
216	4.04	
218	3.99	
220	4.06	
220.0033	4.07	Step 4 = 90gpm
220.0066	4.12	
220.0099	4.13	
220.0133	4.03	
220.0166	4.12	
220.02	4.12	
220.0233	4.11	
220.0266	4.23	
220.03	4.22	
220.0333	4.26	
220.05	4.39	
220.0666	4.44	
220.0833	4.41	
220.1	4.51	
220.1166	4.54	
220.1333	4.63	
220.15	4.59	
220.1666	4.56	
220.1833	4.69	
220.2	4.71	
220.2166	4.68	
220.2333	4.69	
220.25	4.78	
220.2666	4.75	
220.2833	4.76	
220.3	4.73	
220.3166	4.78	

APPENDIX E
SINGLE WELL VARIABLE RATE PUMPING TEST DATA
SPRING HILL SITE

Elapsed Time	Depth to Water (ft)	Comments
220.3333	4.74	
220.4167	4.82	
220.5	4.82	
220.5833	4.79	
220.6667	4.85	
220.75	4.81	
220.8333	4.91	
220.9167	4.84	
221	4.83	
221.0833	4.85	
221.1667	4.78	
221.25	4.94	
221.3333	4.9	
221.4166	4.83	
221.5	4.93	
221.5833	4.93	
221.6667	4.95	
221.75	4.88	
221.8333	4.93	
221.9167	4.9	
222	4.9	
222.5	4.88	
223	4.96	
223.5	4.97	
224	5.04	
224.5	5.01	
225	5.05	
225.5	5.03	
226	5.04	
226.5	5.05	
227	5.07	
227.5	5.01	
228	5.05	
228.5	5.11	
229	5.08	
229.5	5.12	
230	5.11	
232	5.12	
234	5.12	
236	5.11	
238	5.14	
240	5.14	
242	5.19	
244	5.12	
246	5.19	

APPENDIX E
SINGLE WELL VARIABLE RATE PUMPING TEST DATA
SPRING HILL SITE

Elapsed Time	Depth to Water (ft)	Comments
248	5.07	
250	5.19	
252	5.16	
254	5.16	
256	5.16	
258	5.17	
260	5.19	
262	5.15	
264	5.26	
266	5.21	
268	5.22	
270	5.13	
272	5.22	
274	5.14	
276	5.19	
278	5.24	
280	5.2	
282	5.21	
284	5.17	
286	5.16	
288	5.16	
290	5.16	
292	5.24	
294	5.23	
296	5.16	
298	5.15	
300	5.21	
302	5.16	
304	5.28	
306	5.23	
308	5.26	
310	5.22	
312	5.18	
314	5.27	
316	5.28	
318	5.27	
320	5.26	
322	5.21	
324	5.23	
326	5.19	
328	5.19	
330	5.28	
332	5.18	
334	5.21	
336	5.24	

APPENDIX E
SINGLE WELL VARIABLE RATE PUMPING TEST DATA
SPRING HILL SITE

Elapsed Time	Depth to Water (ft)	Comments
338	5.21	
340	5.16	
342	5.24	
344	5.2	
346	5.21	
348	5.22	
350	5.19	
352	5.21	
354	5.24	
356	5.21	
358	5.24	
360	5.15	
360.0033	5.24	Recovery Data
360.0066	5.38	
360.0099	5.23	
360.0133	5.26	
360.0166	5.29	
360.02	5.2	
360.0233	5.2	
360.0266	5.23	
360.03	5.24	
360.0333	5.26	
360.05	5.21	
360.0666	5.23	
360.0833	5.29	
360.1	5.26	
360.1166	5.2	
360.1333	5.21	
360.15	5.18	
360.1666	5.23	
360.1833	5.26	
360.2	4.69	
360.2166	4.19	
360.2333	3.62	
360.25	3.25	
360.2666	3.02	
360.2833	2.87	
360.3	2.73	
360.3166	2.64	
360.3333	2.55	
360.4167	2.25	
360.5	2.09	
360.5833	1.98	
360.6667	1.89	
360.75	1.8	

APPENDIX E
SINGLE WELL VARIABLE RATE PUMPING TEST DATA
SPRING HILL SITE

Elapsed Time	Depth to Water (ft)	Comments
360.8333	1.74	
360.9167	1.69	
361	1.64	
361.0833	1.61	
361.1667	1.56	
361.25	1.52	
361.3333	1.49	
361.4166	1.46	
361.5	1.44	
361.5833	1.41	
361.6667	1.39	
361.75	1.35	
361.8333	1.33	
361.9167	1.31	
362	1.29	
362.5	1.17	
363	1.08	
363.5	1	
364	0.94	
364.5	0.89	
365	0.84	
365.5	0.79	
366	0.74	
366.5	0.71	
367	0.67	
367.5	0.64	
368	0.62	
368.5	0.59	
369	0.57	
369.5	0.53	
370	0.52	
372	0.45	
374	0.38	
376	0.33	
378	0.26	
380	0.26	
382	0.22	
384	0.21	
386	0.18	
388	0.18	
390	0.14	
392	0.13	
394	0.13	
396	0.12	
398	0.1	

APPENDIX E
SINGLE WELL VARIABLE RATE PUMPING TEST DATA
SPRING HILL SITE

Elapsed Time	Depth to Water (ft)	Comments
400	0.09	
402	0.09	
404	0.08	
406	0.08	
408	0.07	
410	0.06	
412	0.07	
414	0.05	

APPENDIX F

WELL FIELD TEST DATA

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test
4065-001-AT1

Well No.: PW-1
Start Date: 08/23/2000 Start time: 12:00 PM
Initial Depth to Water: 5.3
Pumping Rate: 200
Initial Flow Meter Reading 0
End Flow Meter Reading

Test No. : 7-Day
Test Information:PW-1 pump intake at ~32'bls
Tx at ~30, available head ~
24.7

Date	Time	Δ Time	DTW	Δs	Meter Reading	Q	Remarks
08/23/2000	12:00:00	0	5.30	11.15	0	200	**Begin Pumping**
08/23/2000	12:00:30	0.5	16.45	11.98		200	
08/23/2000	12:01:00	1	17.28	12.46		200	
08/23/2000	12:01:30	1.5	17.76	12.75		200	
08/23/2000	12:02:00	2	18.05	12.96		200	
08/23/2000	12:02:30	2.5	18.26	13.16		200	
08/23/2000	12:03:00	3	18.46	13.16		200	
08/23/2000	12:03:30	3.5	18.61	13.31		200	
08/23/2000	12:04:00	4	18.77	13.47		200	
08/23/2000	12:04:30	4.5	18.87	13.57		200	
08/23/2000	12:05:00	5	18.98	13.68		200	
08/23/2000	12:06:00	6	19.12	13.82		200	
08/23/2000	12:07:00	7	19.34	14.04		200	
08/23/2000	12:08:00	8	19.47	14.17		200	
08/23/2000	12:09:00	9	19.59	14.29		200	
08/23/2000	12:10:00	10	19.66	14.36		200	
08/23/2000	12:12:00	12	19.85	14.55		200	
08/23/2000	12:14:00	14	19.96	14.66		200	
08/23/2000	12:16:00	16	20.08	14.78		200	
08/23/2000	12:18:00	18	20.17	14.87		200	
08/23/2000	12:20:00	20	20.26	14.96		200	
08/23/2000	12:25:00	25	20.38	15.08		200	
08/23/2000	12:30:00	30	20.49	15.19		200	
08/23/2000	12:35:00	35	20.58	15.28	7098	200	
08/23/2000	12:40:00	40	20.63	15.33	8080	200	
08/23/2000	12:45:00	45	20.67	15.37	9040	200	
08/23/2000	12:50:00	50	20.71	15.41	10042	200	
08/23/2000	13:00:00	60	20.75	15.45	11959	200	
08/23/2000	13:10:00	70	21.80	16.5	13985	200	
08/23/2000	13:20:00	80	22.21	16.91	16022	200	
08/23/2000	13:30:00	90	22.35	17.05	17895	201	
08/23/2000	13:40:00	100	22.45	17.15	19950	202	
08/23/2000	13:50:00	110	22.55	17.25	21963	202	
08/23/2000	14:00:00	120	22.58	17.28	24002	203	
08/23/2000	14:10:00	130	22.74	17.44	25914	203	
08/23/2000	14:20:00	140	22.87	17.57	28094	204	
08/23/2000	14:30:00	150	22.98	17.68	29920	203	
08/23/2000	14:40:00	160	23.01	17.71	32065	204	
08/23/2000	14:50:00	170	23.05	17.75	34170	204	
08/23/2000	15:00:00	180	23.09	17.79	36112	204	
08/23/2000	15:10:00	200	23.11	17.81	38081	205	
08/23/2000	15:30:00	210	23.15	17.85	40501	204	
08/23/2000	15:50:00	230	23.20	17.9	46274	204	
08/23/2000	16:20:00	260	23.23	17.93	52043	205	
08/23/2000	16:45:00	285	23.28	17.98	57128	203	
08/23/2000	17:35:00	335	23.33	18.03	67370	204	
08/23/2000	18:25:00	385	23.41	18.11	77500	203	
08/23/2000	19:15:00	435	23.45	18.15	87800	203	
08/23/2000	20:05:00	485	23.50	18.2	98069	201	
08/23/2000	22:05:00	605	23.62	18.32	121290	198	PSI = 78
08/23/2000	22:59:00	659	23.65	18.35	132490	197	PSI = 79
	0:40:00						MISSED
08/24/2000	1:15:00	795	23.78	18.48	159854	195	
08/24/2000	2:20:00	860	23.81	18.51	172708	195	
08/24/2000	4:00:00	960	23.86	18.56	192284	195	
08/24/2000	5:40:00	1060	23.94	18.64	212089	195	
08/24/2000	7:20:00	1160	23.98	18.68	232750	195	
08/24/2000	9:00:00	1260	24.04	18.74	252461	200	
08/24/2000	10:35:00	1355	24.06	18.76	272261	201	

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test

Well No: PW-1

Date	Time	Δ Time	DTW	Δs	Meter Reading	Q	Remarks
08/24/2000	12:11:00	1451	24.10	18.8	291630	203	
08/24/2000	13:49:00	1549	24.16	18.86	311030	204	
08/24/2000	15:30:00	1650	24.20	18.9	331480	205	PSI = 75
08/24/2000	17:10:00	1750	24.26	18.96	351500	204	PSI = 75
08/24/2000	18:47:00	1847	24.31	19.01	371090	204	
08/24/2000	20:27:00	1947	24.36	19.06	391250	200	
08/24/2000	22:10:00	2050	24.43	19.13	411476	198	
08/25/2000	0:50:00	3650	24.47	19.17	443851	197	
08/25/2000	2:30:00	2310	24.52	19.22	464126	197	
08/25/2000	4:10:00	2410	24.58	19.28	484541	197	
08/25/2000	5:50:00	2510	24.60	19.3	502249	195	
08/25/2000	7:30:00	2610	24.64	19.34	524836	196	
08/25/2000	9:10:00	2710	24.70	19.4	544567	200	
08/25/2000	10:50:00	2810	24.67	19.37	564631	200	
08/25/2000	12:30:00	2910	24.76	19.455	585361	204	
08/25/2000	14:09:00	3009	24.75	19.45	605100	205	
08/25/2000	15:50:00	3110	24.79	19.49	625160	205	
08/25/2000	17:31:00	3211	24.80	19.5	645815	202	
08/25/2000	19:08:00	3308	24.86	19.56	665030	201	
08/25/2000	20:50:00	3410	24.88	19.58	685430	200	
08/25/2000	22:30:00	3510	24.94	19.64	705835	199	
08/26/2000	0:10:00	3610	24.95	19.65	725409	199	
08/26/2000	1:50:00	3710	24.95	19.65	746192	200	
08/26/2000	3:30:00	3810	25.00	19.7	766598	199	
08/26/2000	5:10:00	3910	25.08	19.78	786299	199	
08/26/2000	5:51:00	3951	25.05	19.75	806892	199	
08/26/2000	8:28:00	4108	25.13	19.83	826275	199	
08/26/2000	10:12:00	4212	25.15	19.85	847410	200	
08/26/2000	11:50:00	4310	25.15	19.85	867140	203	
08/26/2000	13:31:00	4411	25.20	19.9	887500	203	
08/26/2000	15:10:00	4510	25.20	19.9	907400	203	psi=75
08/26/2000	16:54:00	4614	25.25	19.95	928300	202	psi=75
08/26/2000	18:33:00	4713	25.29	19.99	948200	201	
08/26/2000	20:27:00	4827	25.30	20	971000	200	
08/26/2000	21:50:00	4910	25.34	20.04			
08/26/2000	22:30:00	4950	25.36	20.06	1008030	198	
08/27/2000	1:10:00	5110	25.39	20.09	1028070	199	
08/27/2000	3:00:00	5220	25.41	20.11	1051203	198	wl indicator troubles
08/27/2000	4:30:00	5310	25.44	20.14	1068395	198	wl indicator troubles
08/27/2000	6:10:00	5410	25.46	20.16	1088600	198	wl indicator troubles
08/27/2000	7:50:00	5510	25.49	20.19	1108650	198	change battery in wl indicator
08/27/2000	9:32:00	5612	25.53	20.23	1129340	199	psi=76
08/27/2000	11:12:00	5712	25.51	20.21	1149550	202	psi=75
08/27/2000	12:53:00	5813	25.55	20.25	1169800	204	
08/27/2000	14:35:00	5915	25.58	20.28	1190200	204	
08/27/2000	16:15:00	6015	25.60	20.3	1210450	204	
08/27/2000	18:00:00	6120	25.60	20.3	1231600	204	
08/27/2000	19:41:00	6221	25.65	20.35	1251820	202	
08/27/2000	21:19:00	6319	25.68	20.38	1271693	199	
08/27/2000	22:50:00	6410	25.67	20.37	1289622	198	
08/28/2000	0:30:00	6510	25.74	20.44	1309842	198	
08/28/2000	2:10:00	6610	25.74	20.44	1330567	198	
08/28/2000	3:50:00	6710	25.75	20.45	1350128	197	
08/28/2000	5:30:00	6810	25.76	20.46	1370527	197	
08/28/2000	7:10:00	6910	25.80	20.5	1390550	199	
08/28/2000	8:50:00	7010	25.80	20.5	1409857	199	
08/28/2000	10:30:00	7110	25.84	20.54	1430900	201	76 psi
08/28/2000	12:10:00	7210	25.82	20.52	1451000	203	
08/28/2000	13:47:00	7307		-5.3			generator and pumps 1 & 2 shut off
08/28/2000	15:43:25	7423		-5.3			generator and pumps 1 and 2 back ON
08/28/2000	17:15:00	7515	25.73	20.43	1490290	202	
08/28/2000	18:55:00	7615	25.92	20.62	1510375	203	
08/28/2000	20:35:00	7715	25.94	20.64	1530620	200	
08/28/2000	22:10:00	7810	25.99	20.69	1549899	199	
08/28/2000	23:50:00	7910	26.00	20.7	1570270	199	

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test

Well No: PW-1

Date	Time	Δ Time	DTW	Δs	Meter Reading	Q	Remarks
08/29/2000	1:30:00	8010	26.04	20.74	1590049	199	
08/29/2000	3:10:00	8110	26.05	20.75	1610728	198	
08/29/2000	4:50:00	8210	26.09	20.79	1630690	199	
08/29/2000	6:30:00	8310	26.10	20.8	1651189	199	
08/29/2000	8:15:00	8415	26.11	20.81	1672190	199	75 psi
08/29/2000	9:54:00	8514	26.12	20.82	1692100	201	
08/29/2000	11:38:00	8618	26.16	20.86	1713110	202	75 psi
08/29/2000	13:19:00	8719	26.17	20.87	1733630	202	
08/29/2000	15:05:00	8825	26.20	20.9	1754800	202	
08/29/2000	16:45:00	8925	26.22	20.92	1775166	203	
08/29/2000	18:25:00	9025	26.21	20.91	1795300	203	
08/28/2000	19:55:00	9115	26.22	20.92	1813857	202	
08/29/2000	21:30:00	9210	26.26	20.96	1832610	200	
08/29/2000	23:06:00	9306	26.27	20.97	1851998	200	
08/30/2000	0:50:00	9410	26.30	21	1873174	200	
08/30/2000	2:30:00	9510	26.30	21	1893527	200	
08/30/2000	4:12:00	9612	26.35	21.05	1914116	200	
08/30/2000	5:54:00	9714	26.34	21.04	1934592	199	
08/30/2000	7:38:00	9818	26.35	21.05	1955600	197	
08/30/2000	9:00:00	9900	26.39	21.09	1972322	201	
08/30/2000	10:38:00	9998	26.40	21.1	1991945	201	
08/30/2000	12:21:00	10101	26.40	21.1	12930	204	
08/30/2000	13:16:00	10156	26.42	21.12	24018	205	

MALCOLM PIRNIE

Well No: PW-1

	Time	Δ Time	DTW	Δs			Remarks
08/30/2000	16:00:00	0	24.53	8.08			Ending Meter Reading = 057026
08/30/2000	16:00:30	0.5	12.97	-3.48			Recovery
08/30/2000	16:01:00	1	12.28	-4.17			Recovery
08/30/2000	16:01:30	1.5	11.85	-4.6			Recovery
08/30/2000	16:02:00	2	11.56	-4.89			Recovery
~~08/30/2000~~		~~2.5~~		~~-16.45~~			Recovery
08/30/2000	16:03:00	3	11.15	-5.3			Recovery
08/30/2000	16:03:30	3.5	10.98	-5.47			Recovery
08/30/2000	16:04:00	4	10.85	-5.6			Recovery
08/30/2000	16:04:30	4.5	10.73	-5.72			Recovery
08/30/2000	16:05:00	5	10.62	-5.83			Recovery
08/30/2000	16:06:00	6	10.44	-6.01			Recovery
08/30/2000	16:07:00	7	10.29	-6.16			Recovery
08/30/2000	16:08:00	8	10.17	-6.28			Recovery
08/30/2000	16:09:00	9	10.06	-6.39			Recovery
08/30/2000	16:10:00	10	9.97	-6.48			Recovery
08/30/2000	16:12:00	12	9.82	-6.63			Recovery
08/30/2000	16:14:00	14	9.70	-6.75			Recovery
08/30/2000	16:16:00	16	9.60	-6.85			Recovery
08/30/2000	16:18:00	18	9.53	-6.92			Recovery
08/30/2000	16:30:00	20	9.45	-7			Recovery
08/30/2000	16:25:00	25	9.34	-7.11			Recovery
08/30/2000	16:30:00	30	9.23	-7.22			Recovery
08/30/2000	16:35:00	35	9.25	-7.205			Recovery
08/30/2000	16:40:00	40	9.11	-7.34			Recovery
08/30/2000	16:45:00	45	9.04	-7.41			Recovery
08/30/2000	16:50:00	50	9.00	-7.45			Recovery
08/30/2000	17:00:00	60	8.93	-7.525			Recovery
08/30/2000	17:10:00	70	8.87	-7.58			Recovery
08/30/2000	17:20:00	80	8.82	-7.63			Recovery
08/30/2000	17:30:00	90	8.78	-7.67			Recovery
08/30/2000	17:40:00	100	8.74	-7.71			Recovery
08/30/2000	18:00:00	120	8.68	-7.77			Recovery
08/30/2000	18:20:00	140	8.63	-7.82			Recovery
08/30/2000	18:43:00	160	8.59	-7.86			Recovery
08/30/2000	19:00:00	180	8.55	-7.9			Recovery

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test
4065-001-AT1

Well No.: PW-2
Start Date: 08/23/2000 Start time: 13:00:00
Initial Depth to Water: 23.76
Pumping Rate: 212
Initial Flow Meter Reading 200 gpm
End Flow Meter Reading

Test No. : 7-Day Pumping Test
Test Information:

Date	Time	Δ Time	DTW	Δs	Meter Reading	Q	Remarks
08/23/2000	11:50:00		23.76	0			
08/23/2000	12:04:45		24.24	0.48			
08/23/2000	12:25:05		25.035	1.275			
08/23/2000	12:47:30		25.21	1.45			
08/23/2000	12:52:00		25.23	1.47			
08/23/2000	12:53:20		25.235	1.475			
08/23/2000	12:58:00		25.245	1.485			
08/23/2000	13:00:00	0	25.255	1.495		212	Begin Pumping
08/23/2000	13:00:30	0.5	37.54	13.78	150	250	
08/23/2000	13:01:00	1	37.55	13.79	253	230	
08/23/2000	13:01:30	1.5	37.74	13.98	352	230	
08/23/2000	13:02:00	2	38.94	15.18	470	230	
08/23/2000	13:02:30	2.5	38.08	14.32	582	230	
08/23/2000	13:03:00	3	38.2	14.44	700	230	
08/23/2000	13:03:30	3.5	38.31	14.55	834	231	
08/23/2000	13:04:00	4	38.38	14.62	939	230	
08/23/2000	13:04:30	4.5	38.44	14.68	1047	231	
08/23/2000	13:05:00	5	38.51	14.75	1110	231	
08/23/2000	13:06:00	6	38.62	14.86	1420	230	
08/23/2000	13:07:00	7	38.7	14.94	1649	230	
08/23/2000	13:08:00	8	38.79	15.03	1888	230	
08/23/2000	13:09:00	9	38.85	15.09	2126	231	
08/23/2000	13:10:00	10	38.9	15.14	2350	231	
08/23/2000	13:12:00	12	38.95	15.19	2590	230	
08/23/2000	13:14:00	14	39.42	15.66	2865	240	Throttled back flow to 230 gpm
08/23/2000	13:16:00	16	39.1	15.34	3082	230	
08/23/2000	13:18:00	18	39.02	15.26	3310	230	water level rise due to reset of flow
08/23/2000	13:20:00	20	39.07	15.31	4228	230	
08/23/2000	13:25:00	25	39.15	15.39	5148	230	
08/23/2000	13:30:00	30	39.23	15.47	7008	230	
08/23/2000	13:35:00	35	39.26	15.5	8178	231	
08/23/2000	13:40:00	40	39.29	15.53	9333	230	
08/23/2000	13:45:00	45	39.31	15.55	10103	231	
08/23/2000	13:50:00	50	39.33	15.57	11153	231	
08/23/2000	14:00:00	60	39.365	15.605	3606	232	
08/23/2000		70					
08/23/2000		80					
08/23/2000		90					
08/23/2000		100					
08/23/2000	15:00:00	120	40.02	16.26	0	233	totalizer is sand locked (not working)
08/23/2000	15:20:00	140	40.075	16.315		233	
08/23/2000	15:40:00	160	40.125	16.365		232	
08/23/2000	16:20:00	200	40.205	16.445		232	
08/23/2000	17:10:00	250	40.32	16.56		232	
08/23/2000	18:00:00	300	40.38	16.62		232	
08/23/2000	18:50:00	350	40.46	16.7		231	
08/23/2000	19:40:00	400	40.528	16.768		229	
08/23/2000	20:30:00	450	40.59	16.83		228	

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test

Well No: PW-2

Date	Time	Δ Time	DTW	Δs	Meter Reading	Q	Remarks
08/23/2000	21:20:00	500	40.65	16.89		227	
08/23/2000	22:10:00	550	40.71	16.95		227	
08/23/2000	23:00:00	600	40.78	17.02		227	
08/23/2000	23:50:00	650	40.81	17.05		226	
08/23/2000	0:40:00	700	40.87	17.11		225	
08/24/2000	1:30:00	750	40.91	17.15		225	
08/24/2000	2:20:00	800	40.95	17.19		225	
08/24/2000	3:10:00	850	41	17.24		224	
08/24/2000	4:00:00	900	41.04	17.28		224	
08/24/2000	4:50:00	950	41.1	17.34		224	
08/24/2000	5:40:00	1000	41.12	17.36		224	
08/24/2000	7:20:00	1100	41.14	17.38		224	
08/24/2000	9:00:00	1200	41.3	17.54		229	
08/24/2000	10:05:00	1300	41.32	17.56		226	
08/24/2000	12:27:00	1400	41.41	17.65		232	
08/24/2000	13:20:00	1500	41.44	17.68		233	
08/24/2000	15:15:00	1600	41.51	17.75		233	
08/24/2000	16:55:00	1700	41.57	17.81		233	
08/24/2000	18:34:00	1800	41.64	17.88	353	231	Flow totalizer working again?
08/24/2000	20:05:00	1900	41.705	17.945		227	19:10 - totalizer at 0 again
08/24/2000	21:45:00	2000	41.75	17.99		226	
08/24/2000	23:25:00	2100	41.8	18.04		226	
08/25/2000	1:05:00	2200	41.85	18.09		225	
08/25/2000	2:45:00	2300	41.91	18.15		224	
08/25/2000	4:25:00	2400	41.94	18.18		224	
08/25/2000	6:05:00	2500	42.01	18.25		224	
08/25/2000	7:45:00	2600	42.05	18.29		224	
08/25/2000	9:25:00	2700	42.09	18.33		226	
08/25/2000	11:06:00	2800	42.15	18.39		231	
08/25/2000	12:45:00	2900	42.17	18.41		232	43 psi
08/25/2000	14:25:00	3000	42.215	18.455		233	
08/25/2000	16:05:00	3100	42.225	18.465		232	
08/25/2000	17:45:00	3200	42.3	18.54		230	
08/25/2000	19:25:00	3300	42.34	18.58		228	
08/25/2000	21:05:00	3400	42.38	18.62		227	
08/25/2000	22:45:00	3500	42.43	18.67		227	
08/26/2000	0:25:00	3600	42.46	18.7		227	
08/26/2000	2:05:00	3700	42.51	18.75		227	
08/26/2000	3:49:00	3800	42.54	18.78		227	
08/26/2000	5:30:00	3900	42.58	18.82		227	
08/26/2000	7:07:00	4000	42.62	18.86		226	
08/26/2000	8:42:00	4100	42.65	18.89		227	
08/26/2000	10:25:00	4200	42.69	18.93		228	
08/26/2000	12:05:00	4300	42.71	18.95		230	
08/26/2000	13:45:00	4400	42.75	18.99		230	
08/26/2000	15:25:00	4500	42.78	19.02		230	
08/26/2000	17:05:00	4600	42.82	19.06		229	
08/26/2000	18:45:00	4700	42.87	19.11		229	

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test

Well No: PW-2

Date	Time	Δ Time	DTW	Δs	Meter Reading	Q	Remarks
08/26/2000	20:30	4800	42.9	19.14		228	
08/26/2000	22:10	4900	42.93	19.17		226	
08/26/2000	23:45	5000	42.96	19.2			
08/27/2000	1:25	5100	43	19.24		226	
08/27/2000	3:20	5200	43.02	19.26		226	
08/27/2000	4:45	5300	43.05	19.29		226	
08/27/2000	6:25	5400	43.08	19.32		226	
08/27/2000	8:05	5500	43.13	19.37			
08/27/2000	9:45	5600	43.16	19.4		227	
08/27/2000	11:25	5700	43.18	19.42		230	
08/27/2000	13:05	5800	43.215	19.455		230	
08/27/2000	14:45	5900	43.24	19.48		231	
08/27/2000	16:25	6000	43.26	19.5		231	
08/27/2000	18:05	6100	43.29	19.53		230	
08/27/2000	19:45	6200	43.32	19.56		228	
08/27/2000	21:39	6300	43.35	19.59		226	
08/27/2000	23:06	6400	43.39	19.63		226	
08/28/2000	0:45	6500	43.4	19.64		226	
08/28/2000	2:27	6600	43.43	19.67		225	
08/28/2000	4:05	6700	43.45	19.69		225	
08/28/2000	5:46	6800	43.46	19.7		226	
08/28/2000	7:25	6900	43.5	19.74		226	
08/28/2000	9:05	7000	43.53	19.77		227	
08/28/2000	10:45	7100	43.55	19.79		229	
08/28/2000	12:25	7200	43.57	19.81		232	
08/28/2000	15:33	7300	28.4	4.64		0	Generator Shut Down
08/28/2000	17:25	7400	43.39	19.63		230	
08/28/2000	19:05	7500	43.56	19.8		229	
08/28/2000	20:51	7600	43.6	19.84		227	
08/28/2000	22:25	7700	43.64	19.88		227	
08/29/2000	0:05	7800	43.67	19.91		226	
08/29/2000	1:45	7900	43.7	19.94		227	
08/29/2000	3:25	8000	43.72	19.96		227	
08/29/2000	5:10	8100	43.76	20		226	
08/29/2000	6:46	8200	43.78	20.02		226	
08/29/2000	8:35	8300	43.8	20.04		228	
08/29/2000	10:05	8400	43.82	20.06		229	
08/29/2000	11:45	8500	43.86	20.1		229	
08/29/2000	13:25	8600	43.87	20.11		229	
08/29/2000	15:05	8700	43.9	20.14		230	
08/29/2000	17:00	8800	43.93	20.17		229	
08/29/2000	18:25	8900	43.94	20.18		229	
08/29/2000	20:15	9000	43.97	20.21		228	
08/29/2000	21:45	9100	43.99	20.23		228	
08/29/2000	23:20	9200	44.02	20.26		228	
08/30/2000	1:05	9300	44.04	20.28		227	
08/30/2000	2:45	9400	44.05	20.29		227	
08/30/2000	4:26	9500	44.09	20.33		227	

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test

Well No: PW-2

Date	Time	Δ Time	DTW	Δs	Meter Reading	Q	Remarks
08/30/2000	6:08	9600	44.11	20.35		225	
08/30/2000	7:45	9700	44.13	20.37		225	
08/30/2000	9:25	9800	44.14	20.38		226	
08/30/2000	11:05	9900	44.16	20.4		230	
08/30/2000	13:03	10000	44.17	20.41		232	
08/30/2000	14:00	10080	44.18	20.42		233	
08/30/2000	14:15	10160	43.84	20.08		233	PW-3 Off
08/30/2000	14:31	10240	43.75	19.99		233	

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test

Well No.: PW-2

Date	Time	Δ Time	DTW	Δs			Remarks
08/30/2000	15:00:00	0	43.68	19.92			PW-2 Shut off
08/30/2000	15:00:30	0.5	32.33	8.57			Recovery
08/30/2000	15:01:00	1	31.62	7.86			Recovery
08/30/2000	15:01:30	1.5	31.29	7.53			Recovery
08/30/2000	15:02:00	2	31.1	7.34			Recovery
08/30/2000	15:02:45	2.5	30.92	7.16			Recovery
08/30/2000	15:03:00	3	30.85	7.09			Recovery
08/30/2000	15:03:30	3.5	30.78	7.02			Recovery
08/30/2000	15:04:00	4	30.7	6.94			Recovery
08/30/2000	15:04:30	4.5	30.66	6.9			Recovery
08/30/2000	15:05:00	5	30.62	6.86			Recovery
08/30/2000	15:06:00	6	30.54	6.78			Recovery
08/30/2000	15:07:00	7	30.47	6.71			Recovery
08/30/2000	15:08:00	8	30.4	6.64			Recovery
08/30/2000	15:09:00	9	30.34	6.58			Recovery
08/30/2000	15:10:00	10	30.29	6.53			Recovery
08/30/2000	15:12:00	12	30.23	6.47			Recovery
08/30/2000	15:14:00	14	30.18	6.42			Recovery
08/30/2000	15:16:00	16	30.15	6.39			Recovery
08/30/2000	15:18:00	18	30.11	6.35			Recovery
08/30/2000	15:20:00	20	30.08	6.32			Recovery
08/30/2000	15:25:00	25	30.02	6.26			Recovery
08/30/2000	15:30:00	30	29.97	6.21			Recovery
08/30/2000	15:35:00	35	29.93	6.17			Recovery
08/30/2000	15:40:00	40	29.895	6.135			Recovery
08/30/2000	15:45:00	45	29.87	6.11			Recovery
08/30/2000	15:50:00	50	29.82	6.06			Recovery
08/30/2000	16:00:00	60	29.8	6.04			PW-1 Off Recovery
08/30/2000	16:10:00	70	28.9	5.14			Recovery
08/30/2000	16:20:00	80	28.65	4.89			Recovery
08/30/2000	16:30:00	90	28.5	4.74			Recovery
08/30/2000	16:40:00	100	29.39	5.63			Recovery
08/30/2000	17:00:00	120	28.25	4.49			Recovery
08/30/2000	17:20:00	140	28.17	4.41			Recovery
08/30/2000	17:40:00	160	28.1	4.34			Recovery
08/30/2000	18:00:00	180	28.04	4.28			Recovery
08/30/2000	18:20:00	200	27.99	4.23			Recovery

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test
4065-001-AT1

Well No.: PW-3
Start Date: 08/23/2000 Start time: 14:00:00
Initial Depth to Water: 52.6
Pumping Rate: 300
Initial Flow Meter Reading 0
End Flow Meter Reading

Test No. : 7-Day
Test Information:

Date	Time	Δ Time	DTW	Δs	Meter Reading	Q	Remarks
08/23/2000			52.6	0			
08/23/2000	12:00:00		52.58	-0.02			
08/23/2000	12:19:55		52.76	0.16			
08/23/2000	12:41:00		52.82	0.22			
08/23/2000	13:23:15		53.24	0.64			
08/23/2000	13:55:00		53.34	0.74			
08/23/2000	13:59:00		53.34	0.74			
08/23/2000	14:00:00	0	53.34	0.74			Begin Pumping
08/23/2000	14:00:30	0.5	82.7	30.1		308	
08/23/2000	14:01:00	1	84.18	31.58		304	
08/23/2000	14:01:30	1.5					water level probe problems
08/23/2000	14:02:00	2					No Reading
08/23/2000	14:02:30	2.5					No Reading
08/23/2000	14:03:00	3					No Reading
08/23/2000	14:03:30	3.5					No Reading
08/23/2000	14:04:00	4					No Reading
08/23/2000	14:04:30	4.5					No Reading
08/23/2000	14:05:00	5					No Reading
08/23/2000	14:06:00	6					No Reading
08/23/2000	14:07:00	7					No Reading
08/23/2000	14:08:00	8	86.98	34.38	2463	300	
08/23/2000	14:09:00	9	87.06	34.46	2732	298	
08/23/2000	14:10:00	10	87.1	34.5	3031	299	
08/23/2000	14:12:00	12	87.17	34.57	3650	299	
08/23/2000	14:14:00	14	87.23	34.63	4248	299	
08/23/2000	14:16:00	16	87.27	34.67	4853	300	
08/23/2000	14:18:00	18	87.45	34.85	5600	301	
08/23/2000	14:20:00	20	87.53	34.93	6048	301	
08/23/2000	14:25:00	25	87.58	34.98	7570	303	
08/23/2000	14:30:00	30	87.69	35.09	9071	303	
08/23/2000	14:35:00	35	87.73	35.13	10603	302	
08/23/2000	14:40:00	40	87.75	35.15	12100	302	
08/23/2000	14:45:00	45	87.77	35.17	13600	303	
08/23/2000	14:50:00	50	87.78	35.18	15140	304	
08/23/2000	14:55:00	55	87.79	35.19	16830	305	
08/23/2000	15:10:00	70	87.84	35.24			
08/23/2000	15:20:00	80	87.86	35.26	24400	305	
08/23/2000	15:30:00	90	87.89	35.24	27298	304	
08/23/2000	15:40:00	100	87.9	35.26	30264	302	
08/23/2000	16:00:00	120	87.94	35.29	36395	303	
08/23/2000	16:20:00	140	87.97	35.3	42661	303	
08/23/2000	16:40:00	160	88.05	35.34	48540	303	
08/23/2000	17:20:00	200	88.09	35.37	60098	305	
08/23/2000	18:10:00	250	88.15	35.45	75515	302	
08/23/2000	19:00:00	300	88.21	35.49	90635	301	
08/23/2000	19:50:00	350	88.27	35.55	105746	298	
08/23/2000	20:40:00	400	88.31	35.61	120747	296	
08/23/2000	21:30:00	450	88.38	35.67	135798	294	

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test

Well No: PW-3

Date	Time	Δ Time	DTW	Δs	Meter Reading	Q	Remarks
08/23/2000	22:20:00	500	88.43	35.83	151703	295	
08/23/2000	23:10:00	550	88.46	35.86	166652	294	
08/24/2000	0:01:00	601	88.52	35.92	179699	293	
08/24/2000	0:50:00	650	88.55	35.95	196901	293	
08/24/2000	1:40:00	700	88.58	35.98	212218	291	
08/24/2000	2:30:00	750	88.63	36.03	229590	292	
08/24/2000	3:20:00	800	88.68	36.08	242730	291	
08/24/2000	4:10:00	850	88.72	36.12	257998	291	
08/24/2000	5:00:00	900	88.76	36.16	272885	292	
08/24/2000	5:50:00	950	88.81	36.21	288152	291	
08/24/2000	6:40:00	1000	88.85	36.25	300490	290	
08/24/2000	8:20:00	1100	88.92	36.32	334614	296	
08/24/2000	10:10:00	1210	88.98	36.38	367432	303	
08/24/2000	12:04:00	1324	89.03	36.43	402251	306	
08/24/2000	13:30:00	1410	89.09	36.49	428071	305	
08/24/2000	15:20:00	1520	89.14	36.54	461261	306	
08/24/2000	17:45:00	1665	89.38	36.78	505531	306	
08/24/2000	18:40:00	1720	89.39	36.79	525841	303	
08/24/2000	20:10:00	1810	89.45	36.85	555489	296	
08/24/2000	21:50:00	1910	89.51	36.91	580666	294	
08/24/2000	23:30:00	2010	89.54	36.94	609558	294	
08/25/2000	1:10:00	2110	89.54	36.94	639544	293	
08/25/2000	2:50:00	2210	89.55	36.95	670298	292	
08/25/2000	4:30:00	2310	89.55	36.95	700828	291	
08/25/2000	6:10:00	2410	89.55	36.95	731038	291	
08/25/2000	7:50:00	2510	89.55	36.95	761953	293	
08/25/2000	9:30:00	2610	89.55	36.95	791713	300	
08/25/2000	11:08:00	2708	89.55	36.95	822024	305	
08/25/2000	12:50:00	2810	89.5	36.9	852975	306	
08/25/2000	14:35:00	2915	89.72	37.12	884501	304	
08/25/2000	16:15:00	3015	89.54	36.94	914987	305	
08/25/2000	17:45:00	3105	89.56	36.96	945399	299	Water level probe caught on coupling at
08/25/2000	19:25:00	3205	89.57	36.97	975390	297	84 ft. - reading delayed
08/25/2000	21:05:00	3305	89.55	36.95	1007073	296	
08/25/2000	22:45:00	3405	89.55	36.95	1034894	295	
08/26/2000	0:30:00	3510	89.55	36.95	1064608	295	
08/26/2000	2:10:00	3610	89.54	36.94	1095105	295	
08/26/2000	3:53:00	3713	89.55	36.95	1126108	294	
08/26/2000	5:34:00	3814	89.55	36.95	1156932	294	
08/26/2000	7:10:00	3910	89.5	36.9	1185878	294	
08/26/2000	8:45:00	4005	89.53	36.93	1214760	295	
08/26/2000	10:30:00	4110	89.55	36.95	1246751	298	
08/26/2000	12:10:00	4210	89.53	36.93	1276565	302	
08/26/2000	13:50:00	4310	89.54	36.94	1307006	301	
08/26/2000	15:30:00	4410	89.54	36.94	1538340	300	
08/26/2000	17:10:00	4510	89.54	36.94	1367435	298	
08/26/2000	18:50:00	4610	89.54	36.94	1398396	298	
08/26/2000	20:35:00	4715	89.35	36.75	1430863	295	

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test

Well No: PW-3

Date	Time	Δ Time	DTW	Δs	Meter Reading	Q	Remarks
08/26/2000	22:10:00	4810	89.31	36.71	1459346	294	
08/26/2000	23:50:00	4910	89.3	36.7	1488900	294	
08/27/2000	1:30:00	5010	89.31	36.71	1519500	294	
08/27/2000	3:25:00	5125	89.38	36.78	1554000	293	
08/27/2000	4:50:00	5210	90.8	38.2	1580385	294	new water level meter
08/27/2000	6:30:00	5310	90.87	38.27	1611148	294	
08/27/2000	8:10:00	5410	90.81	38.21	1639984	297	
08/27/2000	9:50:00	5510	90.87	38.27	1672431	296	
08/27/2000	11:30:00	5610	90.88	38.28	1700537	301	
08/27/2000	13:10:00	5710	91.91	39.31	1731676	301	reading suspect - weak signal in water level probe
08/27/2000	14:50:00	5810	90.94	38.34	1760943	302	
08/27/2000	16:30:00	5910	90.96	38.36	1791287	302	
08/27/2000	18:10:00	6010	90.99	38.39	1823294	302	
08/27/2000	19:50:00	6110	91	38.4	1852246	298	
08/27/2000	21:46:00	6226	91.02	38.42	1886739	294	
08/27/2000	23:11:00	6311	91.03	38.43	1912504	293	
08/28/2000	0:50:00	6410	91.05	38.45	1942423	293	
08/28/2000	2:30:00	6510	91.08	38.48	1973000	293	
08/28/2000	4:10:00	6610	91.11	38.51	2002833	293	
08/28/2000	6:50:00	6770	91.15	38.55	2033196	293	
08/28/2000	7:30:00	6810	91.2	38.6	2062918	294	
08/28/2000	9:10:00	6910	91.2	38.6	2092465	295	
08/28/2000	10:50:00	7010	91.23	38.63	2123689	299	
08/28/2000	12:30:00	7110	91.28	38.68	2154458	302	
08/28/2000	15:37:00	7297	90.78	38.18	2211123	300	
08/28/2000	16:09:00	7329	91.1	38.5	2221157	299	
08/28/2000	17:30:00	7410	88.73		2245208	298	
08/28/2000	19:10:00	7510	88.68		2276318	297	
08/28/2000	20:55:00	7615	89.4		2306680	295	
08/28/2000	22:30:00	7710	89.38		2335818	294	
08/29/2000	0:10:00	7810	89.4		2366900	294	
08/29/2000	1:50:00	7910	89.4		2396769	294	
08/29/2000	3:30:00	8010	89.4		2427334	294	
08/29/2000	5:10:00	8110	89.4		2457424	294	
08/29/2000	6:50:00	8210	89.4		2488070	293	
08/29/2000	8:40:00	8320	91.49	38.89	2521137	295	
08/29/2000	10:10:00	8410	91.52	38.92	2547581	297	
08/29/2000	11:50:00	8510	91.54	38.94	2577658	297	
08/29/2000	13:30:00	8610	91.57	38.97	2608685	298	
08/29/2000	15:10:00	8710	91.59	38.99	2638501	299	
08/29/2000	17:04:00	8824	91.62	39.02	2672835	298	
08/29/2000	18:30:00	8910	91.62	39.02	2698721	297	19:00 PW-3 pump shut down to fill generator oil.
08/29/2000	20:15:00	9015	91.67	39.07	2730622	296	
08/29/2000	20:53:00	9053	89.9		2759367	296	
08/29/2000	23:31:00	9211	91.71	39.11	2788827	296	
08/30/2000	1:14:00	9314	91.72	39.12	2819125	295	
08/30/2000	2:51:00	9411	91.73	39.13	2849063	296	
08/30/2000	4:31:00	9511	91.75	39.15	2879500	294	

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GSWA - Spring Hill Seven Day Pumping Test

Well No: PW-3

Date	Time	Δ Time	DTW	Δs	Meter Reading	Q	Remarks
08/30/2000	6:10:00	9610	91.77	39.17	2910062	292	
08/30/2000	7:50:00	9710	91.83	39.23	2940041	293	
08/30/2000	9:30:00	9810	91.83	39.23	2970061	299	
08/30/2000	11:10:00	9910	91.84	39.24	3000526	301	
08/30/2000	13:03:00	10023	91.88	39.28	3034410	304	

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test

Well No: PW-3

Date	Time	Δ Time	DTW	Δs			Remarks
08/30/2000	14:00:00	0					PW-3 Shut off
08/30/2000	14:00:45	0.5	62.5	9.16			Final total pumped = 3,051,504 Recovery
08/30/2000	14:01:00	1	61.05	7.71			Recovery
08/30/2000	14:01:30	1.5	59.8	6.46			Recovery
08/30/2000	14:02:00	2	59.09	5.75			Recovery
08/30/2000	14:02:30	2.5	58.6	5.26			Recovery
08/30/2000	14:03:00	3	58.37	5.03			Recovery
08/30/2000	14:03:30	3.5	58.17	4.83			Recovery
08/30/2000	14:04:00	4	58.04	4.7			Recovery
08/30/2000	14:40:30	4.5	57.92	4.58			Recovery
08/30/2000	14:05:00	5	57.85	4.51			Recovery
08/30/2000	14:06:00	6	57.74	4.4			Recovery
08/30/2000	14:07:00	7	57.67	4.33			Recovery
08/30/2000	14:08:00	8	57.64	4.3			Recovery
08/30/2000	14:09:00	9	57.62	4.28			Recovery
08/30/2000	14:10:00	10	57.6	4.26			Recovery
08/30/2000	14:12:00	12	57.585	4.245			Recovery
08/30/2000	14:14:00	14	57.6	4.26			Recovery
08/30/2000	14:16:00	16	57.6	4.26			Recovery
08/30/2000	14:18:00	18	57.63	4.29			Recovery
08/30/2000	14:20:00	20	57.64	4.3			Recovery
08/30/2000	14:25:00	25	57.62	4.28			Recovery
08/30/2000	14:30:00	30	57.58	4.24			Recovery
08/30/2000	14:35:00	35	57.57	4.23			Recovery
08/30/2000	14:40:00	40	57.53	4.19			Recovery
08/30/2000	14:45:00	45	57.51	4.17			Recovery
08/30/2000	14:50:00	50	57.5	4.16			Recovery
08/30/2000	15:00:00	60	57.45	4.11			Recovery
08/30/2000	15:10:00	70	57.2	3.86			Recovery
08/30/2000	15:20:00	80	57.12	3.78			Recovery
08/30/2000	15:30:00	90	57.08	3.74			Recovery
08/30/2000	15:40:00	100	57.03	3.69			Recovery
08/30/2000	16:00:00	120	56.97	3.63			Recovery
08/30/2000	16:20:00	140	56.8	3.46			Recovery
08/30/2000	16:42:00	160	56.71	3.37			Recovery
08/30/2000	17:02:00	180	56.66	3.32			Recovery
08/30/2000	17:15:00	200	56.63	3.29			Recovery
08/30/2000	17:52:00	250	56.55	3.21			Recovery
08/30/2000	18:42:00	300	56.46	3.12			Recovery

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test
4065-001-AT1

Well No.: MW-1d
Pumping Well:
Start Date: 08/23/2000 Start time: 12:00
Initial Depth to Water: 3.9
Pumping Rate: 330 gpm

Test No. : 7-Day Test
Test Information:

Date	Time	Δ Time	DTW	Δs	Remarks
08/23/2000	10:48	-72	3.84	-0.06	
08/23/2000	11:16	-44	3.92	0.02	
08/23/2000	11:33	-27	3.96	0.06	
08/23/2000	12:00	0	3.9	0	
08/23/2000	12:10	10	3.81	-0.09	
08/23/2000	12:22	22	4.29	0.39	
08/23/2000	12:57	57	4.81	0.91	
08/23/2000	13:19	79	5.15	1.25	
08/23/2000	13:33	93	5.47	1.57	
08/23/2000	13:51	111	5.78	1.88	
08/23/2000	14:22	142	6	2.1	
08/23/2000	14:40	160	6.15	2.25	
08/23/2000	15:03	183	6.29	2.39	
08/23/2000	15:39	219	6.45	2.55	
08/23/2000	16:05	245	6.5	2.6	
08/23/2000	16:46	286	6.56	2.66	
08/23/2000	17:36	336	6.64	2.74	
08/23/2000	18:27	387	6.69	2.79	
08/23/2000	19:18	438	6.73	2.83	
08/23/2000	20:08	488	6.77	2.87	
08/23/2000	22:08	608	6.87	2.97	
08/23/2000	23:02	662	6.92	3.02	
08/24/2000	0:57	777	6.96	3.06	
08/24/2000	2:21	861	7.02	3.12	
08/24/2000	3:42	942	7.05	3.15	
08/24/2000	5:06	1026	7.09	3.19	
08/24/2000	7:00	1140	7.16	3.26	
08/24/2000	8:33	1233	7.2	3.3	
08/24/2000	10:37	1357	7.25	3.35	
08/24/2000	12:14	1454	7.29	3.39	
08/24/2000	13:50	1550	7.31	3.41	
08/24/2000	15:33	1653	7.35	3.45	
08/24/2000	17:12	1752	7.38	3.48	
08/24/2000	18:49	1849	7.43	3.53	
08/24/2000	20:29	1949	7.47	3.57	
08/24/2000	22:12	2052	7.51	3.61	
08/25/2000	0:02	2162	7.55	3.65	
08/25/2000	1:39	2259	7.57	3.67	
08/25/2000	3:07	2347	7.61	3.71	
08/25/2000	4:54	2454	7.64	3.74	
08/25/2000	5:50	2510	7.67	3.77	
08/25/2000	7:30	2610	7.72	3.82	

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test

Well No: MW-1d

Date	Time	Δ Time	DTW	Δs	Remarks
08/25/2000	9:08	2708	7.74	3.84	
08/25/2000	10:48	2808	7.75	3.85	
08/25/2000		2160		-3.9	
08/25/2000	12:34	2914	7.79	3.89	
08/25/2000	14:12	3012	7.8	3.9	
08/25/2000	15:51	3111	7.82	3.92	
08/25/2000	16:01	3121	7.87	3.97	
08/25/2000	17:34	3214	7.86	3.96	
08/25/2000	19:10	3310	7.88	3.98	
08/25/2000	20:52	3412	7.9	4	
08/25/2000	20:29	3389	7.94	4.04	
08/26/2000	0:08	3608	7.965	4.065	
08/26/2000	1:50	3710	8	4.1	
08/26/2000	3:30	3810	8.01	4.11	
08/26/2000	5:09	3909	8.05	4.15	
08/26/2000	5:51	3951	8.28	4.38	
08/26/2000	8:29	4109	8.11	4.21	
08/26/2000	10:15	4215	8.13	4.23	
08/26/2000	10:21	4221	8.13	4.23	
08/26/2000	11:53	4313	8.15	4.25	
08/26/2000	13:34	4414	8.17	4.27	
08/26/2000	15:13	4513	8.2	4.3	
08/26/2000	16:57	4617	8.21	4.31	
08/26/2000	18:35	4715	8.25	4.35	
08/26/2000	20:32	4832	8.28	4.38	
08/26/2000	21:50	4910	8.31	4.41	
08/26/2000	23:29	5009	8.32	4.42	
08/27/2000	1:10	5110	8.35	4.45	
08/27/2000	3:04	5224	8.36	4.46	
08/27/2000	4:29	5309	8.41	4.51	
08/27/2000	6:10	5410	8.43	4.53	
08/27/2000	7:51	5511	8.46	4.56	
08/27/2000	20:35	6275	8.47	4.57	
08/27/2000	11:16	5716	8.48	4.58	
08/27/2000	12:57	5817	8.5	4.6	
08/27/2000	14:37	5917	8.52	4.62	
08/27/2000	16:18	6018	8.53	4.63	
08/27/2000	18:02	6122	8.56	4.66	
08/27/2000	19:43	6223	8.59	4.69	
08/27/2000	21:19	6319	8.62	4.72	
08/27/2000	22:48	6408	8.62	4.72	
08/28/2000	0:28	6508	8.65	4.75	
08/28/2000	2:12	6612	8.67	4.77	
08/28/2000	3:50	6710	8.69	4.79	
08/28/2000	5:30	6810	8.69	4.79	
08/28/2000	7:11	6911	8.74	4.84	
08/28/2000	8:46	7006	8.74	4.84	
08/28/2000	10:32	7112	8.76	4.86	
08/28/2000	12:13	7213	8.77	4.87	
08/28/2000	13:47	7307	8.78	4.88	

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GSWA - Spring Hill Seven Day Pumping Test

Well No: MW-1d

Date	Time	Δ Time	DTW	Δs	Remarks
08/28/2000	17:18	7518	8.55	4.65	
08/28/2000	18:56	7616	8.8	4.9	
08/28/2000	20:36	7716	8.8	4.9	
08/28/2000	22:10	7810	8.85	4.95	
08/28/2000	23:51	7911	8.88	4.98	
08/29/2000	1:30	8010	8.9	5	
08/29/2000	3:14	8114	8.92	5.02	
08/29/2000	4:55	8215	8.93	5.03	
08/29/2000	6:33	8313	8.95	5.05	
08/29/2000	8:17	8417	8.97	5.07	
08/29/2000	9:57	8517	8.98	5.08	
08/29/2000	11:40	8620	9.01	5.11	
08/29/2000	11:53	8633	9.1	5.2	
08/29/2000	13:32	8732	9.03	5.13	
08/29/2000	15:07	8827	9.04	5.14	
08/29/2000	16:50	8930	9.07	5.17	
08/29/2000	18:27	9027	9.06	5.16	
08/29/2000	19:57	9117	9.1	5.2	
08/29/2000	21:31	9211	9.11	5.21	
08/29/2000	23:06	9306	9.13	5.23	
08/30/2000	0:50	9410	9.15	5.25	
08/30/2000	2:31	9511	9.16	5.26	
08/30/2000	4:12	9612	9.18	5.28	
08/30/2000	5:54	9714	9.2	5.3	
08/30/2000	7:40	9820	9.22	5.32	
08/30/2000	9:03	9903	9.23	5.33	
08/30/2000	10:40	10000	9.25	5.35	
08/30/2000	12:23	10103	9.25	5.35	
08/30/2000	13:20	10160	9.27	5.37	
08/30/2000	14:02	10202	9.26	5.36	
08/30/2000	14:07	10207	9.24	5.34	
08/30/2000	14:18	10218	9.21	5.31	
08/30/2000	14:24	10224	9.16	5.26	
08/30/2000	14:36	10236	9.1	5.2	
08/30/2000	14:49	10249	9.05	5.15	
08/30/2000	15:06	10266	9.03	5.13	
08/30/2000	15:13	10273	8.85	4.95	
08/30/2000	15:16	10276	8.64	4.74	
08/30/2000	15:27	10287	8.61	4.71	
08/30/2000	15:41	10301	8.43	4.53	
08/30/2000	15:45	10305	8.34	4.44	
08/30/2000	15:57	10317	8.31	4.41	
08/30/2000	16:03	10323	8.45	4.55	
08/30/2000	16:04	10324	8.44	4.54	
08/30/2000	16:07	10328	8.3	4.4	
08/30/2000	16:17	10337	7.93	4.03	
08/30/2000	16:26	10346	7.61	3.71	
08/30/2000	16:46	10366	7.2	3.3	
08/30/2000	16:59	10379	7.05	3.15	
08/30/2000	17:06	10386	6.97	3.07	
08/30/2000	17:17	10397	6.8	2.9	
08/30/2000	17:36	10416	6.79	2.89	
08/30/2000	17:57	10437	6.68	2.78	
08/30/2000	18:16	10456	6.63	2.73	
08/30/2000	18:36	10476	6.58	2.68	
08/30/2000	18:56	10496	6.55	2.65	

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test
4065-001-AT1

Well No.: MW-1i
Pumping Well:
Start Date: 08/23/2000 Start time: 12:00
Initial Depth to Water: 6.11
Pumping Rate:

Test No. : 7-Day Test
Test Information:

Date	Time	Δ Time	DTW	Δs	Remarks
08/23/2000	10:48	-72	6.11	0	
08/23/2000	11:16	-44	6.75	0.64	
08/23/2000	11:32	-28	6.22	0.11	
08/23/2000	12:00	0	6.11	0	
08/23/2000	12:10	10	10.9	4.79	
08/23/2000	12:20	20	11.72	5.61	
08/23/2000	12:56	56	12.05	5.94	
08/23/2000	13:19	79	13.38	7.27	
08/23/2000	13:33	93	13.61	7.5	
08/23/2000	13:50	110	13.73	7.62	
08/23/2000	14:22	142	14.08	7.97	
08/23/2000	14:40	160	14.24	8.13	
08/23/2000	15:02	182	14.29	8.18	
08/23/2000	15:38	218	14.37	8.26	
08/23/2000	16:03	243	14.41	8.3	
08/23/2000	16:45	285	14.48	8.37	
08/23/2000	17:35	335	14.5	8.39	
08/23/2000	18:26	386	14.6	8.49	
08/23/2000	19:17	437	14.64	8.53	
08/23/2000	20:06	486	14.7	8.59	
08/23/2000	22:07	607	14.8	8.69	
08/23/2000	23:01	661	14.91	8.8	
08/24/2000	0:57	777	14.89	8.78	
08/24/2000	2:21	861	14.96	8.85	
08/24/2000	3:41	941	14.99	8.88	
08/24/2000	5:05	1025	15.06	8.95	
08/24/2000	7:00	1140	15.13	9.02	
08/24/2000	8:32	1232	15.15	9.04	
08/24/2000	10:36	1356	15.24	9.13	
08/24/2000	12:13	1453	15.29	9.18	
08/24/2000	13:49	1549	15.32	9.21	
08/24/2000	15:32	1652	15.37	9.26	
08/24/2000	17:11	1751	15.41	9.3	
08/24/2000	18:48	1848	15.45	9.34	
08/24/2000	20:28	1948	15.5	9.39	
08/24/2000	22:11	2051	15.55	9.44	
08/25/2000	0:02	2162	15.59	9.48	
08/25/2000	1:39	2259	15.62	9.51	
08/25/2000	3:07	2347	15.65	9.54	
08/25/2000	4:53	2453	15.68	9.57	
08/25/2000	4:50	2450	15.7	9.59	
08/25/2000	7:30	2610	15.76	9.65	

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test

Well No: MW-1i

Date	Time	Δ Time	DTW	Δs	Remarks
08/25/2000	9:07	2707.00	15.79	9.68	
08/25/2000	10:47	2807.00	15.82	9.71	
08/25/2000	12:32	2912.00	15.85	9.74	
08/25/2000	14:10	3010.00	15.89	9.78	
08/25/2000	15:50	3110.00	15.91	9.8	
08/25/2000	17:33	3213.00	15.92	9.81	
08/25/2000	19:08	3308.00	15.99	9.88	
08/25/2000	20:51	3411.00	16	9.89	
08/25/2000	22:27	3507.00	16.03	9.92	
08/26/2000	0:08	3608	16.06	9.95	
08/26/2000	1:50	3710.00	16.09	9.98	
08/26/2000	3:30	3810.00	16.16	10.05	
08/26/2000	5:09	3909	16.155	10.045	
08/26/2000	7:51	4071	16.19	10.08	
08/26/2000	8:27	4107	16.21	10.1	
08/26/2000	10:14	4214	16.26	10.15	
08/26/2000	11:52	4312	16.27	10.16	
08/26/2000	13:33	4413	16.29	10.18	
08/26/2000	15:12	4512	16.33	10.22	
08/26/2000	16:56	4616	16.36	10.25	
08/26/2000	18:34	4714	16.38	10.27	
08/26/2000	20:30	4830	16.42	10.31	
08/26/2000	21:50	4910	16.43	10.32	
08/26/2000	23:29	5009	16.46	10.35	
08/27/2000	1:09	5109	16.49	10.38	
08/27/2000	3:02	5222	16.52	10.41	
08/27/2000	4:28	5308	16.53	10.42	
08/27/2000	6:08	5408	16.58	10.47	
08/27/2000	2:50	5210	16.59	10.48	
08/27/2000	9:34	5614	16.6	10.49	
08/27/2000	11:15	5715	16.62	10.51	
08/27/2000	12:55	5815	16.64	10.53	
08/27/2000	14:36	5916	16.67	10.56	
08/27/2000	16:17	6017	16.68	10.57	
08/27/2000	18:01	6121	16.72	10.61	
08/27/2000	19:42	6222	16.74	10.63	
08/27/2000	21:19	6319	16.74	10.63	
08/27/2000	22:47	6407	16.76	10.65	
08/28/2000	0:27	6507	16.78	10.67	
08/28/2000	2:11	6611	16.8	10.69	
08/28/2000	3:51	6711	16.83	10.72	
08/28/2000	5:30	6810	16.83	10.72	
08/28/2000	7:10	6910	16.88	10.77	
08/28/2000	8:46	7006	16.91	10.8	
08/28/2000	10:32	7112	16.92	10.81	
08/28/2000	12:12	7212	16.93	10.82	
08/28/2000	13:46	7306	16.94	10.83	
08/28/2000	17:18	7518	16.78	10.67	
08/28/2000	18:55	7615	16.96	10.85	
08/28/2000	20:35	7715	16.98	10.87	

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test

Well No: MW-1i

Date	Time	Δ Time	DTW	Δs	Remarks
08/28/2000	22:10	7810	17.05	10.94	
08/28/2000	23:50	7910	17.04	10.93	
08/29/2000	1:30	8010	17.06	10.95	
08/29/2000	3:14	8114	17.07	10.96	
08/29/2000	4:55	8215	17.11	11	
08/29/2000	6:32	8312	17.12	11.01	
08/29/2000	8:17	8417	17.14	11.03	
08/29/2000	9:56	8516	17.16	11.05	
08/29/2000	11:39	8619	17.19	11.08	
08/29/2000	13:21	8721	17.2	11.09	
08/29/2000	15:06	8826	17.22	11.11	
08/29/2000	16:48	8928	17.25	11.14	
08/29/2000	18:26	9026	17.25	11.14	
08/29/2000	19:57	9117	17.28	11.17	
08/29/2000	21:31	9211	17.28	11.17	
08/29/2000	23:06	9306	17.3	11.19	
08/30/2000	0:50	9410	17.34	11.23	
08/30/2000	2:31	9511	17.35	11.24	
08/30/2000	4:12	9612	17.37	11.26	
08/30/2000	5:54	9714	17.39	11.28	
08/30/2000	7:39	9819	17.41	11.3	
08/30/2000	9:02	9902	17.42	11.31	
08/30/2000	10:39	9999	17.44	11.33	
08/30/2000	12:23	10103	17.43	11.32	
08/30/2000	13:20	10160	17.44	11.33	
08/30/2000	14:01	10201	17.44	11.33	
08/30/2000	14:06	10206	17.4	11.29	
08/30/2000	14:18	10218	17.26	11.15	
08/30/2000	14:23	10223	17.22	11.11	
08/30/2000	14:34	10234	17.18	11.07	
08/30/2000	14:48	10248	17.15	11.04	
08/30/2000	14:58	10258	17.13	11.02	
08/30/2000	15:03	10263	16.92	10.81	
08/30/2000	15:13	10273	16.16	10.05	
08/30/2000	15:26	10286	15.88	9.77	
08/30/2000	15:39	10299	15.76	9.65	
08/30/2000	15:56	10316	15.66	9.55	
08/30/2000	16:00	10321	14.2	8.09	
08/30/2000	16:03	10324	11.88	5.77	
08/30/2000	16:06	10326	11.12	5.01	
08/30/2000	16:12	10332	10.65	4.54	
08/30/2000	16:16	10336	10.42	4.31	
08/30/2000	16:20	10340	10.25	4.14	
08/30/2000	16:26	10346	10.13	4.02	
08/30/2000	16:37	10357	9.94	3.83	
08/30/2000	16:57	10377	9.75	3.64	
08/30/2000	17:05	10385	9.69	3.58	
08/30/2000	17:14	10394	9.65	3.54	
08/30/2000	17:31	10411	9.57	3.46	
08/30/2000	17:42	10422	9.53	3.42	
08/30/2000	17:58	10438	9.48	3.37	
08/30/2000	18:15	10455	9.43	3.32	
08/30/2000	16:36	10356	9.38	3.27	
08/30/2000	18:35	10475	9.35	3.24	

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test
4065-001-AT1

Well No.: MW-1s
Pumping Well: PW-1, 2, 3
Start Date: 08/23/2000 Start time: 12:00
Initial Depth to Water: 6.3
Pumping Rate: 733 gpm

Test No. : 7-Day Test
Test Information:

Date	Time	Δ Time	DTW	Δs	Remarks
08/23/2000	10:48	-72	6.29		
08/23/2000	10:17	-103	6.27		
08/23/2000	11:33	-27	6.3	0	
08/23/2000	12:00	0	6.3	0	
08/23/2000	12:11	11	6.19		
08/23/2000	12:22	22	6.19		
08/23/2000	12:57	57	6.23		
08/23/2000	13:20	80	6.23		
08/23/2000	13:34	94	6.23		
08/23/2000	13:51	111	6.24		
08/23/2000	14:23	143	6.26		
08/23/2000	14:40	160	6.28		
08/23/2000	15:03	183	6.27		
08/23/2000	15:40	220	6.29		
08/23/2000	16:05	245	6.3	0	
08/23/2000	16:46	286	6.3	0	
08/23/2000	17:42	342	6.31	0.01	
08/23/2000	19:19	439	6.33	0.03	
08/23/2000	20:09	489	6.33	0.03	
08/23/2000	22:10	610	6.36	0.06	
08/23/2000	23:03	663	6.34	0.04	
08/24/2000	0:57	777	6.34	0.04	
08/24/2000	2:21	861	6.34	0.04	
08/24/2000	3:43	943	6.34	0.04	
08/24/2000	5:07	1027	6.35	0.05	
08/24/2000	7:00	1140	6.36	0.06	
08/24/2000	8:35	1235	6.35	0.05	
08/24/2000	10:37	1357	6.35	0.05	
08/24/2000	12:15	1455	6.35	0.05	
08/24/2000	13:51	1551	6.36	0.06	
08/24/2000	15:34	1654	6.36	0.06	
08/24/2000	17:13	1753	6.37	0.07	
08/24/2000	18:50	1850	6.38	0.08	
08/24/2000	20:30	1950	6.39	0.09	
08/24/2000	22:12	2052	6.4	0.1	
08/25/2000	0:02	2162	6.4	0.1	
08/25/2000	1:40	2260	6.4	0.1	
08/25/2000	3:07	2347	6.4	0.1	
08/25/2000	4:54	2454	6.4	0.1	
08/25/2000	5:50	2510	6.41	0.11	
08/25/2000	7:30	2610	6.41	0.11	
08/25/2000	9:08	2708	6.41	0.11	

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test

Well No: MW-1s

Date	Time	Δ Time	DTW	Δs	Remarks
08/25/2000	10:49	2809	6.42	0.12	
08/25/2000	12:36	2916	6.41	0.11	
08/25/2000	14:12	3012	6.42	0.12	
08/25/2000	15:52	3112	6.43	0.13	
08/25/2000	17:35	3215	6.44	0.14	
08/25/2000	19:11	3311	6.45	0.15	
08/25/2000	20:53	3413	6.44	0.14	
08/25/2000	22:30	3510	6.45	0.15	
08/26/2000	0:08	3608	6.445	0.145	
08/26/2000	1:50	3710	6.445	0.145	
08/26/2000	3:30	3810	6.451	0.151	
08/26/2000	5:10	3910	6.46	0.16	
08/26/2000	6:53	4013	6.465	0.165	
08/26/2000	8:30	4110	6.47	0.17	
08/26/2000	10:16	4216	6.49	0.19	
08/26/2000	10:23	4223	6.48	0.18	
08/26/2000	11:54	4314	6.48	0.18	
08/26/2000	13:35	4415	6.49	0.19	
08/26/2000	15:14	4514	6.49	0.19	
08/26/2000	16:57	4617	6.5	0.2	
08/26/2000	18:36	4716	6.51	0.21	
08/26/2000	20:33	4833	6.53	0.23	
08/26/2000	21:51	4911	6.54	0.24	
08/26/2000	23:30	5010	6.53	0.23	
08/27/2000	1:11	5111	6.54	0.24	
08/27/2000	3:04	5224	6.54	0.24	
08/27/2000	4:30	5310	6.54	0.24	
08/27/2000	6:10	5410	6.55	0.25	
08/27/2000	7:52	5512	6.56	0.26	
08/27/2000	9:35	5615	6.55	0.25	
08/27/2000	11:17	5717	6.57	0.27	
08/27/2000	12:58	5818	6.57	0.27	
08/27/2000	14:38	5918	6.58	0.28	
08/27/2000	16:18	6018	6.59	0.29	
08/27/2000	18:03	6123	6.6	0.3	
08/27/2000	19:44	6224	6.6	0.3	
08/27/2000	21:19	6319	6.61	0.31	
08/27/2000	22:48	6408	6.62	0.32	
08/28/2000	0:29	6509	6.63	0.33	
08/28/2000	2:12	6612	6.64	0.34	
08/28/2000	3:50	6710	6.63	0.33	
08/28/2000	5:31	6811	6.63	0.33	
08/28/2000	7:12	6912	6.64	0.34	
08/28/2000	8:47	7007	6.64	0.34	
08/28/2000	10:33	7113	6.64	0.34	
08/28/2000	12:14	7214	6.64	0.34	
08/28/2000	17:20	7520	6.62	0.32	
08/28/2000	18:57	7617	6.66	0.36	
08/28/2000	20:37	7717	6.65	0.35	

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test

Well No: MW-1s

Sheet 3 of 3

Date	Time	Δ Time	DTW	Δs	Remarks
08/28/2000		6480			
08/28/2000	22:10	7810	6.68	0.38	
08/28/2000	23:57	7917	6.68	0.38	
08/29/2000	1:30	8010	6.68	0.38	
08/29/2000	3:15	8115	6.69	0.39	
08/29/2000	4:56	8216	6.68	0.38	
08/29/2000	6:33	8313	6.69	0.39	
08/29/2000	8:18	8418	6.7	0.4	
08/29/2000	9:58	8518	6.7	0.4	
08/29/2000					
08/29/2000	11:41	8621	6.71	0.41	
08/29/2000	11:53	8633	6.76	0.46	
08/29/2000	13:23	8723	6.71	0.41	
08/29/2000	15:08	8828	6.71	0.41	
08/29/2000	16:51	8931	6.74	0.44	
08/29/2000	18:28	9028	6.71	0.41	
08/29/2000	19:57	9117	6.74	0.44	
08/29/2000	21:31	9211	6.74	0.44	
08/29/2000	23:06	9306	6.75	0.45	
08/30/2000	0:50	9410	6.75	0.45	
08/30/2000	2:32	9512	6.75	0.45	
08/30/2000	4:13	9613	6.75	0.45	
08/30/2000	5:54	9714	6.75	0.45	
08/30/2000	7:41	9821	6.75	0.45	
08/30/2000	9:03	9903	6.76	0.46	
08/30/2000	10:40	10000	6.76	0.46	
08/30/2000	12:24	10104	6.76	0.46	
08/30/2000	13:21	10161	6.77	0.47	
08/30/2000	14:02	10202	6.78	0.48	
08/30/2000	14:07	10207	6.78	0.48	
08/30/2000	14:19	10219	6.77	0.47	
08/30/2000	14:24	10224	6.77	0.47	
08/30/2000	14:37	10237	6.78	0.48	
08/30/2000	14:50	10250	6.78	0.48	
08/30/2000	15:05	10265	6.77	0.47	
08/30/2000	15:14	10274	6.78	0.48	
08/30/2000	15:17	10277	6.64		
08/30/2000	15:28	10288	6.78	0.48	
08/30/2000	15:58	10318	6.78	0.48	
08/30/2000	16:02	10322	6.8		
08/30/2000	19:09	10509	6.86	0.56	
08/30/2000	16:27	10347	6.86	0.56	
08/30/2000	16:49	10369	6.72		
08/30/2000	17:01	10381	6.81		
08/30/2000	17:07	10387	6.8		
08/30/2000	17:37	10417	6.78		
08/30/2000	18:02	10442	6.77		
08/30/2000	18:17	10457	6.75		
08/30/2000	18:37	10477	6.75		
08/30/2000	18:56	10496	6.74		

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test
4065-001-AT1

Well No.: MW-2
Pumping Well:
Start Date: 08/23/2000 Start time: 12:00
Initial Depth to Water: 10.08
Pumping Rate:

Test No. : 7-Day Test
Test Information:

Date	Time	Δ Time	DTW	Δs	Remarks
08/23/2000	10:54	-66	10.08	0	
08/23/2000	11:18	-42	10.26	0.18	
08/23/2000	11:35	-25	10.02	-0.06	
08/23/2000	12:08	8	11.7	1.62	
08/23/2000	12:25	25	12.41	2.33	
08/23/2000	12:37	37	12.6	2.52	
08/23/2000	12:54	54	12.7	2.62	
08/23/2000	13:11	71	14.9	4.82	
08/23/2000	13:31	91	15.35	5.27	
08/23/2000	13:49	109	15.4	5.32	
08/23/2000	14:18	138	15.84	5.76	
08/23/2000	14:38	158	15.99	5.91	
08/23/2000	15:00	180	16.05	5.97	
08/23/2000	15:14	194	16.1	6.02	
08/23/2000	15:55	235	16.17	6.09	
08/23/2000	16:17	257	16.21	6.13	
08/23/2000	17:06	306	16.29	6.21	
08/23/2000	17:55	355	16.35	6.27	
08/23/2000	18:45	405	16.41	6.33	
08/23/2000	19:30	450	16.46	6.38	
08/23/2000	20:24	504	16.52	6.44	
08/23/2000	22:36	636	16.67	6.59	
08/23/2000	23:24	684	16.7	6.62	
08/24/2000	1:14	794	16.78	6.7	
08/24/2000	2:35	875	16.83	6.75	
08/24/2000	3:40	940	16.88	6.8	
08/24/2000	5:18	1038	16.96	6.88	
08/24/2000	7:12	1152	17.03	6.95	
08/24/2000	8:44	1244	17.1	7.02	
08/24/2000	10:55	1375	17.17	7.09	
08/24/2000	12:45	1485	17.23	7.15	
08/24/2000	14:20	1580	17.28	7.2	
08/24/2000	15:58	1678	17.32	7.24	
08/24/2000	17:37	1777	17.38	7.3	
08/24/2000	19:11	1871	17.42	7.34	
08/24/2000	20:52	1972	17.49	7.41	
08/24/2000	22:31	900	17.54	7.46	
08/25/2000	0:15	959.00	17.57	7.49	
08/25/2000	1:51	1055.00	17.62	7.54	
08/25/2000	3:19	1143.00	17.66	7.58	
08/25/2000	5:10	1254.00	17.7	7.62	
08/25/2000	5:59	1303.00	17.73	7.65	

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test

Well No: MW-2

Sheet 2 of 3

Date	Time	Δ Time	DTW	Δs	Remarks
08/25/2000	8:27	1451.00	17.78	7.7	
08/25/2000	9:05	1489.00	17.8	7.72	
08/25/2000	11:05	1609.00	17.84	7.76	
08/25/2000	12:39	1703.00	17.86	7.78	
08/25/2000	14:48	1832.00	17.91	7.83	
08/25/2000	16:17	1921.00	17.95	7.87	
08/25/2000	18:03	2027.00	18	7.92	
08/25/2000	19:27	2111.00	18.03	7.95	
08/25/2000	21:15	2219.00	18.07	7.99	
08/25/2000	22:44	2308.00	18.085	8.005	
08/26/2000	0:18	962.00	18.115	8.035	
08/26/2000	2:04	1068.00	18.155	8.075	
08/26/2000	3:46	1170.00	18.19	8.11	
08/26/2000	5:27	1271.00	18.215	8.135	
08/26/2000	7:06	2400.50	18.26	8.18	
08/26/2000	8:40	2494.50	18.29	8.21	
08/26/2000	10:36	2610.50	18.35	8.27	
08/26/2000	12:24	2718.50	18.37	8.29	
08/26/2000	14:03	4443	18.4	8.32	
08/26/2000	15:35	4535	18.41	8.33	
08/26/2000	17:20	4640	18.45	8.37	
08/26/2000	19:02	4742	18.49	8.41	
08/26/2000	20:54	4854	18.53	8.45	
08/26/2000	22:02	4922	18.53	8.45	
08/26/2000	23:41	5021	18.56	8.48	
08/27/2000	1:24	5124	18.59	8.51	
08/27/2000	3:18	5238	18.62	8.54	
08/27/2000	4:41	5321	18.64	8.56	
08/27/2000	6:21	5421	18.68	8.6	
08/27/2000	8:02	5522	18.71	8.63	
08/27/2000	10:03	5643	18.73	8.65	
08/27/2000	11:42	5742	18.74	8.66	
08/27/2000	13:21	5841	18.76	8.68	
08/27/2000	15:11	5951	18.81	8.73	
08/27/2000	16:45	6045	18.82	8.74	
08/27/2000	18:26	6146	18.84	8.76	
08/27/2000	20:11	6251	18.88	8.8	
08/27/2000	21:32	6332	18.9	8.82	
08/27/2000	23:03	6423	18.92	8.84	
08/28/2000	0:41	6521	18.94	8.86	
08/28/2000	2:24	6624	18.97	8.89	
08/28/2000	4:02	6722	18.98	8.9	
08/28/2000	5:44	6824	19	8.92	
08/28/2000	7:22	6922	19.02	8.94	
08/28/2000	8:58	7018	19.06	8.98	
08/28/2000	11:00	7140	19.08	9	
08/28/2000	12:35	7235	19.1	9.02	
08/28/2000	15:46	7426	15.8	5.72	
08/28/2000	16:09	7449	18.41	8.33	
08/28/2000	17:41	7541	18.97	8.89	

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test

Well No: MW-2

Sheet 3 of 3

Date	Time	Δ Time	DTW	Δs	Remarks
08/28/2000	19:28	7648	19.08	9	
08/28/2000	20:48	7728	19.13	9.05	
08/28/2000	22:22	7822	19.17	9.09	
08/29/2000	0:05	7925	19.2	9.12	
08/29/2000	1:45	8025	19.22	9.14	
08/29/2000	3:27	8127	19.25	9.17	
08/29/2000	5:06	8226	19.28	9.2	
08/29/2000	6:45	8325	19.29	9.21	
08/29/2000	8:40	8440	19.32	9.24	
08/29/2000	10:15	8535	19.33	9.25	
08/29/2000	12:05	8645	19.36	9.28	
08/29/2000	13:49	8749	19.38	9.3	
08/29/2000	15:26	8846	19.4	9.32	
08/29/2000	17:37	8977	19.43	9.35	
08/29/2000	18:41	9041	19.44	9.36	
08/29/2000	20:10	9130	19.46	9.38	
08/29/2000	21:44	9224	19.5	9.42	
08/29/2000	23:19	9319	19.51	9.43	
08/30/2000	1:05	9425	19.54	9.46	
08/30/2000	2:44	9524	19.56	9.48	
08/30/2000	4:25	9625	19.57	9.49	
08/30/2000	6:07	9727	19.59	9.51	
08/30/2000	8:03	9843	19.61	9.53	
08/30/2000	9:35	9935	19.62	9.54	
08/30/2000	10:59	10019	19.65	9.57	
08/30/2000	12:36	10116	19.64	9.56	
08/30/2000	13:18	10158	19.65	9.57	
08/30/2000	14:04	10204	19.59	9.51	
08/30/2000	14:21	10221	19.34	9.26	
08/30/2000	14:33	10233	19.28	9.2	
08/30/2000	14:46	10246	19.24	9.16	
08/30/2000	14:55	10255	19.23	9.15	
08/30/2000	15:00	10260.5	19	8.92	Pump 2 Off
08/30/2000	15:04	10264	17.92	7.84	
08/30/2000	15:07	10267	17.55	7.47	
08/30/2000	15:11	10271	17.27	7.19	
08/30/2000	15:23	10283	16.98	6.9	
08/30/2000	15:37	10297	16.84	6.76	
08/30/2000	15:42	10302	16.81	6.73	
08/30/2000	15:50	10310	16.75	6.67	
08/30/2000	16:05	10325.25	15.36	5.28	PW-1 Off
08/30/2000	16:10	10330	14.79	4.71	
08/30/2000	16:19	10339	14.43	4.35	
08/30/2000	16:24	10344	14.33	4.25	
08/30/2000	16:35	10355	14.15	4.07	
08/30/2000	16:45	10365	14.08	4	
08/30/2000	16:55	10375	13.99	3.91	
08/30/2000	17:05	10385	13.92	3.84	
08/30/2000	17:14	10394	13.87	3.79	
08/30/2000	17:29	10409	13.8	3.72	
08/30/2000	17:44	10424	13.76	3.68	
08/30/2000	18:02	10442	13.69	3.61	
08/30/2000	18:15	10455	13.66	3.58	

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test
4065-001-AT1

Well No.: MW-3
Pumping Well:
Start Date: 08/23/2000 Start time: 12:00
Initial Depth to Water: 16.57
Pumping Rate: 730 gpm

Test No. : 7-Day Test
Test Information:

Date	Time	Δ Time	DTW	Δs	Remarks
08/23/2000	10:56	-64	16.58	0.01	
08/23/2000	11:20	-40	16.78	0.21	
08/23/2000	11:35	-25	16.57	0.00	
08/23/2000	12:07	7	18.36	1.79	
08/23/2000	12:23	23	19.21	2.64	
08/23/2000	12:35	35	19.4	2.83	
08/23/2000	12:52	52	19.53	2.96	
08/23/2000	13:10	70	20.9	4.33	
08/23/2000	13:29	89	21.35	4.78	
08/23/2000	13:47	107	21.46	4.89	
08/23/2000	14:17	137	21.8	5.23	
08/23/2000	14:36	156	21.96	5.39	
08/23/2000	14:57	177	22.03	5.46	
08/23/2000	15:12	192	22.09	5.52	
08/23/2000	15:53	233	22.15	5.58	
08/23/2000	16:16	256	22.19	5.62	
08/23/2000	17:05	305	22.26	5.69	
08/23/2000	17:53	353	22.31	5.74	
08/23/2000	18:43	403	22.39	5.82	
08/23/2000	19:28	448	22.43	5.86	
08/23/2000	20:22	502	22.51	5.94	
08/23/2000	22:31	631	22.6	6.03	
08/23/2000	23:21	681	22.64	6.07	
08/24/2000	1:11	791	22.71	6.14	
08/24/2000	2:32	872	22.76	6.19	
08/24/2000	3:38	938	22.8	6.23	
08/24/2000	5:16	1036	22.88	6.31	
08/24/2000	7:11	1151	22.94	6.37	
08/24/2000	8:41	1241	22.99	6.42	
08/24/2000	10:54	1374	23.08	6.51	
08/24/2000	12:43	1483	23.11	6.54	
08/24/2000	14:18	1578	23.17	6.60	
08/24/2000	15:56	1676	23.22	6.65	
08/24/2000	17:35	1775	23.27	6.70	
08/24/2000	19:10	1870	23.31	6.74	
08/24/2000	20:50	1970	23.37	6.80	
08/24/2000	22:29	2069	23.41	6.84	
08/25/2000	0:14	2174	23.44	6.87	
08/25/2000	1:50	2270	23.48	6.91	
08/25/2000	3:17	2357	23.5	6.93	
08/25/2000	5:09	2469	23.55	6.98	
08/25/2000	5:59	2519	23.58	7.01	

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test

Well No: MW-3

Date	Time	Δ Time	DTW	Δs	Remarks
08/25/2000	7:44	2624	23.61	7.04	
08/25/2000	9:04	2704	23.65	7.08	
08/25/2000	11:04	2824	23.69	7.12	
08/25/2000	12:26	2906	23.71	7.14	
08/25/2000	14:46	3046	23.76	7.19	
08/25/2000	16:15	3135	23.79	7.22	
08/25/2000	18:02	3242	23.83	7.26	
08/25/2000	19:26	3326	23.86	7.29	
08/25/2000	21:13	3433	23.89	7.32	
08/25/2000	22:42	3522	23.9	7.33	
08/26/2000	0:17	3617	23.93	7.36	
08/26/2000	2:04	3724	23.96	7.39	
08/26/2000	3:44	3824	23.995	7.43	
08/26/2000	5:26	3926	24.03	7.46	
08/26/2000	7:04	4024	24.06	7.49	
08/26/2000	8:38	4118	24.09	7.52	
08/26/2000	10:35	4235	24.14	7.57	
08/26/2000	12:22	4342	24.16	7.59	
08/26/2000	14:01	4441	24.19	7.62	
08/26/2000	15:33	4533	24.21	7.64	
08/26/2000	17:19	4639	24.24	7.67	
08/26/2000	19:00	4740	24.27	7.70	
08/26/2000	20:52	4852	24.32	7.75	
08/26/2000	22:01	4921	24.31	7.74	
08/26/2000	23:39	5019	24.33	7.76	
08/27/2000	1:22	5122	24.36	7.79	
08/27/2000	3:17	5237	24.4	7.83	
08/27/2000	4:40	5320	24.42	7.85	
08/27/2000	6:20	5420	24.44	7.87	
08/27/2000	8:01	5521	24.46	7.89	
08/27/2000	10:01	5641	24.48	7.91	
08/27/2000	11:40	5740	24.51	7.94	
08/27/2000	13:20	5840	24.53	7.96	
08/27/2000	15:10	5950	24.56	7.99	
08/27/2000	16:42	6042	24.57	8.00	
08/27/2000	18:24	6144	24.59	8.02	
08/27/2000	20:08	6248	24.62	8.05	
08/27/2000	21:31	6331	24.65	8.08	
08/27/2000	23:00	6420	24.67	8.10	
08/28/2000	0:39	6519	24.68	8.11	
08/28/2000	2:24	6624	24.72	8.15	
08/28/2000	4:00	6720	24.72	8.15	
08/28/2000	5:42	6822	24.75	8.18	
08/28/2000	7:20	6920	24.78	8.21	
08/28/2000	8:58	7018	24.81	8.24	
08/28/2000	10:58	7138	24.81	8.24	
08/28/2000	12:34	7234	24.82	8.25	
08/28/2000	15:44	7424	20.56	3.99	
08/28/2000	16:07	7447	24.07	7.50	
08/28/2000	17:39	7539	24.7	8.13	

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test

Well No: MW-3

Date	Time	Δ Time	DTW	Δs	Remarks
08/28/2000	19:26	7646	24.81	8.24	
08/28/2000	20:46	7726	24.85	8.28	
08/28/2000	22:21	7821	24.91	8.34	
08/29/2000	0:04	7924	24.92	8.35	
08/29/2000	1:44	8024	24.96	8.39	
08/29/2000	3:25	8125	24.98	8.41	
08/29/2000	5:05	8225	25	8.43	
08/29/2000	6:45	8325	25.03	8.46	
08/29/2000	8:38	8438	25.04	8.47	
08/29/2000	10:15	8535	25.06	8.49	
08/29/2000	12:04	8644	25.07	8.50	
08/29/2000	13:44	8744	25.1	8.53	
08/29/2000	15:24	8844	25.1	8.53	
08/29/2000	17:48	8988	25.13	8.56	
08/29/2000	18:40	9040	25.14	8.57	
08/29/2000	20:09	9129	25.16	8.59	
08/29/2000	21:41	9221	25.19	8.62	
08/29/2000	23:17	9317	25.2	8.63	
08/30/2000	1:04	9424	25.23	8.66	
08/30/2000	2:41	9521	25.25	8.68	
08/30/2000	4:24	9624	25.26	8.69	
08/30/2000	6:05	9725	25.29	8.72	
08/30/2000	8:02	9842	25.3	8.73	
08/30/2000	9:31	9931	25.31	8.74	
08/30/2000	10:58	10018	25.33	8.76	
08/30/2000	12:34	10114	25.32	8.75	
08/30/2000	13:06	10146	25.35	8.78	
08/30/2000	14:01	10201	25.35	8.78	
08/30/2000	14:17	10217	25.14	8.57	PW-3 Off
08/30/2000	14:30	10230	25.09	8.52	
08/30/2000	14:46	10246	25.05	8.48	
08/30/2000	15:24	10284	23.48	6.91	PW-2 Off
08/30/2000	15:40	10300	23.38	6.81	
08/30/2000	16:00	10320	23.23	6.66	PW-1 Off
08/30/2000	16:07	10327	21.74	5.17	
08/30/2000	16:36	10356	20.36	3.79	
08/30/2000	16:57	10377	20.17	3.60	
08/30/2000	17:20	10400	20.06	3.49	
08/30/2000	17:43	10423	19.98	3.41	
08/30/2000	18:12	10452	19.9	3.33	
08/30/2000	18:35	10475	19.86	3.29	

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test
4065-001-AT1

Well No.: MW-4d
Pumping Well: PW-1, 2, 3
Start Date: 08/23/2000 Start time: 12:00
Initial Depth to Water: 2.9
Pumping Rate: 730 gpm

Test No. : 7-Day Test
Test Information:

Date	Time	Δ Time	DTW	Δs	Remarks
08/23/2000	10:59	-61	2.9	0	
08/23/2000	11:22	-38	3.09	0.19	
08/23/2000	11:37	-23	2.94	0.04	
08/23/2000	12:02	2	3	0.1	
08/23/2000	12:16	16	4.53	1.63	
08/23/2000	12:24	24	4.91	2.01	
08/23/2000	12:45	45	5.16	2.26	
08/23/2000	13:04	64	5.31	2.41	
08/23/2000	13:24	84	6.03	3.13	
08/23/2000	13:39	99	6.22	3.32	
08/23/2000	14:07	127	6.42	3.52	
08/23/2000	14:29	149	6.63	3.73	
08/23/2000	14:43	163	6.09	3.19	
08/23/2000	15:04	184	6.78	3.88	
08/23/2000	15:41	221	6.83	3.93	
08/23/2000	16:00	240	6.87	3.97	
08/23/2000	16:56	296	6.93	4.03	
08/23/2000	17:44	344	6.98	4.08	
08/23/2000	18:36	396	7.02	4.12	
08/23/2000	19:27	447	7.06	4.16	
08/23/2000	20:17	497	7.09	4.19	
08/23/2000	22:19	619	7.17	4.27	
08/23/2000	23:08	668	7.19	4.29	
08/24/2000	1:03	783	7.28	4.38	
08/24/2000	2:22	862	7.5	4.6	
08/24/2000	3:50	950	7.36	4.46	
08/24/2000	5:09	1029	7.37	4.47	
08/24/2000	7:05	1145	7.45	4.55	
08/24/2000	8:36	1236	7.48	4.58	
08/24/2000	10:44	1364	7.52	4.62	
08/24/2000	12:21	1461	7.56	4.66	
08/24/2000	14:00	1560	7.59	4.69	
08/24/2000	15:42	1662	7.62	4.72	
08/24/2000	17:21	1761	7.67	4.77	
08/24/2000	18:57	1857	7.7	4.8	
08/24/2000	20:37	1957	7.74	4.84	
08/24/2000	22:17	2057	7.75	4.85	
08/25/2000	0:05	2165	7.81	4.91	
08/25/2000	1:40	2260	7.83	4.93	
08/25/2000	3:10	2350	7.86	4.96	
08/25/2000	5:00	2460	7.89	4.99	
08/25/2000	5:51	2511	8.92	6.02	

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test

Well No: MW-4d

Date	Time	Δ Time	DTW	Δs	Remarks
08/25/2000	7:35	2615	7.98	5.08	
08/25/2000	8:57	2697	8.03	5.13	
08/25/2000	10:54	2814	8	5.1	
08/25/2000	12:18	2898	8.05	5.15	
08/25/2000	14:35	3035	8.04	5.14	
08/25/2000	17:45	3225	8.07	5.17	
08/25/2000	19:18	3318	8.12	5.22	
08/25/2000	21:04	3424	8.13	5.23	
08/25/2000	22:33	3513	8.16	5.26	
08/26/2000	0:11	3611	8.19	5.29	
08/26/2000	1:51	3711	8.21	5.31	
08/26/2000	3:30	3810	8.23	5.33	
08/26/2000	5:16	3916	8.26	5.36	
08/26/2000	6:55	4015	8.28	5.38	
08/26/2000	8:31	4111	8.31	5.41	
08/26/2000	12:11	4331	8.36	5.46	
08/26/2000	13:49	4429	8.37	5.47	
08/26/2000	15:21	4521	8.41	5.51	
08/26/2000	17:05	4625	8.42	5.52	
08/26/2000	18:48	4728	8.47	5.57	
08/26/2000	20:44	4844	8.46	5.56	
08/26/2000	21:53	4913	8.51	5.61	
08/26/2000	23:33	5013	8.51	5.61	
08/27/2000	1:14	5114	8.53	5.63	
08/27/2000	3:06	5226	8.55	5.65	
08/27/2000	4:32	5312	8.58	5.68	
08/27/2000	6:12	5412	8.59	5.69	
08/27/2000	7:53	5513	8.61	5.71	
08/27/2000	9:45	5625	8.63	5.73	
08/27/2000	11:26	5726	8.65	5.75	
08/27/2000	13:09	5829	8.68	5.78	
08/27/2000	14:54	5934	8.71	5.81	
08/27/2000	16:28	6028	8.72	5.82	
08/27/2000	18:12	6132	8.73	5.83	
08/27/2000	19:52	6232	8.75	5.85	
08/27/2000	21:23	6323	8.76	5.86	
08/27/2000	22:52	6412	8.79	5.89	
08/28/2000	0:31	6511	8.79	5.89	
08/28/2000	2:15	6615	8.83	5.93	
08/28/2000	3:52	6712	8.84	5.94	
08/28/2000	5:33	6813	8.84	5.94	
08/28/2000	7:13	6913	8.87	5.97	
08/28/2000	8:49	7009	8.87	5.97	
08/28/2000	10:43	7123	8.9	6	
08/28/2000	12:22	7222	8.91	6.01	
08/28/2000	15:34	7414	5.9	3	
08/28/2000	15:56	7436	7.44	4.54	
08/28/2000	17:27	7527	8.77	5.87	
08/28/2000	19:04	7624	8.88	5.98	
08/28/2000	20:38	7718	8.93	6.03	

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test

MW-4d

Sheet 3 of 3

Date	Time	Δ Time	DTW	Δs	Remarks
08/28/2000	22:13	7813	8.98	6.08	
08/28/2000	23:53	7913	8.97	6.07	
08/29/2000	1:33	8013	9	6.1	
08/29/2000	3:17	8117	9.01	6.11	
08/29/2000	4:57	8217	9.07	6.17	
08/29/2000	6:36	8316	9.05	6.15	
08/29/2000	8:25	8425	9.1	6.2	
08/29/2000	10:01	8521	9.09	6.19	
08/29/2000	13:29	8729	9.13	6.23	
08/29/2000	15:12	8832	9.15	6.25	
08/29/2000	16:54	8934	9.2	6.3	
08/29/2000	18:29	9029	9.18	6.28	
08/29/2000	20:00	9120	9.18	6.28	
08/29/2000	21:33	9213	9.21	6.31	
08/29/2000	23:10	9310	9.2	6.3	
08/30/2000	0:52	9412	9.22	6.32	
08/30/2000	2:34	9514	9.25	6.35	
08/30/2000	3:15	9555	9.26	6.36	
08/30/2000	5:57	9717	9.28	6.38	
08/30/2000	7:50	9830	9.3	6.4	
08/30/2000	9:11	9911	9.31	6.41	
08/30/2000	10:47	10007	9.32	6.42	
08/30/2000	12:26	10106	9.32	6.42	
08/30/2000	13:32	10172	9.34	6.44	
08/30/2000	14:10	10210	9.32	6.42	
08/30/2000	14:25	10225	9.22	6.32	
08/30/2000	14:38	10238	9.18	6.28	
08/30/2000	14:51	10251	9.15	6.25	
08/30/2000	15:08	10268	8.84	5.94	
08/30/2000	15:29	10289	8.42	5.52	
08/30/2000	16:15	10335	6.73	3.83	
08/30/2000	16:30	10350	6.19	3.29	
08/30/2000	16:50	10370	5.91	3.01	
08/30/2000	17:12	10392	5.78	2.88	
08/30/2000	17:26	10406	5.71	2.81	
08/30/2000	17:53	10433	5.61	2.71	
08/30/2000	18:05	10445	5.56	2.66	
08/30/2000	18:28	10468	5.53	2.63	
08/30/2000	18:58	10498	5.48	2.58	

MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test
4065-001-AT1

Well No.: MW-4s

Pumping Well:

Start Date: 08/23/2000 Start time: 12:00

Initial Depth to Water: 6

Pumping Rate:

Test No. : 7-Day Test

Test Information:

Date	Time	Δ Time	DTW	Δs	Remarks
08/23/2000	10:57	-63	6	0	
08/23/2000	11:21	-39	6	0	
08/23/2000	11:37	-23	6.1	0.1	
08/23/2000	12:02	2	6	0	
08/23/2000	12:16	16	6.1	0.1	
08/23/2000	12:23	23	6.01	0.01	
08/23/2000	12:45	45	6.01	0.01	
08/23/2000	13:02	62	6.02	0.02	
08/23/2000	13:24	84	6.04	0.04	
08/23/2000	13:37	97	6.05	0.05	
08/23/2000	14:07	127	6.06	0.06	
08/23/2000	14:29	149	6.1	0.1	
08/23/2000	14:43	163	6.09	0.09	
08/23/2000	15:04	184	6.11	0.11	
08/23/2000	15:40	220	6.11	0.11	
08/23/2000	16:07	247	6.13	0.13	
08/23/2000	16:55	295	6.15	0.15	
08/23/2000	17:44	344	6.17	0.17	
08/23/2000	18:35	395	6.19	0.19	
08/23/2000	19:21	441	6.21	0.21	
08/23/2000	20:15	495	6.23	0.23	
08/23/2000	22:20	620	6.26	0.26	
08/23/2000	23:10	670	6.26	0.26	
08/24/2000	1:02	782	6.28	0.28	
08/24/2000	2:22	862	6.29	0.29	
08/24/2000	3:30	930	6.3	0.3	
08/24/2000	5:09	1029	6.32	0.32	
08/24/2000	7:05	1145	6.34	0.34	
08/24/2000	8:36	1236	6.35	0.35	
08/24/2000	10:45	1365	6.36	0.36	
08/24/2000	12:22	1462	6.38	0.38	
08/24/2000	14:01	1561	6.39	0.39	
08/24/2000	15:43	1663	6.4	0.4	
08/24/2000	17:22	1762	6.41	0.41	
08/24/2000	18:58	1858	6.41	0.41	
08/24/2000	20:38	1958	6.44	0.44	
08/24/2000	22:18	2058	6.45	0.45	
08/25/2000	0:04	2164	6.45	0.45	
08/25/2000	1:40	2260	6.47	0.47	
08/25/2000	3:09	2349	6.48	0.48	
08/25/2000	4:59	2459	6.49	0.49	
08/25/2000	5:51	2511	6.52	0.52	

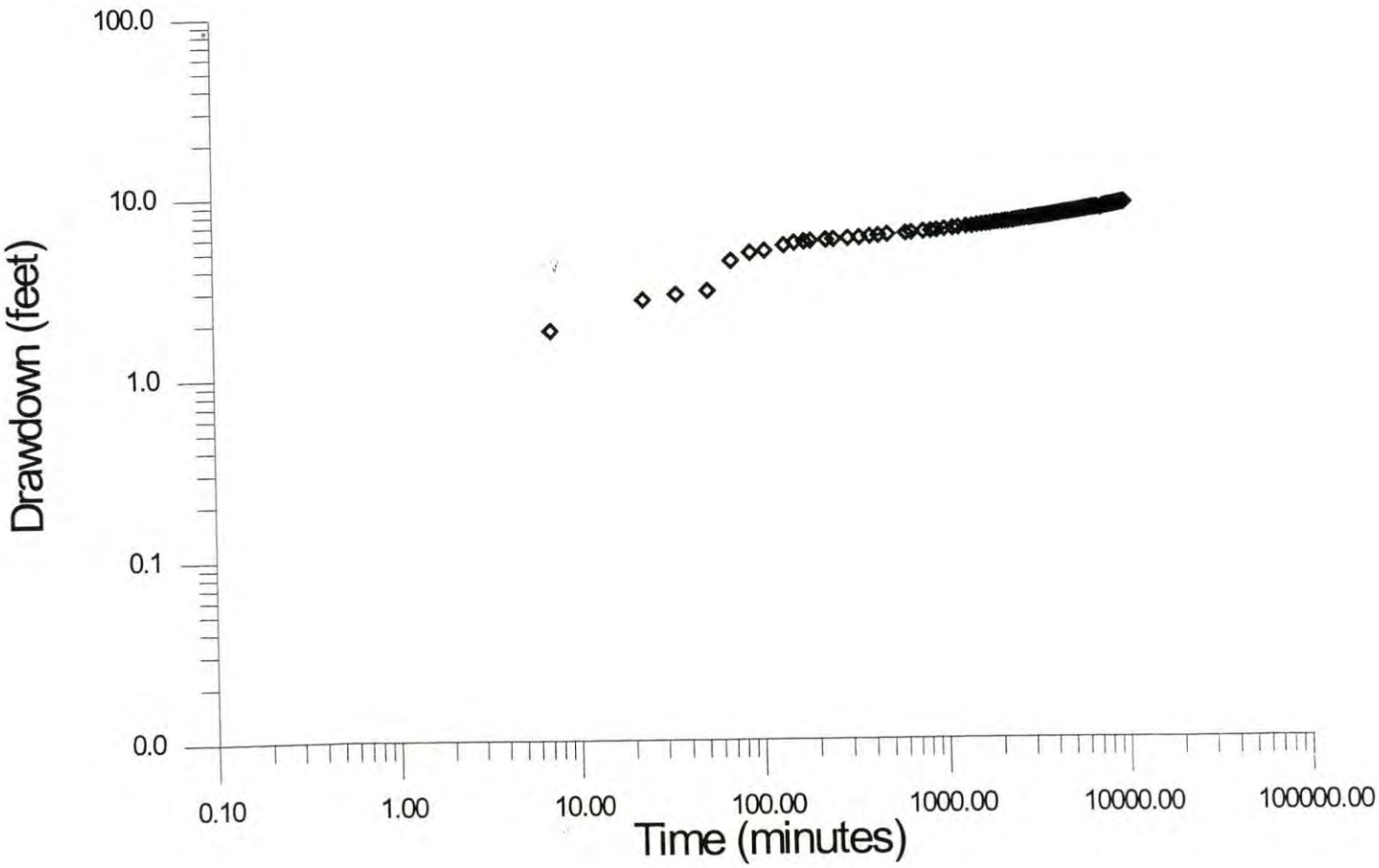
MALCOLM PIRNIE

GSWA - Spring Hill Seven Day Pumping Test

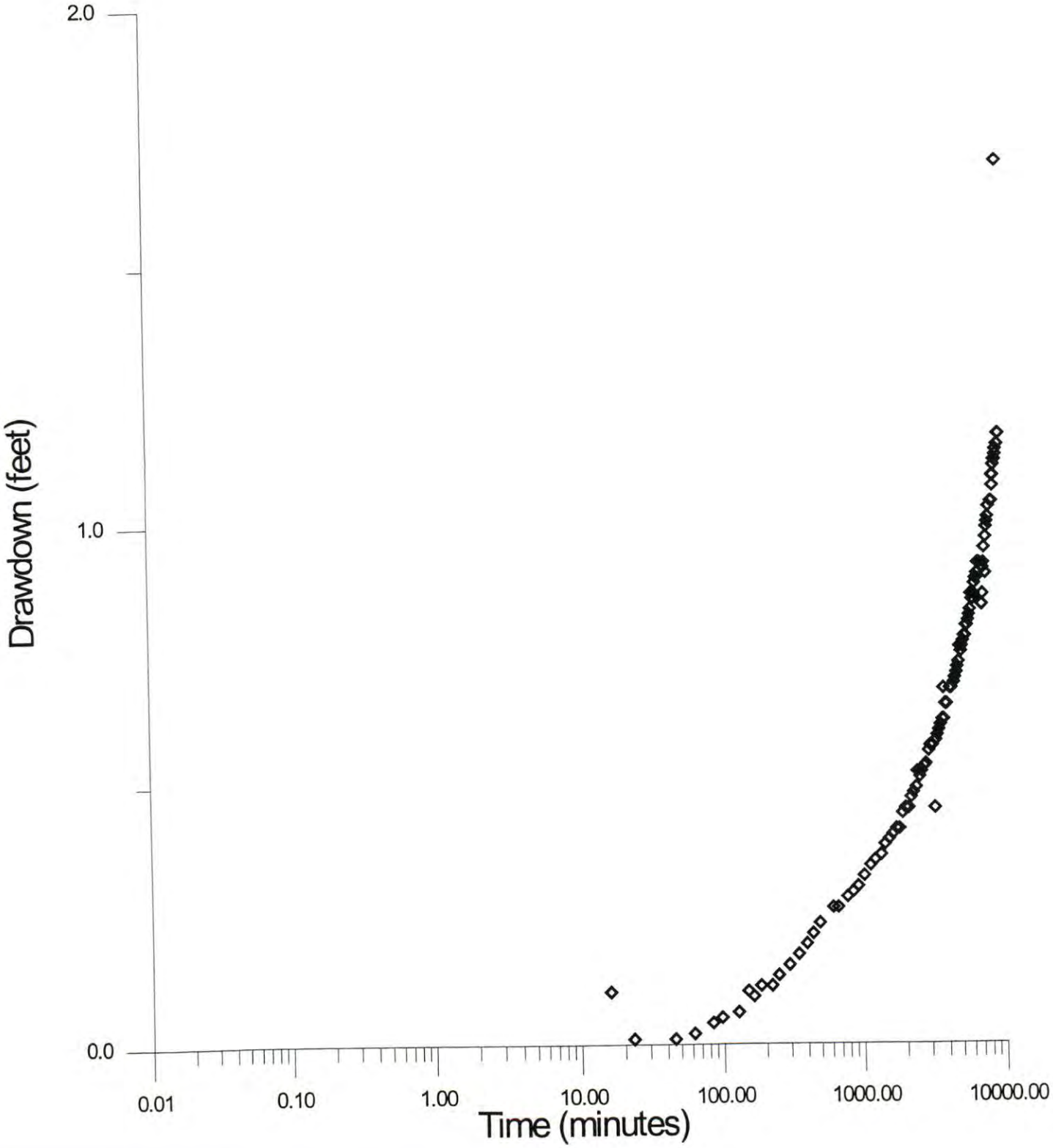
Well No: MW-4s

Date	Time	Δ Time	DTW	Δs	Remarks
08/25/2000	7:35	2615	6.51	0.51	
08/25/2000	8:57	2697	6.52	0.52	
08/25/2000	10:54	2814	6.53	0.53	
08/25/2000	12:17	2897	6.535	0.535	
08/25/2000	14:36	3036	6.56	0.56	
08/25/2000	16:02	3122	6.57	0.57	
08/25/2000	17:46	3226	6.57	0.57	
08/25/2000	19:17	3317	6.45	0.45	
08/25/2000	21:05	3425	6.58	0.58	
08/25/2000	22:31	3511	6.59	0.59	
08/26/2000	0:11	3611	6.6	0.6	
08/26/2000	1:51	3711	6.61	0.61	
08/26/2000	3:31	3811	6.62	0.62	
08/26/2000	5:15	3915	6.62	0.62	
08/26/2000	6:55	4015	6.65	0.65	
08/26/2000	8:31	4111	6.65	0.65	
08/26/2000	12:12	4332	6.68	0.68	
08/26/2000	13:49	4429	6.68	0.68	
08/26/2000	5:02	3902	6.68	0.68	
08/26/2000	17:05	4625	6.69	0.69	
08/26/2000	18:48	4728	6.7	0.7	
08/26/2000	20:44	4844	6.71	0.71	
08/26/2000	21:52	4912	6.72	0.72	
08/26/2000	23:32	5012	6.73	0.73	
08/27/2000	1:13	5113	6.76	0.76	
08/27/2000	3:06	5226	6.75	0.75	
08/27/2000	4:31	5311	6.76	0.76	
08/27/2000	6:12	5412	6.77	0.77	
08/27/2000	7:53	5513	6.78	0.78	
08/27/2000	9:45	5625	6.78	0.78	
08/27/2000	11:27	5727	6.8	0.8	
08/27/2000	13:10	5830	6.8	0.8	
08/27/2000	14:55	5935	6.81	0.81	
08/27/2000	16:29	6029	6.82	0.82	
08/27/2000	18:12	6132	6.83	0.83	
08/27/2000	19:56	6236	6.86	0.86	
08/27/2000	21:22	6322	6.85	0.85	
08/27/2000	22:51	6411	6.85	0.85	
08/28/2000	0:31	6511	6.86	0.86	
08/28/2000	2:15	6615	6.88	0.88	
08/28/2000	3:52	6712	6.89	0.89	
08/28/2000	5:33	6813	6.89	0.89	
08/28/2000	7:13	6913	6.9	0.9	
08/28/2000	8:49	7009	6.92	0.92	
08/28/2000	10:45	7125	6.92	0.92	
08/28/2000	12:23	7223	6.92	0.92	
08/28/2000	15:33	7413	6.84	0.84	
08/28/2000	15:55	7435	6.84	0.84	
08/28/2000	17:28	7528	6.86	0.86	
		-52936560		-6	

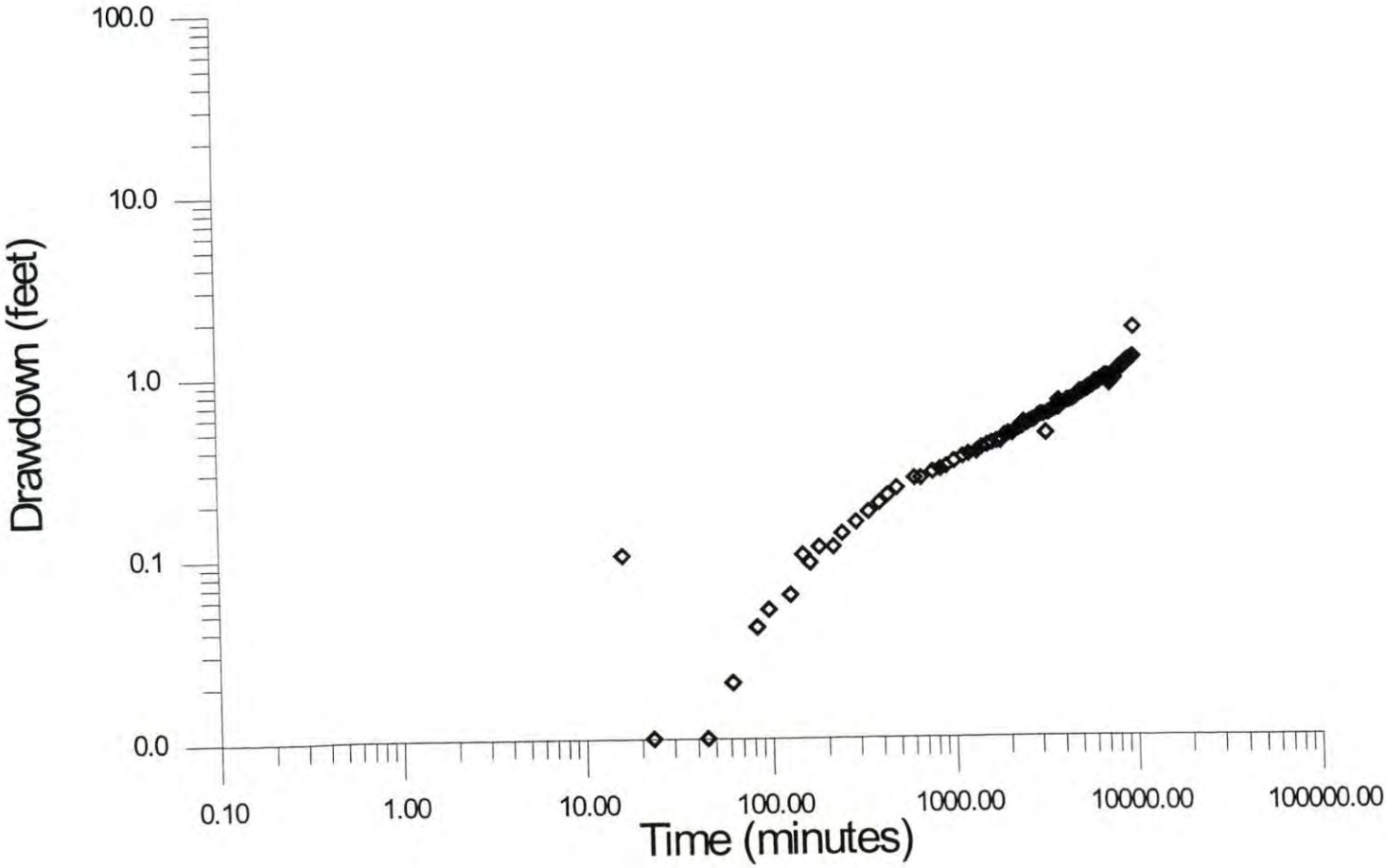
GSWA
Spring Hill
Drawdown vs. Time for MW-3



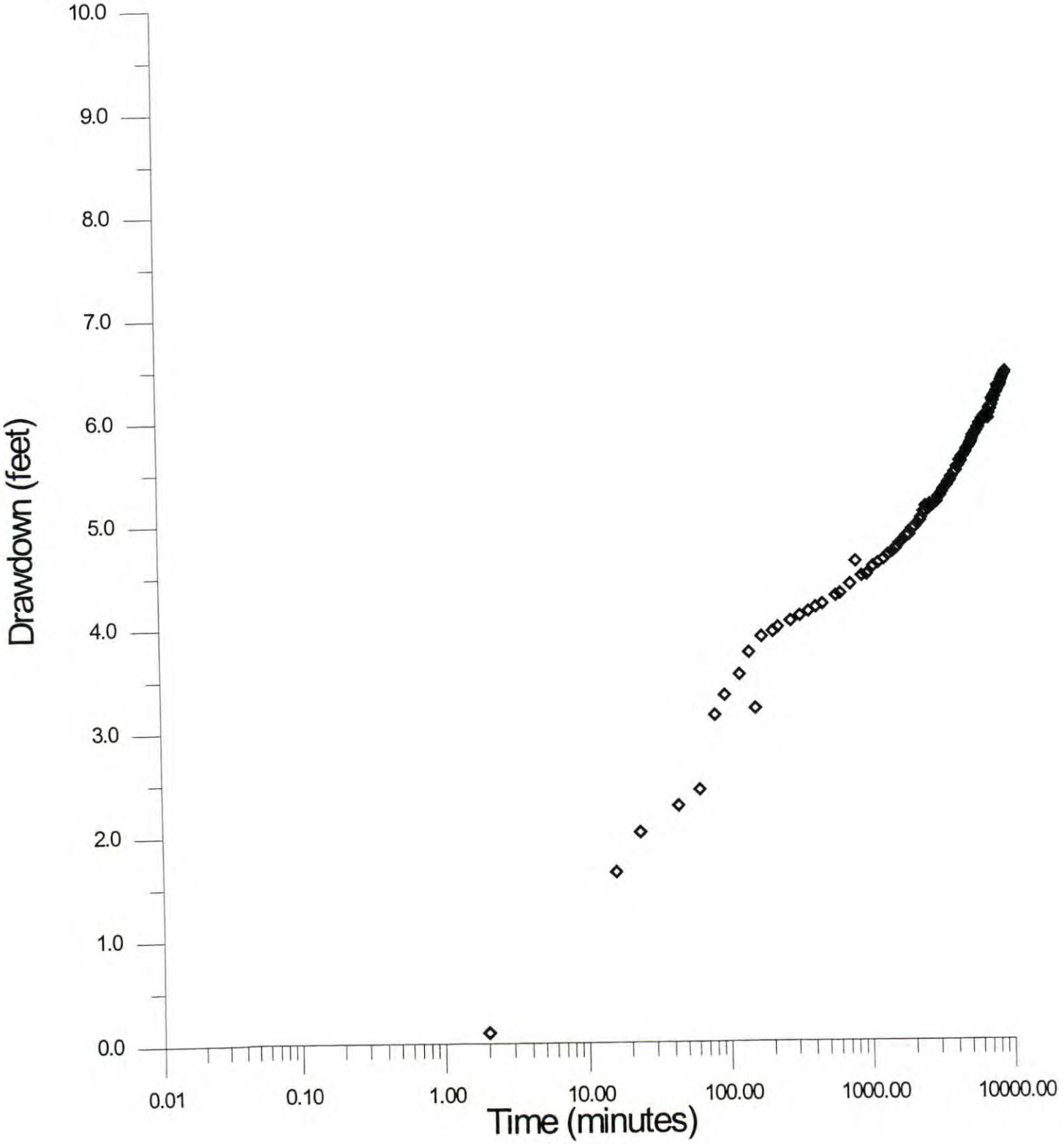
GSWA
Spring Hill
Semi-logorithmic Plot of Drawdown vs. Time for MW-4s



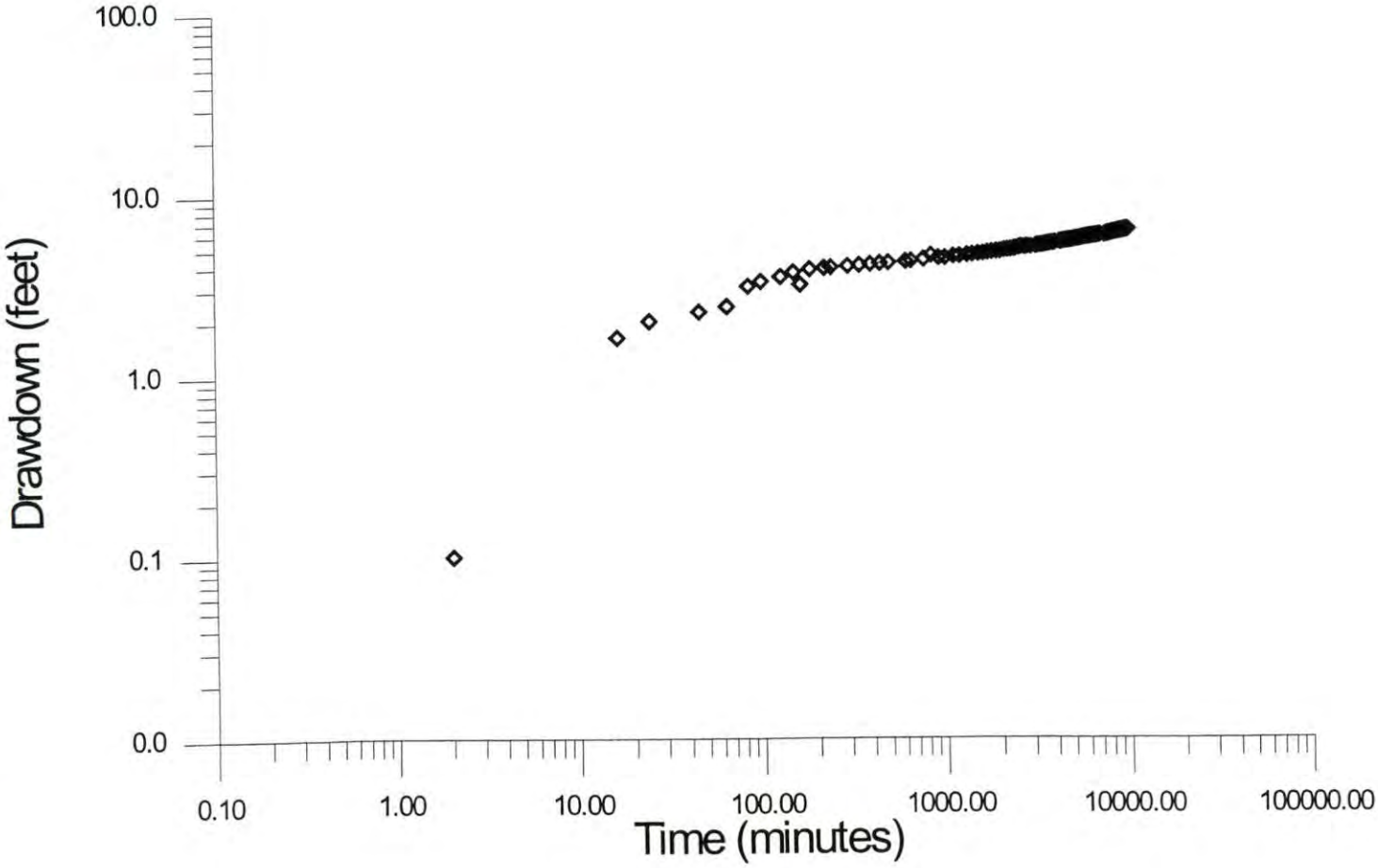
GSWA
Spring Hill
Drawdown vs. Time for MW-4s



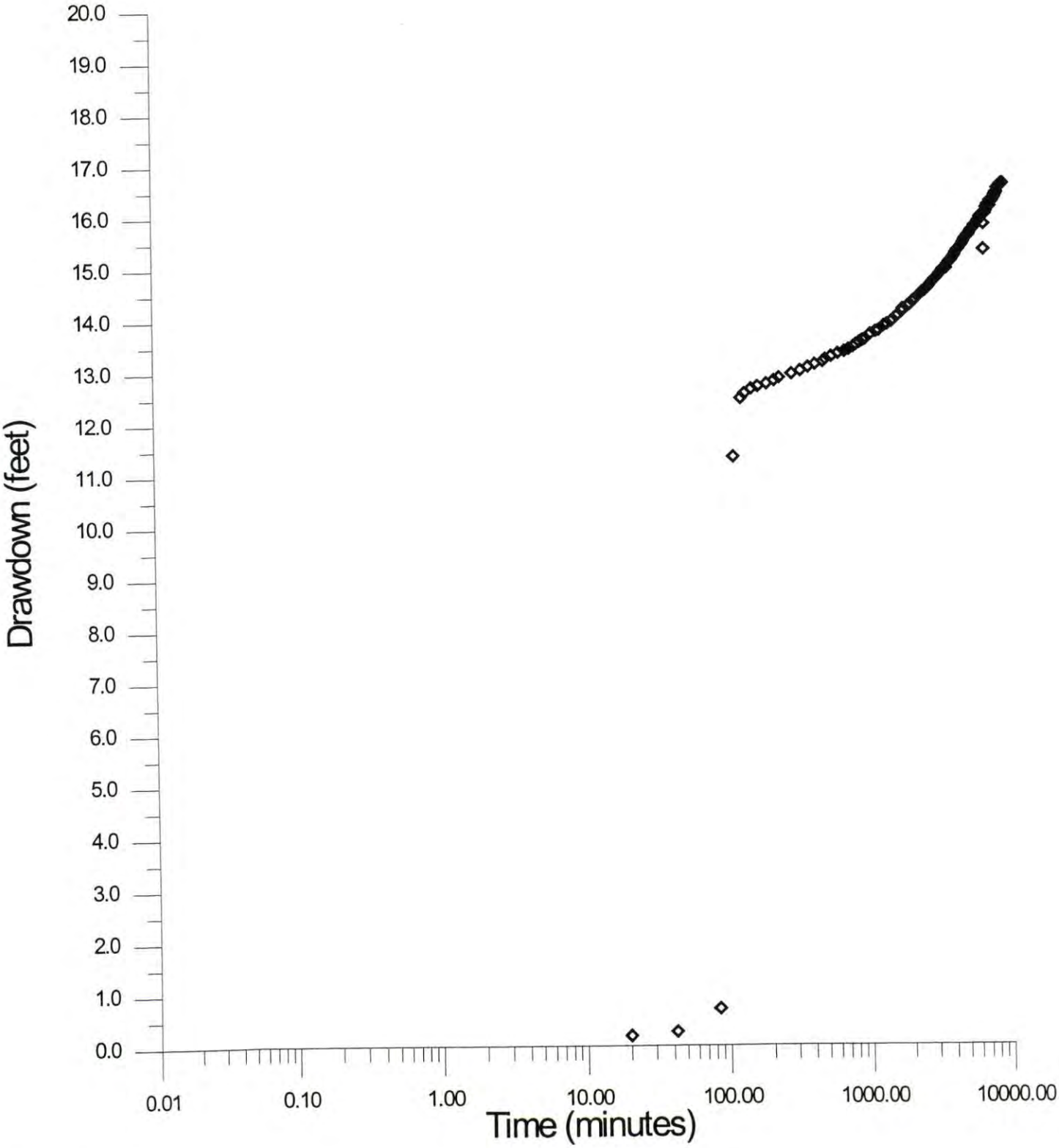
GSWA
Spring Hill
Semi-logorithmic Plot of Drawdown vs. Time for MW-4d



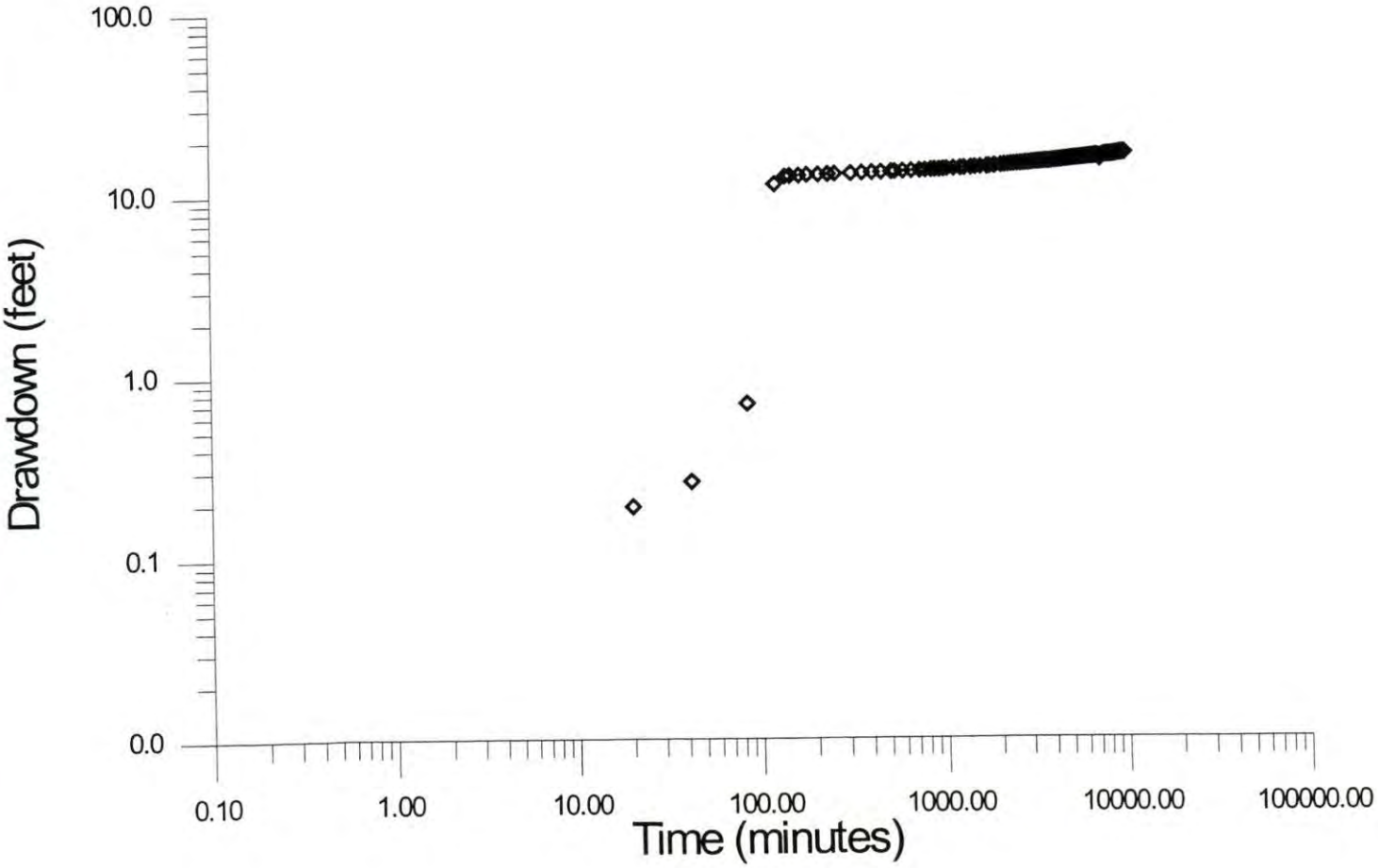
GSWA
Spring Hill
Drawdown vs. Time for MW-4d



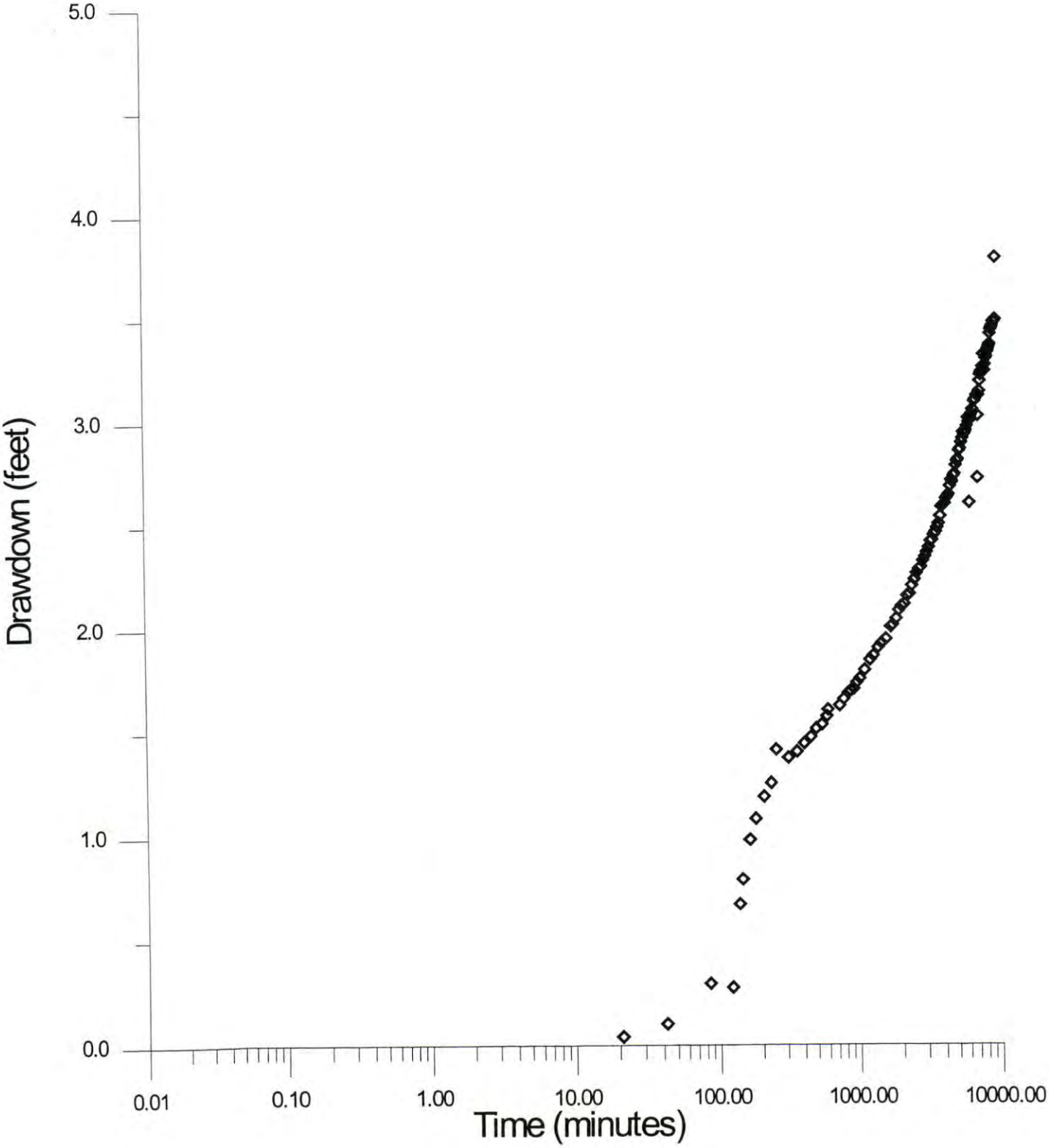
GSWA
Spring Hill
Semi-logorithmic Plot of Drawdown vs. Time for MW-5i



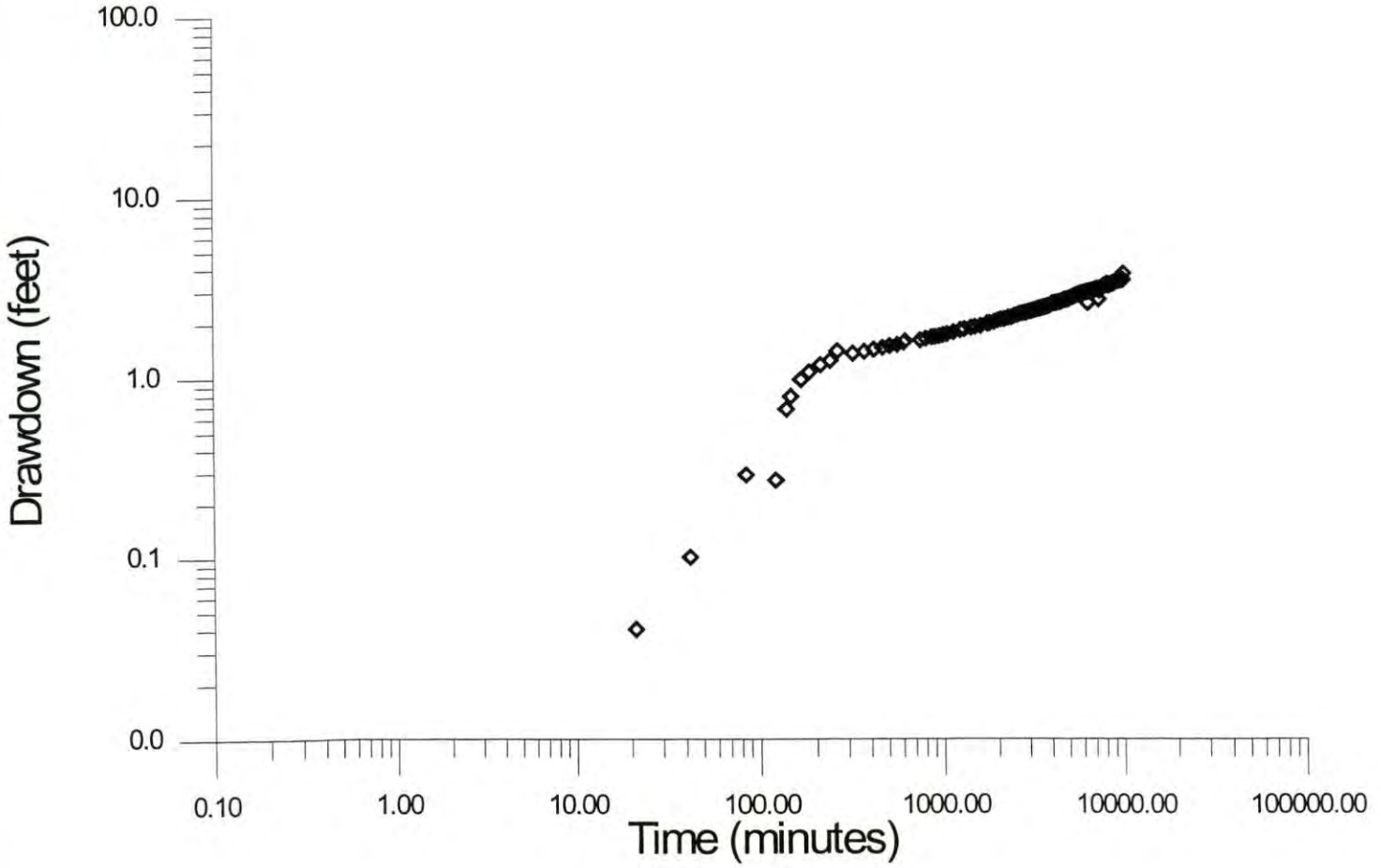
GSWA
Spring Hill
Drawdown vs. Time for MW-5i



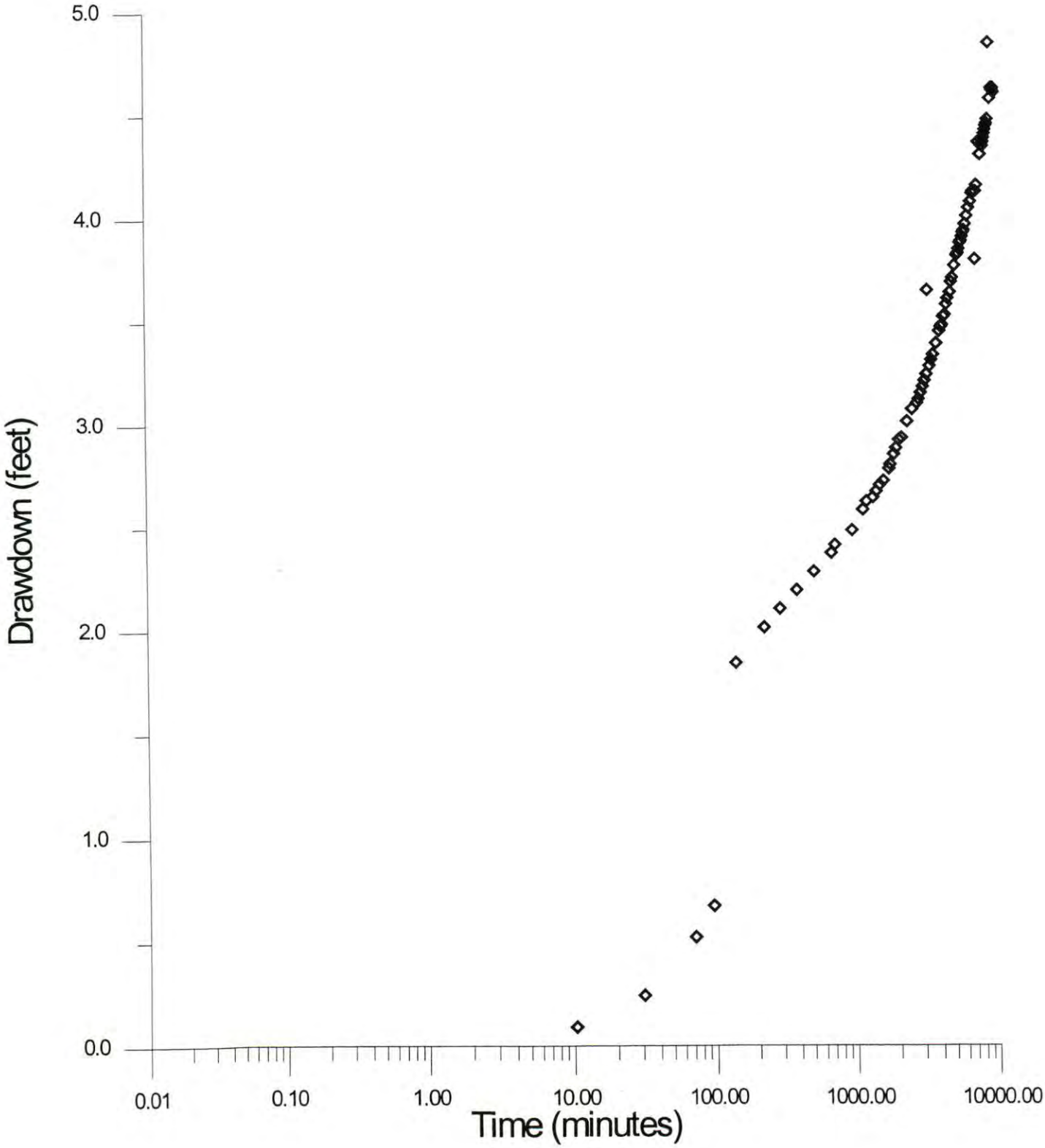
GSWA
Spring Hill
Semi-logorithmic Plot of Drawdown vs. Time for MW-5d



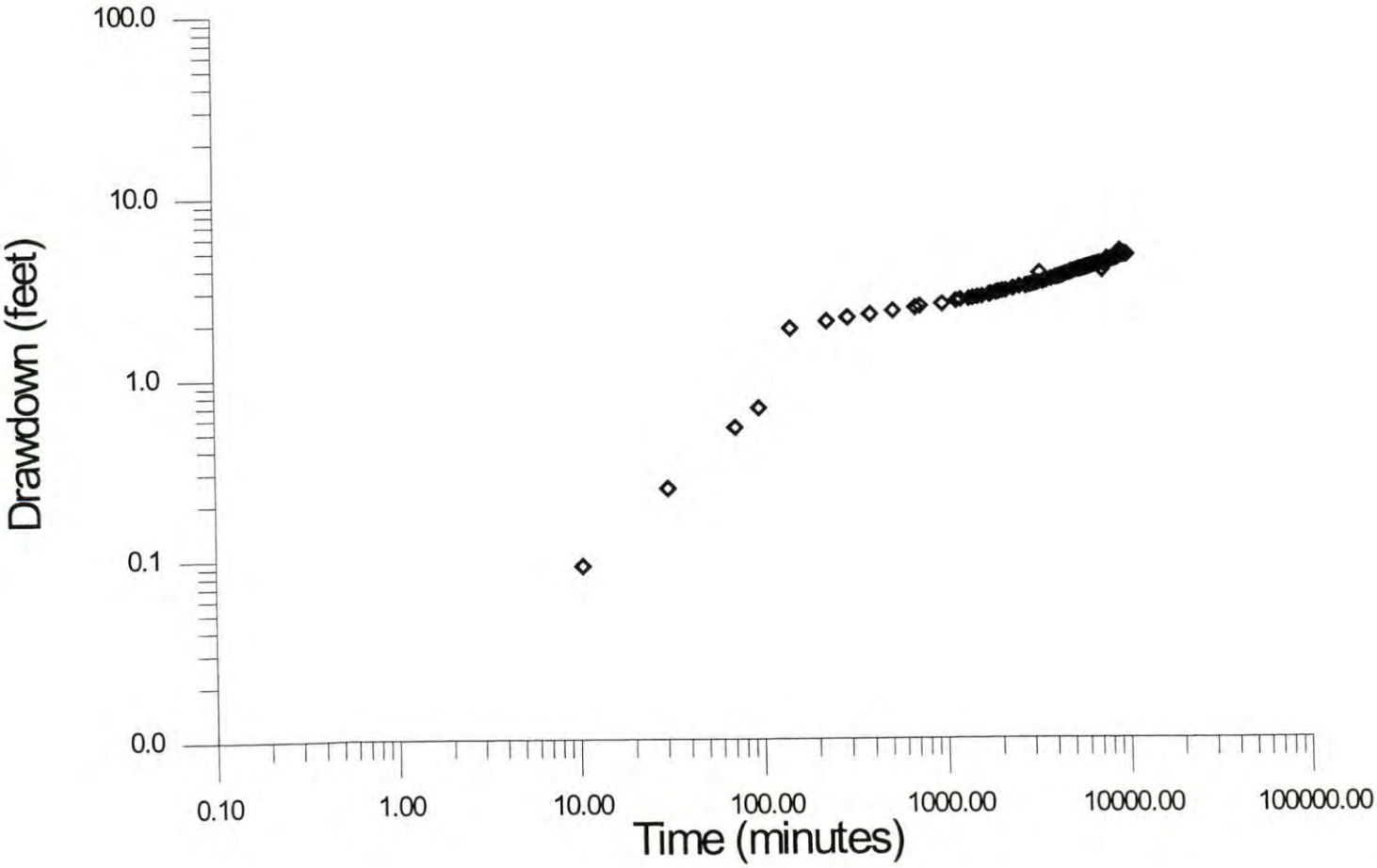
GSWA
Spring Hill
Drawdown vs. Time for MW-5d



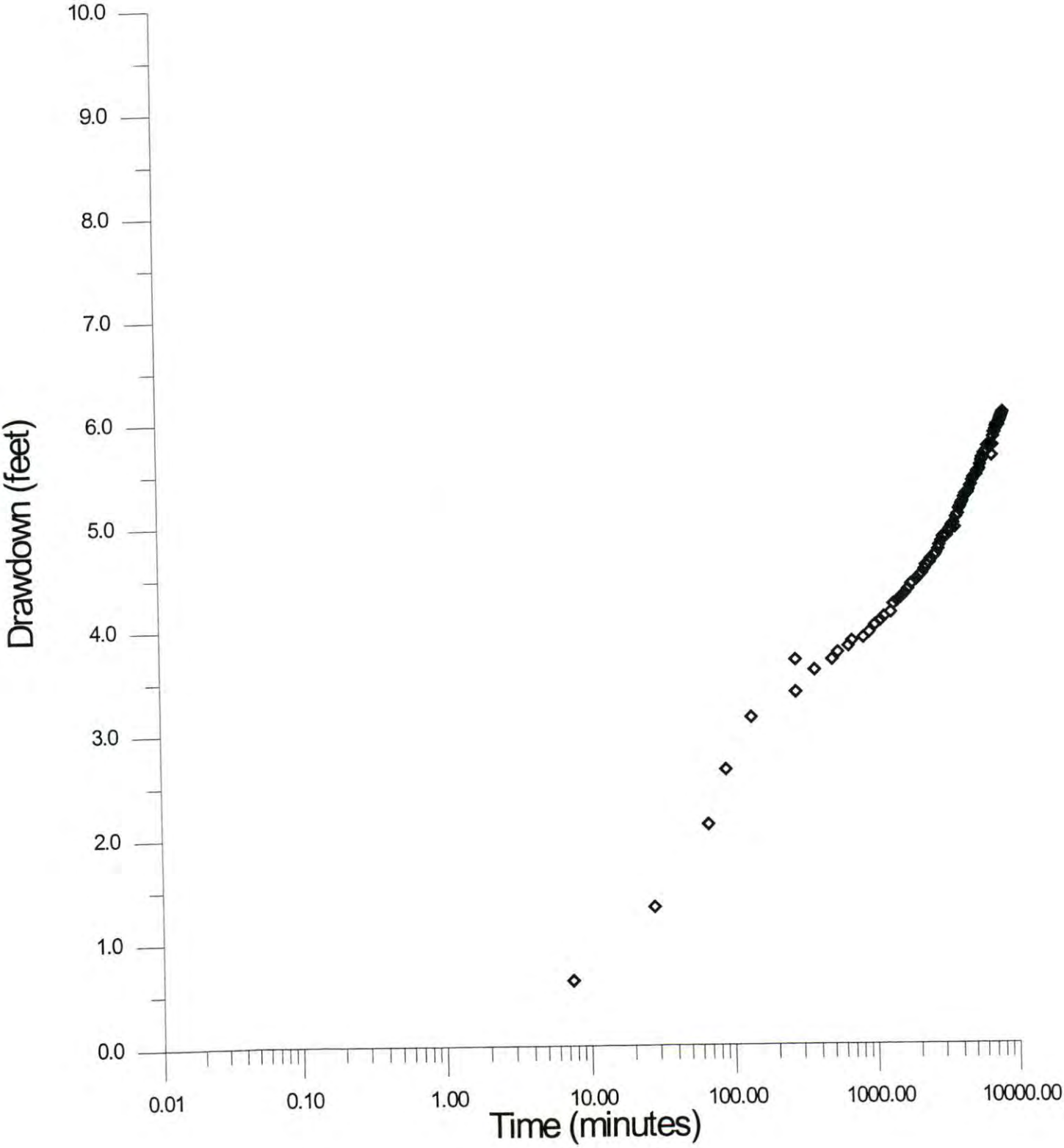
GSWA
Spring Hill
Semi-logorithmic Plot of Drawdown vs. Time for MW-6



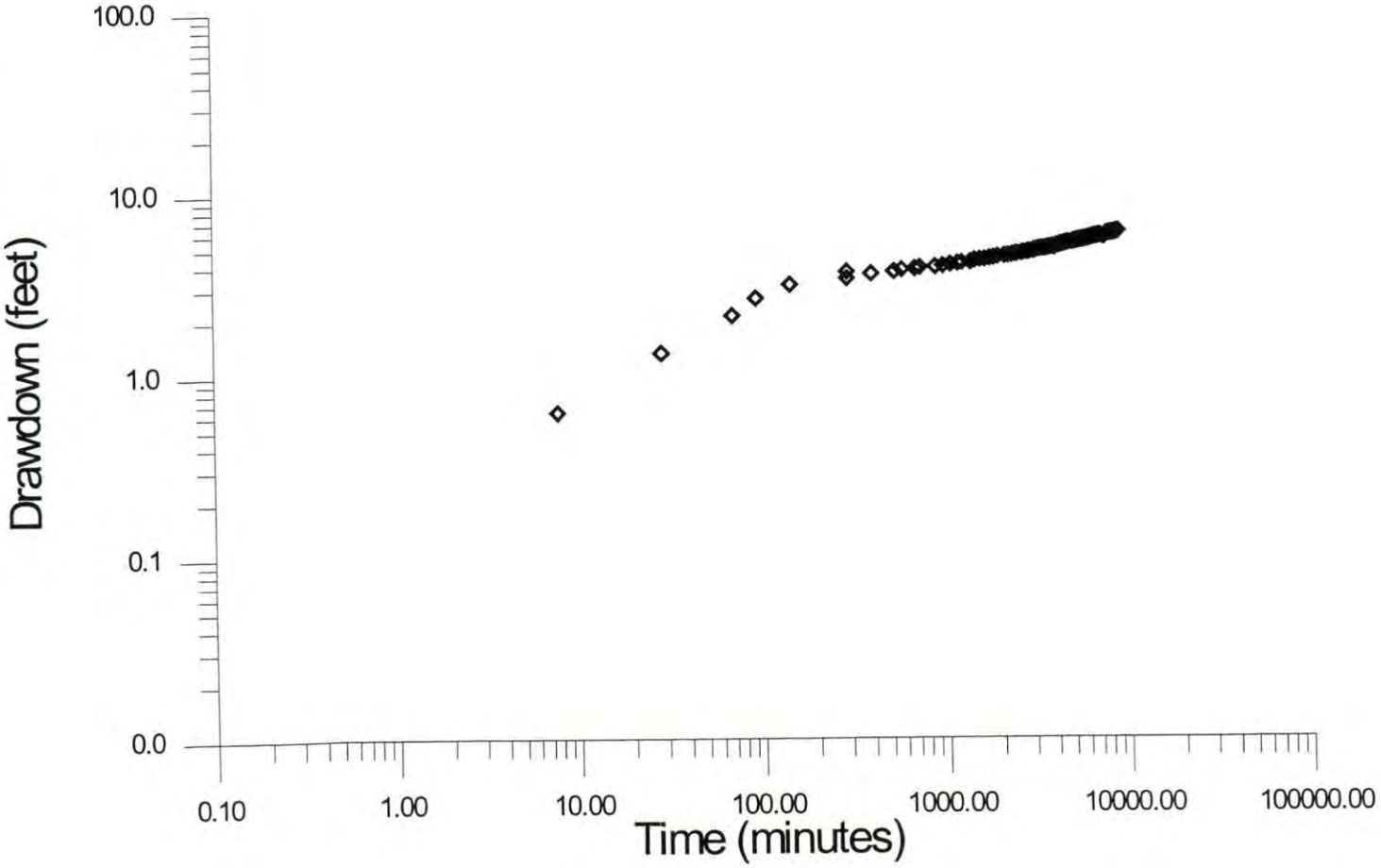
GSWA
Spring Hill
Drawdown vs. Time for MW-6



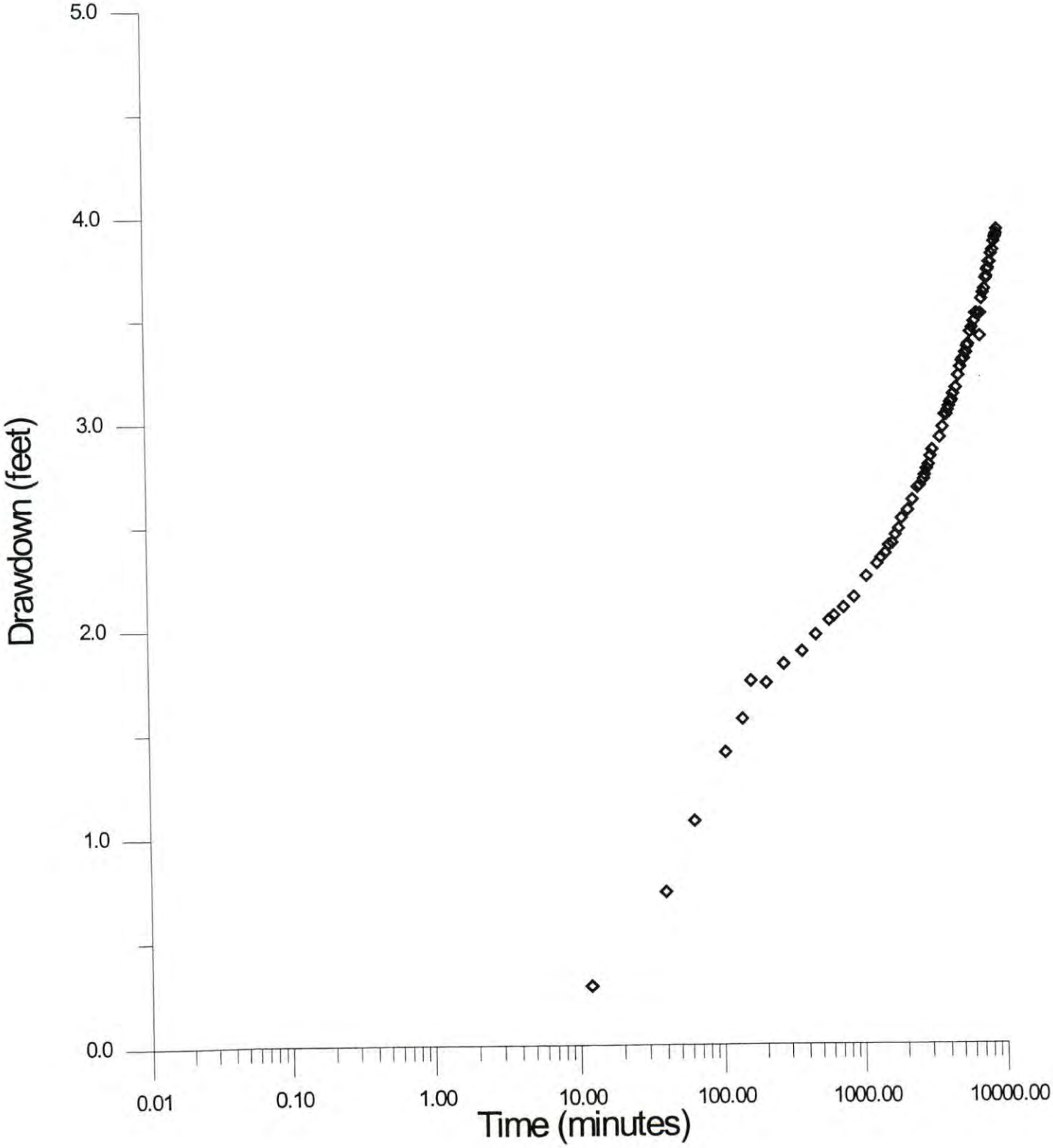
GSWA
Spring Hill
Semi-logorithmic Plot of Drawdown vs. Time for MW-7



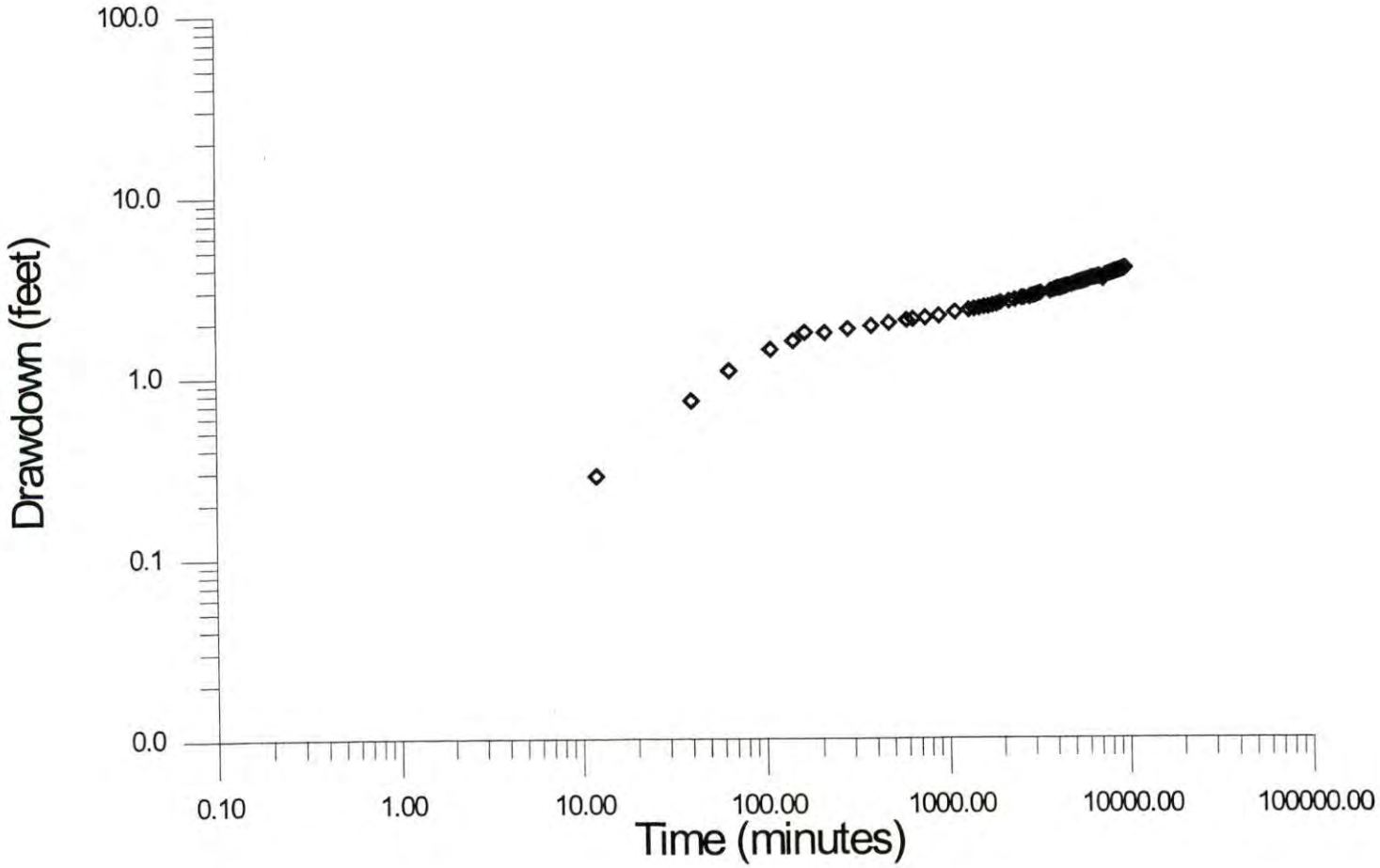
GSWA
Spring Hill
Drawdown vs. Time for MW-7



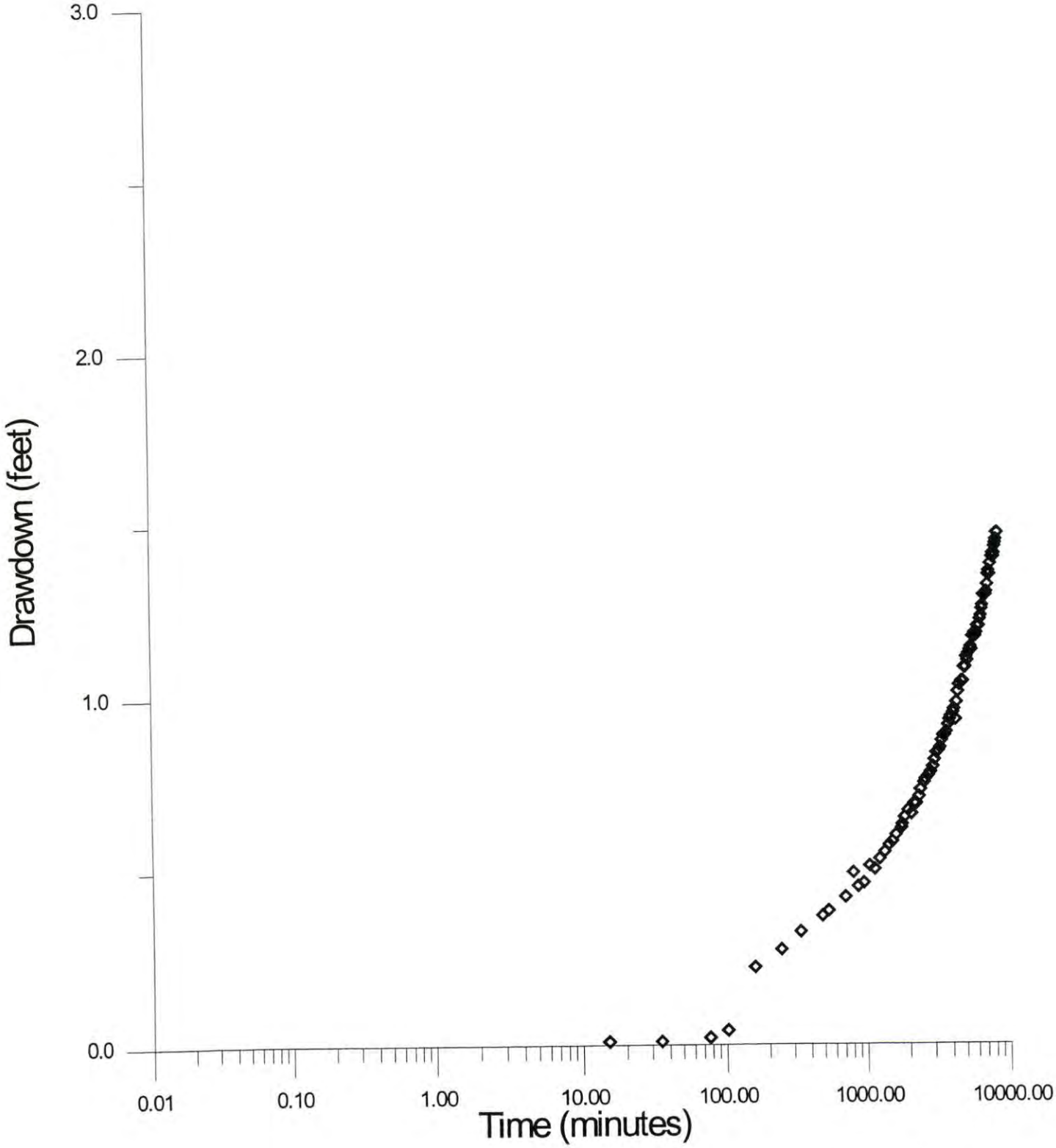
GSWA
Spring Hill
Semi-logorithmic Plot of Drawdown vs. Time for MW-8



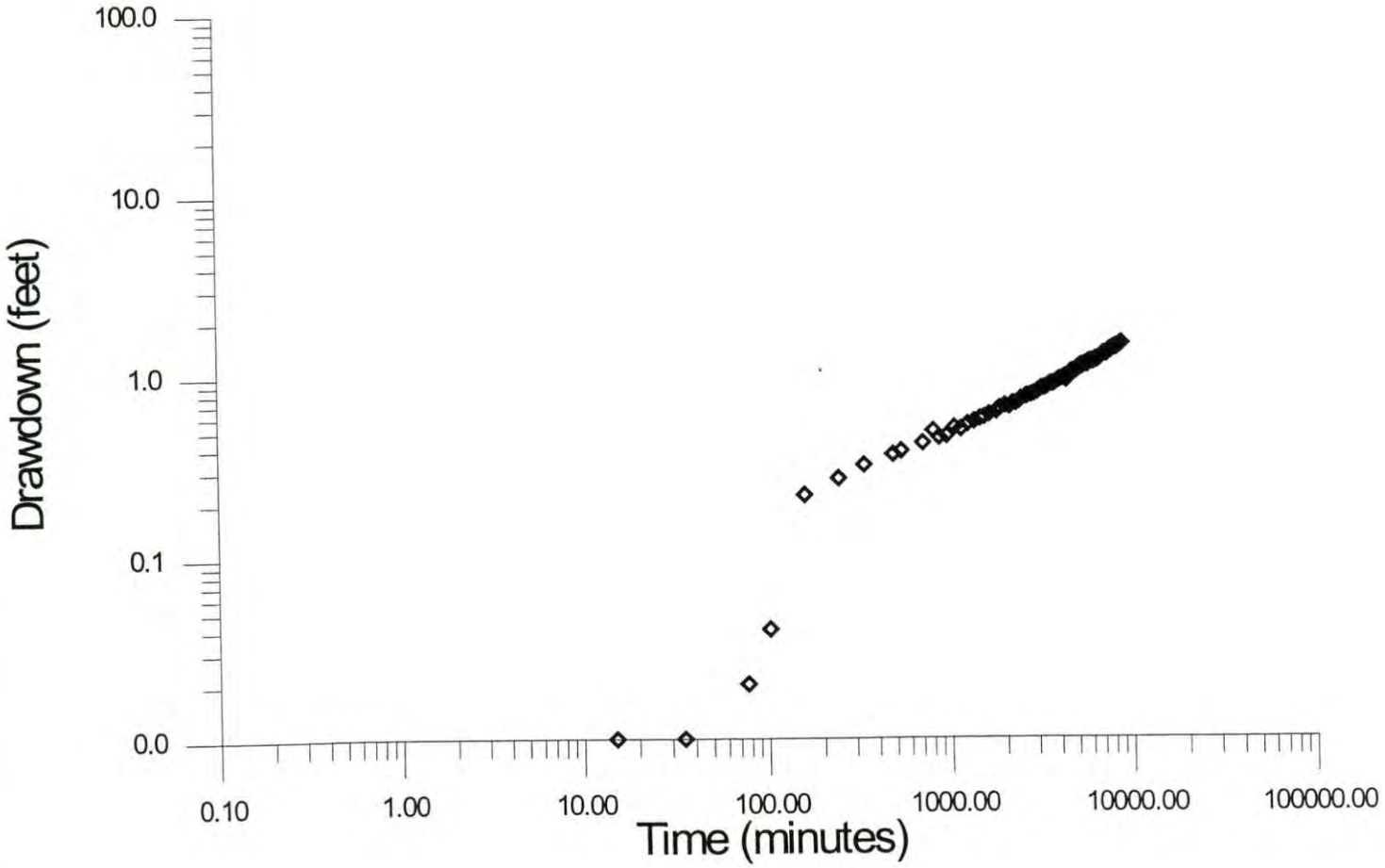
GSWA
Spring Hill
Drawdown vs. Time for MW-8



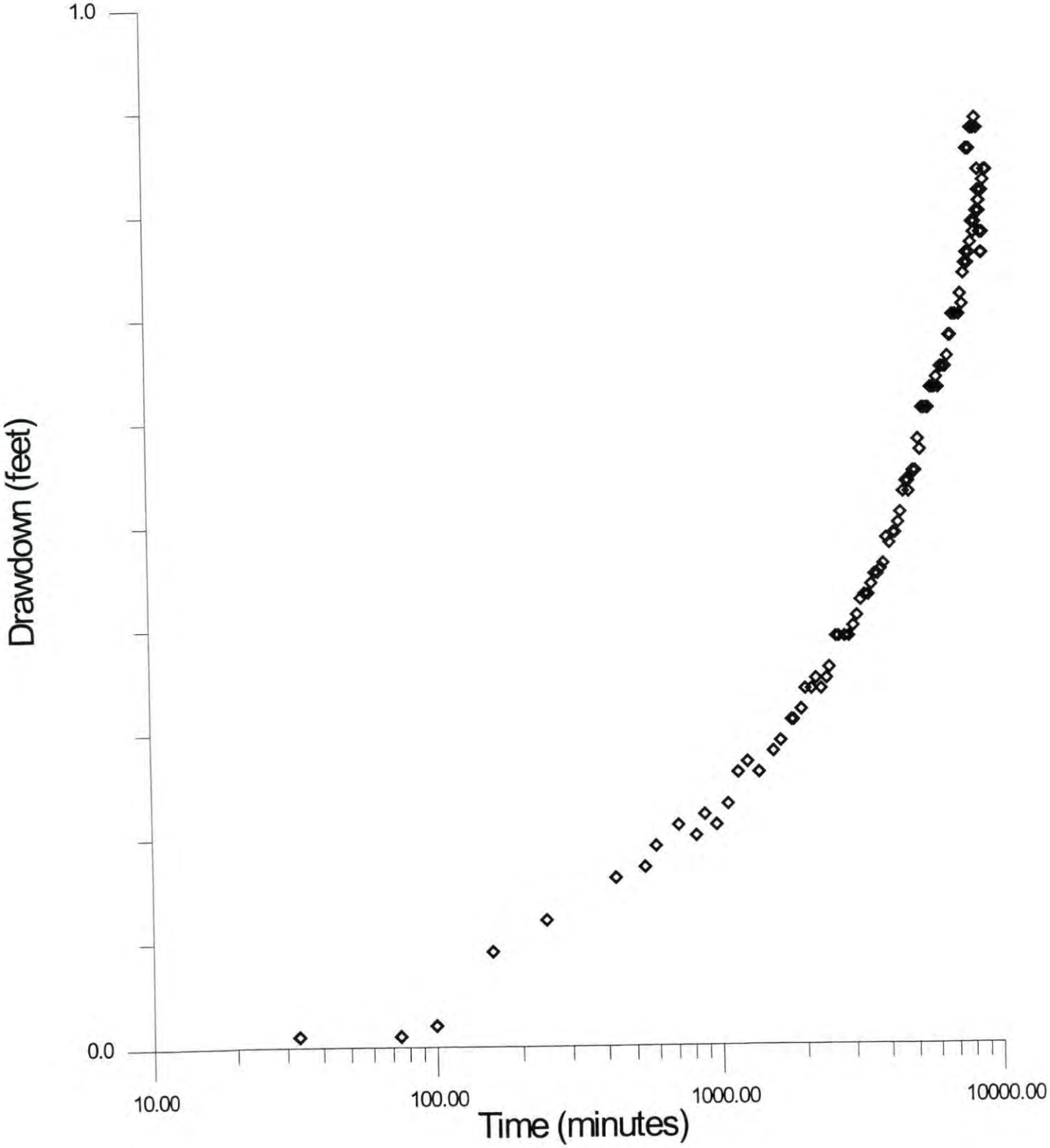
GSWA
Spring Hill
Semi-logorithmic Plot of Drawdown vs. Time for MW-9



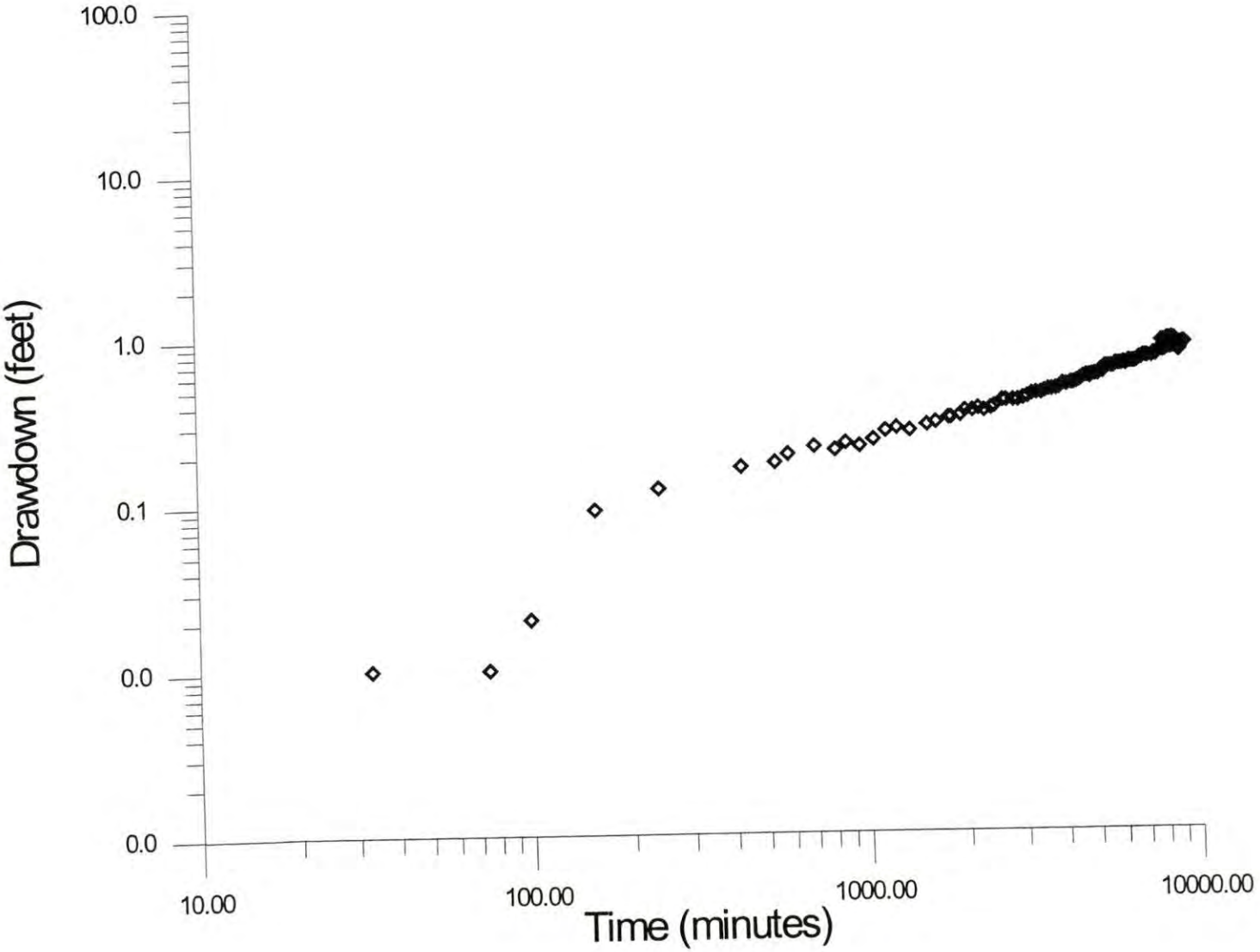
GSWA
Spring Hill
Drawdown vs. Time for MW-9



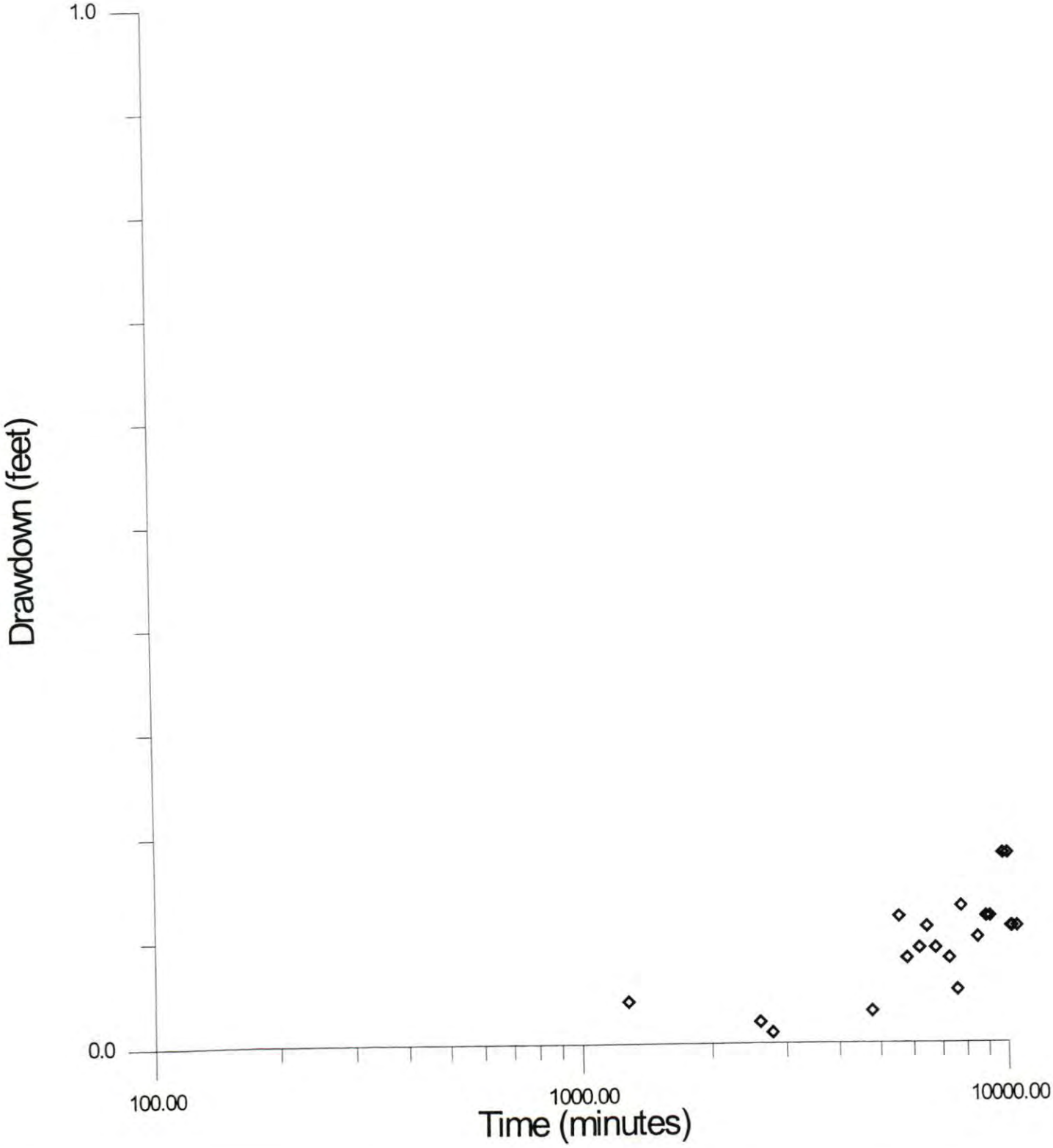
GSWA
Spring Hill
Semi-logorithmic Plot of Drawdown vs. Time for MW-10



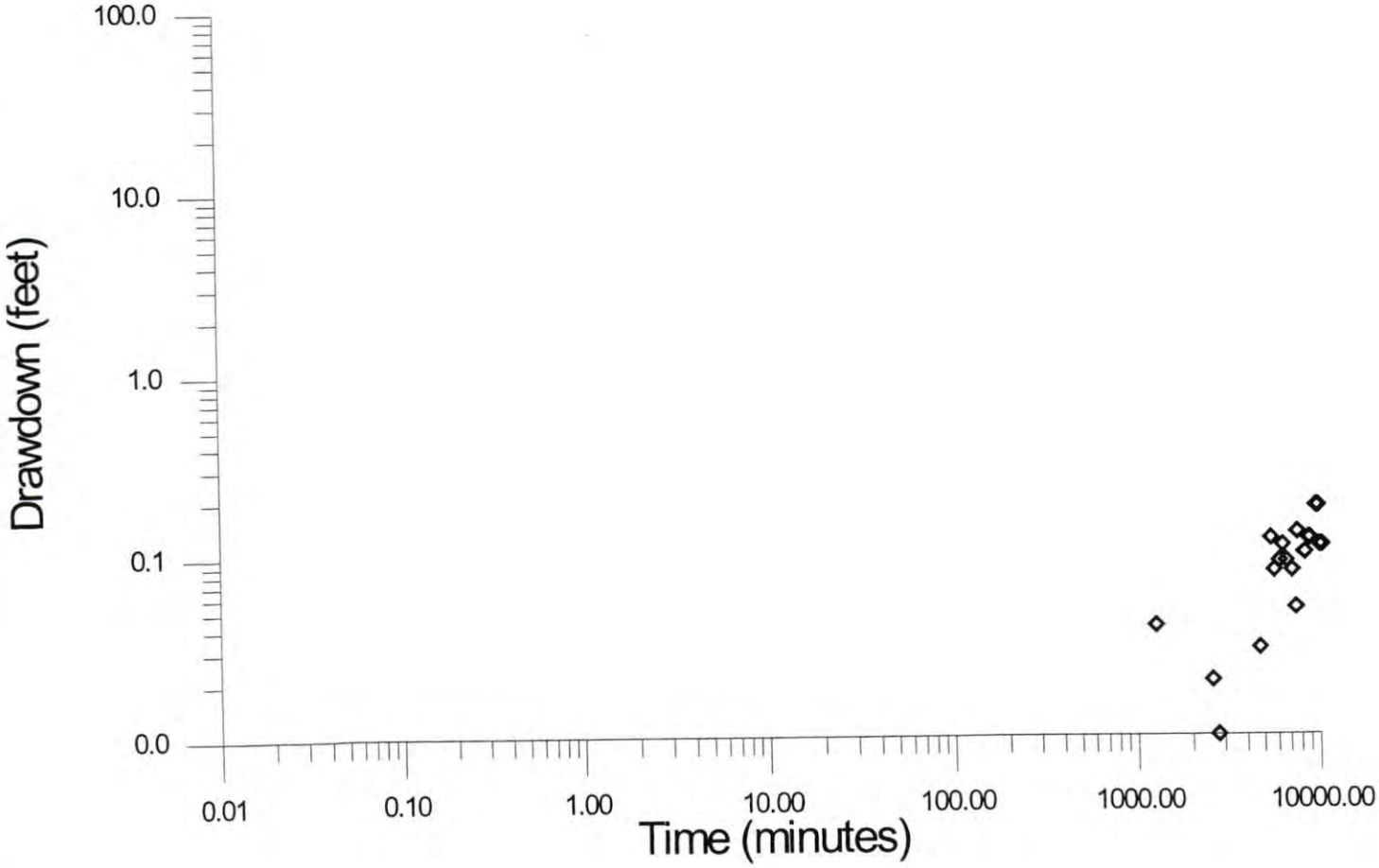
GSWA
Spring Hill
Drawdown vs. Time for MW-10



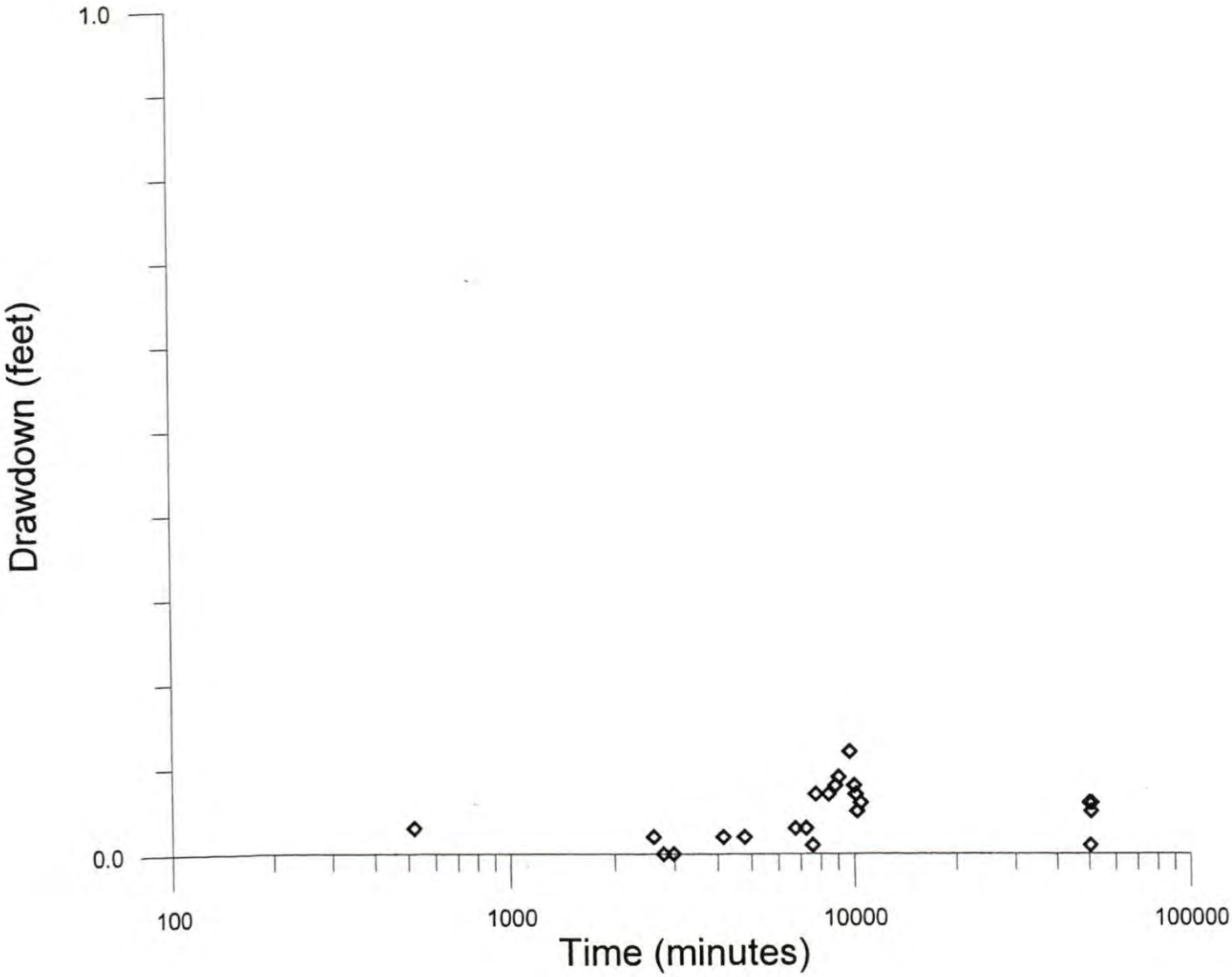
GSWA
Spring Hill
Semi-logorithmic Plot of Drawdown vs. Time for MW-11



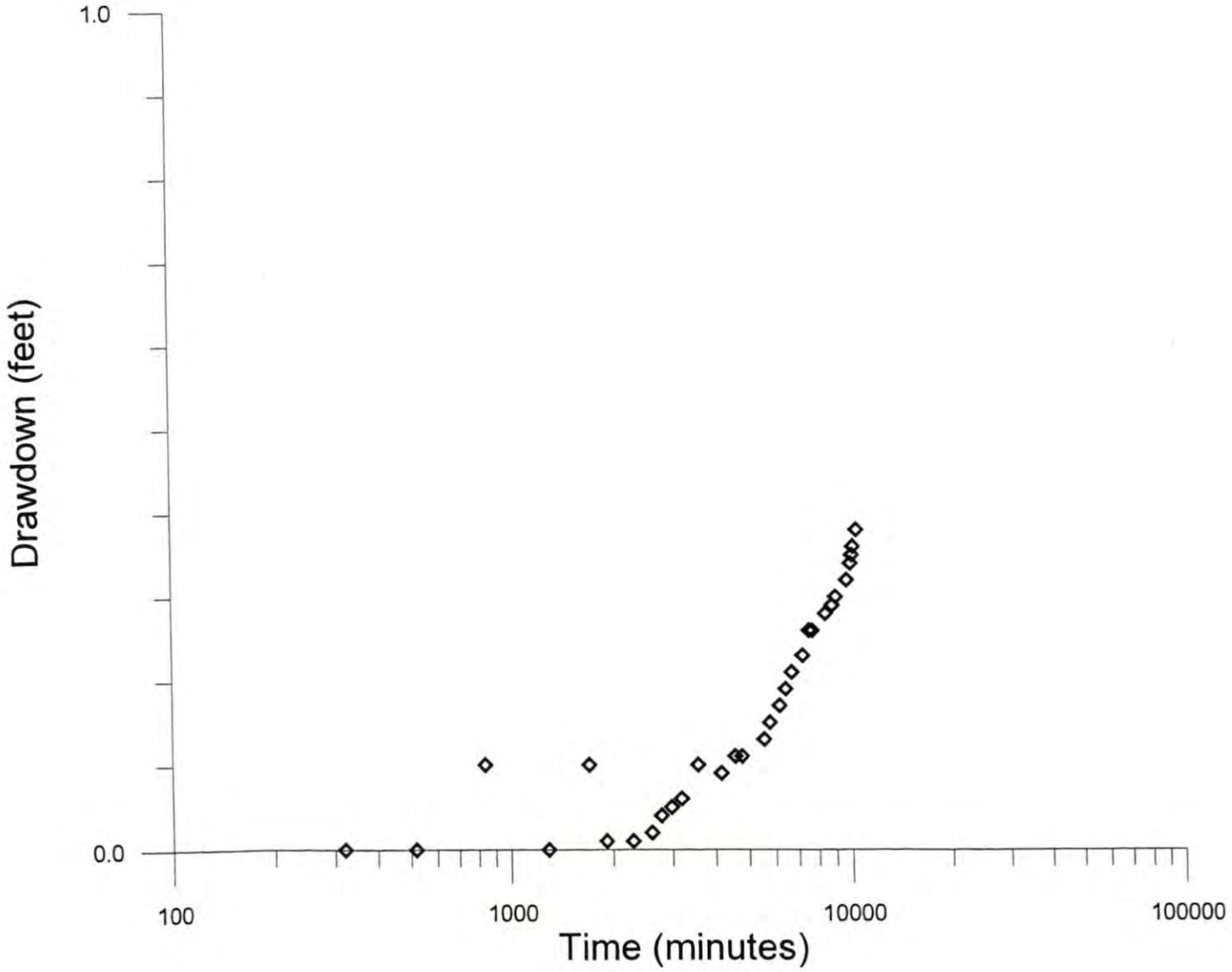
GSWA
Spring Hill
Drawdown vs. Time for MW-11



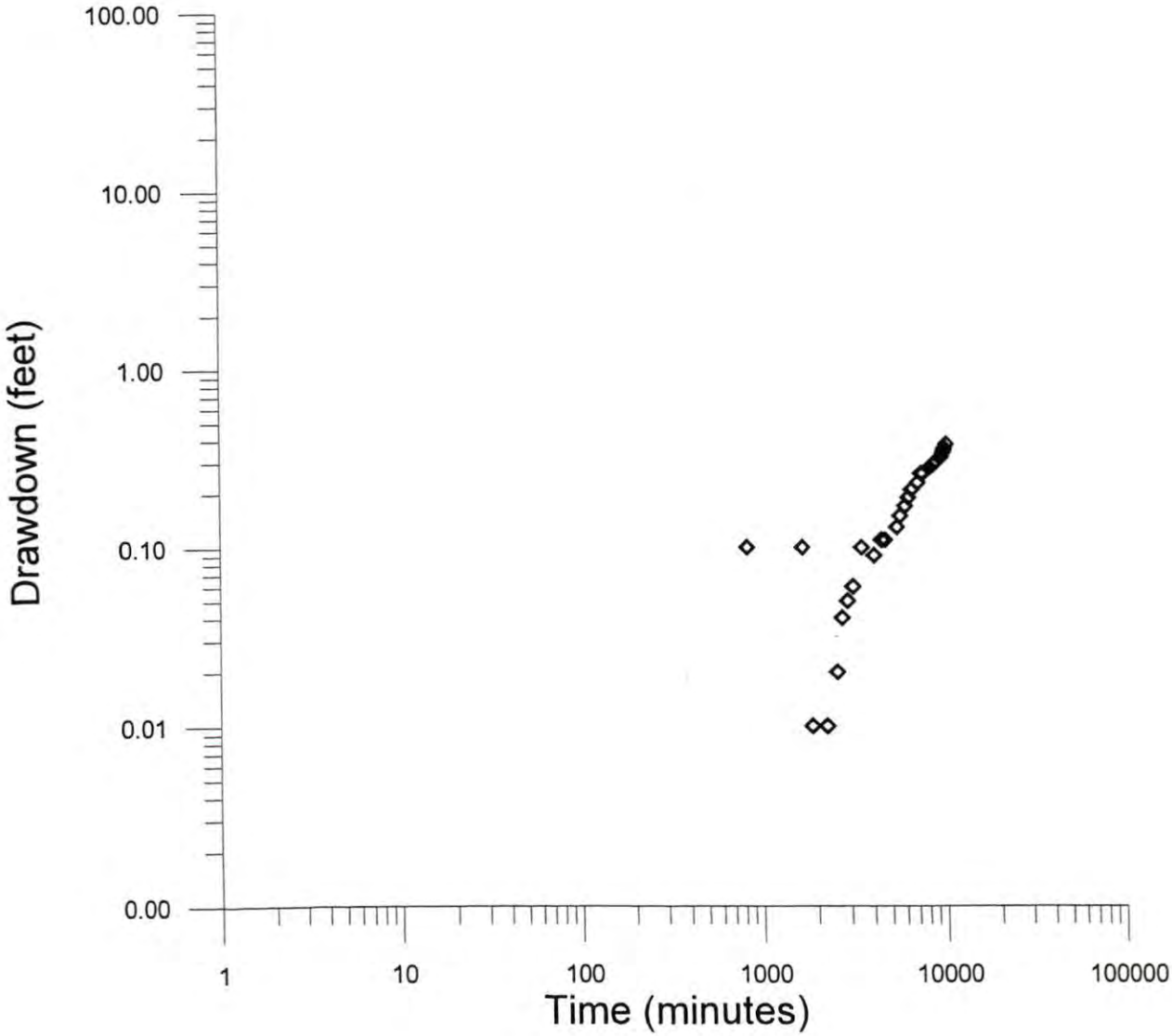
GSWA
Spring Hill
Drawdown vs. Time for MW-12i



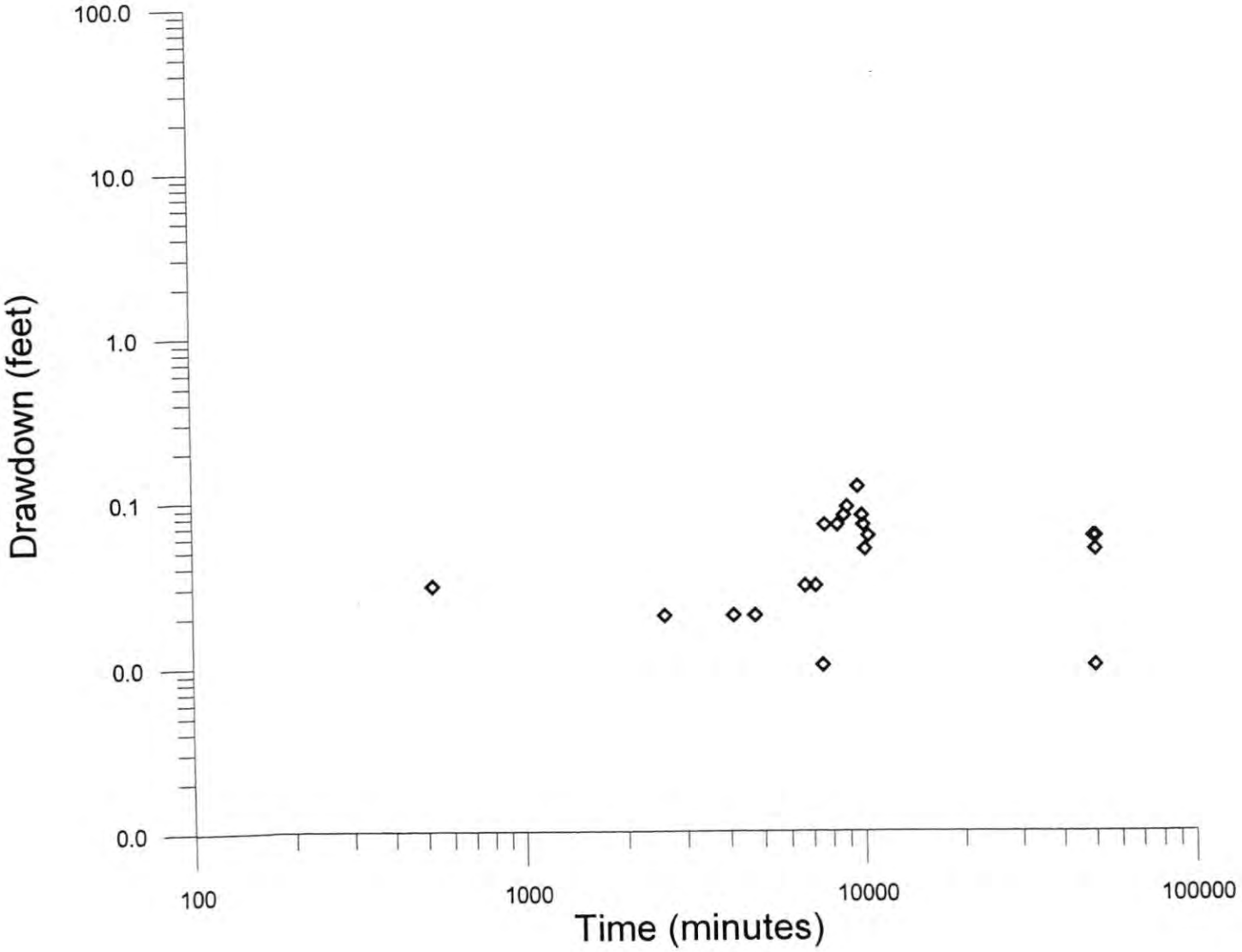
GSWA
Spring Hill
Drawdown vs. Time for MW-12d



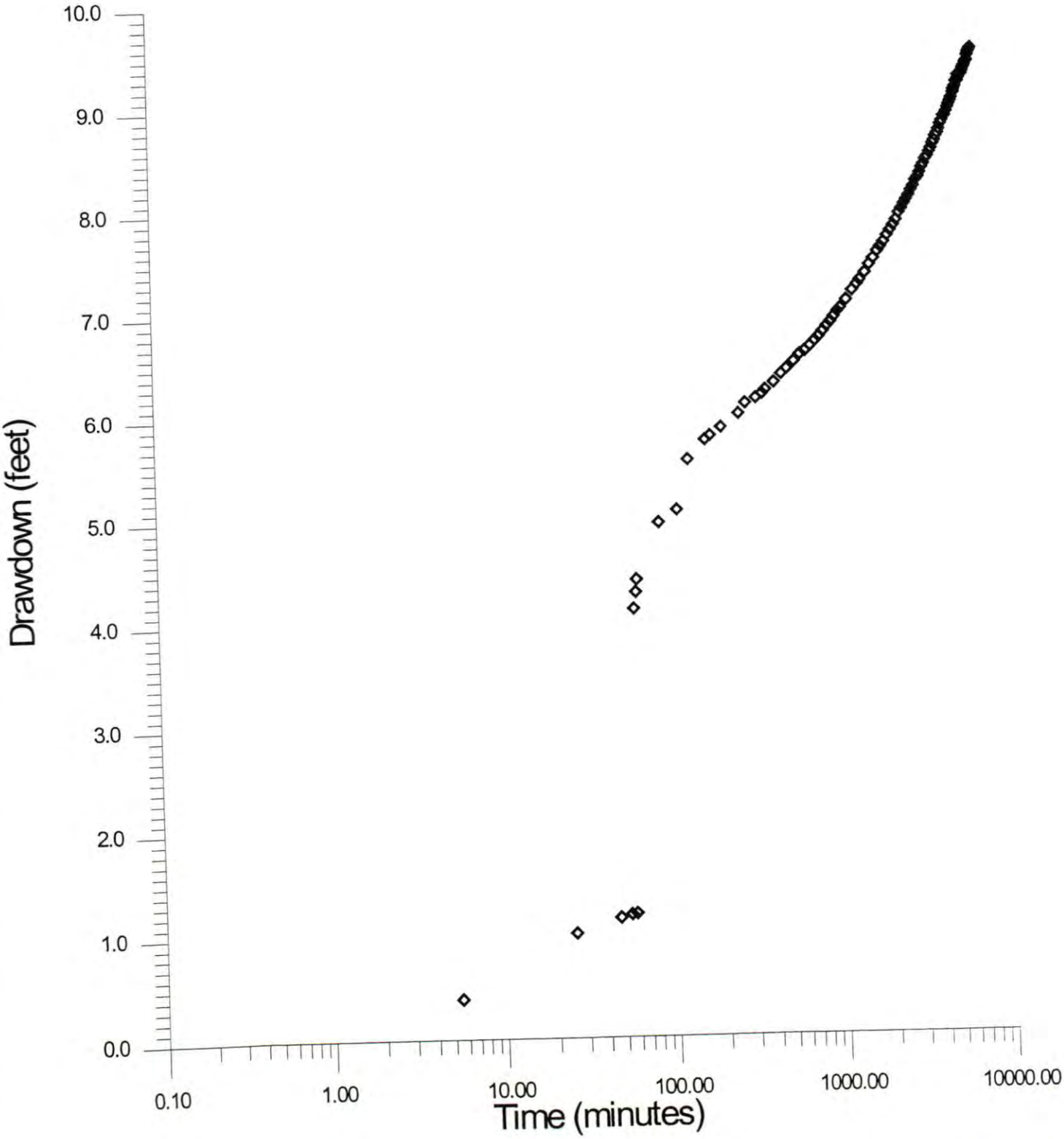
GSWA
Spring Hill
Drawdown vs. Time for MW-12d



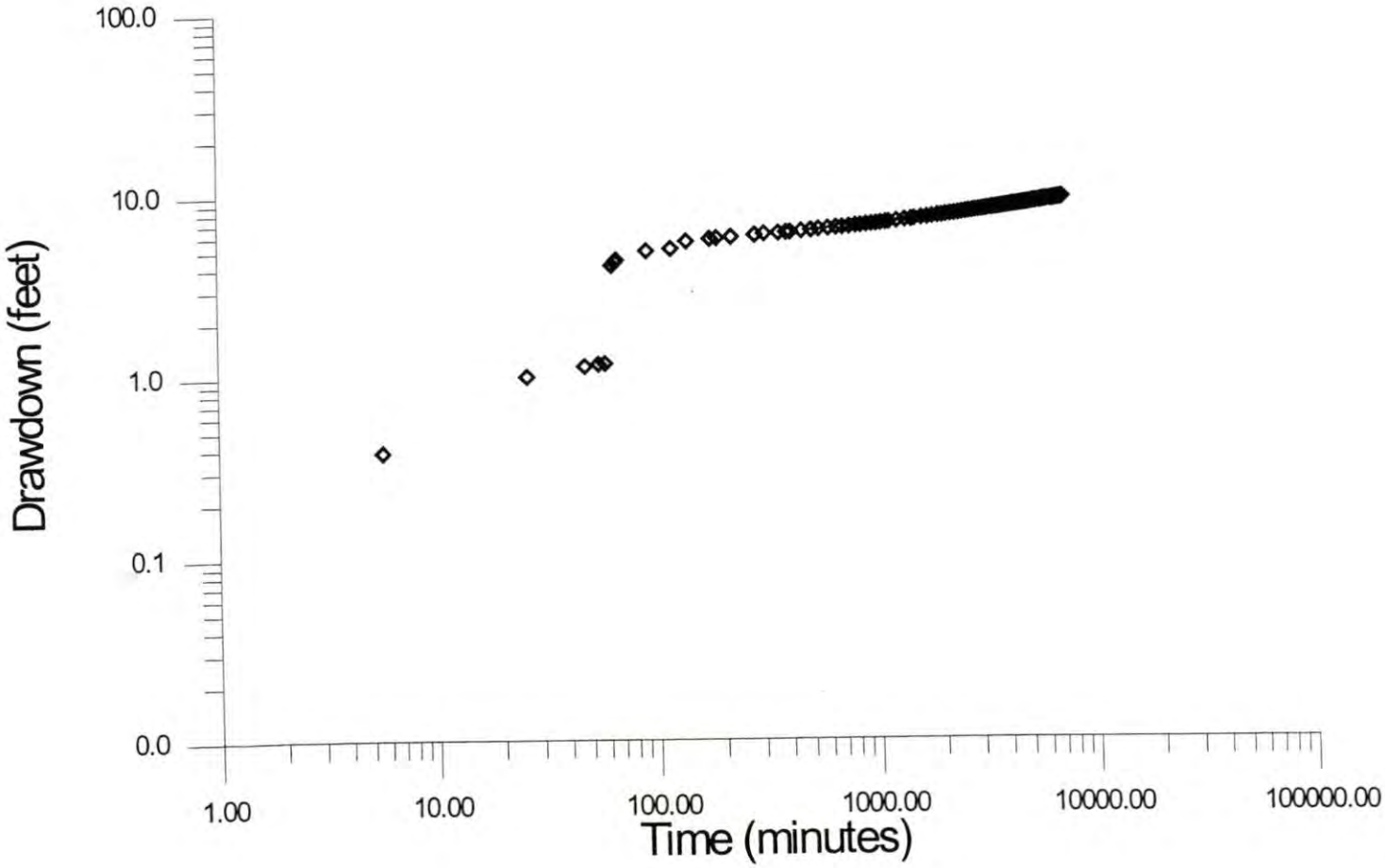
GSWA
Spring Hill
Drawdown vs. Time for MW-12i



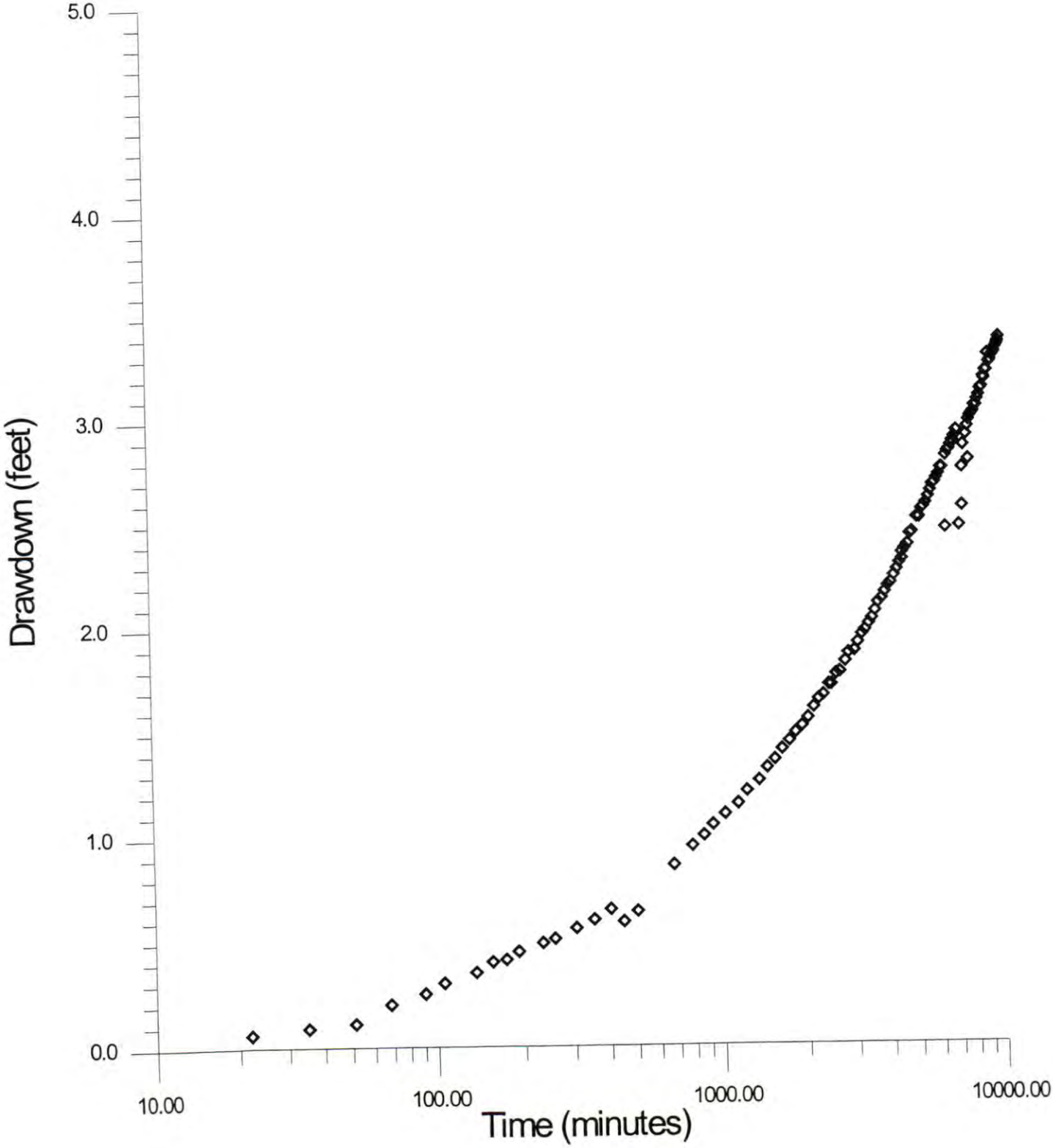
GSWA
Spring Hill
Semi-logorithmic Plot of Drawdown vs. Time for MW-13



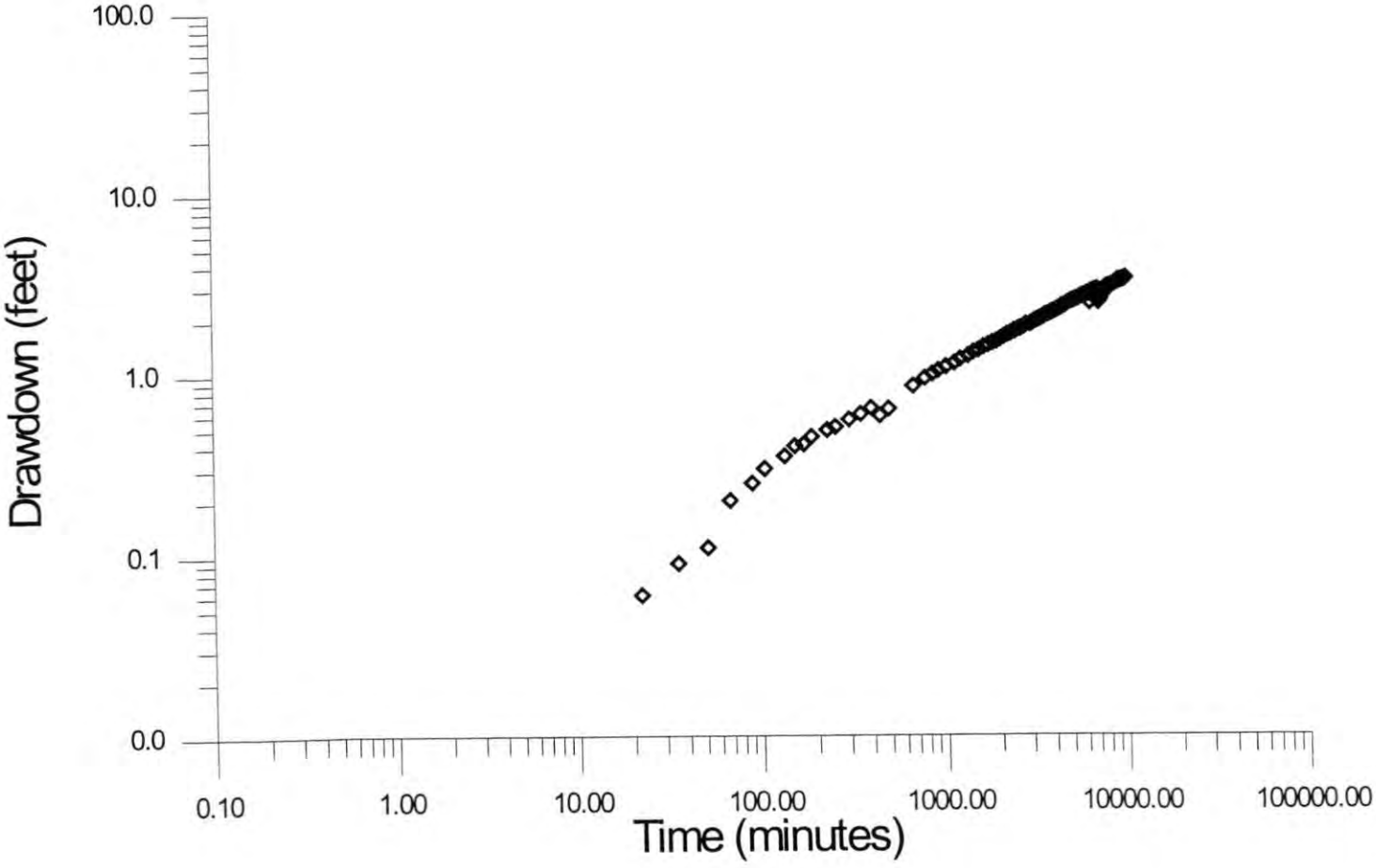
GSWA
Spring Hill
Drawdown vs. Time for MW-13



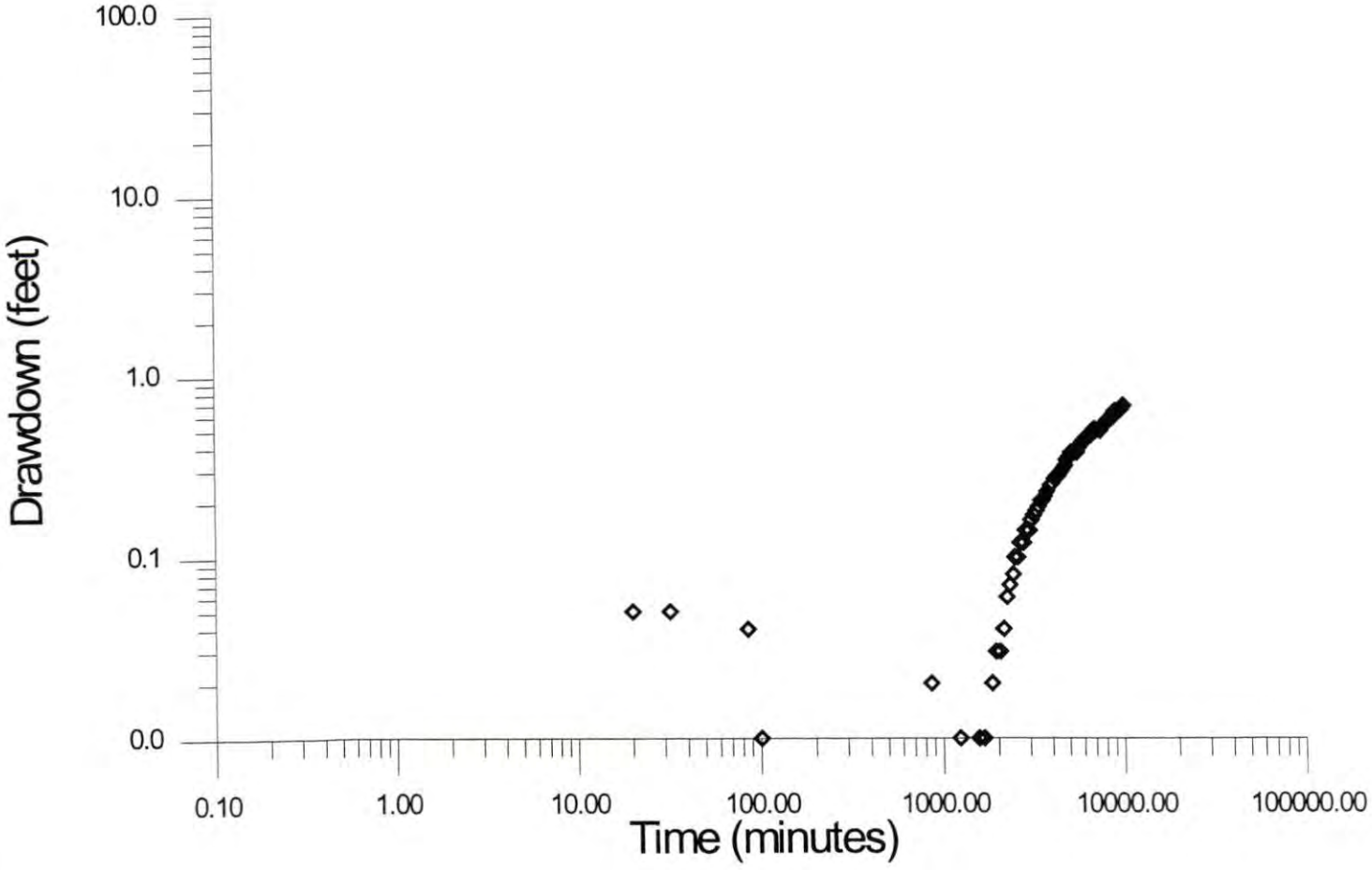
GSWA
Spring Hill
Semi-logorithmic Plot of Drawdown vs. Time for Seep 1



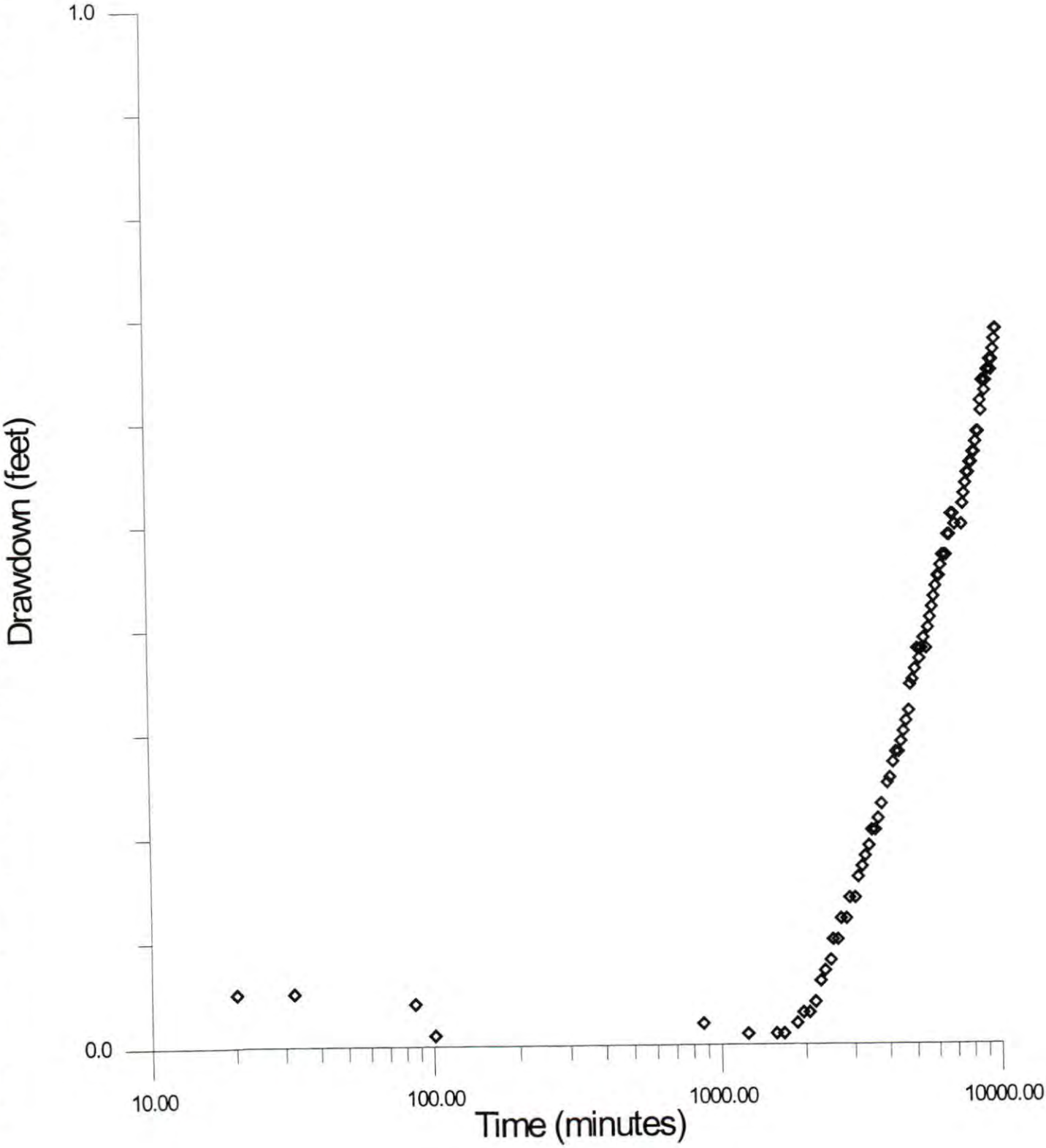
GSWA
Spring Hill
Drawdown vs. Time for Seep 1



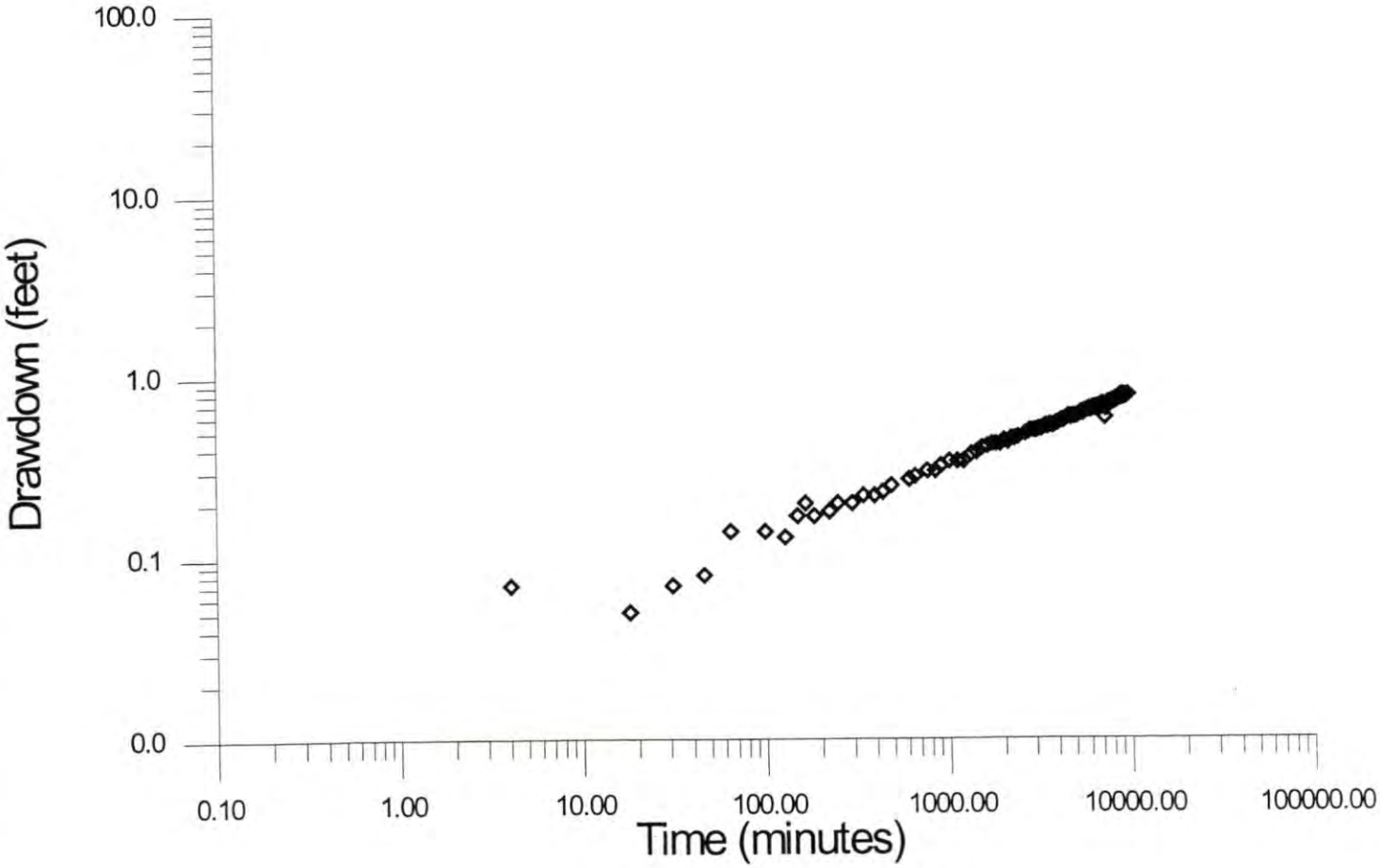
GSWA
Spring Hill
Drawdown vs. Time for Seep 2



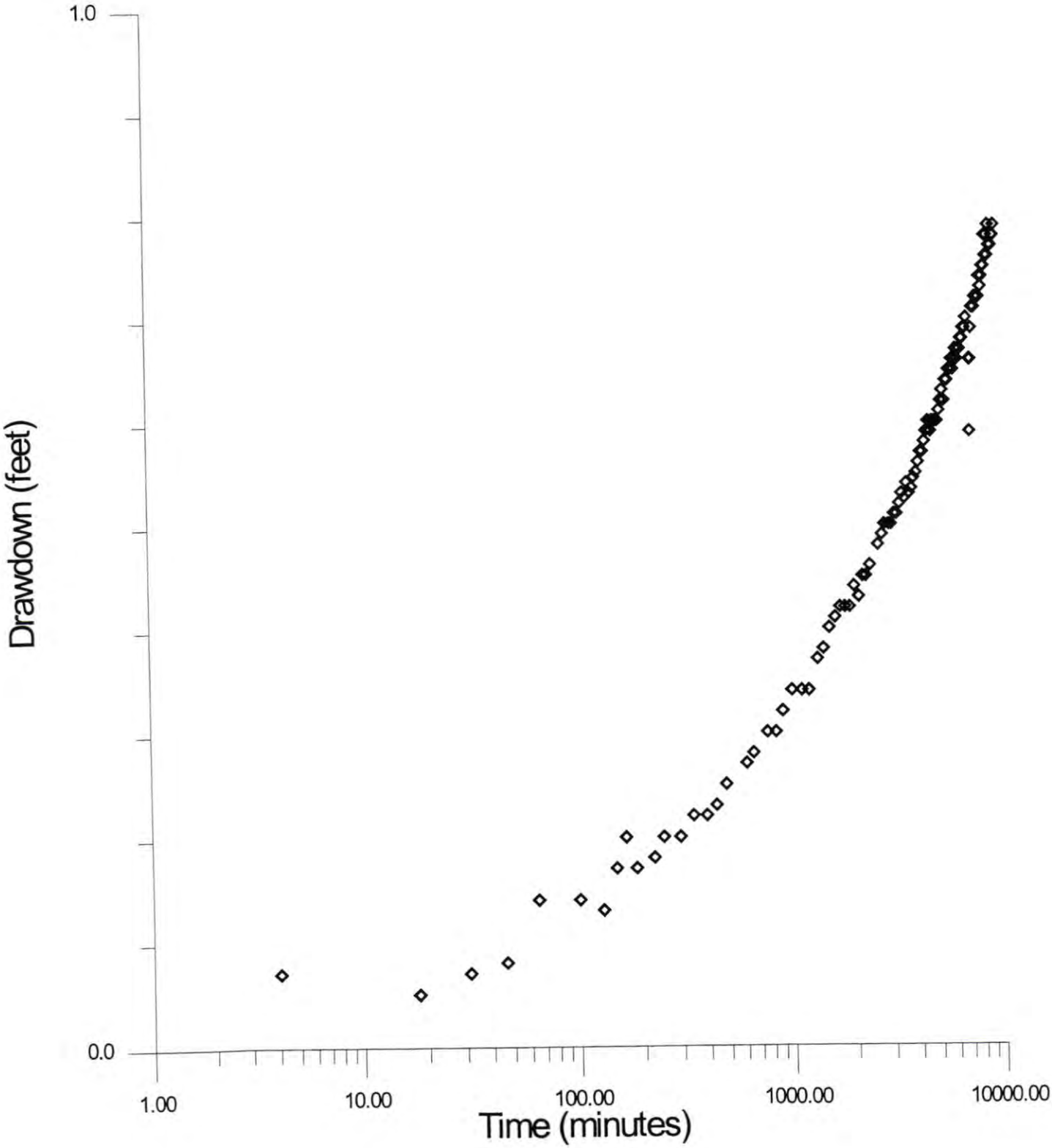
GSWA
Spring Hill
Semi-logorithmic Plot of Drawdown vs. Time for Seep 2



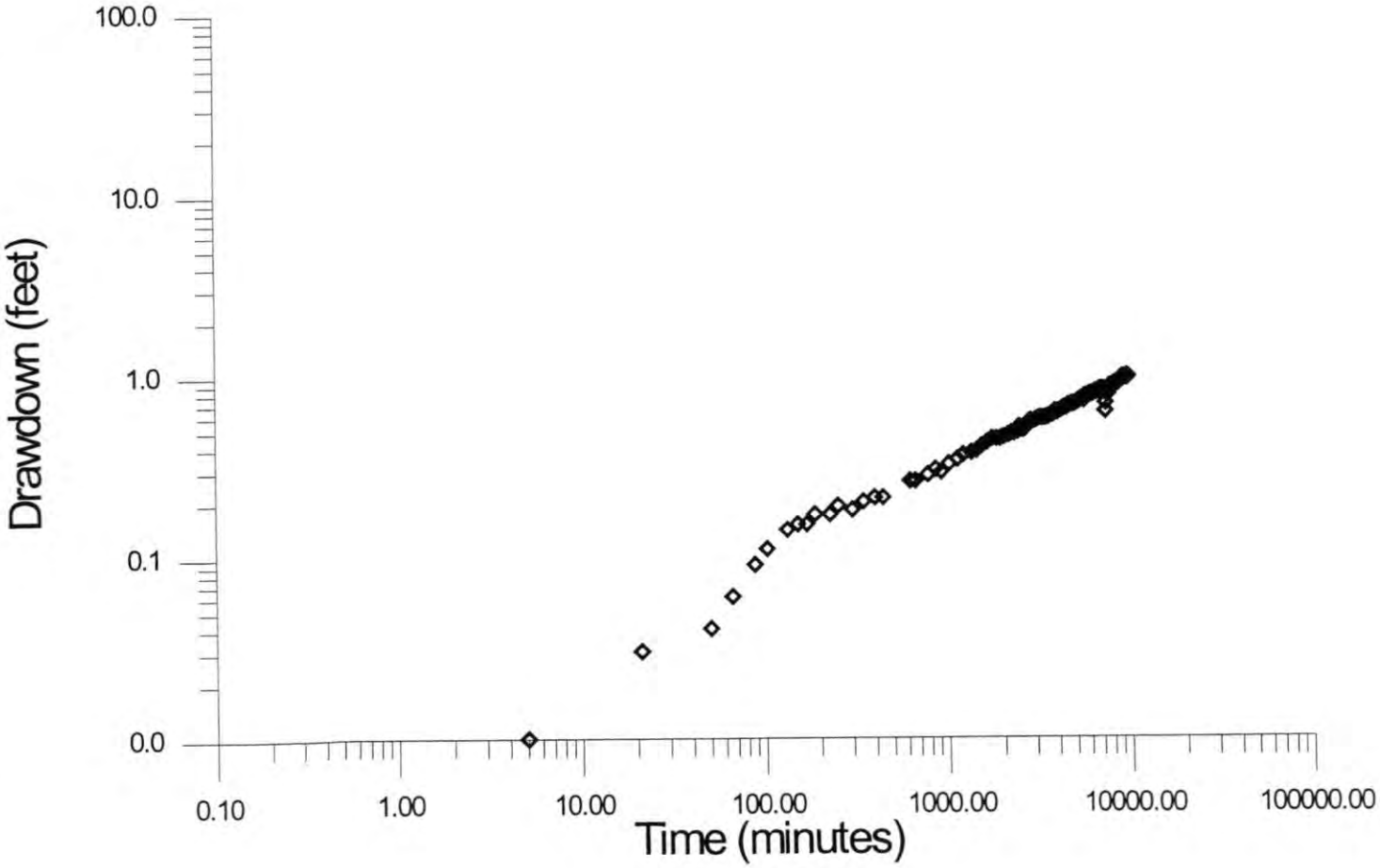
GSWA
Spring Hill
Drawdown vs. Time for Seep 3



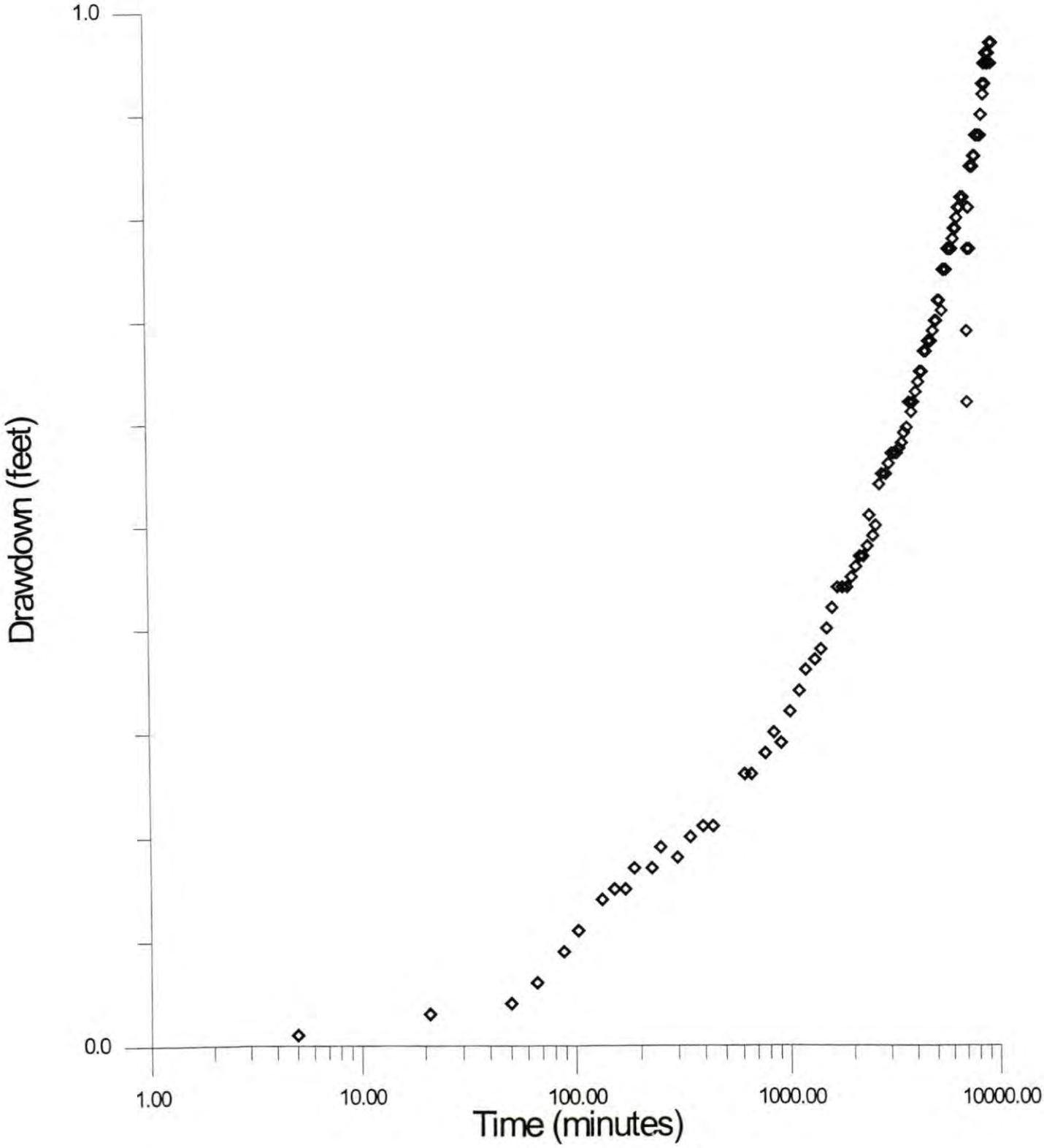
GSWA
Spring Hill
Semi-logorithmic Plot of Drawdown vs. Time for Seep 3



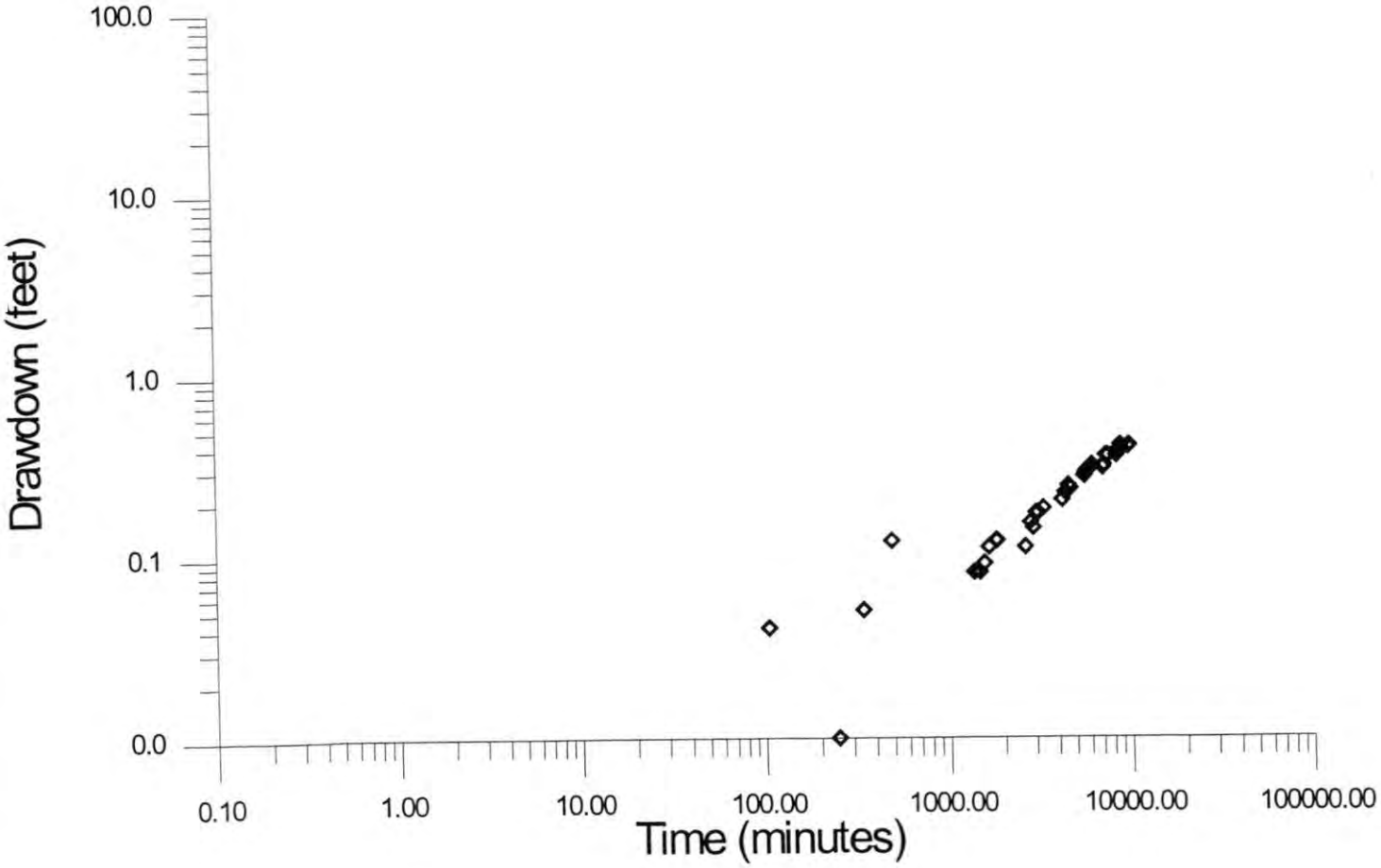
GSWA
Spring Hill
Drawdown vs. Time for Seep 4



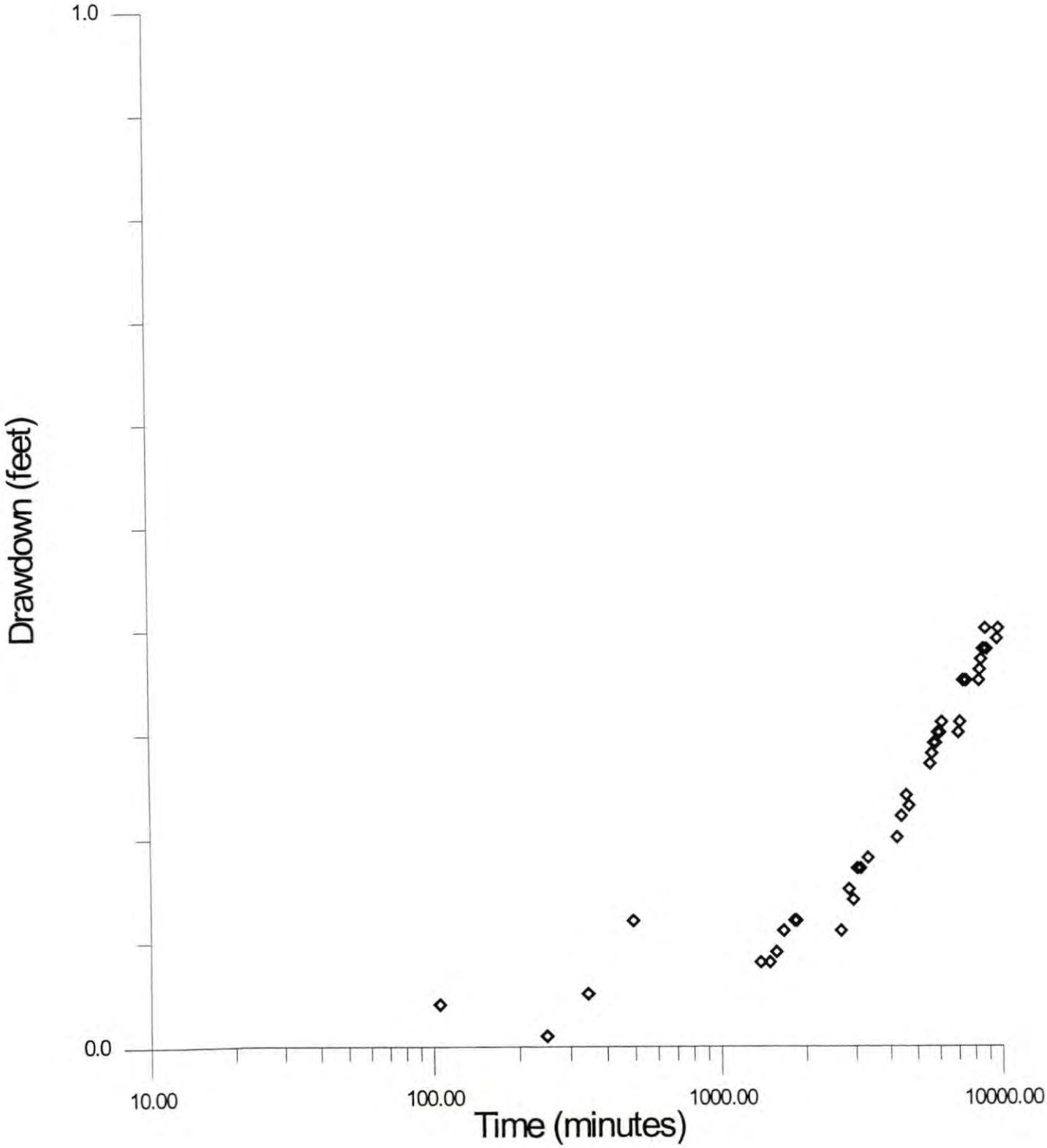
GSWA
Spring Hill
Semi-logorithmic Plot of Drawdown vs. Time for Seep 4



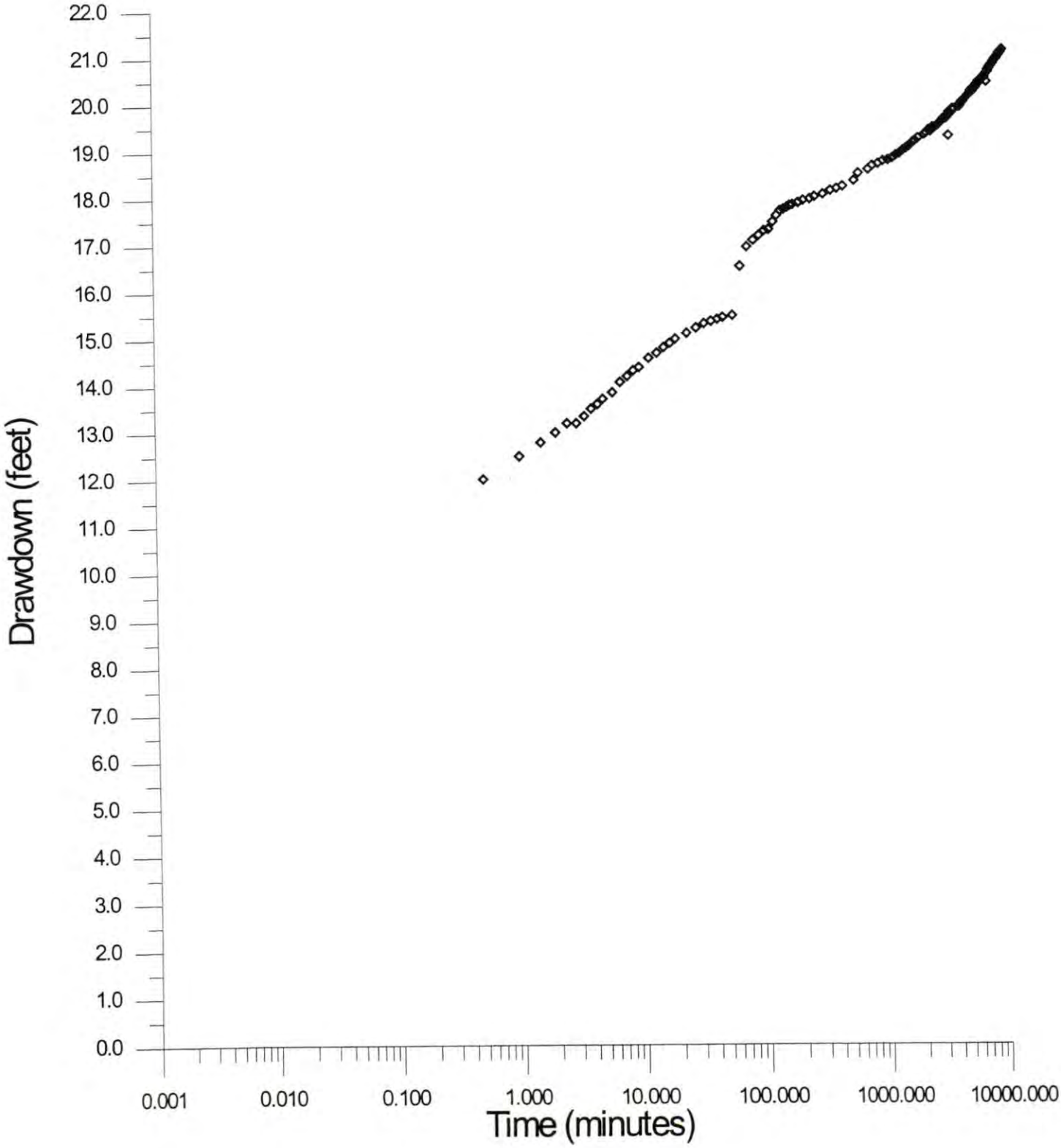
GSWA
Spring Hill
Drawdown vs. Time for Seep 5



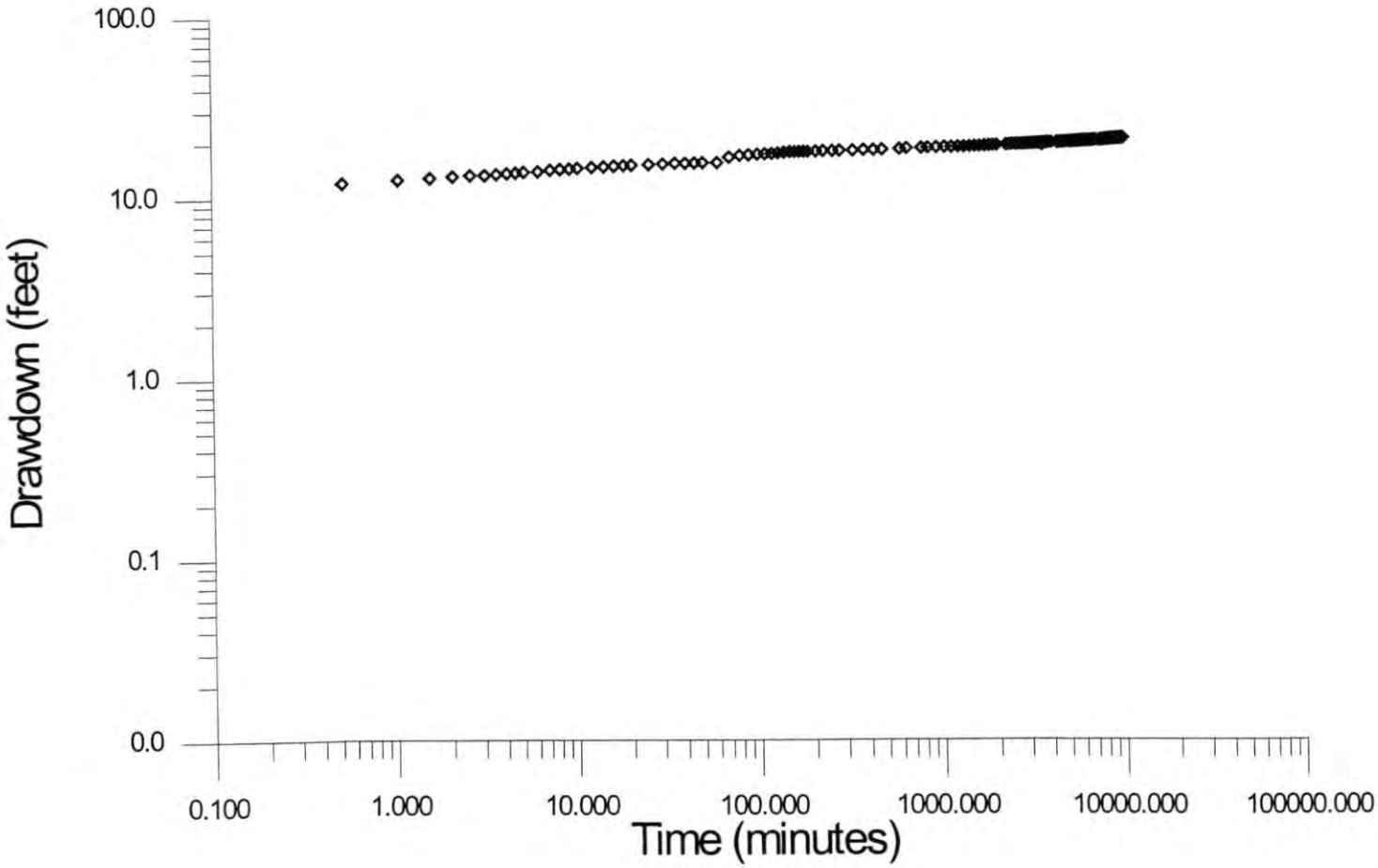
GSWA
Spring Hill
Semi-logorithmic Plot of Drawdown vs. Time for Seep 5



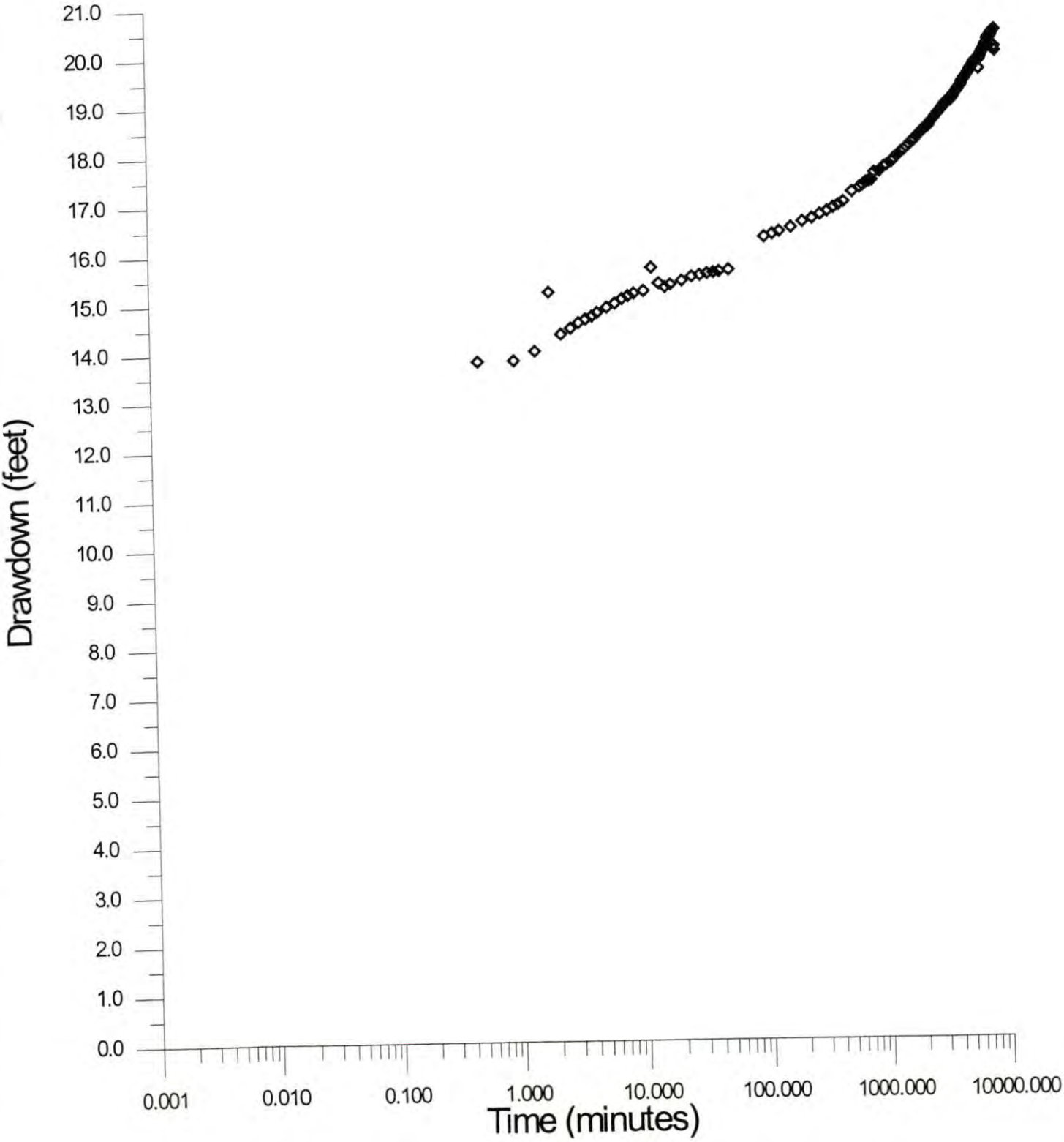
GSWA
Spring Hill
Semi-logorithmic Plot of Drawdown vs. Time for PW-1



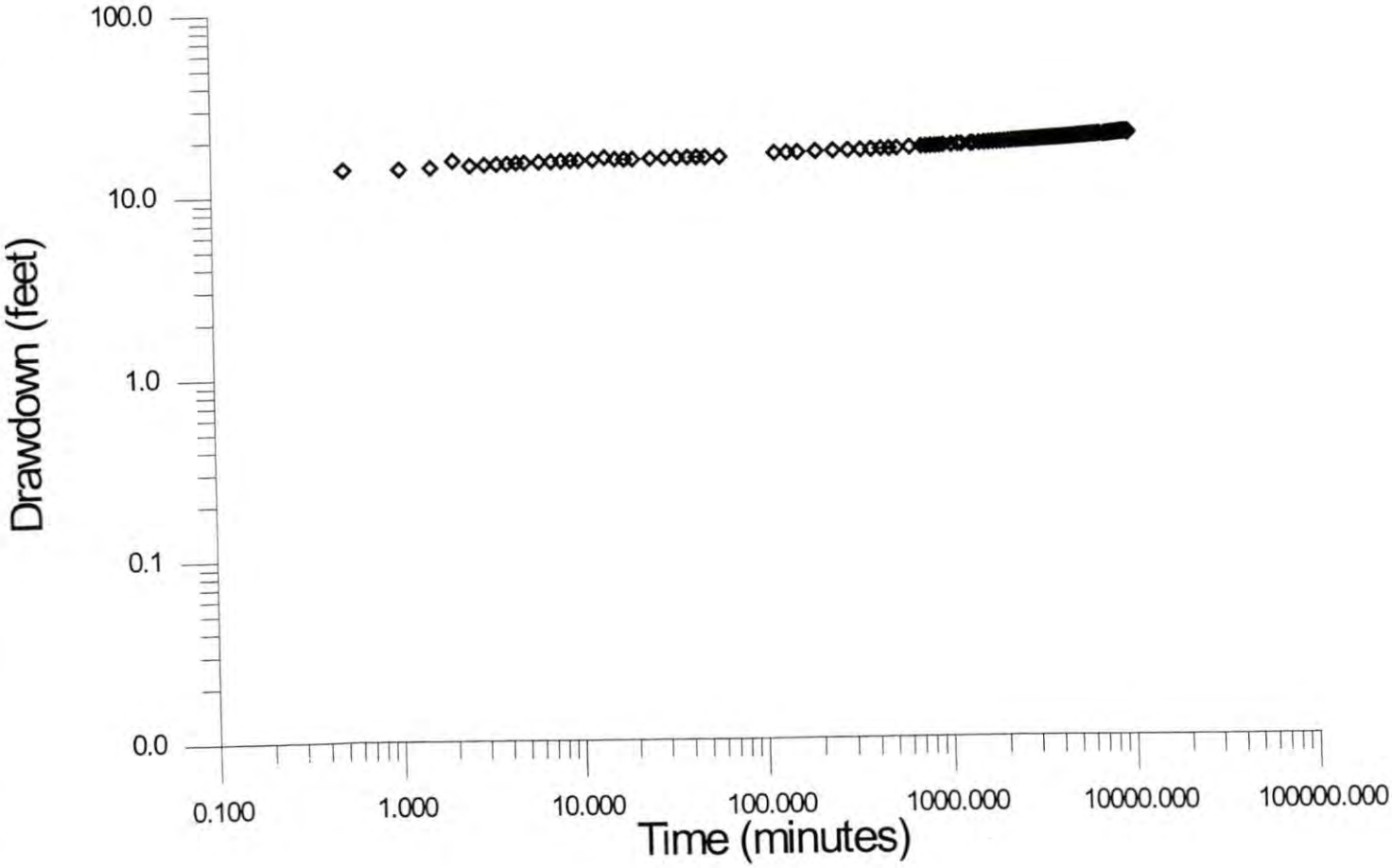
GSWA
Spring Hill
Drawdown vs. Time for PW-1



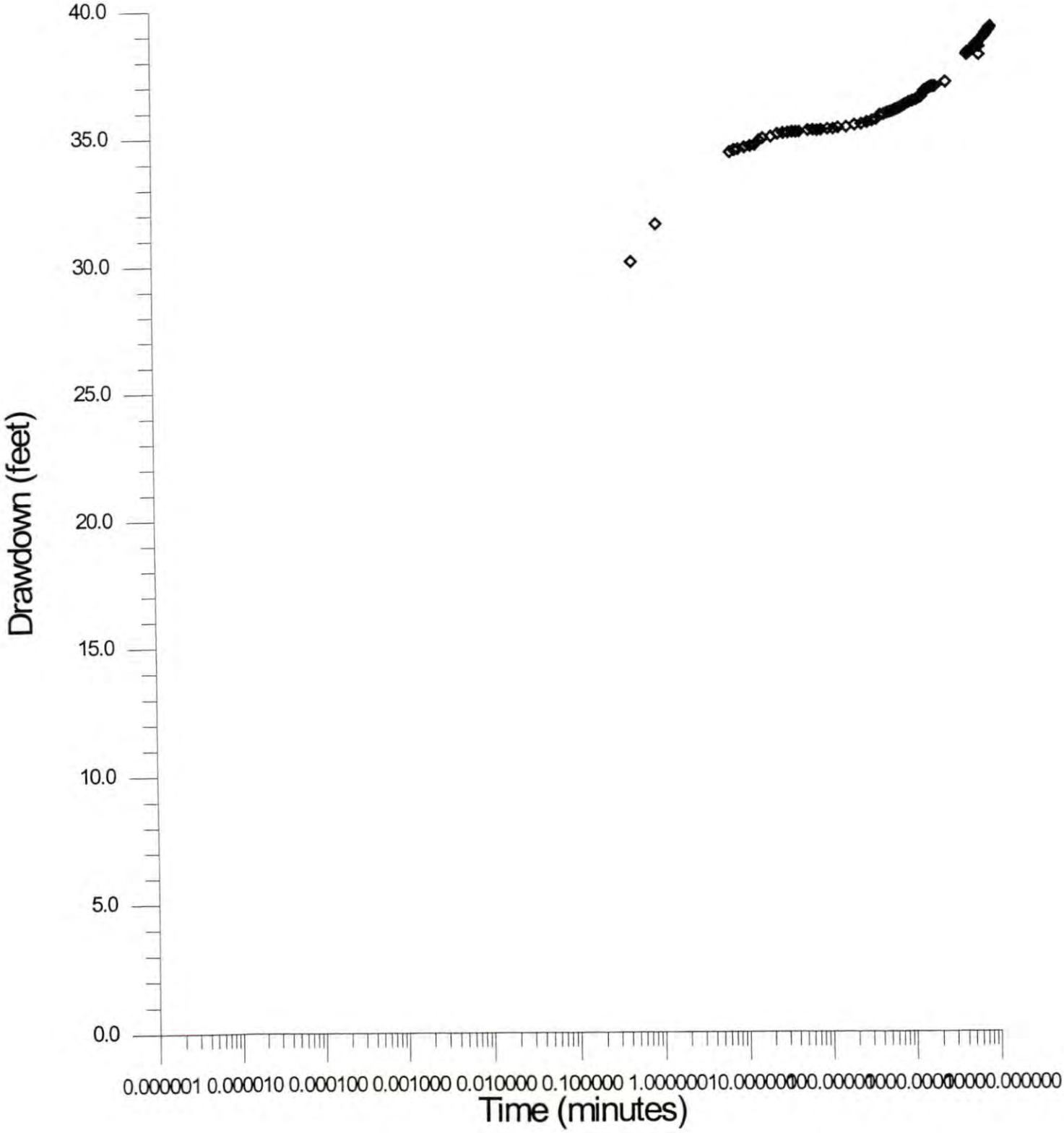
GSWA
Spring Hill
Semi-logorithmic Plot of Drawdown vs. Time for PW-2



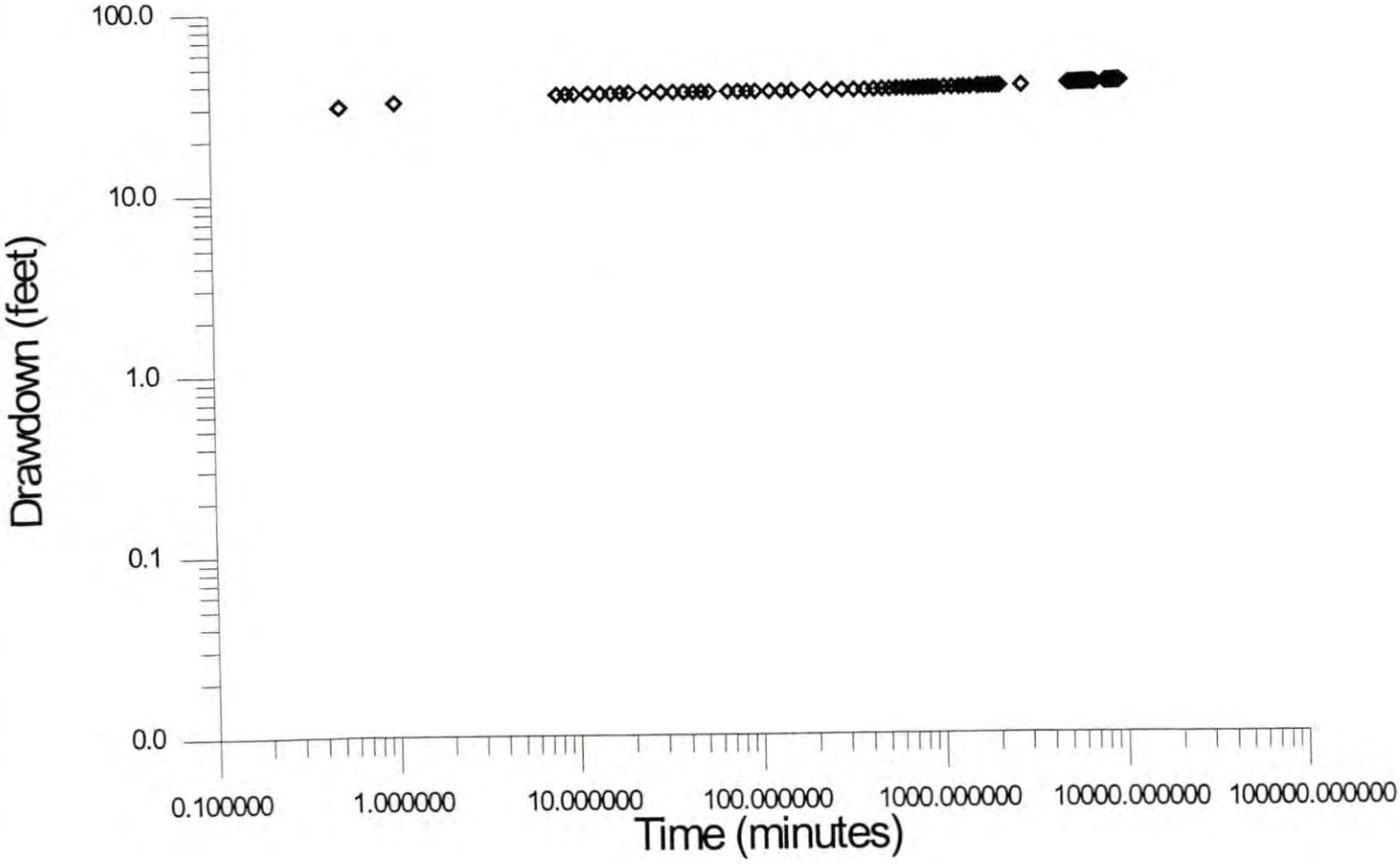
GSWA
Spring Hill
Drawdown vs. Time for PW-2

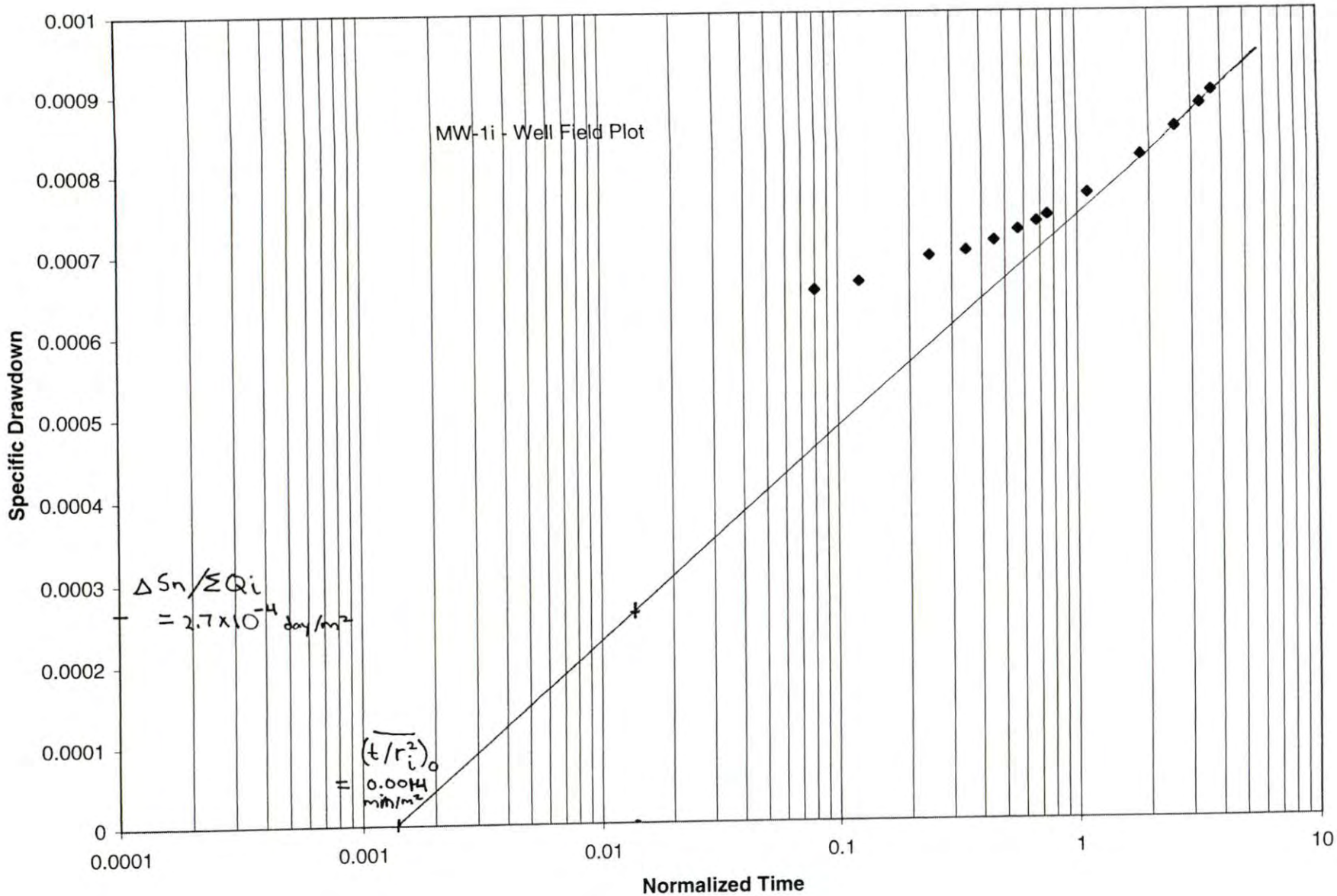


GSWA
Spring Hill
Semi-logorithmic Plot of Drawdown vs. Time for PW-3



GSWA
Spring Hill
Drawdown vs. Time for PW-3




MW-1i - Well Field Plot
Specific Drawdown
Normalized Time
0.001
0.0009
0.0008
0.0007
0.0006
0.0005
0.0004
0.0003
0.0002
0.0001
0
0.0001
0.001
0.01
0.1
1
10
ΔSn/ΣQi
= 2.7x10^-4 day/m^2
(t/r_i^2)_0
= 0.0044
min/m^2

GSWA - Spring Hill Camp
Well Field Data Plot - Well MW-1i
Cooper-Jacob Method (1946)

INPUTS	
Saturated Aquifer Thickness (ft)=	83
delta Sn/SUM Qi (from plot)=	2.70E-04
t/ri^2 at 0 - delta Sn/SUM Qi (from plot)=	1.40E-03

SOLUTION	
Transmissivity - T (m^2/day)	677.88
Transmissivity - T (gal/day/ft)	54579.93
Hydraulic Conductivity - K (cm/s)	3.11E-02
Hydraulic Conductivity - K (ft/day)	26.80
Storativity - S (unitless)	1.48E-03

DATA TRANSFORMATION WORKSHEET
OBSERVATION WELL - MW

INPUTS

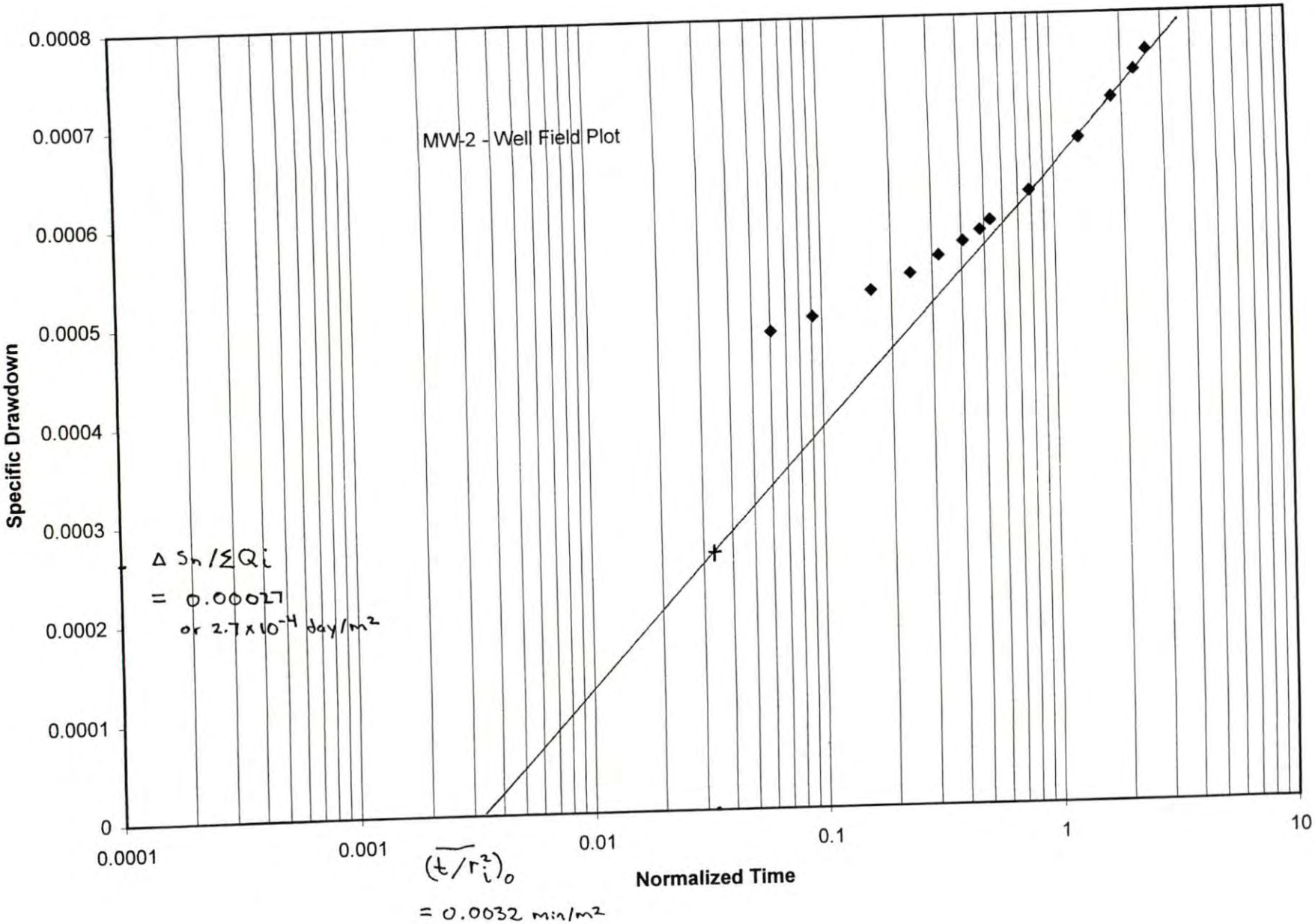
	pt.1	pt. 2	pt. 3	pt. 4	pt. 5	pt. 6	pt. 7	pt. 8	pt. 9	pt. 10	pt. 11	pt. 12	pt. 13
Dist. of Observation Well to Pumping Well TW-1 (ft)	17.33	17.33	17.33	17.33	17.33	17.33	17.33	17.33	17.33	17.33	17.33	17.33	17.33
Dist. of Observation Well to Pumping Well TW-2 (ft)	243.74	243.74	243.74	243.74	243.74	243.74	243.74	243.74	243.74	243.74	243.74	243.74	243.74
Dist. of Observation Well to Pumping Well TW-3 (ft)	616.04	616.04	616.04	616.04	616.04	616.04	616.04	616.04	616.04	616.04	616.04	616.04	616.04
Discharge Rate (Q1) of TW-1 (gpm)	200	200	200	200	200	200	200	200	200	200	200	200	200
Discharge Rate (Q1) of TW-2 (gpm)	227	227	227	227	227	227	227	227	227	227	227	227	227
Discharge Rate (Q1) of TW-3 (gpm)	296	296	296	296	296	296	296	296	296	296	296	296	296
Sn (drawdown at time tn) [ft]	8.26	8.39	8.8	8.88	9.04	9.21	9.34	9.44	9.78	10.38	10.8	11.14	11.33
Time (tn) [min]	218	335	661	941	1232	1549	1849	2051	3010	5009	7006	8928	9999

UNIT CONVERSION

Dist. of Observation Well to Pumping Well TW-1 (m)	5.28	5.28	5.28	5.28	5.28	5.28	5.28	5.28	5.28	5.28	5.28	5.28	5.28
Dist. of Observation Well to Pumping Well TW-2 (m)	74.29	74.29	74.29	74.29	74.29	74.29	74.29	74.29	74.29	74.29	74.29	74.29	74.29
Dist. of Observation Well to Pumping Well TW-3 (m)	187.77	187.77	187.77	187.77	187.77	187.77	187.77	187.77	187.77	187.77	187.77	187.77	187.77
Discharge Rate (Q1) of TW-1 (m^3/day)	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00
Discharge Rate (Q1) of TW-2 (m^3/day)	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10
Discharge Rate (Q1) of TW-3 (m^3/day)	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80
Sn (drawdown at time tn) [m]	2.52	2.56	2.68	2.71	2.76	2.81	2.85	2.88	2.98	3.16	3.29	3.40	3.45

DATA TRANFORMATION

SUM Qi (m^3/day)	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9
Sn / SUM Qi (day/m^2)	0.000657	0.0006674	0.0007	0.0007063	0.0007191	0.0007326	0.0007429	0.0007509	0.0007779	0.0008257	0.0008591	0.0008861	0.0009012
tn (min)	218	335	661	941	1232	1549	1849	2051	3010	5009	7006	8928	9999
tn / r1^2	7.81E+00	1.20E+01	2.37E+01	3.37E+01	4.42E+01	5.55E+01	6.63E+01	7.35E+01	1.08E+02	1.80E+02	2.51E+02	3.20E+02	3.58E+02
tn / r2^2	3.95E-02	6.07E-02	1.20E-01	1.70E-01	2.23E-01	2.81E-01	3.35E-01	3.72E-01	5.45E-01	9.08E-01	1.27E+00	1.62E+00	1.81E+00
tn / r3^3	6.18E-03	9.50E-03	1.87E-02	2.67E-02	3.49E-02	4.39E-02	5.24E-02	5.82E-02	8.54E-02	1.42E-01	1.99E-01	2.53E-01	2.84E-01
Q1log(tn/r1^2)	9.46E+02	1.14E+03	1.46E+03	1.62E+03	1.74E+03	1.85E+03	1.93E+03	1.98E+03	2.15E+03	2.39E+03	2.54E+03	2.66E+03	2.71E+03
Q2log(tn/r2^2)	-1.69E+03	-1.46E+03	-1.11E+03	-9.24E+02	-7.84E+02	-6.64E+02	-5.71E+02	-5.17E+02	-3.17E+02	-5.07E+01	1.25E+02	2.51E+02	3.10E+02
Q3log(tn/r3^2)	-3.47E+03	-3.17E+03	-2.71E+03	-2.47E+03	-2.29E+03	-2.13E+03	-2.01E+03	-1.94E+03	-1.68E+03	-1.33E+03	-1.10E+03	-9.36E+02	-8.59E+02
SUM Qi log(tn/ri^2)	-4207.22	-3492.23	-2361.22	-1773.45	-1325.04	-943.99	-649.37	-476.83	161.57	1009.13	1567.51	1970.95	2159.49
SUM Qi log(tn/ri^2)/SUM Qi = x	-1.10	-0.91	-0.62	-0.46	-0.35	-0.25	-0.17	-0.12	0.04	0.26	0.41	0.51	0.56
geometric mean of (t/ri^2) = 10^x	0.0798096	0.1226431	0.2419914	0.3444991	0.4510339	0.5670873	0.6769169	0.7508689	1.1019578	1.8337896	2.5648892	3.2685313	3.6606233


MW-2 - Well Field Plot
Specific Drawdown
0.0008
0.0007
0.0006
0.0005
0.0004
0.0003
0.0002
0.0001
0
0.0001
0.001
0.01
0.1
1
10
Normalized Time
Δ Sn/ΣQi
= 0.00027
or 2.7 x 10^-4 day/m^2
(t/r_i^2)_o
= 0.0032 min/m^2

GSWA - Spring Hill Camp
Well Field Data Plot - Well MW-2
Cooper-Jacob Method (1946)

INPUTS	
Saturated Aquifer Thickness (ft)=	91
delta Sn/SUM Qi (from plot)=	2.70E-04
t/ri^2 at 0 - delta Sn/SUM Qi (from plot)=	3.20E-03

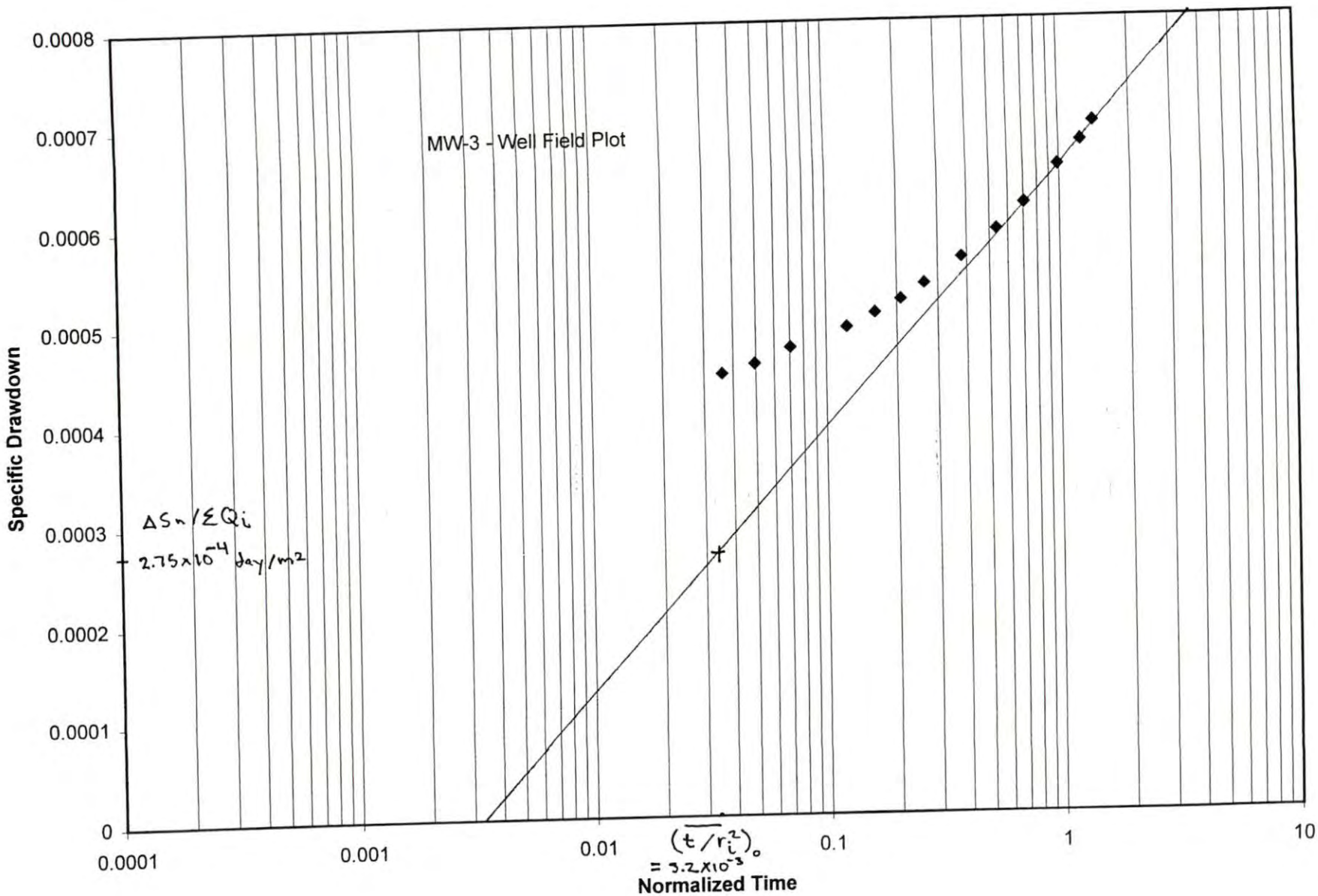
SOLUTION	
Transmissivity - T (m^2/day)	677.88
Transmissivity - T (gal/day/ft)	54579.93
Hydraulic Conductivity - K (cm/s)	2.84E-02
Hydraulic Conductivity - K (ft/day)	24.44
Storativity - S (unitless)	3.39E-03

DATA TRANSFORMATION WORKSHEET
OBSERVATION WELL - MW

INPUTS	pt.1	pt. 2	pt. 3	pt. 4	pt. 5	pt. 6	pt. 7	pt. 8	pt. 9	pt. 10	pt. 11	pt. 12	pt. 13
Dist. of Observation Well to Pumping Well TW-1 (ft)	127.09	127.09	127.09	127.09	127.09	127.09	127.09	127.09	127.09	127.09	127.09	127.09	127.09
Dist. of Observation Well to Pumping Well TW-2 (ft)	101.84	101.84	101.84	101.84	101.84	101.84	101.84	101.84	101.84	101.84	101.84	101.84	101.84
Dist. of Observation Well to Pumping Well TW-3 (ft)	483.48	483.48	483.48	483.48	483.48	483.48	483.48	483.48	483.48	483.48	483.48	483.48	483.48
Discharge Rate (Q1) of TW-1 (gpm)	200	200	200	200	200	200	200	200	200	200	200	200	200
Discharge Rate (Q1) of TW-2 (gpm)	227	227	227	227	227	227	227	227	227	227	227	227	227
Discharge Rate (Q1) of TW-3 (gpm)	296	296	296	296	296	296	296	296	296	296	296	296	296
Sn (drawdown at time tn) [ft]	6.09	6.27	6.59	6.8	7.02	7.2	7.34	7.46	7.83	8.48	8.98	9.32	9.57
Time (tn) [min]	235	355	636	940	1244	1580	1871	2071	3048	5021	7018	8846	10019

UNIT CONVERSION													
Dist. of Observation Well to Pumping Well TW-1 (m)	38.74	38.74	38.74	38.74	38.74	38.74	38.74	38.74	38.74	38.74	38.74	38.74	38.74
Dist. of Observation Well to Pumping Well TW-2 (m)	31.04	31.04	31.04	31.04	31.04	31.04	31.04	31.04	31.04	31.04	31.04	31.04	31.04
Dist. of Observation Well to Pumping Well TW-3 (m)	147.36	147.36	147.36	147.36	147.36	147.36	147.36	147.36	147.36	147.36	147.36	147.36	147.36
Discharge Rate (Q1) of TW-1 (m^3/day)	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00
Discharge Rate (Q1) of TW-2 (m^3/day)	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10
Discharge Rate (Q1) of TW-3 (m^3/day)	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80
Sn (drawdown at time tn) [m]	1.86	1.91	2.01	2.07	2.14	2.19	2.24	2.27	2.39	2.58	2.74	2.84	2.92

DATA TRANFORMATION													
SUM Qi (m^3/day)	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9
Sn / SUM Qi (day/m^2)	0.0004844	0.0004987	0.0005242	0.0005409	0.0005584	0.0005727	0.0005838	0.0005934	0.0006228	0.0006745	0.0007143	0.0007413	0.0007612
tn (min)	235	355	636	940	1244	1580	1871	2071	3048	5021	7018	8846	10019
tn / r1^2	1.57E-01	2.37E-01	4.24E-01	6.26E-01	8.29E-01	1.05E+00	1.25E+00	1.38E+00	2.03E+00	3.35E+00	4.68E+00	5.90E+00	6.68E+00
tn / r2^2	2.44E-01	3.68E-01	6.60E-01	9.76E-01	1.29E+00	1.64E+00	1.94E+00	2.15E+00	3.16E+00	5.21E+00	7.28E+00	9.18E+00	1.04E+01
tn / r3^3	1.08E-02	1.63E-02	2.93E-02	4.33E-02	5.73E-02	7.28E-02	8.62E-02	9.54E-02	1.40E-01	2.31E-01	3.23E-01	4.07E-01	4.61E-01
Q1log(tn/r1^2)	-8.53E+02	-6.64E+02	-3.95E+02	-2.15E+02	-8.63E+01	2.37E+01	1.02E+02	1.48E+02	3.26E+02	5.56E+02	7.10E+02	8.17E+02	8.74E+02
Q2log(tn/r2^2)	-7.37E+02	-5.22E+02	-2.17E+02	-1.29E+01	1.33E+02	2.58E+02	3.47E+02	4.00E+02	6.02E+02	8.63E+02	1.04E+03	1.16E+03	1.22E+03
Q3log(tn/r3^2)	-3.08E+03	-2.80E+03	-2.41E+03	-2.14E+03	-1.95E+03	-1.79E+03	-1.67E+03	-1.60E+03	-1.34E+03	-9.98E+02	-7.70E+02	-6.12E+02	-5.27E+02
SUM Qi log(tn/ri^2)	-4674.57	-3988.05	-3017.70	-2367.54	-1901.23	-1503.34	-1222.01	-1053.00	-409.87	420.79	978.04	1363.27	1570.49
SUM Qi log(tn/ri^2)/SUM Qi = x	-1.22	-1.04	-0.79	-0.62	-0.50	-0.39	-0.32	-0.27	-0.11	0.11	0.26	0.36	0.41
geometric mean of (t/ri^2) = 10^x	0.0602684	0.0910438	0.1631094	0.2410736	0.3190379	0.4052088	0.4798391	0.5311313	0.781694	1.2876922	1.7998454	2.2686566	2.5694857


MW-3 - Well Field Plot
Specific Drawdown
0.0008
0.0007
0.0006
0.0005
0.0004
0.0003
0.0002
0.0001
0
ΔSn/ΣQi
2.75x10^-4 day/m^2
0.0001
0.001
0.01
0.1
1
10
(t/ri^2)o
= 3.2x10^-3
Normalized Time

GSWA - Spring Hill Camp
Well Field Data Plot - Well MW-3
Cooper-Jacob Method (1946)

INPUTS	
Saturated Aquifer Thickness (ft)=	41
delta Sn/SUM Qi (from plot)=	2.75E-04
t/ri^2 at 0 - delta Sn/SUM Qi (from plot)=	3.20E-03

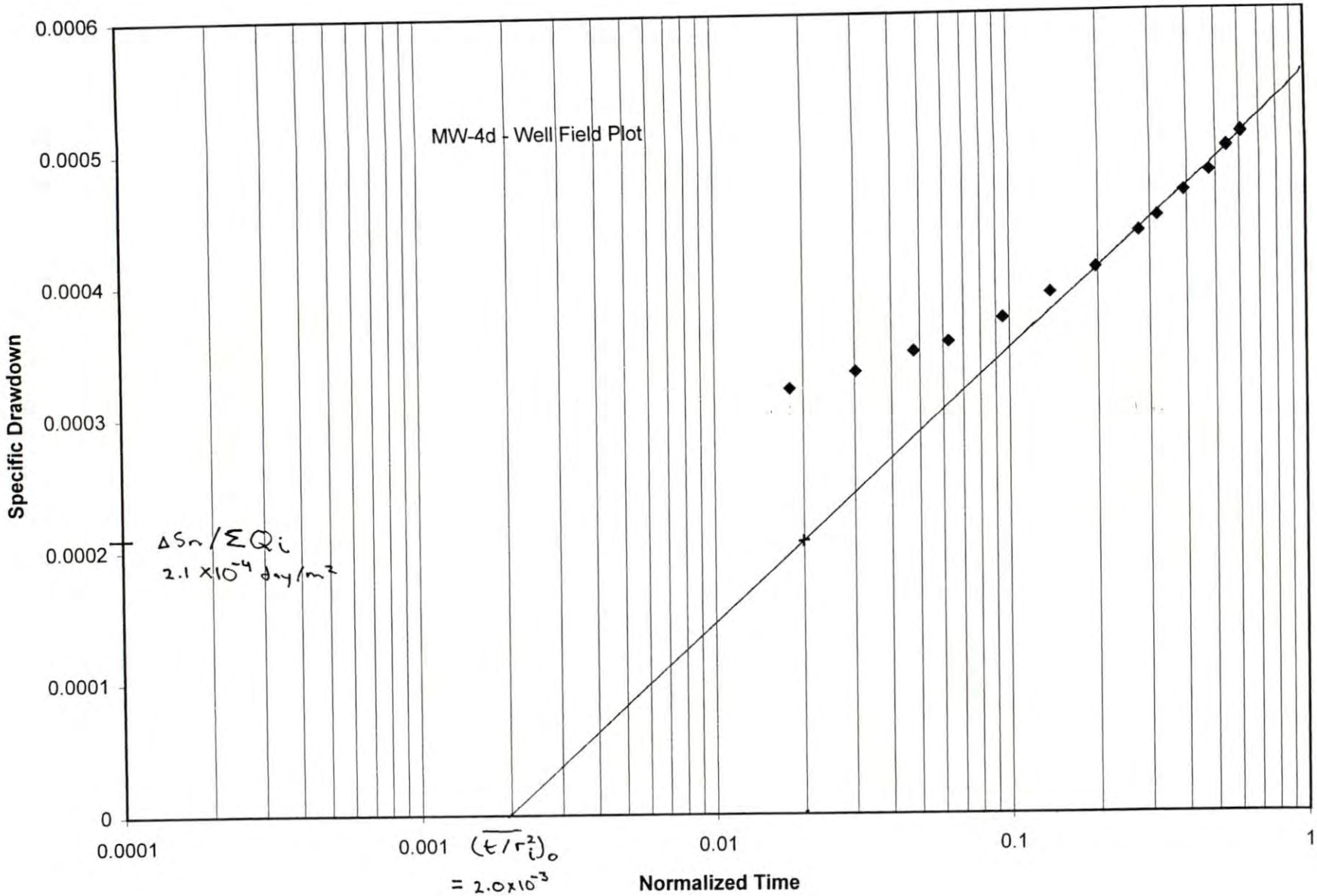
SOLUTION	
Transmissivity - T (m^2/day)	665.56
Transmissivity - T (gal/day/ft)	53587.57
Hydraulic Conductivity - K (cm/s)	6.18E-02
Hydraulic Conductivity - K (ft/day)	53.26
Storativity - S (unitless)	3.33E-03

DATA TRANSFORMATION WORKSHEET
OBSERVATION WELL - MW-3

INPUTS	pt.1	pt. 2	pt. 3	pt. 4	pt. 5	pt. 6	pt. 7	pt. 8	pt. 9	pt. 10	pt. 11	pt. 12	pt. 13
Dist. of Observation Well to Pumping Well TW-1 (ft)	123.02	123.02	123.02	123.02	123.02	123.02	123.02	123.02	123.02	123.02	123.02	123.02	123.02
Dist. of Observation Well to Pumping Well TW-2 (ft)	210.17	210.17	210.17	210.17	210.17	210.17	210.17	210.17	210.17	210.17	210.17	210.17	210.17
Dist. of Observation Well to Pumping Well TW-3 (ft)	594.12	594.12	594.12	594.12	594.12	594.12	594.12	594.12	594.12	594.12	594.12	594.12	594.12
Discharge Rate (Q1) of TW-1 (gpm)	200	200	200	200	200	200	200	200	200	200	200	200	200
Discharge Rate (Q1) of TW-2 (gpm)	227	227	227	227	227	227	227	227	227	227	227	227	227
Discharge Rate (Q1) of TW-3 (gpm)	296	296	296	296	296	296	296	296	296	296	296	296	296
Sn (drawdown at time tn) [ft]	5.62	5.74	5.94	6.19	6.37	6.54	6.74	7.08	7.43	7.76	8.24	8.53	8.76
Time (tn) [min]	256	353	502	872	1151	1483	1870	2704	3824	5019	7018	8844	10018

UNIT CONVERSION													
Dist. of Observation Well to Pumping Well TW-1 (m)	37.50	37.50	37.50	37.50	37.50	37.50	37.50	37.50	37.50	37.50	37.50	37.50	37.50
Dist. of Observation Well to Pumping Well TW-2 (m)	64.06	64.06	64.06	64.06	64.06	64.06	64.06	64.06	64.06	64.06	64.06	64.06	64.06
Dist. of Observation Well to Pumping Well TW-3 (m)	181.09	181.09	181.09	181.09	181.09	181.09	181.09	181.09	181.09	181.09	181.09	181.09	181.09
Discharge Rate (Q1) of TW-1 (m^3/day)	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00
Discharge Rate (Q1) of TW-2 (m^3/day)	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10
Discharge Rate (Q1) of TW-3 (m^3/day)	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80
Sn (drawdown at time tn) [m]	1.71	1.75	1.81	1.89	1.94	1.99	2.05	2.16	2.26	2.37	2.51	2.60	2.67

DATA TRANFORMATION													
SUM Qi (m^3/day)	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9
Sn / SUM Qi (day/m^2)	0.000447	0.0004566	0.0004725	0.0004924	0.0005067	0.0005202	0.0005361	0.0005632	0.000591	0.0006173	0.0006554	0.0006785	0.0006968
tn (min)	256	353	502	872	1151	1483	1870	2704	3824	5019	7018	8844	10018
tn / r1^2	1.82E-01	2.51E-01	3.57E-01	6.20E-01	8.19E-01	1.05E+00	1.33E+00	1.92E+00	2.72E+00	3.57E+00	4.99E+00	6.29E+00	7.13E+00
tn / r2^2	6.24E-02	8.60E-02	1.22E-01	2.12E-01	2.80E-01	3.61E-01	4.56E-01	6.59E-01	9.32E-01	1.22E+00	1.71E+00	2.16E+00	2.44E+00
tn / r3^3	7.81E-03	1.08E-02	1.53E-02	2.66E-02	3.51E-02	4.52E-02	5.70E-02	8.25E-02	1.17E-01	1.53E-01	2.14E-01	2.70E-01	3.05E-01
Q1log(tn/r1^2)	-7.84E+02	-6.36E+02	-4.74E+02	-2.20E+02	-9.21E+01	2.45E+01	1.31E+02	3.01E+02	4.61E+02	5.86E+02	7.40E+02	8.47E+02	9.04E+02
Q2log(tn/r2^2)	-1.45E+03	-1.28E+03	-1.10E+03	-8.09E+02	-6.64E+02	-5.32E+02	-4.11E+02	-2.18E+02	-3.69E+01	1.05E+02	2.80E+02	4.01E+02	4.66E+02
Q3log(tn/r3^2)	-3.31E+03	-3.09E+03	-2.85E+03	-2.47E+03	-2.28E+03	-2.11E+03	-1.95E+03	-1.70E+03	-1.46E+03	-1.28E+03	-1.05E+03	-8.93E+02	-8.08E+02
SUM Qi log(tn/ri^2)	-5540.08	-5005.40	-4419.39	-3500.45	-3038.49	-2616.72	-2230.85	-1617.11	-1040.37	-587.82	-29.91	354.94	562.37
SUM Qi log(tn/ri^2)/SUM Qi = x	-1.45	-1.31	-1.15	-0.91	-0.79	-0.68	-0.58	-0.42	-0.27	-0.15	-0.01	0.09	0.15
geometric mean of (t/ri^2) = 10^x	0.0358278	0.0494031	0.070256	0.1220384	0.161085	0.2075492	0.2617107	0.3784309	0.5351774	0.7024203	0.9821849	1.2377377	1.4020416


MW-4d - Well Field Plot
Specific Drawdown
0.0006
0.0005
0.0004
0.0003
0.0002
0.0001
0
ΔSn / ΣQi
2.1 x10^-4 day/m^2
0.0001
0.001
(t/r_i^2)_o
= 2.0x10^-3
0.01
0.1
1
Normalized Time

GSWA - Spring Hill Camp
Well Field Data Plot - Well MW-4d
Cooper-Jacob Method (1946)

INPUTS	
Saturated Aquifer Thickness (ft)=	83
delta Sn/SUM Qi (from plot)=	2.10E-04
t/ri^2 at 0 - delta Sn/SUM Qi (from plot)=	2.00E-03

SOLUTION	
Transmissivity - T (m^2/day)	871.56
Transmissivity - T (gal/day/ft)	70174.20
Hydraulic Conductivity - K (cm/s)	4.00E-02
Hydraulic Conductivity - K (ft/day)	34.45
Storativity - S (unitless)	2.72E-03

:LL .D

DATA TRANSFORMATION WORKSHEET
OBSERVATION WELL - MW-4d

INPUTS

	pt.1	pt. 2	pt. 3	pt. 4	pt. 5	pt. 6	pt. 7	pt. 8	pt. 9	pt. 10	pt. 11	pt. 12	pt. 13
Dist. of Observation Well to Pumping Well TW-1 (ft)	184.89	184.89	184.89	184.89	184.89	184.89	184.89	184.89	184.89	184.89	184.89	184.89	184.89
Dist. of Observation Well to Pumping Well TW-2 (ft)	390.9	390.9	390.9	390.9	390.9	390.9	390.9	390.9	390.9	390.9	390.9	390.9	390.9
Dist. of Observation Well to Pumping Well TW-3 (ft)	775.91	775.91	775.91	775.91	775.91	775.91	775.91	775.91	775.91	775.91	775.91	775.91	775.91
Discharge Rate (Q1) of TW-1 (gpm)	200	200	200	200	200	200	200	200	200	200	200	200	200
Discharge Rate (Q1) of TW-2 (gpm)	227	227	227	227	227	227	227	227	227	227	227	227	227
Discharge Rate (Q1) of TW-3 (gpm)	296	296	296	296	296	296	296	296	296	296	296	296	296
Sn (drawdown at time tn) [ft]	4.03	4.19	4.38	4.47	4.69	4.93	5.17	5.51	5.65	5.89	6.08	6.3	6.42
Time (tn) [min]	296	497	783	1029	1560	2260	3225	4521	5226	6412	7813	8934	10007

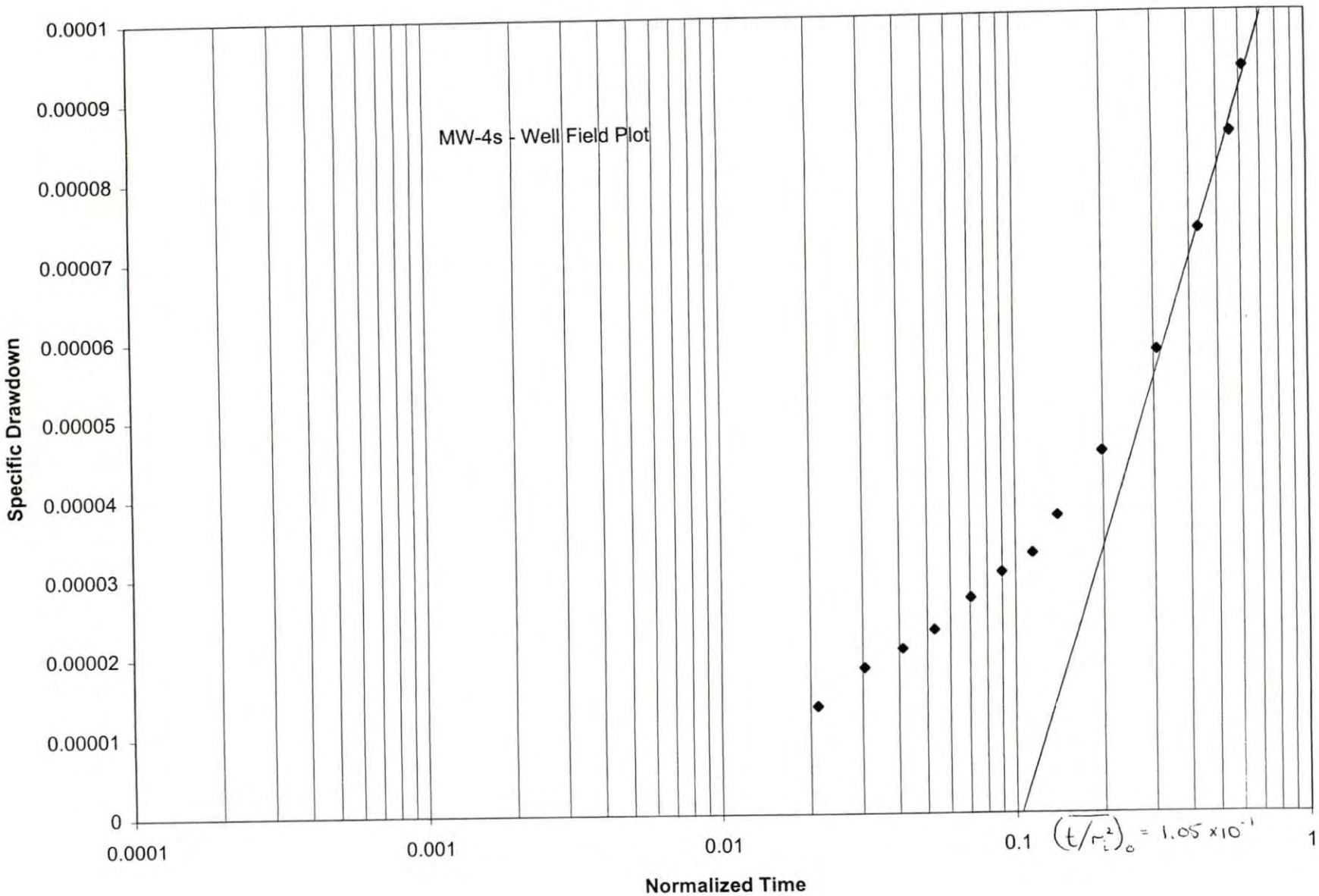
UNIT CONVERSION

Dist. of Observation Well to Pumping Well TW-1 (m)	56.35	56.35	56.35	56.35	56.35	56.35	56.35	56.35	56.35	56.35	56.35	56.35	56.35
Dist. of Observation Well to Pumping Well TW-2 (m)	119.15	119.15	119.15	119.15	119.15	119.15	119.15	119.15	119.15	119.15	119.15	119.15	119.15
Dist. of Observation Well to Pumping Well TW-3 (m)	236.50	236.50	236.50	236.50	236.50	236.50	236.50	236.50	236.50	236.50	236.50	236.50	236.50
Discharge Rate (Q1) of TW-1 (m^3/day)	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00
Discharge Rate (Q1) of TW-2 (m^3/day)	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10
Discharge Rate (Q1) of TW-3 (m^3/day)	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80
Sn (drawdown at time tn) [m]	1.23	1.28	1.34	1.36	1.43	1.50	1.58	1.68	1.72	1.80	1.85	1.92	1.96

DATA TRANFORMATION

SUM Qi (m^3/day)	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9
Sn / SUM Qi (day/m^2)	0.0003206	0.0003333	0.0003484	0.0003556	0.0003731	0.0003921	0.0004112	0.0004383	0.0004494	0.0004685	0.0004836	0.0005011	0.0005107
tn (min)	296	497	783	1029	1560	2260	3225	4521	5226	6412	7813	8934	10007
tn / r1^2	9.32E-02	1.56E-01	2.47E-01	3.24E-01	4.91E-01	7.12E-01	1.02E+00	1.42E+00	1.65E+00	2.02E+00	2.46E+00	2.81E+00	3.15E+00
tn / r2^2	2.09E-02	3.50E-02	5.52E-02	7.25E-02	1.10E-01	1.59E-01	2.27E-01	3.18E-01	3.68E-01	4.52E-01	5.50E-01	6.29E-01	7.05E-01
tn / r3^3	5.29E-03	8.89E-03	1.40E-02	1.84E-02	2.79E-02	4.04E-02	5.77E-02	8.08E-02	9.34E-02	1.15E-01	1.40E-01	1.60E-01	1.79E-01
Q1log(tn/r1^2)	-1.09E+03	-8.54E+02	-6.45E+02	-5.19E+02	-3.27E+02	-1.57E+02	7.07E+00	1.63E+02	2.29E+02	3.23E+02	4.14E+02	4.76E+02	5.28E+02
Q2log(tn/r2^2)	-2.02E+03	-1.75E+03	-1.51E+03	-1.37E+03	-1.15E+03	-9.60E+02	-7.74E+02	-5.98E+02	-5.22E+02	-4.15E+02	-3.12E+02	-2.42E+02	-1.83E+02
Q3log(tn/r3^2)	-3.57E+03	-3.22E+03	-2.91E+03	-2.72E+03	-2.44E+03	-2.19E+03	-1.94E+03	-1.71E+03	-1.62E+03	-1.48E+03	-1.34E+03	-1.25E+03	-1.17E+03
SUM Qi log(tn/ri^2)	-6685.81	-5823.38	-5066.95	-4612.28	-3919.82	-3302.94	-2711.22	-2149.06	-1907.90	-1567.53	-1238.66	-1015.54	-826.79
SUM Qi log(tn/ri^2)/SUM Qi = x	-1.74	-1.52	-1.32	-1.20	-1.02	-0.86	-0.71	-0.56	-0.50	-0.41	-0.32	-0.27	-0.22
geometric mean of (t/ri^2) = 10^x	0.017998	0.0302196	0.0476095	0.0625673	0.0948542	0.137417	0.1960928	0.2748948	0.3177616	0.3898751	0.4750615	0.5432228	0.6084655

$\Delta S_n / \Sigma Q_i = 1.19 \times 10^{-4}$



GSWA - Spring Hill Camp
Well Field Data Plot - Well MW-4s
Cooper-Jacob Method (1946)

INPUTS	
Saturated Aquifer Thickness (ft)=	72
delta Sn/SUM Qi (from plot)=	1.19E-04
t/ri^2 at 0 - delta Sn/SUM Qi (from plot)=	1.05E-01

SOLUTION	
Transmissivity - T (m^2/day)	1538.05
Transmissivity - T (gal/day/ft)	123836.82
Hydraulic Conductivity - K (cm/s)	8.13E-02
Hydraulic Conductivity - K (ft/day)	70.08
Storativity - S (unitless)	2.52E-01

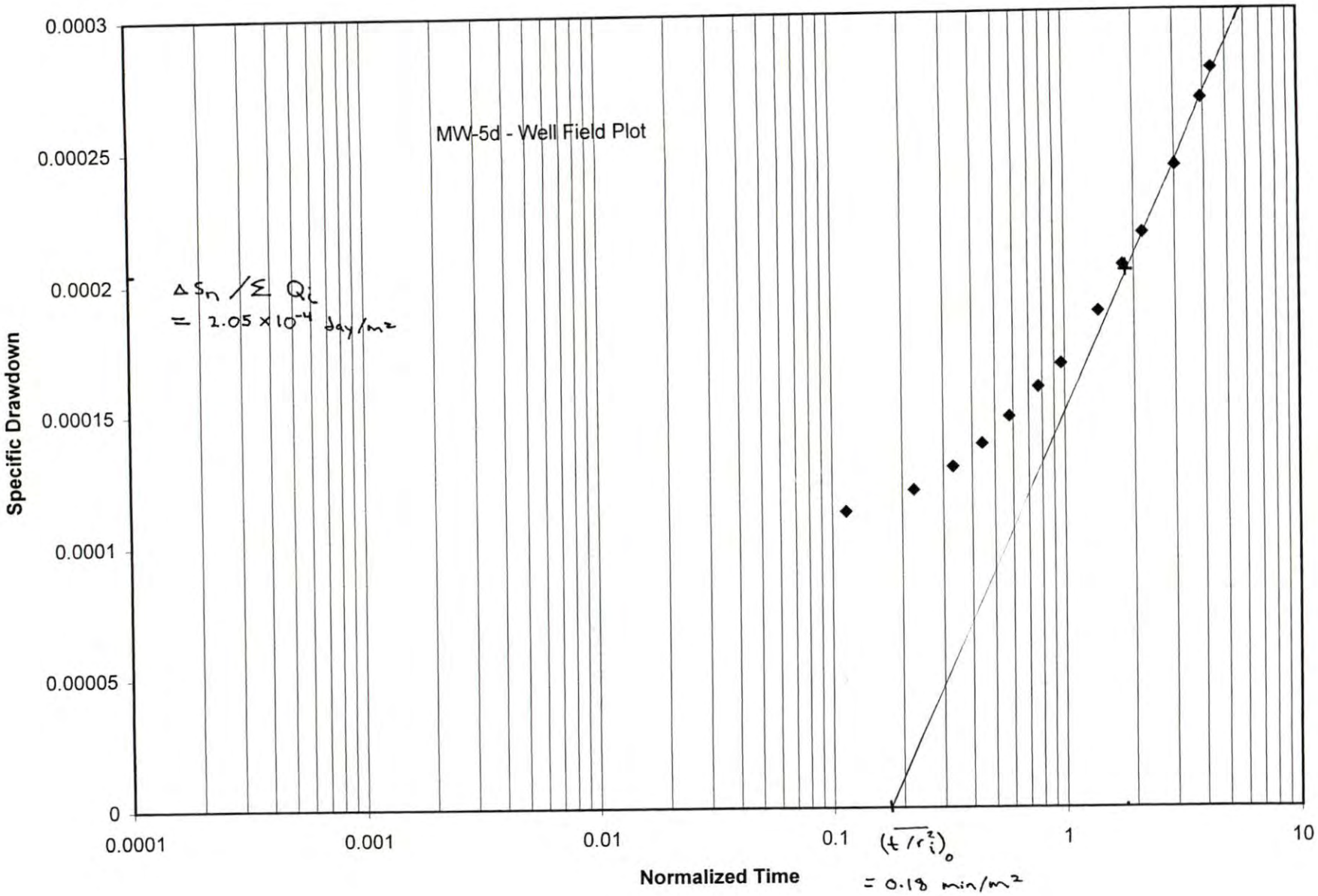
EL[redacted]LD

DATA TRANSFORMATION WORKSHEET
OBSERVATION WELL - MW-4s

INPUTS	pt.1	pt. 2	pt. 3	pt. 4	pt. 5	pt. 6	pt. 7	pt. 8	pt. 9	pt. 10	pt. 11	pt. 12	pt. 13
Dist. of Observation Well to Pumping Well TW-1 (ft)	183.77	183.77	183.77	183.77	183.77	183.77	183.77	183.77	183.77	183.77	183.77	183.77	183.77
Dist. of Observation Well to Pumping Well TW-2 (ft)	388.54	388.54	388.54	388.54	388.54	388.54	388.54	388.54	388.54	388.54	388.54	388.54	388.54
Dist. of Observation Well to Pumping Well TW-3 (ft)	773.69	773.69	773.69	773.69	773.69	773.69	773.69	773.69	773.69	773.69	773.69	773.69	773.69
Discharge Rate (Q1) of TW-1 (gpm)	200	200	200	200	200	200	200	200	200	200	200	200	200
Discharge Rate (Q1) of TW-2 (gpm)	227	227	227	227	227	227	227	227	227	227	227	227	227
Discharge Rate (Q1) of TW-3 (gpm)	296	296	296	296	296	296	296	296	296	296	296	296	296
Sn (drawdown at time tn) [ft]	0.17	0.23	0.26	0.29	0.34	0.38	0.41	0.47	0.57	0.73	0.92	1.07	1.17
Time (tn) [min]	344	495	670	862	1145	1462	1858	2260	3226	5012	7009	9030	10008

UNIT CONVERSION													
Dist. of Observation Well to Pumping Well TW-1 (m)	56.01	56.01	56.01	56.01	56.01	56.01	56.01	56.01	56.01	56.01	56.01	56.01	56.01
Dist. of Observation Well to Pumping Well TW-2 (m)	118.43	118.43	118.43	118.43	118.43	118.43	118.43	118.43	118.43	118.43	118.43	118.43	118.43
Dist. of Observation Well to Pumping Well TW-3 (m)	235.82	235.82	235.82	235.82	235.82	235.82	235.82	235.82	235.82	235.82	235.82	235.82	235.82
Discharge Rate (Q1) of TW-1 (m^3/day)	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00
Discharge Rate (Q1) of TW-2 (m^3/day)	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10
Discharge Rate (Q1) of TW-3 (m^3/day)	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80
Sn (drawdown at time tn) [m]	0.05	0.07	0.08	0.09	0.10	0.12	0.12	0.14	0.17	0.22	0.28	0.33	0.36

DATA TRANFORMATION													
SUM Qi (m^3/day)	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9
Sn / SUM Qi (day/m^2)	1.352E-05	1.829E-05	2.068E-05	2.307E-05	2.704E-05	3.023E-05	3.261E-05	3.739E-05	4.534E-05	5.807E-05	7.318E-05	8.511E-05	9.307E-05
tn (min)	344	495	670	862	1145	1462	1858	2260	3226	5012	7009	9030	10008
tn / r1^2	1.10E-01	1.58E-01	2.14E-01	2.75E-01	3.65E-01	4.66E-01	5.92E-01	7.20E-01	1.03E+00	1.60E+00	2.23E+00	2.88E+00	3.19E+00
tn / r2^2	2.45E-02	3.53E-02	4.78E-02	6.15E-02	8.16E-02	1.04E-01	1.32E-01	1.61E-01	2.30E-01	3.57E-01	5.00E-01	6.44E-01	7.14E-01
tn / r3^3	6.19E-03	8.90E-03	1.20E-02	1.55E-02	2.06E-02	2.63E-02	3.34E-02	4.06E-02	5.80E-02	9.01E-02	1.26E-01	1.62E-01	1.80E-01
Q1log(tn/r1^2)	-1.02E+03	-8.50E+02	-7.11E+02	-5.95E+02	-4.64E+02	-3.52E+02	-2.41E+02	-1.51E+02	1.28E+01	2.16E+02	3.70E+02	4.87E+02	5.34E+02
Q2log(tn/r2^2)	-1.94E+03	-1.75E+03	-1.59E+03	-1.46E+03	-1.31E+03	-1.18E+03	-1.06E+03	-9.54E+02	-7.68E+02	-5.38E+02	-3.62E+02	-2.30E+02	-1.76E+02
Q3log(tn/r3^2)	-3.46E+03	-3.22E+03	-3.01E+03	-2.84E+03	-2.65E+03	-2.48E+03	-2.32E+03	-2.18E+03	-1.94E+03	-1.64E+03	-1.41E+03	-1.24E+03	-1.17E+03
SUM Qi log(tn/ri^2)	-6419.89	-5814.27	-5310.49	-4891.15	-4418.69	-4011.96	-3613.07	-3287.12	-2694.87	-1961.65	-1403.55	-981.92	-810.79
SUM Qi log(tn/ri^2)/SUM Qi = x	-1.68	-1.52	-1.39	-1.28	-1.15	-1.05	-0.94	-0.86	-0.70	-0.51	-0.37	-0.26	-0.21
geometric mean of (t/ri^2) = 10^x	0.0211164	0.0303856	0.041128	0.0529139	0.0702858	0.0897449	0.1140533	0.1387301	0.198028	0.3076616	0.4302475	0.5543066	0.6143411


MW-5d - Well Field Plot
Specific Drawdown
0.0003
0.00025
0.0002
0.00015
0.0001
0.00005
0
0.0001
0.001
0.01
0.1
1
10
Normalized Time
$\Delta s_n / \Sigma Q_i$
$= 2.05 \times 10^{-4}$ day/m²
$(\overline{t/r_i^2})_0$
$= 0.18$ min/m²

GSWA - Spring Hill Camp
Well Field Data Plot - Well MW-5d
Cooper-Jacob Method (1946)

INPUTS	
Saturated Aquifer Thickness (ft)=	10.5
delta Sn/SUM Qi (from plot)=	2.05E-04
t/ri^2 at 0 - delta Sn/SUM Qi (from plot)=	1.80E-01

SOLUTION	
Transmissivity - T (m^2/day)	892.82
Transmissivity - T (gal/day/ft)	71885.76
Hydraulic Conductivity - K (cm/s)	3.24E-01
Hydraulic Conductivity - K (ft/day)	278.97
Storativity - S (unitless)	2.51E-01

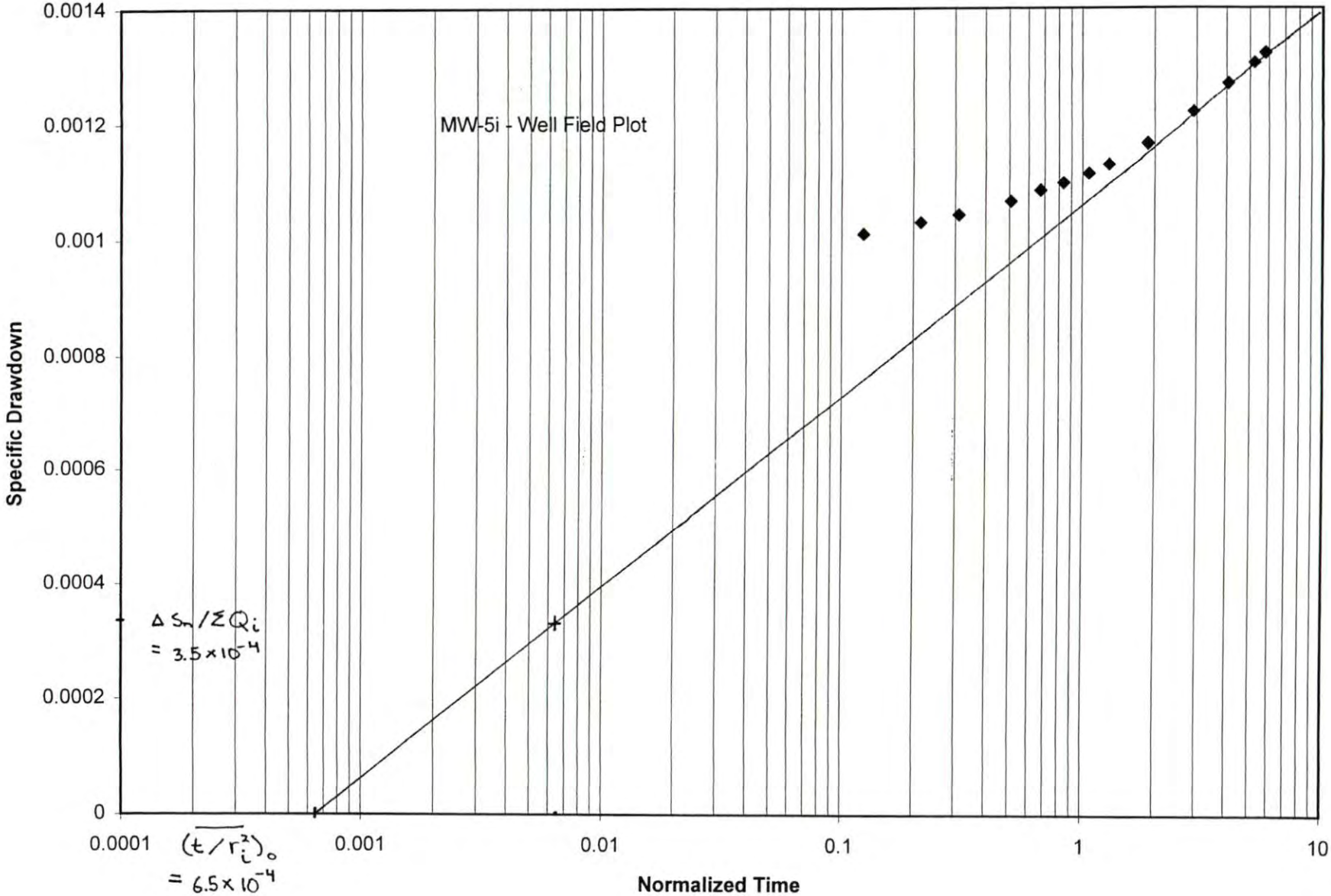
ELI LD

DATA TRANSFORMATION WORKSHEET
OBSERVATION WELL - MW-5d

INPUTS	pt.1	pt. 2	pt. 3	pt. 4	pt. 5	pt. 6	pt. 7	pt. 8	pt. 9	pt. 10	pt. 11	pt. 12	pt. 13
Dist. of Observation Well to Pumping Well TW-1 (ft)	582.94	582.94	582.94	582.94	582.94	582.94	582.94	582.94	582.94	582.94	582.94	582.94	582.94
Dist. of Observation Well to Pumping Well TW-2 (ft)	370.07	370.07	370.07	370.07	370.07	370.07	370.07	370.07	370.07	370.07	370.07	370.07	370.07
Dist. of Observation Well to Pumping Well TW-3 (ft)	33.88	33.88	33.88	33.88	33.88	33.88	33.88	33.88	33.88	33.88	33.88	33.88	33.88
Discharge Rate (Q1) of TW-1 (gpm)	200	200	200	200	200	200	200	200	200	200	200	200	200
Discharge Rate (Q1) of TW-2 (gpm)	227	227	227	227	227	227	227	227	227	227	227	227	227
Discharge Rate (Q1) of TW-3 (gpm)	296	296	296	296	296	296	296	296	296	296	296	296	296
Sn (drawdown at time tn) [ft]	1.41	1.51	1.62	1.73	1.86	2	2.11	2.36	2.58	2.73	3.05	3.35	3.49
Time (tn) [min]	265	518	763	1018	1335	1780	2226	3233	4125	5030	6927	9031	10032

UNIT CONVERSION													
Dist. of Observation Well to Pumping Well TW-1 (m)	177.68	177.68	177.68	177.68	177.68	177.68	177.68	177.68	177.68	177.68	177.68	177.68	177.68
Dist. of Observation Well to Pumping Well TW-2 (m)	112.80	112.80	112.80	112.80	112.80	112.80	112.80	112.80	112.80	112.80	112.80	112.80	112.80
Dist. of Observation Well to Pumping Well TW-3 (m)	10.33	10.33	10.33	10.33	10.33	10.33	10.33	10.33	10.33	10.33	10.33	10.33	10.33
Discharge Rate (Q1) of TW-1 (m^3/day)	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00
Discharge Rate (Q1) of TW-2 (m^3/day)	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10
Discharge Rate (Q1) of TW-3 (m^3/day)	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80
Sn (drawdown at time tn) [m]	0.43	0.46	0.49	0.53	0.57	0.61	0.64	0.72	0.79	0.83	0.93	1.02	1.06

DATA TRANFORMATION													
SUM Qi (m^3/day)	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9
Sn / SUM Qi (day/m^2)	0.0001122	0.0001201	0.0001289	0.0001376	0.0001479	0.0001591	0.0001678	0.0001877	0.0002052	0.0002172	0.0002426	0.0002665	0.0002776
tn (min)	265	518	763	1018	1335	1780	2226	3233	4125	5030	6927	9031	10032
tn / r1^2	8.39E-03	1.64E-02	2.42E-02	3.22E-02	4.23E-02	5.64E-02	7.05E-02	1.02E-01	1.31E-01	1.59E-01	2.19E-01	2.86E-01	3.18E-01
tn / r2^2	2.08E-02	4.07E-02	6.00E-02	8.00E-02	1.05E-01	1.40E-01	1.75E-01	2.54E-01	3.24E-01	3.95E-01	5.44E-01	7.10E-01	7.88E-01
tn / r3^3	2.49E+00	4.86E+00	7.15E+00	9.55E+00	1.25E+01	1.67E+01	2.09E+01	3.03E+01	3.87E+01	4.72E+01	6.50E+01	8.47E+01	9.41E+01
Q1log(tn/r1^2)	-2.20E+03	-1.89E+03	-1.71E+03	-1.58E+03	-1.46E+03	-1.32E+03	-1.22E+03	-1.05E+03	-9.37E+02	-8.46E+02	-6.98E+02	-5.76E+02	-5.28E+02
Q2log(tn/r2^2)	-2.02E+03	-1.67E+03	-1.47E+03	-1.32E+03	-1.18E+03	-1.03E+03	-9.11E+02	-7.16E+02	-5.89E+02	-4.85E+02	-3.18E+02	-1.79E+02	-1.24E+02
Q3log(tn/r3^2)	6.20E+02	1.08E+03	1.34E+03	1.54E+03	1.72E+03	1.92E+03	2.07E+03	2.32E+03	2.49E+03	2.63E+03	2.84E+03	3.02E+03	3.10E+03
SUM Qi log(tn/ri^2)	-3603.24	-2487.83	-1843.33	-1363.48	-912.34	-433.59	-61.49	559.59	965.07	1295.17	1827.71	2269.11	2444.05
SUM Qi log(tn/ri^2)/SUM Qi = x	-0.94	-0.65	-0.48	-0.36	-0.24	-0.11	-0.02	0.15	0.25	0.34	0.48	0.59	0.64
geometric mean of (t/ri^2) = 10^x	0.1147292	0.2242631	0.3303334	0.4407332	0.5779753	0.7706337	0.9637251	1.399696	1.7858787	2.1776897	2.9989774	3.9098838	4.343257


MW-5i - Well Field Plot
Specific Drawdown
0.0014
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
0.0001
0.001
0.01
0.1
1
10
Normalized Time
$\Delta S_n / \Sigma Q_i$
$= 3.5 \times 10^{-4}$
$(\overline{t / r_i^2})_0$
$= 6.5 \times 10^{-4}$

GSWA - Spring Hill Camp
Well Field Data Plot - Well MW-5i
Cooper-Jacob Method (1946)

INPUTS	
Saturated Aquifer Thickness (ft)=	72
delta Sn/SUM Qi (from plot)=	3.50E-04
t/ri^2 at 0 - delta Sn/SUM Qi (from plot)=	6.50E-04

SOLUTION	
Transmissivity - T (m^2/day)	522.94
Transmissivity - T (gal/day/ft)	42104.52
Hydraulic Conductivity - K (cm/s)	2.76E-02
Hydraulic Conductivity - K (ft/day)	23.83
Storativity - S (unitless)	5.31E-04

DATA TRANSFORMATION WORKSHEET
OBSERVATION WELL - MW-5i

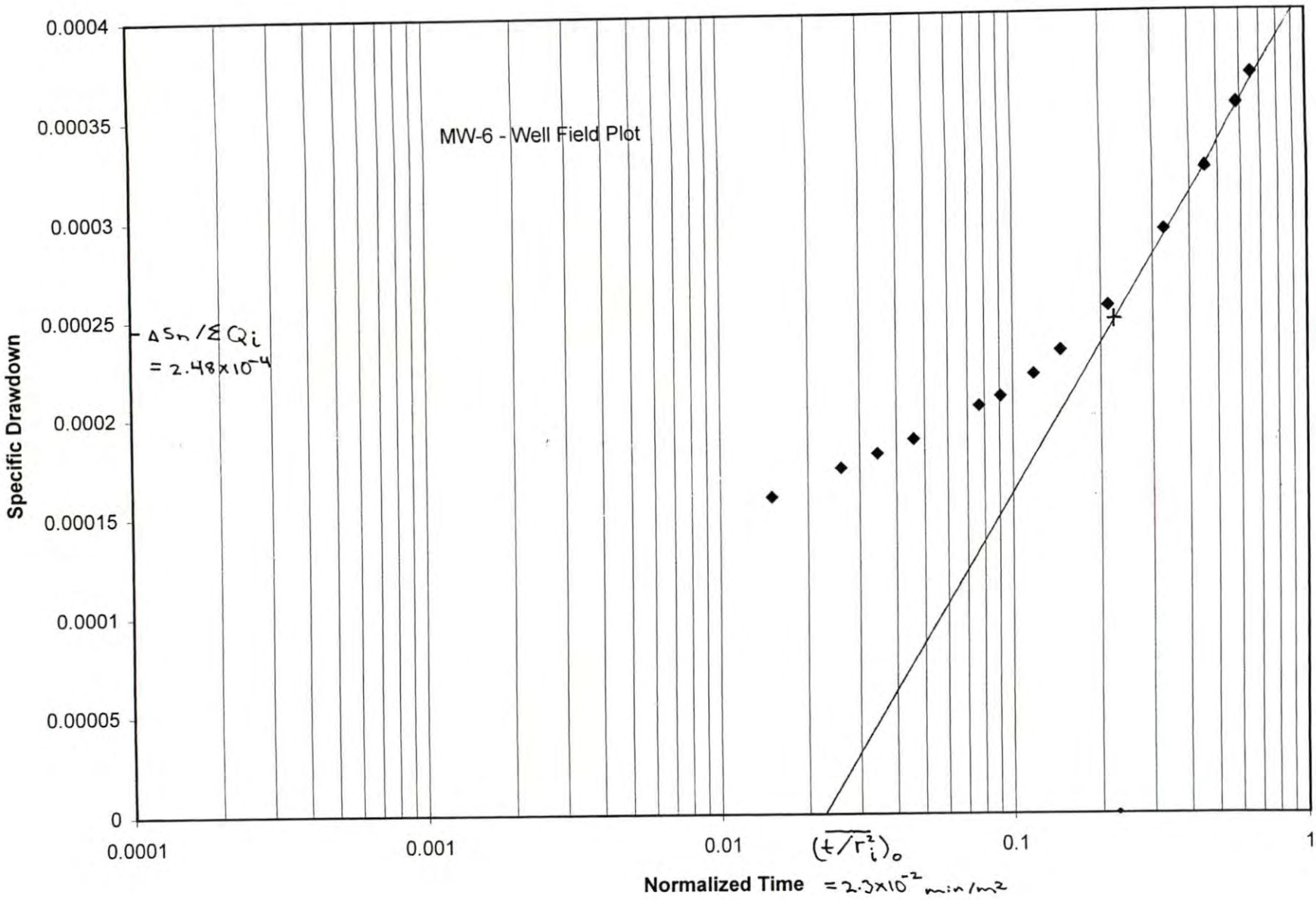
INPUTS	pt.1	pt. 2	pt. 3	pt. 4	pt. 5	pt. 6	pt. 7	pt. 8	pt. 9	pt. 10	pt. 11	pt. 12	pt. 13
Dist. of Observation Well to Pumping Well TW-1 (ft)	587.38	587.38	587.38	587.38	587.38	587.38	587.38	587.38	587.38	587.38	587.38	587.38	587.38
Dist. of Observation Well to Pumping Well TW-2 (ft)	372.77	372.77	372.77	372.77	372.77	372.77	372.77	372.77	372.77	372.77	372.77	372.77	372.77
Dist. of Observation Well to Pumping Well TW-3 (ft)	23.54	23.54	23.54	23.54	23.54	23.54	23.54	23.54	23.54	23.54	23.54	23.54	23.54
Discharge Rate (Q1) of TW-1 (gpm)	200	200	200	200	200	200	200	200	200	200	200	200	200
Discharge Rate (Q1) of TW-2 (gpm)	227	227	227	227	227	227	227	227	227	227	227	227	227
Discharge Rate (Q1) of TW-3 (gpm)	296	296	296	296	296	296	296	296	296	296	296	296	296
Sn (drawdown at time tn) [ft]	12.74	12.99	13.16	13.45	13.69	13.85	14.06	14.26	14.7	15.36	15.95	16.39	16.6
Time (tn) [min]	213	371	536	878	1162	1446	1835	2226	3232	5030	7027	9028	10028

UNIT CONVERSION

Dist. of Observation Well to Pumping Well TW-1 (m)	179.03	179.03	179.03	179.03	179.03	179.03	179.03	179.03	179.03	179.03	179.03	179.03	179.03
Dist. of Observation Well to Pumping Well TW-2 (m)	113.62	113.62	113.62	113.62	113.62	113.62	113.62	113.62	113.62	113.62	113.62	113.62	113.62
Dist. of Observation Well to Pumping Well TW-3 (m)	7.17	7.17	7.17	7.17	7.17	7.17	7.17	7.17	7.17	7.17	7.17	7.17	7.17
Discharge Rate (Q1) of TW-1 (m^3/day)	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00
Discharge Rate (Q1) of TW-2 (m^3/day)	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10
Discharge Rate (Q1) of TW-3 (m^3/day)	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80
Sn (drawdown at time tn) [m]	3.88	3.96	4.01	4.10	4.17	4.22	4.29	4.35	4.48	4.68	4.86	5.00	5.06

DATA TRANFORMATION

SUM Qi (m^3/day)	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9
Sn / SUM Qi (day/m^2)	0.0010134	0.0010333	0.0010468	0.0010699	0.0010889	0.0011017	0.0011184	0.0011343	0.0011693	0.0012218	0.0012687	0.0013037	0.0013204
tn (min)	213	371	536	878	1162	1446	1835	2226	3232	5030	7027	9028	10028
tn / r1^2	6.65E-03	1.16E-02	1.67E-02	2.74E-02	3.63E-02	4.51E-02	5.72E-02	6.94E-02	1.01E-01	1.57E-01	2.19E-01	2.82E-01	3.13E-01
tn / r2^2	1.65E-02	2.87E-02	4.15E-02	6.80E-02	9.00E-02	1.12E-01	1.42E-01	1.72E-01	2.50E-01	3.90E-01	5.44E-01	6.99E-01	7.77E-01
tn / r3^3	4.14E+00	7.21E+00	1.04E+01	1.71E+01	2.26E+01	2.81E+01	3.56E+01	4.32E+01	6.28E+01	9.77E+01	1.36E+02	1.75E+02	1.95E+02
Q1log(tn/r1^2)	-2.31E+03	-2.05E+03	-1.88E+03	-1.66E+03	-1.53E+03	-1.43E+03	-1.32E+03	-1.23E+03	-1.06E+03	-8.53E+02	-6.99E+02	-5.83E+02	-5.35E+02
Q2log(tn/r2^2)	-2.14E+03	-1.85E+03	-1.66E+03	-1.40E+03	-1.26E+03	-1.14E+03	-1.02E+03	-9.18E+02	-7.24E+02	-4.92E+02	-3.18E+02	-1.87E+02	-1.32E+02
Q3log(tn/r3^2)	9.68E+02	1.35E+03	1.60E+03	1.93E+03	2.12E+03	2.27E+03	2.43E+03	2.57E+03	2.82E+03	3.12E+03	3.35E+03	3.52E+03	3.59E+03
SUM Qi log(tn/ri^2)	-3485.17	-2561.70	-1949.40	-1128.11	-661.72	-297.83	98.64	420.10	1040.66	1776.75	2333.15	2750.15	2924.97
SUM Qi log(tn/ri^2)/SUM Qi = x	-0.91	-0.67	-0.51	-0.29	-0.17	-0.08	0.03	0.11	0.27	0.46	0.61	0.72	0.76
geometric mean of (t/ri^2) = 10^x	0.1231647	0.2145263	0.3099356	0.507693	0.6719125	0.8361321	1.0610667	1.2871578	1.8688652	2.9085371	4.0632783	5.2203325	5.7985705


MW-6 - Well Field Plot
Specific Drawdown
0.0004
0.00035
0.0003
0.00025
0.0002
0.00015
0.0001
0.00005
0
$\Delta s_n / \Sigma Q_i$
$= 2.48 \times 10^{-4}$
0.0001
0.001
0.01
$(\overline{t/r_i^2})_o$
0.1
1
Normalized Time
$= 2.3 \times 10^{-2}$ min/m²

GSWA - Spring Hill Camp
Well Field Data Plot - Well MW-6
Cooper-Jacob Method (1946)

INPUTS	
Saturated Aquifer Thickness (ft)=	72
delta Sn/SUM Qi (from plot)=	2.48E-04
t/ri^2 at 0 - delta Sn/SUM Qi (from plot)=	2.30E-02

SOLUTION	
Transmissivity - T (m^2/day)	738.02
Transmissivity - T (gal/day/ft)	59421.70
Hydraulic Conductivity - K (cm/s)	3.90E-02
Hydraulic Conductivity - K (ft/day)	33.63
Storativity - S (unitless)	2.65E-02

ELL . . _LD

DATA TRANSFORMATION WORKSHEET
OBSERVATION WELL - MW-6

INPUTS

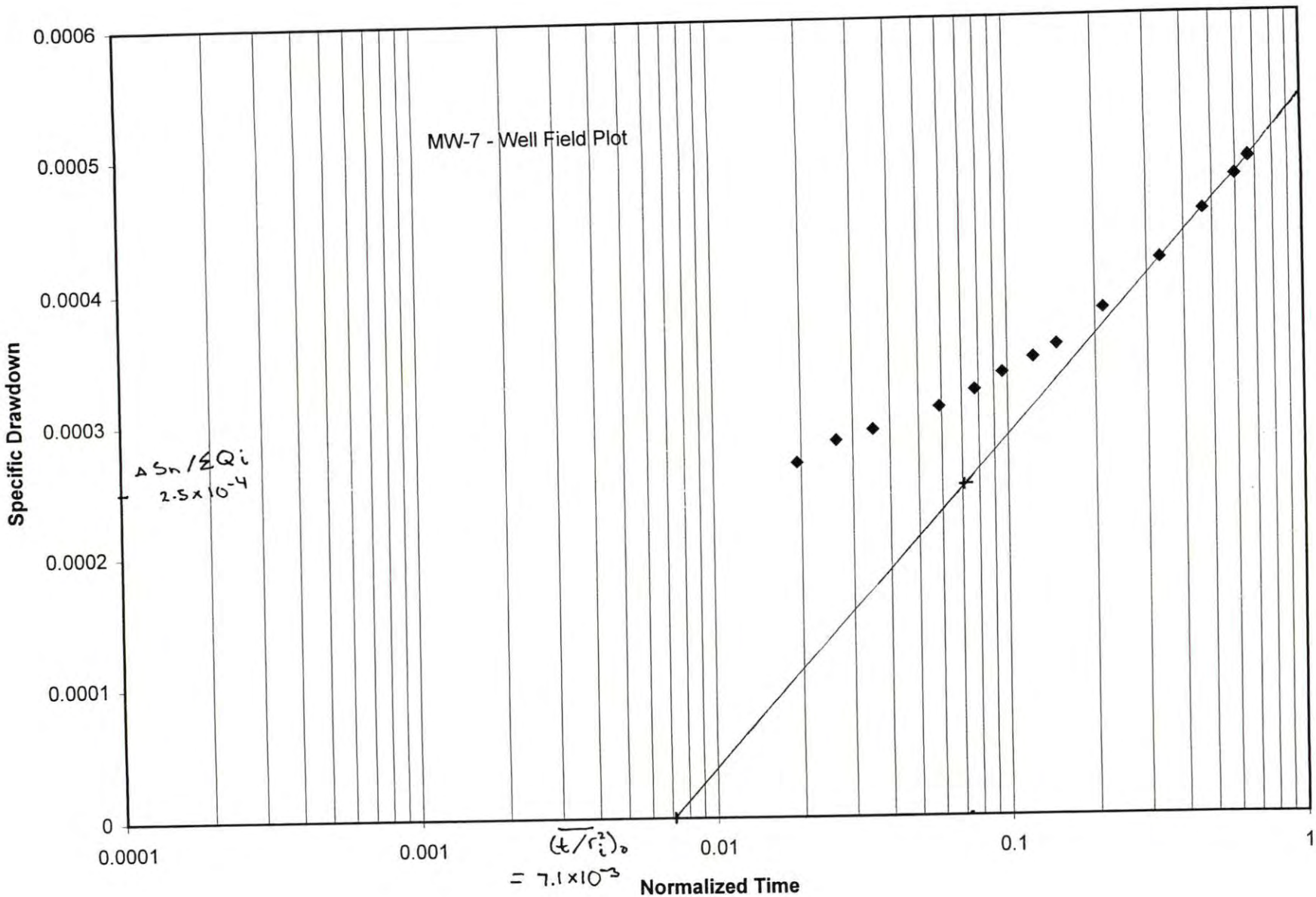
	pt.1	pt. 2	pt. 3	pt. 4	pt. 5	pt. 6	pt. 7	pt. 8	pt. 9	pt. 10	pt. 11	pt. 12	pt. 13
Dist. of Observation Well to Pumping Well TW-1 (ft)	633.72	633.72	633.72	633.72	633.72	633.72	633.72	633.72	633.72	633.72	633.72	633.72	633.72
Dist. of Observation Well to Pumping Well TW-2 (ft)	477.88	477.88	477.88	477.88	477.88	477.88	477.88	477.88	477.88	477.88	477.88	477.88	477.88
Dist. of Observation Well to Pumping Well TW-3 (ft)	266.47	266.47	266.47	266.47	266.47	266.47	266.47	266.47	266.47	266.47	266.47	266.47	266.47
Discharge Rate (Q1) of TW-1 (gpm)	200	200	200	200	200	200	200	200	200	200	200	200	200
Discharge Rate (Q1) of TW-2 (gpm)	227	227	227	227	227	227	227	227	227	227	227	227	227
Discharge Rate (Q1) of TW-3 (gpm)	296	296	296	296	296	296	296	296	296	296	296	296	296
Sn (drawdown at time tn) [ft]	2.01	2.19	2.28	2.37	2.58	2.64	2.78	2.93	3.21	3.69	4.08	4.45	4.63
Time (tn) [min]	231	398	530	704	1179	1394	1812	2235	3247	5039	6935	8954	10041

UNIT CONVERSION

Dist. of Observation Well to Pumping Well TW-1 (m)	193.16	193.16	193.16	193.16	193.16	193.16	193.16	193.16	193.16	193.16	193.16	193.16	193.16
Dist. of Observation Well to Pumping Well TW-2 (m)	145.66	145.66	145.66	145.66	145.66	145.66	145.66	145.66	145.66	145.66	145.66	145.66	145.66
Dist. of Observation Well to Pumping Well TW-3 (m)	81.22	81.22	81.22	81.22	81.22	81.22	81.22	81.22	81.22	81.22	81.22	81.22	81.22
Discharge Rate (Q1) of TW-1 (m^3/day)	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00
Discharge Rate (Q1) of TW-2 (m^3/day)	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10
Discharge Rate (Q1) of TW-3 (m^3/day)	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80
Sn (drawdown at time tn) [m]	0.61	0.67	0.69	0.72	0.79	0.80	0.85	0.89	0.98	1.12	1.24	1.36	1.41

DATA TRANFORMATION

SUM Qi (m^3/day)	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9
Sn / SUM Qi (day/m^2)	0.0001599	0.0001742	0.0001814	0.0001885	0.0002052	0.00021	0.0002211	0.0002331	0.0002553	0.0002935	0.0003245	0.000354	0.0003683
tn (min)	231	398	530	704	1179	1394	1812	2235	3247	5039	6935	8954	10041
tn / r1^2	6.19E-03	1.07E-02	1.42E-02	1.89E-02	3.16E-02	3.74E-02	4.86E-02	5.99E-02	8.70E-02	1.35E-01	1.86E-01	2.40E-01	2.69E-01
tn / r2^2	1.09E-02	1.88E-02	2.50E-02	3.32E-02	5.56E-02	6.57E-02	8.54E-02	1.05E-01	1.53E-01	2.38E-01	3.27E-01	4.22E-01	4.73E-01
tn / r3^3	3.50E-02	6.03E-02	8.03E-02	1.07E-01	1.79E-01	2.11E-01	2.75E-01	3.39E-01	4.92E-01	7.64E-01	1.05E+00	1.36E+00	1.52E+00
Q1log(tn/r1^2)	-2.34E+03	-2.09E+03	-1.96E+03	-1.83E+03	-1.59E+03	-1.51E+03	-1.39E+03	-1.30E+03	-1.12E+03	-9.22E+02	-7.75E+02	-6.57E+02	-6.04E+02
Q2log(tn/r2^2)	-2.36E+03	-2.08E+03	-1.93E+03	-1.78E+03	-1.51E+03	-1.42E+03	-1.29E+03	-1.18E+03	-9.81E+02	-7.51E+02	-5.84E+02	-4.51E+02	-3.91E+02
Q3log(tn/r3^2)	-2.28E+03	-1.91E+03	-1.72E+03	-1.52E+03	-1.17E+03	-1.06E+03	-8.80E+02	-7.37E+02	-4.83E+02	-1.84E+02	3.41E+01	2.08E+02	2.86E+02
SUM Qi log(tn/ri^2)	-6986.18	-6080.82	-5604.15	-5131.69	-4273.57	-3994.81	-3558.37	-3209.21	-2587.66	-1856.29	-1324.80	-899.57	-708.90
SUM Qi log(tn/ri^2)/SUM Qi = x	-1.82	-1.59	-1.46	-1.34	-1.12	-1.04	-0.93	-0.84	-0.68	-0.48	-0.35	-0.23	-0.18
geometric mean of (t/ri^2) = 10^x	0.0150257	0.0258885	0.0344746	0.0457927	0.0766898	0.0906748	0.1178642	0.1453789	0.2112059	0.3277692	0.4510974	0.5824262	0.6531318


MW-7 - Well Field Plot
Specific Drawdown
0.0006
0.0005
0.0004
0.0003
0.0002
0.0001
0
ΔSn/ΣQi
2.5x10^-4
0.0001
0.001
0.01
0.1
1
(t/r_i^2)_o
= 7.1x10^-3
Normalized Time

GSWA - Spring Hill Camp
Well Field Data Plot - Well MW-7
Cooper-Jacob Method (1946)

INPUTS	
Saturated Aquifer Thickness (ft)=	72
delta Sn/SUM Qi (from plot)=	2.50E-04
t/ri^2 at 0 - delta Sn/SUM Qi (from plot)=	7.10E-03

SOLUTION	
Transmissivity - T (m^2/day)	732.11
Transmissivity - T (gal/day/ft)	58946.33
Hydraulic Conductivity - K (cm/s)	3.87E-02
Hydraulic Conductivity - K (ft/day)	33.36
Storativity - S (unitless)	8.12E-03

WELL FIELD
DATA TRANSFORMATION WORKSHEET
OBSERVATION WELL - MW-7

INPUTS

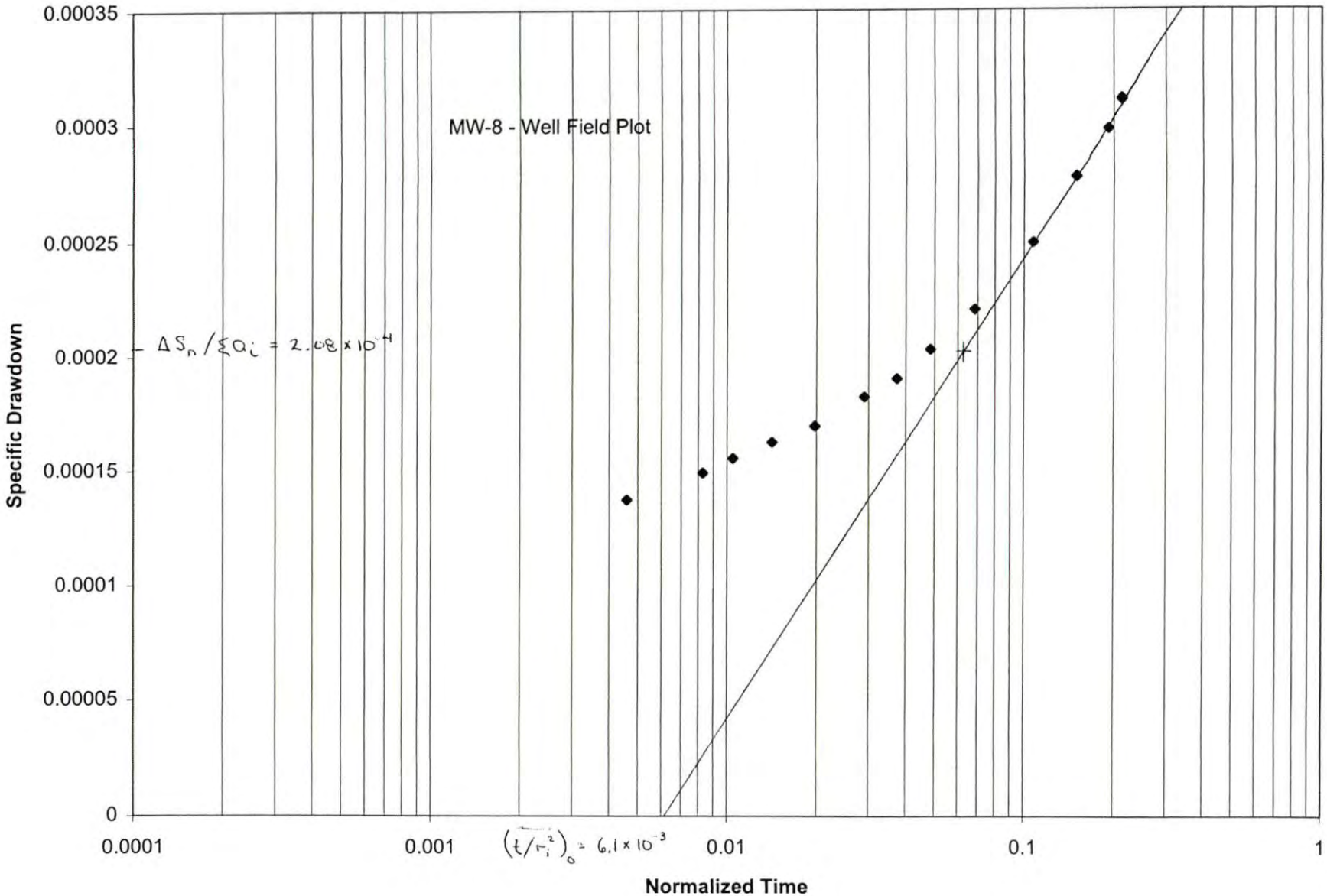
	pt.1	pt. 2	pt. 3	pt. 4	pt. 5	pt. 6	pt. 7	pt. 8	pt. 9	pt. 10	pt. 11	pt. 12	pt. 13
Dist. of Observation Well to Pumping Well TW-1 (ft)	274.63	274.63	274.63	274.63	274.63	274.63	274.63	274.63	274.63	274.63	274.63	274.63	274.63
Dist. of Observation Well to Pumping Well TW-2 (ft)	349.03	349.03	349.03	349.03	349.03	349.03	349.03	349.03	349.03	349.03	349.03	349.03	349.03
Dist. of Observation Well to Pumping Well TW-3 (ft)	586.18	586.18	586.18	586.18	586.18	586.18	586.18	586.18	586.18	586.18	586.18	586.18	586.18
Discharge Rate (Q1) of TW-1 (gpm)	200	200	200	200	200	200	200	200	200	200	200	200	200
Discharge Rate (Q1) of TW-2 (gpm)	227	227	227	227	227	227	227	227	227	227	227	227	227
Discharge Rate (Q1) of TW-3 (gpm)	296	296	296	296	296	296	296	296	296	296	296	296	296
Sn (drawdown at time tn) [ft]	3.37	3.58	3.68	3.89	4.05	4.21	4.35	4.47	4.81	5.27	5.72	6.05	6.21
Time (tn) [min]	293	399	531	892	1175	1459	1855	2231	3222	5036	7030	9037	10039

UNIT CONVERSION

Dist. of Observation Well to Pumping Well TW-1 (m)	83.71	83.71	83.71	83.71	83.71	83.71	83.71	83.71	83.71	83.71	83.71	83.71	83.71
Dist. of Observation Well to Pumping Well TW-2 (m)	106.38	106.38	106.38	106.38	106.38	106.38	106.38	106.38	106.38	106.38	106.38	106.38	106.38
Dist. of Observation Well to Pumping Well TW-3 (m)	178.67	178.67	178.67	178.67	178.67	178.67	178.67	178.67	178.67	178.67	178.67	178.67	178.67
Discharge Rate (Q1) of TW-1 (m^3/day)	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00
Discharge Rate (Q1) of TW-2 (m^3/day)	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10
Discharge Rate (Q1) of TW-3 (m^3/day)	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80
Sn (drawdown at time tn) [m]	1.03	1.09	1.12	1.19	1.23	1.28	1.33	1.36	1.47	1.61	1.74	1.84	1.89

DATA TRANFORMATION

SUM Qi (m^3/day)	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9
Sn / SUM Qi (day/m^2)	0.0002681	0.0002848	0.0002927	0.0003094	0.0003221	0.0003349	0.000346	0.0003556	0.0003826	0.0004192	0.000455	0.0004812	0.000494
tn (min)	293	399	531	892	1175	1459	1855	2231	3222	5036	7030	9037	10039
tn / r1^2	4.18E-02	5.69E-02	7.58E-02	1.27E-01	1.68E-01	2.08E-01	2.65E-01	3.18E-01	4.60E-01	7.19E-01	1.00E+00	1.29E+00	1.43E+00
tn / r2^2	2.59E-02	3.53E-02	4.69E-02	7.88E-02	1.04E-01	1.29E-01	1.64E-01	1.97E-01	2.85E-01	4.45E-01	6.21E-01	7.98E-01	8.87E-01
tn / r3^3	9.18E-03	1.25E-02	1.66E-02	2.79E-02	3.68E-02	4.57E-02	5.81E-02	6.99E-02	1.01E-01	1.58E-01	2.20E-01	2.83E-01	3.14E-01
Q1log(tn/r1^2)	-1.46E+03	-1.32E+03	-1.19E+03	-9.49E+02	-8.22E+02	-7.22E+02	-6.12E+02	-5.27E+02	-3.58E+02	-1.52E+02	1.52E+00	1.17E+02	1.66E+02
Q2log(tn/r2^2)	-1.91E+03	-1.75E+03	-1.60E+03	-1.33E+03	-1.18E+03	-1.07E+03	-9.45E+02	-8.48E+02	-6.56E+02	-4.23E+02	-2.49E+02	-1.18E+02	-6.26E+01
Q3log(tn/r3^2)	-3.20E+03	-2.99E+03	-2.79E+03	-2.44E+03	-2.25E+03	-2.10E+03	-1.94E+03	-1.81E+03	-1.56E+03	-1.26E+03	-1.03E+03	-8.60E+02	-7.88E+02
SUM Qi log(tn/ri^2)	-6566.56	-6052.68	-5577.06	-4713.85	-4255.27	-3895.01	-3495.38	-3188.23	-2576.56	-1833.33	-1278.20	-860.26	-685.27
SUM Qi log(tn/ri^2)/SUM Qi = x	-1.71	-1.58	-1.46	-1.23	-1.11	-1.02	-0.91	-0.83	-0.67	-0.48	-0.33	-0.22	-0.18
geometric mean of (t/ri^2) = 10^x	0.019335	0.0263299	0.0350405	0.0588628	0.0775379	0.0962789	0.1224108	0.147223	0.2126187	0.332324	0.4639074	0.5963487	0.6624703


MW-8 - Well Field Plot
Specific Drawdown
Normalized Time
0.00035
0.0003
0.00025
0.0002
0.00015
0.0001
0.00005
0
0.0001
0.001
0.01
0.1
1
$\Delta S_n / \xi Q_i = 2.08 \times 10^{-4}$
$(t/r_i^2)_0 = 6.1 \times 10^{-3}$

GSWA - Spring Hill Camp
Well Field Data Plot - Well MW-8
Cooper-Jacob Method (1946)

INPUTS	
Saturated Aquifer Thickness (ft)=	72
delta Sn/SUM Qi (from plot)=	2.08E-04
t/ri^2 at 0 - delta Sn/SUM Qi (from plot)=	6.10E-03

SOLUTION	
Transmissivity - T (m^2/day)	879.94
Transmissivity - T (gal/day/ft)	70848.95
Hydraulic Conductivity - K (cm/s)	4.65E-02
Hydraulic Conductivity - K (ft/day)	40.10
Storativity - S (unitless)	8.39E-03

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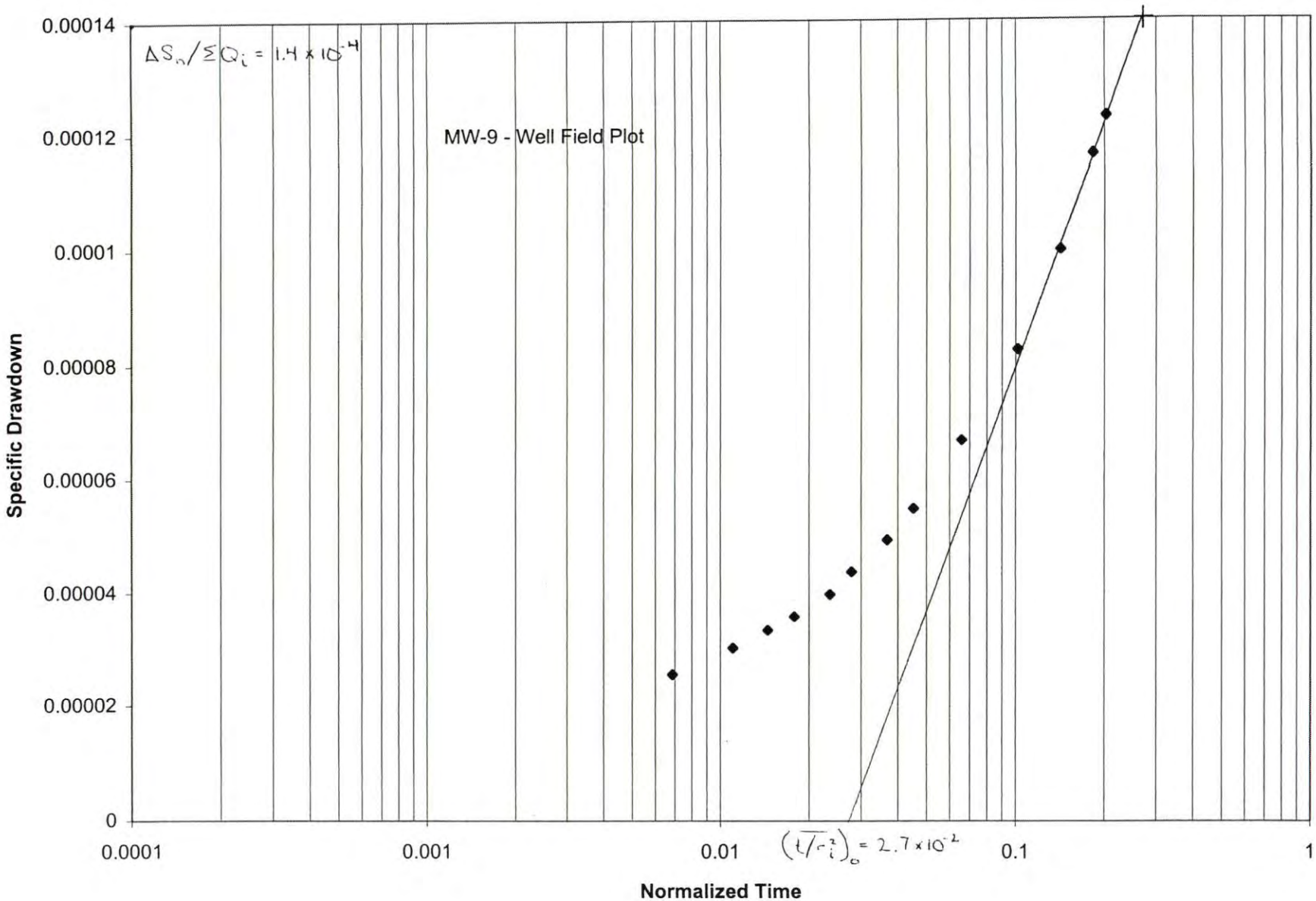
DATA TRANSFORMATION WORKSHEET
OBSERVATION WELL - MW-8

INPUTS	pt.1	pt. 2	pt. 3	pt. 4	pt. 5	pt. 6	pt. 7	pt. 8	pt. 9	pt. 10	pt. 11	pt. 12	pt. 13
Dist. of Observation Well to Pumping Well TW-1 (ft)	458.6	458.6	458.6	458.6	458.6	458.6	458.6	458.6	458.6	458.6	458.6	458.6	458.6
Dist. of Observation Well to Pumping Well TW-2 (ft)	672.51	672.51	672.51	672.51	672.51	672.51	672.51	672.51	672.51	672.51	672.51	672.51	672.51
Dist. of Observation Well to Pumping Well TW-3 (ft)	1001.31	1001.31	1001.31	1001.31	1001.31	1001.31	1001.31	1001.31	1001.31	1001.31	1001.31	1001.31	1001.31
Discharge Rate (Q1) of TW-1 (gpm)	200	200	200	200	200	200	200	200	200	200	200	200	200
Discharge Rate (Q1) of TW-2 (gpm)	227	227	227	227	227	227	227	227	227	227	227	227	227
Discharge Rate (Q1) of TW-3 (gpm)	296	296	296	296	296	296	296	296	296	296	296	296	296
Sn (drawdown at time tn) [ft]	1.73	1.88	1.96	2.05	2.14	2.3	2.4	2.56	2.78	3.15	3.51	3.76	3.92
Time (tn) [min]	216	390	492	666	927	1362	1756	2275	3218	5051	7035	9006	10003

UNIT CONVERSION													
Dist. of Observation Well to Pumping Well TW-1 (m)	139.78	139.78	139.78	139.78	139.78	139.78	139.78	139.78	139.78	139.78	139.78	139.78	139.78
Dist. of Observation Well to Pumping Well TW-2 (m)	204.98	204.98	204.98	204.98	204.98	204.98	204.98	204.98	204.98	204.98	204.98	204.98	204.98
Dist. of Observation Well to Pumping Well TW-3 (m)	305.20	305.20	305.20	305.20	305.20	305.20	305.20	305.20	305.20	305.20	305.20	305.20	305.20
Discharge Rate (Q1) of TW-1 (m^3/day)	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00
Discharge Rate (Q1) of TW-2 (m^3/day)	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10
Discharge Rate (Q1) of TW-3 (m^3/day)	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80
Sn (drawdown at time tn) [m]	0.53	0.57	0.60	0.62	0.65	0.70	0.73	0.78	0.85	0.96	1.07	1.15	1.19

DATA TRANFORMATION													
SUM Qi (m^3/day)	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9
Sn / SUM Qi (day/m^2)	0.0001376	0.0001495	0.0001559	0.0001631	0.0001702	0.0001829	0.0001909	0.0002036	0.0002211	0.0002506	0.0002792	0.0002991	0.0003118
tn (min)	216	390	492	666	927	1362	1756	2275	3218	5051	7035	9006	10003
tn / r1^2	1.11E-02	2.00E-02	2.52E-02	3.41E-02	4.74E-02	6.97E-02	8.99E-02	1.16E-01	1.65E-01	2.59E-01	3.60E-01	4.61E-01	5.12E-01
tn / r2^2	5.14E-03	9.28E-03	1.17E-02	1.59E-02	2.21E-02	3.24E-02	4.18E-02	5.41E-02	7.66E-02	1.20E-01	1.67E-01	2.14E-01	2.38E-01
tn / r3^3	2.32E-03	4.19E-03	5.28E-03	7.15E-03	9.95E-03	1.46E-02	1.89E-02	2.44E-02	3.45E-02	5.42E-02	7.55E-02	9.67E-02	1.07E-01
Q1log(tn/r1^2)	-2.07E+03	-1.80E+03	-1.69E+03	-1.56E+03	-1.40E+03	-1.23E+03	-1.11E+03	-9.90E+02	-8.30E+02	-6.23E+02	-4.70E+02	-3.57E+02	-3.08E+02
Q2log(tn/r2^2)	-2.75E+03	-2.45E+03	-2.32E+03	-2.17E+03	-1.99E+03	-1.79E+03	-1.66E+03	-1.52E+03	-1.34E+03	-1.11E+03	-9.34E+02	-8.05E+02	-7.50E+02
Q3log(tn/r3^2)	-4.13E+03	-3.73E+03	-3.57E+03	-3.37E+03	-3.14E+03	-2.88E+03	-2.71E+03	-2.53E+03	-2.29E+03	-1.99E+03	-1.76E+03	-1.59E+03	-1.52E+03
SUM Qi log(tn/ri^2)	-8961.03	-7977.73	-7591.09	-7087.16	-6536.87	-5896.57	-5473.73	-5042.81	-4465.71	-3715.45	-3164.10	-2753.06	-2578.33
SUM Qi log(tn/ri^2)/SUM Qi = x	-2.34	-2.08	-1.98	-1.85	-1.71	-1.54	-1.43	-1.32	-1.17	-0.97	-0.83	-0.72	-0.67
geometric mean of (t/ri^2) = 10^x	0.0045863	0.0082809	0.0104466	0.0141412	0.019683	0.0289193	0.0372851	0.048305	0.0683277	0.1072478	0.149374	0.1912242	0.2123935


$\Delta S_n / \Sigma Q_i = 1.4 \times 10^{-4}$
MW-9 - Well Field Plot
0.00014
0.00012
0.0001
0.00008
0.00006
0.00004
0.00002
0
Specific Drawdown
0.0001
0.001
0.01
$(t/r_i^2)_o = 2.7 \times 10^{-2}$
0.1
1
Normalized Time

GSWA - Spring Hill Camp
Well Field Data Plot - Well MW-9
Cooper-Jacob Method (1946)

INPUTS	
Saturated Aquifer Thickness (ft)=	72
delta Sn/SUM Qi (from plot)=	1.40E-04
t/ri^2 at 0 - delta Sn/SUM Qi (from plot)=	2.70E-02

SOLUTION	
Transmissivity - T (m^2/day)	1307.35
Transmissivity - T (gal/day/ft)	105261.29
Hydraulic Conductivity - K (cm/s)	6.91E-02
Hydraulic Conductivity - K (ft/day)	59.57
Storativity - S (unitless)	5.52E-02

ELL LD

DATA TRANSFORMATION WORKSHEET
OBSERVATION WELL - MW-9

INPUTS	pt.1	pt. 2	pt. 3	pt. 4	pt. 5	pt. 6	pt. 7	pt. 8	pt. 9	pt. 10	pt. 11	pt. 12	pt. 13
Dist. of Observation Well to Pumping Well TW-1 (ft)	1081.89	1081.89	1081.89	1081.89	1081.89	1081.89	1081.89	1081.89	1081.89	1081.89	1081.89	1081.89	1081.89
Dist. of Observation Well to Pumping Well TW-2 (ft)	854.17	854.17	854.17	854.17	854.17	854.17	854.17	854.17	854.17	854.17	854.17	854.17	854.17
Dist. of Observation Well to Pumping Well TW-3 (ft)	498.39	498.39	498.39	498.39	498.39	498.39	498.39	498.39	498.39	498.39	498.39	498.39	498.39
Discharge Rate (Q1) of TW-1 (gpm)	200	200	200	200	200	200	200	200	200	200	200	200	200
Discharge Rate (Q1) of TW-2 (gpm)	227	227	227	227	227	227	227	227	227	227	227	227	227
Discharge Rate (Q1) of TW-3 (gpm)	296	296	296	296	296	296	296	296	296	296	296	296	296
Sn (drawdown at time tn) [ft]	0.32	0.38	0.42	0.45	0.5	0.55	0.62	0.69	0.84	1.04	1.26	1.47	1.55
Time (tn) [min]	340.5	546.25	718	885	1169	1382	1825	2245	3257	5047	7040	9048	10050

UNIT CONVERSION													
Dist. of Observation Well to Pumping Well TW-1 (m)	329.76	329.76	329.76	329.76	329.76	329.76	329.76	329.76	329.76	329.76	329.76	329.76	329.76
Dist. of Observation Well to Pumping Well TW-2 (m)	260.35	260.35	260.35	260.35	260.35	260.35	260.35	260.35	260.35	260.35	260.35	260.35	260.35
Dist. of Observation Well to Pumping Well TW-3 (m)	151.91	151.91	151.91	151.91	151.91	151.91	151.91	151.91	151.91	151.91	151.91	151.91	151.91
Discharge Rate (Q1) of TW-1 (m^3/day)	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00
Discharge Rate (Q1) of TW-2 (m^3/day)	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10
Discharge Rate (Q1) of TW-3 (m^3/day)	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80
Sn (drawdown at time tn) [m]	0.10	0.12	0.13	0.14	0.15	0.17	0.19	0.21	0.26	0.32	0.38	0.45	0.47

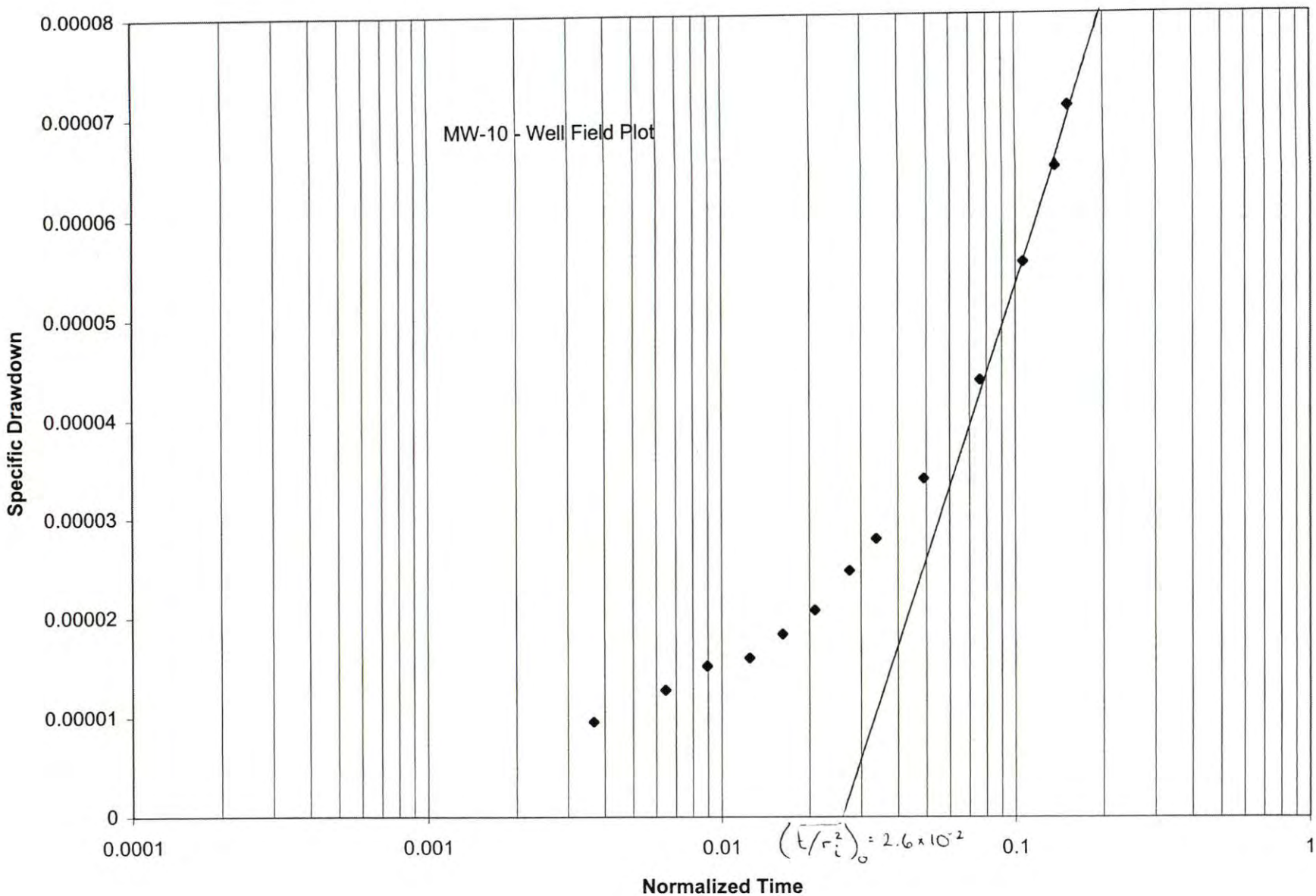
DATA TRANFORMATION													
SUM Qi (m^3/day)	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9
Sn / SUM Qi (day/m^2)	2.545E-05	3.023E-05	3.341E-05	3.579E-05	3.977E-05	4.375E-05	4.932E-05	5.488E-05	6.682E-05	8.272E-05	0.0001002	0.0001169	0.0001233
tn (min)	340.5	546.25	718	885	1169	1382	1825	2245	3257	5047	7040	9048	10050
tn / r1^2	3.13E-03	5.02E-03	6.60E-03	8.14E-03	1.08E-02	1.27E-02	1.68E-02	2.06E-02	3.00E-02	4.64E-02	6.47E-02	8.32E-02	9.24E-02
tn / r2^2	5.02E-03	8.06E-03	1.06E-02	1.31E-02	1.72E-02	2.04E-02	2.69E-02	3.31E-02	4.81E-02	7.45E-02	1.04E-01	1.33E-01	1.48E-01
tn / r3^3	1.48E-02	2.37E-02	3.11E-02	3.84E-02	5.07E-02	5.99E-02	7.91E-02	9.73E-02	1.41E-01	2.19E-01	3.05E-01	3.92E-01	4.36E-01
Q1log(tn/r1^2)	-2.65E+03	-2.44E+03	-2.31E+03	-2.21E+03	-2.09E+03	-2.01E+03	-1.88E+03	-1.79E+03	-1.61E+03	-1.41E+03	-1.26E+03	-1.14E+03	-1.10E+03
Q2log(tn/r2^2)	-2.77E+03	-2.52E+03	-2.38E+03	-2.27E+03	-2.12E+03	-2.03E+03	-1.89E+03	-1.78E+03	-1.59E+03	-1.36E+03	-1.18E+03	-1.05E+03	-9.97E+02
Q3log(tn/r3^2)	-2.87E+03	-2.55E+03	-2.36E+03	-2.22E+03	-2.03E+03	-1.92E+03	-1.73E+03	-1.59E+03	-1.33E+03	-1.04E+03	-8.09E+02	-6.38E+02	-5.66E+02
SUM Qi log(tn/ri^2)	-8293.02	-7506.43	-7051.45	-6703.45	-6240.28	-5961.72	-5499.00	-5154.31	-4535.07	-3806.18	-3252.32	-2834.72	-2659.94
SUM Qi log(tn/ri^2)/SUM Qi = x	-2.16	-1.96	-1.84	-1.75	-1.63	-1.56	-1.44	-1.35	-1.18	-0.99	-0.85	-0.74	-0.69
geometric mean of (t/ri^2) = 10^x	0.0068516	0.0109918	0.0144478	0.0178082	0.023523	0.027809	0.0367232	0.0451746	0.0655383	0.1015573	0.141661	0.1820666	0.2022291

GSWA - Spring Hill Camp
Well Field Data Plot - Well MW-10
Cooper-Jacob Method (1946)

INPUTS	
Saturated Aquifer Thickness (ft)=	72
delta Sn/SUM Qi (from plot)=	9.04E-05
t/ri^2 at 0 - delta Sn/SUM Qi (from plot)=	2.60E-02

SOLUTION	
Transmissivity - T (m^2/day)	2024.65
Transmissivity - T (gal/day/ft)	163015.28
Hydraulic Conductivity - K (cm/s)	1.07E-01
Hydraulic Conductivity - K (ft/day)	92.26
Storativity - S (unitless)	8.23E-02

$- \Delta S_o / \Sigma Q_i = 9.04 \times 10^{-5}$



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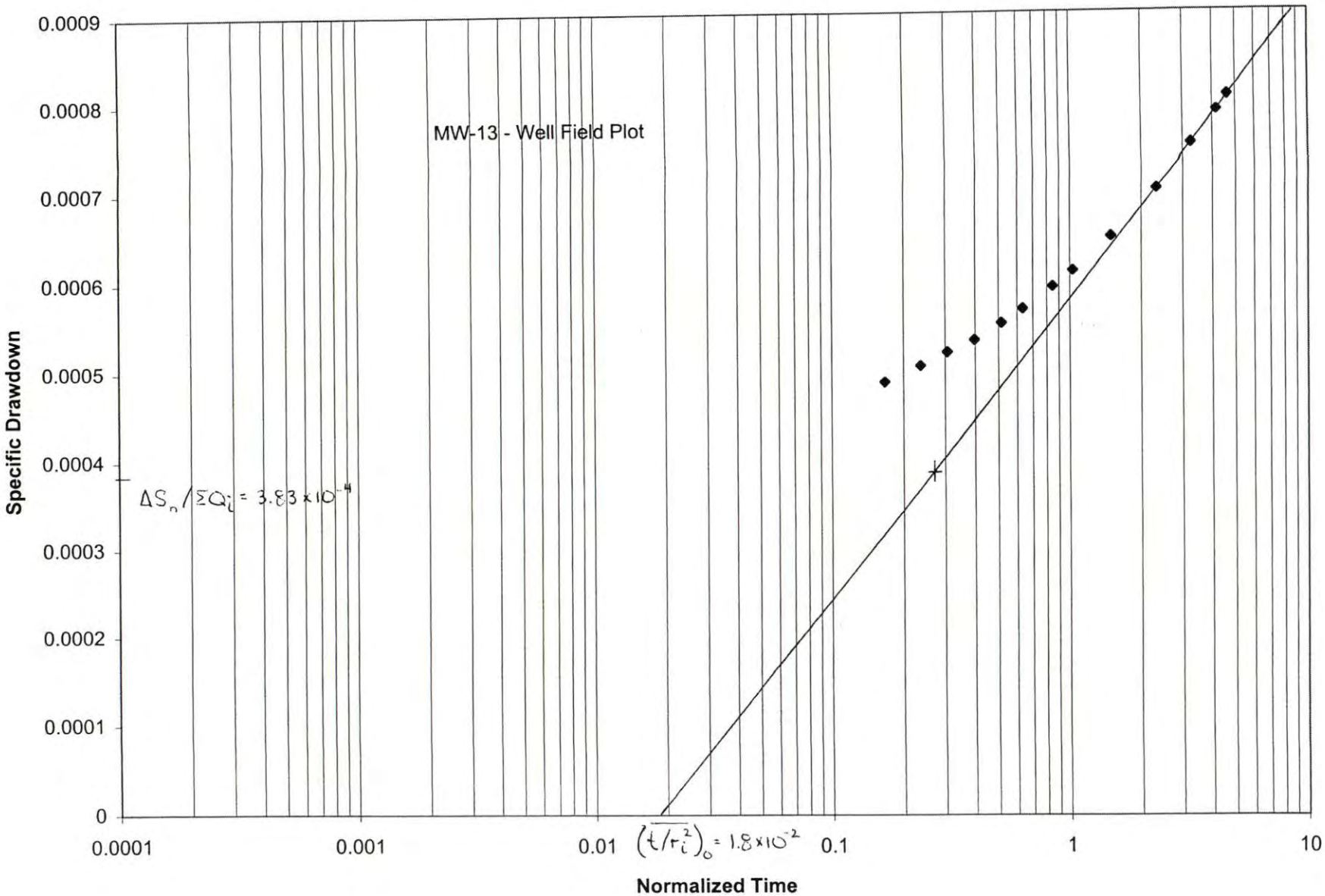
DATA TRANSFORMATION WORKSHEET
OBSERVATION WELL - MW-10

INPUTS	pt.1	pt. 2	pt. 3	pt. 4	pt. 5	pt. 6	pt. 7	pt. 8	pt. 9	pt. 10	pt. 11	pt. 12	pt. 13
Dist. of Observation Well to Pumping Well TW-1 (ft)	1182.61	1182.61	1182.61	1182.61	1182.61	1182.61	1182.61	1182.61	1182.61	1182.61	1182.61	1182.61	1182.61
Dist. of Observation Well to Pumping Well TW-2 (ft)	981.06	981.06	981.06	981.06	981.06	981.06	981.06	981.06	981.06	981.06	981.06	981.06	981.06
Dist. of Observation Well to Pumping Well TW-3 (ft)	602.3	602.3	602.3	602.3	602.3	602.3	602.3	602.3	602.3	602.3	602.3	602.3	602.3
Discharge Rate (Q1) of TW-1 (gpm)	200	200	200	200	200	200	200	200	200	200	200	200	200
Discharge Rate (Q1) of TW-2 (gpm)	227	227	227	227	227	227	227	227	227	227	227	227	227
Discharge Rate (Q1) of TW-3 (gpm)	296	296	296	296	296	296	296	296	296	296	296	296	296
Sn (drawdown at time tn) [ft]	0.12	0.16	0.19	0.2	0.23	0.26	0.31	0.35	0.425	0.55	0.7	0.82	0.89
Time (tn) [min]	243.83	428.25	594.08	826	1074	1386	1820	2241	3253	5044	7036	9045	10048

UNIT CONVERSION													
Dist. of Observation Well to Pumping Well TW-1 (m)	360.46	360.46	360.46	360.46	360.46	360.46	360.46	360.46	360.46	360.46	360.46	360.46	360.46
Dist. of Observation Well to Pumping Well TW-2 (m)	299.03	299.03	299.03	299.03	299.03	299.03	299.03	299.03	299.03	299.03	299.03	299.03	299.03
Dist. of Observation Well to Pumping Well TW-3 (m)	183.58	183.58	183.58	183.58	183.58	183.58	183.58	183.58	183.58	183.58	183.58	183.58	183.58
Discharge Rate (Q1) of TW-1 (m^3/day)	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00
Discharge Rate (Q1) of TW-2 (m^3/day)	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10
Discharge Rate (Q1) of TW-3 (m^3/day)	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80
Sn (drawdown at time tn) [m]	0.04	0.05	0.06	0.06	0.07	0.08	0.09	0.11	0.13	0.17	0.21	0.25	0.27

DATA TRANFORMATION													
SUM Qi (m^3/day)	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9
Sn / SUM Qi (day/m^2)	9.545E-06	1.273E-05	1.511E-05	1.591E-05	1.829E-05	2.068E-05	2.466E-05	2.784E-05	3.381E-05	4.375E-05	5.568E-05	6.523E-05	7.079E-05
tn (min)	243.83	428.25	594.08	826	1074	1386	1820	2241	3253	5044	7036	9045	10048
tn / r1^2	1.88E-03	3.30E-03	4.57E-03	6.36E-03	8.27E-03	1.07E-02	1.40E-02	1.72E-02	2.50E-02	3.88E-02	5.42E-02	6.96E-02	7.73E-02
tn / r2^2	2.73E-03	4.79E-03	6.64E-03	9.24E-03	1.20E-02	1.55E-02	2.04E-02	2.51E-02	3.64E-02	5.64E-02	7.87E-02	1.01E-01	1.12E-01
tn / r3^3	7.23E-03	1.27E-02	1.76E-02	2.45E-02	3.19E-02	4.11E-02	5.40E-02	6.65E-02	9.65E-02	1.50E-01	2.09E-01	2.68E-01	2.98E-01
Q1log(tn/r1^2)	-2.89E+03	-2.63E+03	-2.48E+03	-2.33E+03	-2.21E+03	-2.09E+03	-1.96E+03	-1.87E+03	-1.70E+03	-1.50E+03	-1.34E+03	-1.23E+03	-1.18E+03
Q2log(tn/r2^2)	-3.09E+03	-2.79E+03	-2.62E+03	-2.45E+03	-2.31E+03	-2.18E+03	-2.03E+03	-1.93E+03	-1.73E+03	-1.50E+03	-1.33E+03	-1.20E+03	-1.14E+03
Q3log(tn/r3^2)	-3.36E+03	-2.97E+03	-2.75E+03	-2.53E+03	-2.35E+03	-2.17E+03	-1.99E+03	-1.85E+03	-1.59E+03	-1.29E+03	-1.07E+03	-8.96E+02	-8.25E+02
SUM Qi log(tn/ri^2)	-9333.50	-8396.18	-7851.48	-7303.00	-6866.07	-6441.65	-5988.31	-5642.02	-5021.86	-4291.91	-3738.01	-3320.01	-3145.01
SUM Qi log(tn/ri^2)/SUM Qi = x	-2.44	-2.19	-2.05	-1.91	-1.79	-1.68	-1.56	-1.47	-1.31	-1.12	-0.98	-0.87	-0.82
geometric mean of (t/ri^2) = 10^x	0.0036666	0.0064398	0.0089335	0.012421	0.0161503	0.020842	0.0273683	0.0336991	0.0489171	0.0758493	0.1058041	0.1360145	0.1510972


MW-13 - Well Field Plot
Specific Drawdown
0.0009
0.0008
0.0007
0.0006
0.0005
0.0004
0.0003
0.0002
0.0001
0
$\Delta S_n / \Sigma Q_i = 3.83 \times 10^{-4}$
0.0001
0.001
0.01
$(\overline{t/r_i^2})_0 = 1.8 \times 10^{-2}$
0.1
1
10
Normalized Time

GSWA - Spring Hill Camp
Well Field Data Plot - Well MW-13
Cooper-Jacob Method (1946)

INPUTS	
Saturated Aquifer Thickness (ft)=	72
delta Sn/SUM Qi (from plot)=	3.83E-04
t/ri^2 at 0 - delta Sn/SUM Qi (from plot)=	1.80E-02

SOLUTION	
Transmissivity - T (m^2/day)	477.88
Transmissivity - T (gal/day/ft)	38476.71
Hydraulic Conductivity - K (cm/s)	2.53E-02
Hydraulic Conductivity - K (ft/day)	21.78
Storativity - S (unitless)	1.34E-02

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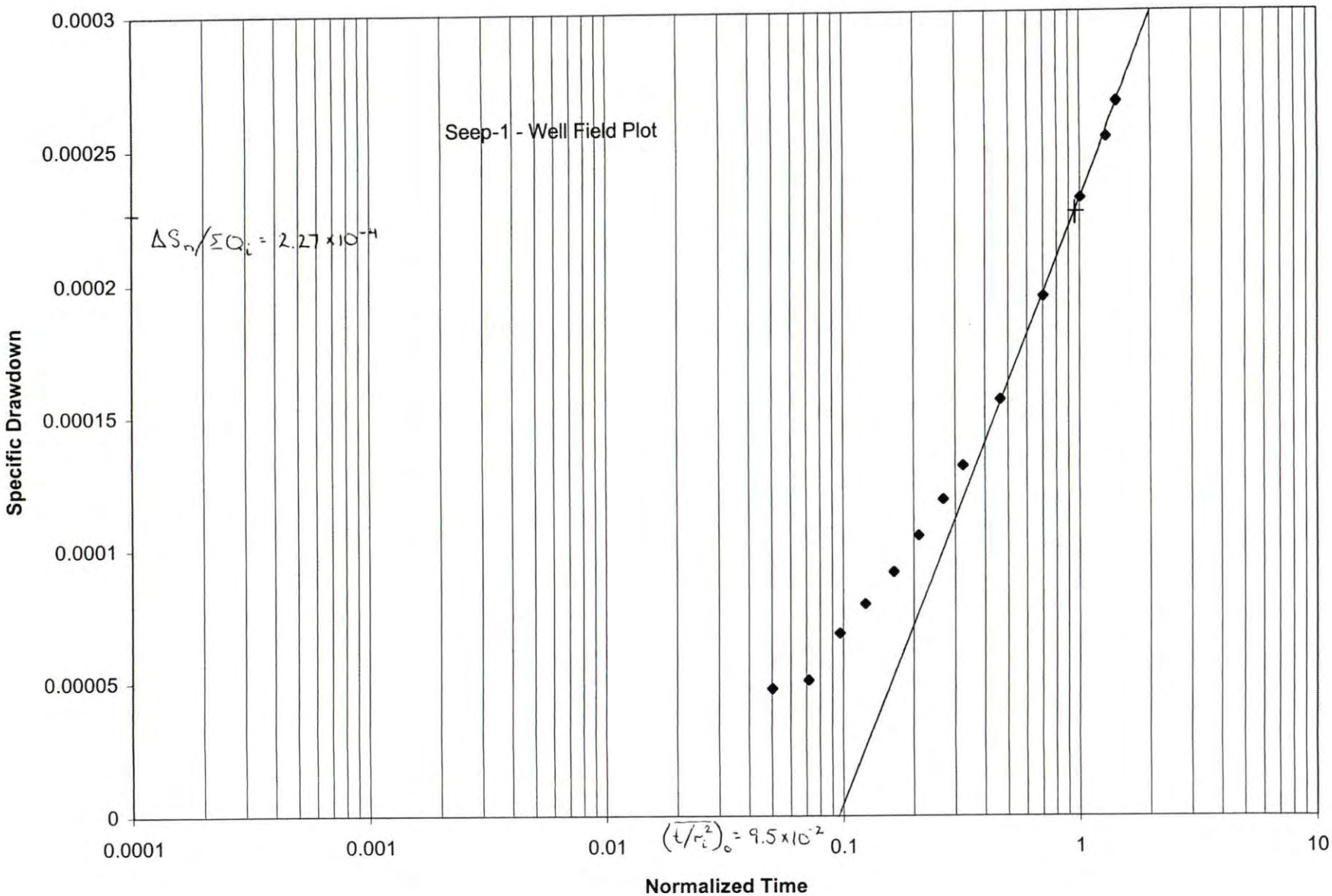
DATA TRANSFORMATION WORKSHEET
OBSERVATION WELL - MW-13

INPUTS	pt.1	pt. 2	pt. 3	pt. 4	pt. 5	pt. 6	pt. 7	pt. 8	pt. 9	pt. 10	pt. 11	pt. 12	pt. 13
Dist. of Observation Well to Pumping Well TW-1 (ft)	259.37	259.37	259.37	259.37	259.37	259.37	259.37	259.37	259.37	259.37	259.37	259.37	259.37
Dist. of Observation Well to Pumping Well TW-2 (ft)	31.37	31.37	31.37	31.37	31.37	31.37	31.37	31.37	31.37	31.37	31.37	31.37	31.37
Dist. of Observation Well to Pumping Well TW-3 (ft)	360.22	360.22	360.22	360.22	360.22	360.22	360.22	360.22	360.22	360.22	360.22	360.22	360.22
Discharge Rate (Q1) of TW-1 (gpm)	200	200	200	200	200	200	200	200	200	200	200	200	200
Discharge Rate (Q1) of TW-2 (gpm)	227	227	227	227	227	227	227	227	227	227	227	227	227
Discharge Rate (Q1) of TW-3 (gpm)	296	296	296	296	296	296	296	296	296	296	296	296	296
Sn (drawdown at time tn) [ft]	6.15	6.38	6.57	6.74	6.98	7.18	7.49	7.71	8.19	8.87	9.48	9.93	10.14
Time (tn) [min]	361.25	511.25	662.5	859	1115	1372	1835	2225	3226	5024	7025	9024	10021

UNIT CONVERSION													
Dist. of Observation Well to Pumping Well TW-1 (m)	79.06	79.06	79.06	79.06	79.06	79.06	79.06	79.06	79.06	79.06	79.06	79.06	79.06
Dist. of Observation Well to Pumping Well TW-2 (m)	9.56	9.56	9.56	9.56	9.56	9.56	9.56	9.56	9.56	9.56	9.56	9.56	9.56
Dist. of Observation Well to Pumping Well TW-3 (m)	109.80	109.80	109.80	109.80	109.80	109.80	109.80	109.80	109.80	109.80	109.80	109.80	109.80
Discharge Rate (Q1) of TW-1 (m^3/day)	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00
Discharge Rate (Q1) of TW-2 (m^3/day)	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10
Discharge Rate (Q1) of TW-3 (m^3/day)	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80
Sn (drawdown at time tn) [m]	1.87	1.94	2.00	2.05	2.13	2.19	2.28	2.35	2.50	2.70	2.89	3.03	3.09

DATA TRANFORMATION													
SUM Qi (m^3/day)	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9
Sn / SUM Qi (day/m^2)	0.0004892	0.0005075	0.0005226	0.0005361	0.0005552	0.0005711	0.0005958	0.0006133	0.0006515	0.0007055	0.0007541	0.0007899	0.0008066
tn (min)	361.25	511.25	662.5	859	1115	1372	1835	2225	3226	5024	7025	9024	10021
tn / r1^2	5.78E-02	8.18E-02	1.06E-01	1.37E-01	1.78E-01	2.20E-01	2.94E-01	3.56E-01	5.16E-01	8.04E-01	1.12E+00	1.44E+00	1.60E+00
tn / r2^2	3.95E+00	5.59E+00	7.25E+00	9.40E+00	1.22E+01	1.50E+01	2.01E+01	2.43E+01	3.53E+01	5.50E+01	7.68E+01	9.87E+01	1.10E+02
tn / r3^3	3.00E-02	4.24E-02	5.50E-02	7.13E-02	9.25E-02	1.14E-01	1.52E-01	1.85E-01	2.68E-01	4.17E-01	5.83E-01	7.49E-01	8.31E-01
Q1log(tn/r1^2)	-1.31E+03	-1.15E+03	-1.03E+03	-9.14E+02	-7.94E+02	-6.98E+02	-5.64E+02	-4.75E+02	-3.04E+02	-1.01E+02	5.38E+01	1.69E+02	2.17E+02
Q2log(tn/r2^2)	7.18E+02	8.99E+02	1.03E+03	1.17E+03	1.31E+03	1.42E+03	1.57E+03	1.67E+03	1.86E+03	2.09E+03	2.27E+03	2.40E+03	2.45E+03
Q3log(tn/r3^2)	-2.39E+03	-2.15E+03	-1.98E+03	-1.80E+03	-1.62E+03	-1.48E+03	-1.28E+03	-1.15E+03	-8.98E+02	-5.96E+02	-3.68E+02	-1.97E+02	-1.26E+02
SUM Qi log(tn/ri^2)	-2984.24	-2406.29	-1975.00	-1542.74	-1108.65	-763.48	-279.58	41.13	659.35	1396.55	1954.46	2371.19	2545.59
SUM Qi log(tn/ri^2)/SUM Qi = x	-0.78	-0.63	-0.52	-0.40	-0.29	-0.20	-0.07	0.01	0.17	0.36	0.51	0.62	0.66
geometric mean of (t/ri^2) = 10^x	0.1664222	0.2355249	0.3052034	0.3957279	0.5136631	0.632059	0.8453558	1.0250228	1.4861678	2.3144784	3.2363078	4.1572159	4.6165182


Seep-1 - Well Field Plot
$\Delta S_n / \Sigma Q_i = 2.27 \times 10^{-4}$
$(\overline{t/r_i^2})_o = 9.5 \times 10^{-2}$
Specific Drawdown
0.0003
0.00025
0.0002
0.00015
0.0001
0.00005
0
0.0001
0.001
0.01
0.1
1
10
Normalized Time

GSWA - Spring Hill Camp
Well Field Data Plot - Seep-1
Cooper-Jacob Method (1946)

INPUTS	
Saturated Aquifer Thickness (ft)=	72
delta Sn/SUM Qi (from plot)=	2.27E-04
t/ri^2 at 0 - delta Sn/SUM Qi (from plot)=	9.50E-02

SOLUTION	
Transmissivity - T (m^2/day)	806.29
Transmissivity - T (gal/day/ft)	64918.86
Hydraulic Conductivity - K (cm/s)	4.26E-02
Hydraulic Conductivity - K (ft/day)	36.74
Storativity - S (unitless)	1.20E-01

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DATA TRANSFORMATION WORKSHEET
OBSERVATION WELL - SEEP-1

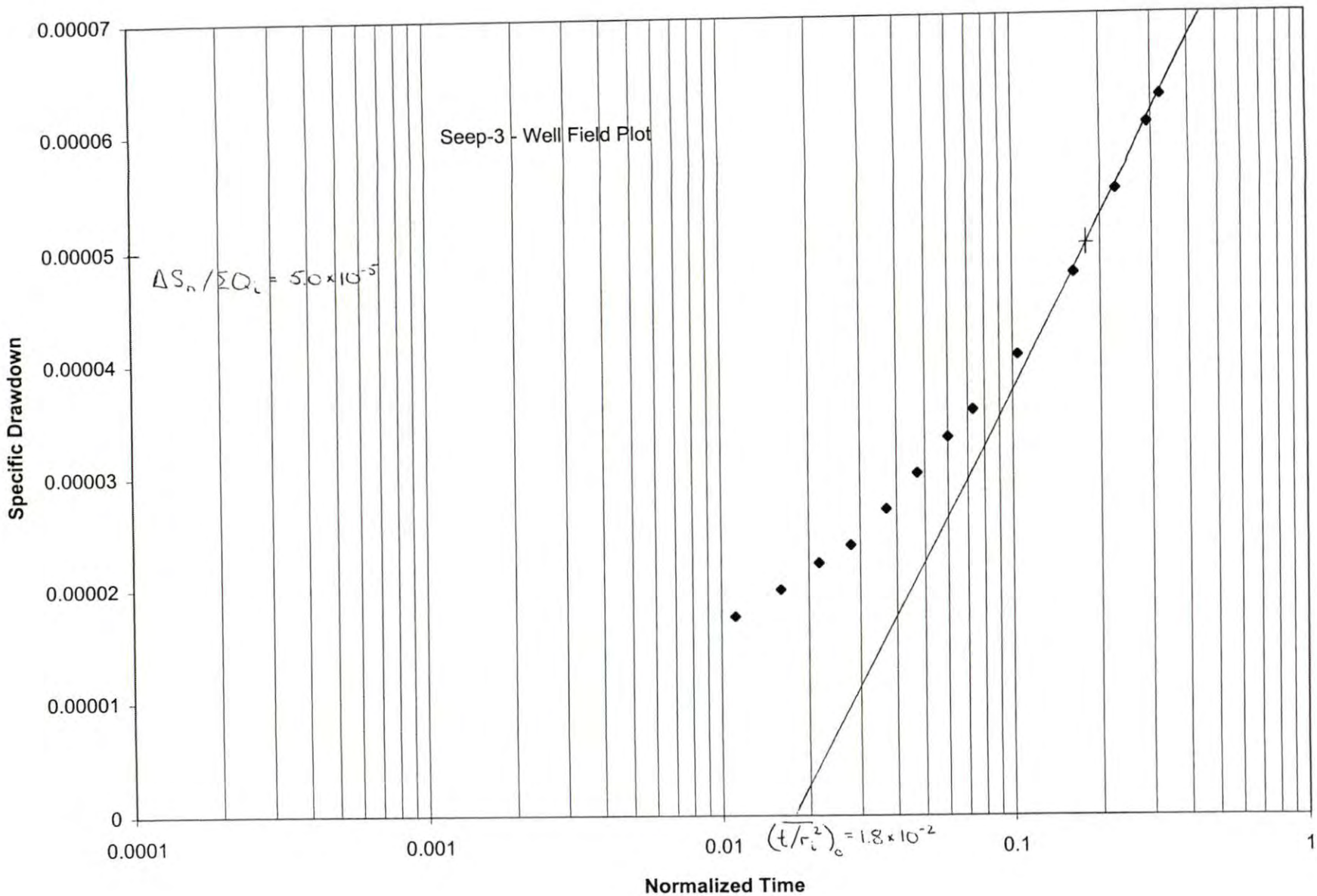
INPUTS	pt.1	pt. 2	pt. 3	pt. 4	pt. 5	pt. 6	pt. 7	pt. 8	pt. 9	pt. 10	pt. 11	pt. 12	pt. 13
Dist. of Observation Well to Pumping Well TW-1 (ft)	293.46	293.46	293.46	293.46	293.46	293.46	293.46	293.46	293.46	293.46	293.46	293.46	293.46
Dist. of Observation Well to Pumping Well TW-2 (ft)	142.4	142.4	142.4	142.4	142.4	142.4	142.4	142.4	142.4	142.4	142.4	142.4	142.4
Dist. of Observation Well to Pumping Well TW-3 (ft)	434.83	434.83	434.83	434.83	434.83	434.83	434.83	434.83	434.83	434.83	434.83	434.83	434.83
Discharge Rate (Q1) of TW-1 (gpm)	200	200	200	200	200	200	200	200	200	200	200	200	200
Discharge Rate (Q1) of TW-2 (gpm)	227	227	227	227	227	227	227	227	227	227	227	227	227
Discharge Rate (Q1) of TW-3 (gpm)	296	296	296	296	296	296	296	296	296	296	296	296	296
Sn (drawdown at time tn) [ft]	0.6	0.64	0.86	1	1.15	1.32	1.49	1.65	1.96	2.45	2.91	3.19	3.35
Time (tn) [min]	351	501	678	869	1150	1468	1868	2267	3240	4919	7015	9039	10016

UNIT CONVERSION

Dist. of Observation Well to Pumping Well TW-1 (m)	89.45	89.45	89.45	89.45	89.45	89.45	89.45	89.45	89.45	89.45	89.45	89.45	89.45
Dist. of Observation Well to Pumping Well TW-2 (m)	43.40	43.40	43.40	43.40	43.40	43.40	43.40	43.40	43.40	43.40	43.40	43.40	43.40
Dist. of Observation Well to Pumping Well TW-3 (m)	132.54	132.54	132.54	132.54	132.54	132.54	132.54	132.54	132.54	132.54	132.54	132.54	132.54
Discharge Rate (Q1) of TW-1 (m^3/day)	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00
Discharge Rate (Q1) of TW-2 (m^3/day)	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10
Discharge Rate (Q1) of TW-3 (m^3/day)	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80
Sn (drawdown at time tn) [m]	0.18	0.20	0.26	0.30	0.35	0.40	0.45	0.50	0.60	0.75	0.89	0.97	1.02

DATA TRANFORMATION

SUM Qi (m^3/day)	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9
Sn / SUM Qi (day/m^2)	4.773E-05	5.091E-05	6.841E-05	7.954E-05	9.147E-05	0.000105	0.0001185	0.0001312	0.0001559	0.0001949	0.0002315	0.0002537	0.0002665
tn (min)	351	501	678	869	1150	1468	1868	2267	3240	4919	7015	9039	10016
tn / r1^2	4.39E-02	6.26E-02	8.47E-02	1.09E-01	1.44E-01	1.83E-01	2.33E-01	2.83E-01	4.05E-01	6.15E-01	8.77E-01	1.13E+00	1.25E+00
tn / r2^2	1.86E-01	2.66E-01	3.60E-01	4.61E-01	6.10E-01	7.79E-01	9.92E-01	1.20E+00	1.72E+00	2.61E+00	3.72E+00	4.80E+00	5.32E+00
tn / r3^3	2.00E-02	2.85E-02	3.86E-02	4.95E-02	6.55E-02	8.36E-02	1.06E-01	1.29E-01	1.84E-01	2.80E-01	3.99E-01	5.15E-01	5.70E-01
Q1log(tn/r1^2)	-1.44E+03	-1.28E+03	-1.14E+03	-1.02E+03	-8.93E+02	-7.81E+02	-6.70E+02	-5.81E+02	-4.16E+02	-2.24E+02	-6.05E+01	5.62E+01	1.03E+02
Q2log(tn/r2^2)	-8.78E+02	-6.92E+02	-5.34E+02	-4.04E+02	-2.58E+02	-1.30E+02	-4.42E+00	9.67E+01	2.83E+02	5.01E+02	6.87E+02	8.19E+02	8.73E+02
Q3log(tn/r3^2)	-2.67E+03	-2.42E+03	-2.22E+03	-2.05E+03	-1.86E+03	-1.69E+03	-1.53E+03	-1.40E+03	-1.15E+03	-8.67E+02	-6.25E+02	-4.53E+02	-3.83E+02
SUM Qi log(tn/ri^2)	-4983.20	-4391.06	-3887.58	-3474.53	-3008.28	-2601.99	-2200.98	-1878.81	-1284.51	-589.66	1.03	422.89	593.70
SUM Qi log(tn/ri^2)/SUM Qi = x	-1.30	-1.15	-1.01	-0.91	-0.79	-0.68	-0.57	-0.49	-0.34	-0.15	0.00	0.11	0.15
geometric mean of (t/ri^2) = 10^x	0.0500666	0.0714626	0.0967098	0.123954	0.1640358	0.2093953	0.2664512	0.3233645	0.4621531	0.7016454	1.0006184	1.2893215	1.4286806


Seep-3 - Well Field Plot
$\Delta S_n / \Sigma Q_i = 5.0 \times 10^{-5}$
$(t/r_i^2)_c = 1.8 \times 10^{-2}$
Specific Drawdown
0.00007
0.00006
0.00005
0.00004
0.00003
0.00002
0.00001
0
0.0001
0.001
0.01
0.1
1
Normalized Time

GSWA - Spring Hill Camp
Well Field Data Plot - Seep-3
Cooper-Jacob Method (1946)

INPUTS	
Saturated Aquifer Thickness (ft)=	72
delta Sn/SUM Qi (from plot)=	5.00E-05
t/ri^2 at 0 - delta Sn/SUM Qi (from plot)=	1.80E-02

SOLUTION	
Transmissivity - T (m^2/day)	3660.57
Transmissivity - T (gal/day/ft)	294731.63
Hydraulic Conductivity - K (cm/s)	1.93E-01
Hydraulic Conductivity - K (ft/day)	166.80
Storativity - S (unitless)	1.03E-01

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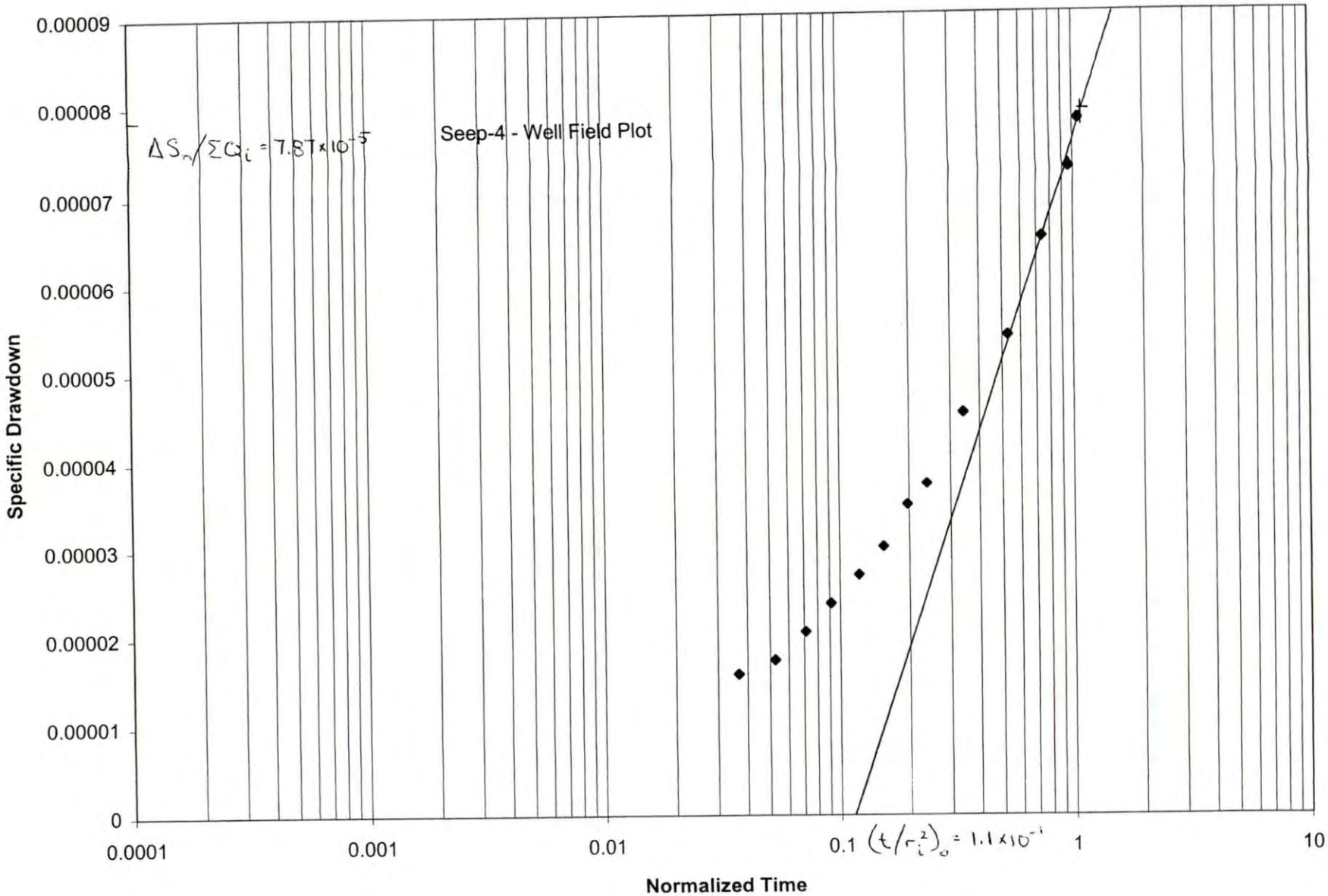
DATA TRANSFORMATION WORKSHEET
OBSERVATION WELL - SEEP-3

INPUTS	pt.1	pt. 2	pt. 3	pt. 4	pt. 5	pt. 6	pt. 7	pt. 8	pt. 9	pt. 10	pt. 11	pt. 12	pt. 13
Dist. of Observation Well to Pumping Well TW-1 (ft)	362.29	362.29	362.29	362.29	362.29	362.29	362.29	362.29	362.29	362.29	362.29	362.29	362.29
Dist. of Observation Well to Pumping Well TW-2 (ft)	505.03	505.03	505.03	505.03	505.03	505.03	505.03	505.03	505.03	505.03	505.03	505.03	505.03
Dist. of Observation Well to Pumping Well TW-3 (ft)	880.38	880.38	880.38	880.38	880.38	880.38	880.38	880.38	880.38	880.38	880.38	880.38	880.38
Discharge Rate (Q1) of TW-1 (gpm)	200	200	200	200	200	200	200	200	200	200	200	200	200
Discharge Rate (Q1) of TW-2 (gpm)	227	227	227	227	227	227	227	227	227	227	227	227	227
Discharge Rate (Q1) of TW-3 (gpm)	296	296	296	296	296	296	296	296	296	296	296	296	296
Sn (drawdown at time tn) [ft]	0.22	0.25	0.28	0.3	0.34	0.38	0.42	0.45	0.51	0.6	0.69	0.76	0.79
Time (tn) [min]	346	496	672	864	1147	1463	1860	2264	3231	5014	7011	9032	10009

UNIT CONVERSION													
Dist. of Observation Well to Pumping Well TW-1 (m)	110.43	110.43	110.43	110.43	110.43	110.43	110.43	110.43	110.43	110.43	110.43	110.43	110.43
Dist. of Observation Well to Pumping Well TW-2 (m)	153.93	153.93	153.93	153.93	153.93	153.93	153.93	153.93	153.93	153.93	153.93	153.93	153.93
Dist. of Observation Well to Pumping Well TW-3 (m)	268.34	268.34	268.34	268.34	268.34	268.34	268.34	268.34	268.34	268.34	268.34	268.34	268.34
Discharge Rate (Q1) of TW-1 (m^3/day)	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00
Discharge Rate (Q1) of TW-2 (m^3/day)	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10
Discharge Rate (Q1) of TW-3 (m^3/day)	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80
Sn (drawdown at time tn) [m]	0.07	0.08	0.09	0.09	0.10	0.12	0.13	0.14	0.16	0.18	0.21	0.23	0.24

DATA TRANFORMATION													
SUM Qi (m^3/day)	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9
Sn / SUM Qi (day/m^2)	1.75E-05	1.989E-05	2.227E-05	2.386E-05	2.704E-05	3.023E-05	3.341E-05	3.579E-05	4.057E-05	4.773E-05	5.488E-05	6.045E-05	6.284E-05
tn (min)	346	496	672	864	1147	1463	1860	2264	3231	5014	7011	9032	10009
tn / r1^2	2.84E-02	4.07E-02	5.51E-02	7.09E-02	9.41E-02	1.20E-01	1.53E-01	1.86E-01	2.65E-01	4.11E-01	5.75E-01	7.41E-01	8.21E-01
tn / r2^2	1.46E-02	2.09E-02	2.84E-02	3.65E-02	4.84E-02	6.17E-02	7.85E-02	9.55E-02	1.36E-01	2.12E-01	2.96E-01	3.81E-01	4.22E-01
tn / r3^3	4.81E-03	6.89E-03	9.33E-03	1.20E-02	1.59E-02	2.03E-02	2.58E-02	3.14E-02	4.49E-02	6.96E-02	9.74E-02	1.25E-01	1.39E-01
Q1log(tn/r1^2)	-1.64E+03	-1.47E+03	-1.33E+03	-1.22E+03	-1.09E+03	-9.76E+02	-8.66E+02	-7.75E+02	-6.11E+02	-4.09E+02	-2.55E+02	-1.38E+02	-9.09E+01
Q2log(tn/r2^2)	-2.21E+03	-2.02E+03	-1.86E+03	-1.73E+03	-1.58E+03	-1.46E+03	-1.33E+03	-1.23E+03	-1.04E+03	-8.11E+02	-6.36E+02	-5.04E+02	-4.50E+02
Q3log(tn/r3^2)	-3.64E+03	-3.39E+03	-3.18E+03	-3.01E+03	-2.82E+03	-2.65E+03	-2.49E+03	-2.36E+03	-2.11E+03	-1.82E+03	-1.59E+03	-1.41E+03	-1.34E+03
SUM Qi log(tn/ri^2)	-7485.23	-6885.90	-6380.52	-5962.29	-5490.77	-5085.81	-4686.27	-4359.16	-3767.28	-3035.98	-2478.07	-2056.54	-1885.62
SUM Qi log(tn/ri^2)/SUM Qi = x	-1.95	-1.80	-1.67	-1.56	-1.43	-1.33	-1.22	-1.14	-0.98	-0.79	-0.65	-0.54	-0.49
geometric mean of (t/ri^2) = 10^x	0.0111327	0.0159591	0.021622	0.0277997	0.0369053	0.0470728	0.0598465	0.0728454	0.1039591	0.1613281	0.2255826	0.2906094	0.3220449


Seep-4 - Well Field Plot
$\Delta S_n / \Sigma Q_i = 7.87 \times 10^{-5}$
$(t/r_i^2)_o = 1.1 \times 10^{-1}$
Specific Drawdown
0.00009
0.00008
0.00007
0.00006
0.00005
0.00004
0.00003
0.00002
0.00001
0
0.0001
0.001
0.01
0.1
1
10
Normalized Time

GSWA - Spring Hill Camp
Well Field Data Plot - Seep-4
Cooper-Jacob Method (1946)

INPUTS	
Saturated Aquifer Thickness (ft)=	72
delta Sn/SUM Qi (from plot)=	7.87E-05
t/ri^2 at 0 - delta Sn/SUM Qi (from plot)=	1.10E-01

SOLUTION	
Transmissivity - T (m^2/day)	2325.65
Transmissivity - T (gal/day/ft)	187250.08
Hydraulic Conductivity - K (cm/s)	1.23E-01
Hydraulic Conductivity - K (ft/day)	105.97
Storativity - S (unitless)	4.00E-01

EL :LI

DATA TRANSFORMATION WORKSHEET
OBSERVATION WELL - SEEP-4

INPUTS	pt.1	pt. 2	pt. 3	pt. 4	pt. 5	pt. 6	pt. 7	pt. 8	pt. 9	pt. 10	pt. 11	pt. 12	pt. 13
Dist. of Observation Well to Pumping Well TW-1 (ft)	212.28	212.28	212.28	212.28	212.28	212.28	212.28	212.28	212.28	212.28	212.28	212.28	212.28
Dist. of Observation Well to Pumping Well TW-2 (ft)	214.15	214.15	214.15	214.15	214.15	214.15	214.15	214.15	214.15	214.15	214.15	214.15	214.15
Dist. of Observation Well to Pumping Well TW-3 (ft)	575.03	575.03	575.03	575.03	575.03	575.03	575.03	575.03	575.03	575.03	575.03	575.03	575.03
Discharge Rate (Q1) of TW-1 (gpm)	200	200	200	200	200	200	200	200	200	200	200	200	200
Discharge Rate (Q1) of TW-2 (gpm)	227	227	227	227	227	227	227	227	227	227	227	227	227
Discharge Rate (Q1) of TW-3 (gpm)	296	296	296	296	296	296	296	296	296	296	296	296	296
Sn (drawdown at time tn) [ft]	0.2	0.22	0.26	0.3	0.34	0.38	0.44	0.47	0.57	0.68	0.82	0.92	0.98
Time (tn) [min]	349	499	676	867	1149	1467	1867	2266	3239	5017	7013	9037	10015

UNIT CONVERSION													
Dist. of Observation Well to Pumping Well TW-1 (m)	64.70	64.70	64.70	64.70	64.70	64.70	64.70	64.70	64.70	64.70	64.70	64.70	64.70
Dist. of Observation Well to Pumping Well TW-2 (m)	65.27	65.27	65.27	65.27	65.27	65.27	65.27	65.27	65.27	65.27	65.27	65.27	65.27
Dist. of Observation Well to Pumping Well TW-3 (m)	175.27	175.27	175.27	175.27	175.27	175.27	175.27	175.27	175.27	175.27	175.27	175.27	175.27
Discharge Rate (Q1) of TW-1 (m^3/day)	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00	1060.00
Discharge Rate (Q1) of TW-2 (m^3/day)	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10	1203.10
Discharge Rate (Q1) of TW-3 (m^3/day)	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80	1568.80
Sn (drawdown at time tn) [m]	0.06	0.07	0.08	0.09	0.10	0.12	0.13	0.14	0.17	0.21	0.25	0.28	0.30

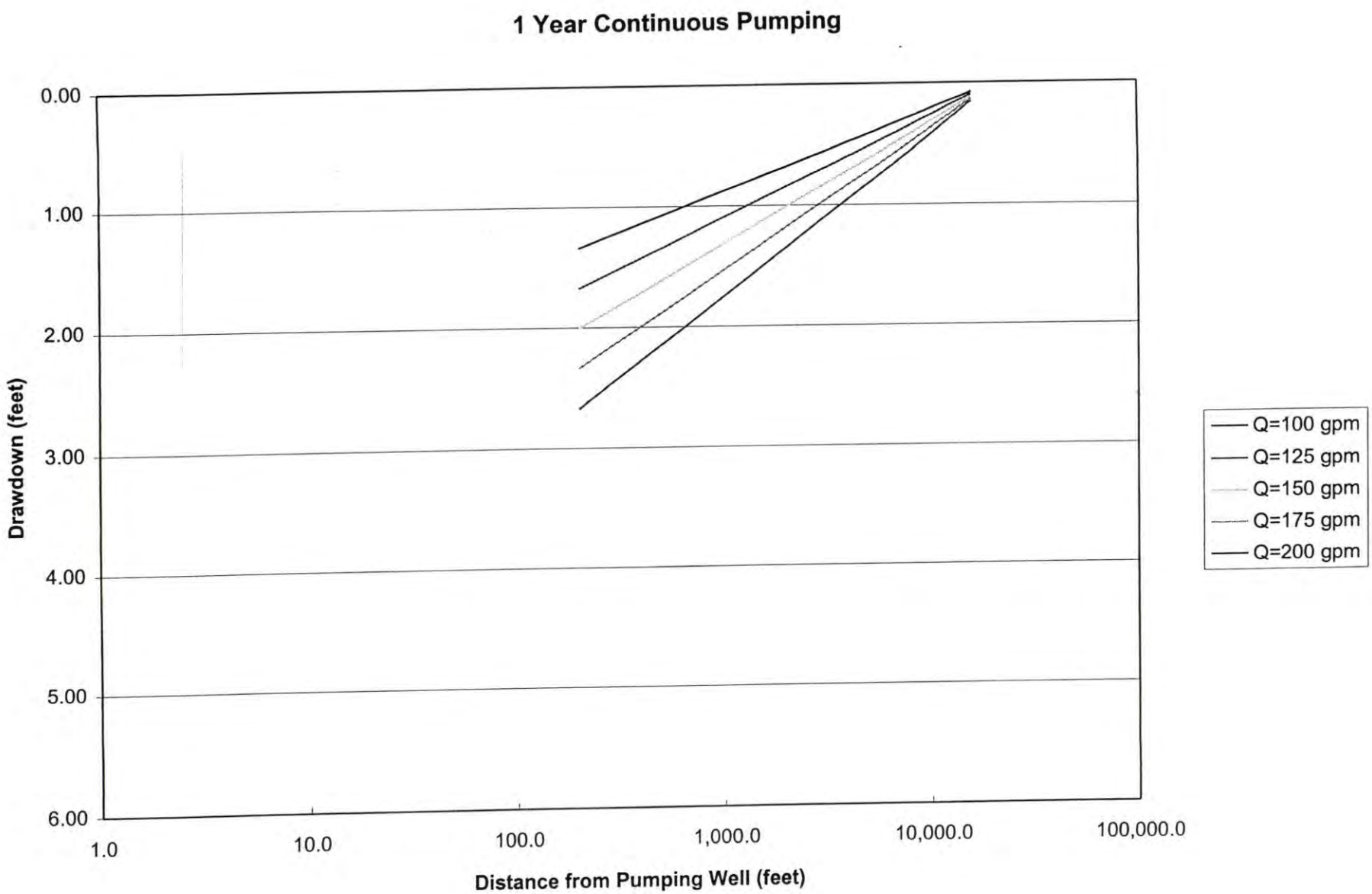
DATA TRANFORMATION													
SUM Qi (m^3/day)	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9	3831.9
Sn / SUM Qi (day/m^2)	1.591E-05	1.75E-05	2.068E-05	2.386E-05	2.704E-05	3.023E-05	3.5E-05	3.739E-05	4.534E-05	5.409E-05	6.523E-05	7.318E-05	7.795E-05
tn (min)	349	499	676	867	1149	1467	1867	2266	3239	5017	7013	9037	10015
tn / r1^2	8.34E-02	1.19E-01	1.61E-01	2.07E-01	2.74E-01	3.50E-01	4.46E-01	5.41E-01	7.74E-01	1.20E+00	1.68E+00	2.16E+00	2.39E+00
tn / r2^2	8.19E-02	1.17E-01	1.59E-01	2.03E-01	2.70E-01	3.44E-01	4.38E-01	5.32E-01	7.60E-01	1.18E+00	1.65E+00	2.12E+00	2.35E+00
tn / r3^3	1.14E-02	1.62E-02	2.20E-02	2.82E-02	3.74E-02	4.78E-02	6.08E-02	7.38E-02	1.05E-01	1.63E-01	2.28E-01	2.94E-01	3.26E-01
Q1log(tn/r1^2)	-1.14E+03	-9.79E+02	-8.39E+02	-7.25E+02	-5.95E+02	-4.83E+02	-3.72E+02	-2.83E+02	-1.18E+02	8.33E+01	2.37E+02	3.54E+02	4.02E+02
Q2log(tn/r2^2)	-1.31E+03	-1.12E+03	-9.62E+02	-8.32E+02	-6.85E+02	-5.57E+02	-4.31E+02	-3.30E+02	-1.43E+02	8.54E+01	2.60E+02	3.93E+02	4.47E+02
Q3log(tn/r3^2)	-3.05E+03	-2.81E+03	-2.60E+03	-2.43E+03	-2.24E+03	-2.07E+03	-1.91E+03	-1.78E+03	-1.53E+03	-1.23E+03	-1.01E+03	-8.34E+02	-7.64E+02
SUM Qi log(tn/ri^2)	-5501.77	-4906.77	-4401.55	-3987.42	-3518.78	-3112.18	-2710.92	-2388.60	-1794.08	-1065.89	-508.50	-86.53	84.47
SUM Qi log(tn/ri^2)/SUM Qi = x	-1.44	-1.28	-1.15	-1.04	-0.92	-0.81	-0.71	-0.62	-0.47	-0.28	-0.13	-0.02	0.02
geometric mean of (t/ri^2) = 10^x	0.0366623	0.0524197	0.0710135	0.0910779	0.1207019	0.1541077	0.1961275	0.2380422	0.3402554	0.5270335	0.7367124	0.9493326	1.0520711

Location	Easting	Northing	GS El.	MP El.	Total Depth	Screen Top	Screen Bottom	Depth to Water (pre-pumping)	Depth to Water (max drawdown)	Aquifer Top	Aquifer Bottom	Saturated Thickness	Aquifer Thickness
TW-1	1746817	227266	1097.36	1099.84	85	30	85	5.30	26.42	17	89	--	72
TW-2	1747037	227207	1115.92	1119.41	construction details?			23.76	43.84	34	>113	--	>79
TW-3	1747420	227257	1145.75	1148.57	122	82	122	52.60	91.88	water table	125	72.40	--
MW-1s	1746802	227268	1097.16	1098.75	construction details?			6.30	6.78	--	--	--	--
MW-1i	1746804	227278	1098.39	1100.74	115	33.5	38.5	6.11	17.44	17	89	--	72
MW-1d	1746801	227273	1097.66	1100.19	115	103.5	108.5	3.90	9.27	97	>115	--	>18
MW-2	1746938	227227	1101.7	1104.08	101	55	60	10.08	19.65	water table	>101	>90.92	--
MW-3	1746837	227145	1107	1109.57	102	81	86	16.57	25.35	58	99	--	41
MW-4s	1746649	227191	1090.06	1091.38	construction details?			6.00	7.8	--	--	--	--
MW-4d	1746647	227194	1089.51	1096.04	86	73	78	2.90	9.34	?	86	--	--
MW-5D	1747399	227284	1147.43	1149.4	160	153	158	52.24	56.03	149.5	160	--	10.5
MW-5I	1747404	227274	1147.09	1148.75	100	90	100	52.76	69.36	water table	125	72.24	--
MW-6	1747396	227522	1139.96	1142.44	80	70	80	43.73	48.36	water table	>80	>36.27	--
MW-7	1746900	227528	1147.28	1149.23	99	89	99	53.06	59.27	water table	>99	>45.94	--
MW-8	1746466	227562	1110.52	1113.485	85	75	85	18.22	22.14	water table	>85	>66.78	--
MW-9	1747880	227064	1122.97	1125.29	75	65	75	28.40	29.95	water table	>75	>46.60	--
MW-10	1747980	227479	1117.67	1120.54	65	52	62	19.90	20.79	water table	>65	>45.10	--
MW-11	1746173	229202	1164.08	1166.659	81	70	80	50.91	51.02	water table	81	30.09	--
MW-12D	1747491	229163	1160.79	1163.21	115	105	115	6.00	6.36	?	>115	--	--
MW-12I	1747491	229155	1160.15	1162.47	construction details?			45.19	45.26	--	--	--	--
MW-13	1747066	227193	1117.82	1120.17	113	construction details?		26.51	36.68	34	>113	--	>79.00
Vent #1	1747283	227025	1088.74	1092.79	construction details?			3.87	--	--	--	--	--
Vent #2	1747356	227170	1121.44	1124.28	construction details?			2.47	2.54	--	--	--	--
Seep #1	1747030	227065	1086.27	1089.68	construction details?			2.55	5.94	--	--	--	--
Seep #2	1746678	227061	1081.27	1085.83	construction details?			4.51	5.2	--	--	--	--
Seep #3	1746581	226991	1081.96	1085.66	construction details?			4.91	5.72	--	--	--	--
Seep #4	1746879	227063	1083.41	1087.62	construction details?			4.73	5.74	--	--	--	--
SEEP-5	1748096	226733	1090.48	1094.52	construction details?			5.54	5.95	--	--	--	--
SEEP-6	1745327	229322	1104.85	1106.222	construction details?			1.15	1.38	--	--	--	--

GSWA-SHC

Q=200gpm Q=[redacted] 227gpm Q=296gpm

Location	Easting	Northing	GS El.	MP El.	Distance from Pumping Well TW-1	TW-2	TW-3
TW-1	1746817	227266.3	1097.36	1099.84	0.00		
TW-2	1747037	227207	1115.92	1119.41	228.52	0.00	
TW-3	1747420	227257	1145.75	1148.57	603.41	385.91	0.00
MW-1s	1746802	227267.5	1097.16	1098.75	15.05	243.33	618.42
MW-1i	1746804	227278.5	1098.39	1100.74	17.33	243.74	616.04
MW-1d	1746801	227272.7	1097.66	1100.19	16.95	245.35	619.24
MW-2	1746938	227226.8	1101.7	1104.08	127.09	101.84	483.48
MW-3	1746837	227144.9	1107	1109.57	123.02	210.17	594.12
MW-4s	1746649	227190.7	1090.06	1091.38	183.77	388.54	773.69
MW-4d	1746647	227193.5	1089.51	1096.04	184.89	390.90	775.91
MW-5D	1747399	227283.9	1147.43	1149.4	582.94	370.07	33.88
MW-5I	1747404	227274.3	1147.09	1148.75	587.38	372.77	23.54
MW-6	1747396	227522.4	1139.96	1142.44	633.72	477.88	266.47
MW-7	1746900	227527.9	1147.28	1149.23	274.63	349.03	586.18
MW-8	1746466	227562.3	1110.52	1113.485	458.60	672.51	1001.31
MW-9	1747880	227063.9	1122.97	1125.29	1081.89	854.17	498.39
MW-10	1747980	227478.6	1117.67	1120.54	1182.61	981.06	602.30
MW-11	1746173	229202.3	1164.08	1166.659	2040.25	2174.57	2310.76
MW-12D	1747491	229163.2	1160.79	1163.21	2013.05	2008.02	1907.46
MW-12I	1747491	229155.3	1160.15	1162.47	2005.60	2000.32	1899.55
MW-13	1747066	227193.1	1117.82	1120.17	259.37	31.37	360.22
Vent #1 (bc	1747283	227025.3	1088.74	1092.79	525.28	305.85	268.97
Vent #2 (pe	1747356	227170.2	1121.44	1124.28	548.21	321.15	107.61
Seep #1	1747030	227064.8	1086.27	1089.68	293.46	142.40	434.83
Seep #2	1746678	227061.5	1081.27	1085.83	247.62	388.13	767.78
Seep #3	1746581	226991.5	1081.96	1085.66	362.29	505.03	880.38
Seep #4 (a	1746879	227063.3	1083.41	1087.62	212.28	214.15	575.03
SEEP-5	1748096	226732.9	1090.48	1094.52	1386.21	1160.08	855.51
SEEP-6	1745327	229321.8	1104.85	1106.222	2538.80	2720.17	2940.39



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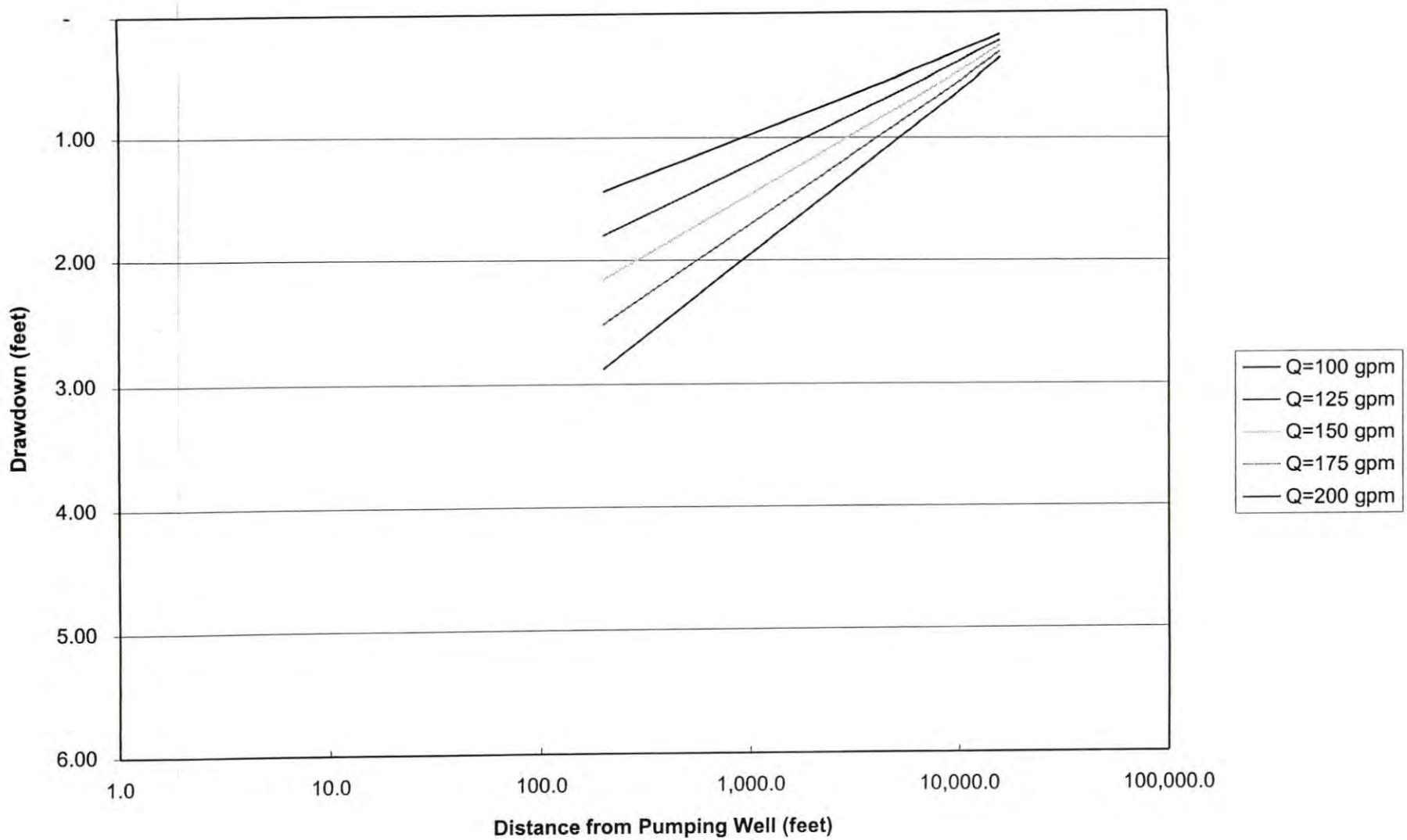
2 Years Continuous Pumping



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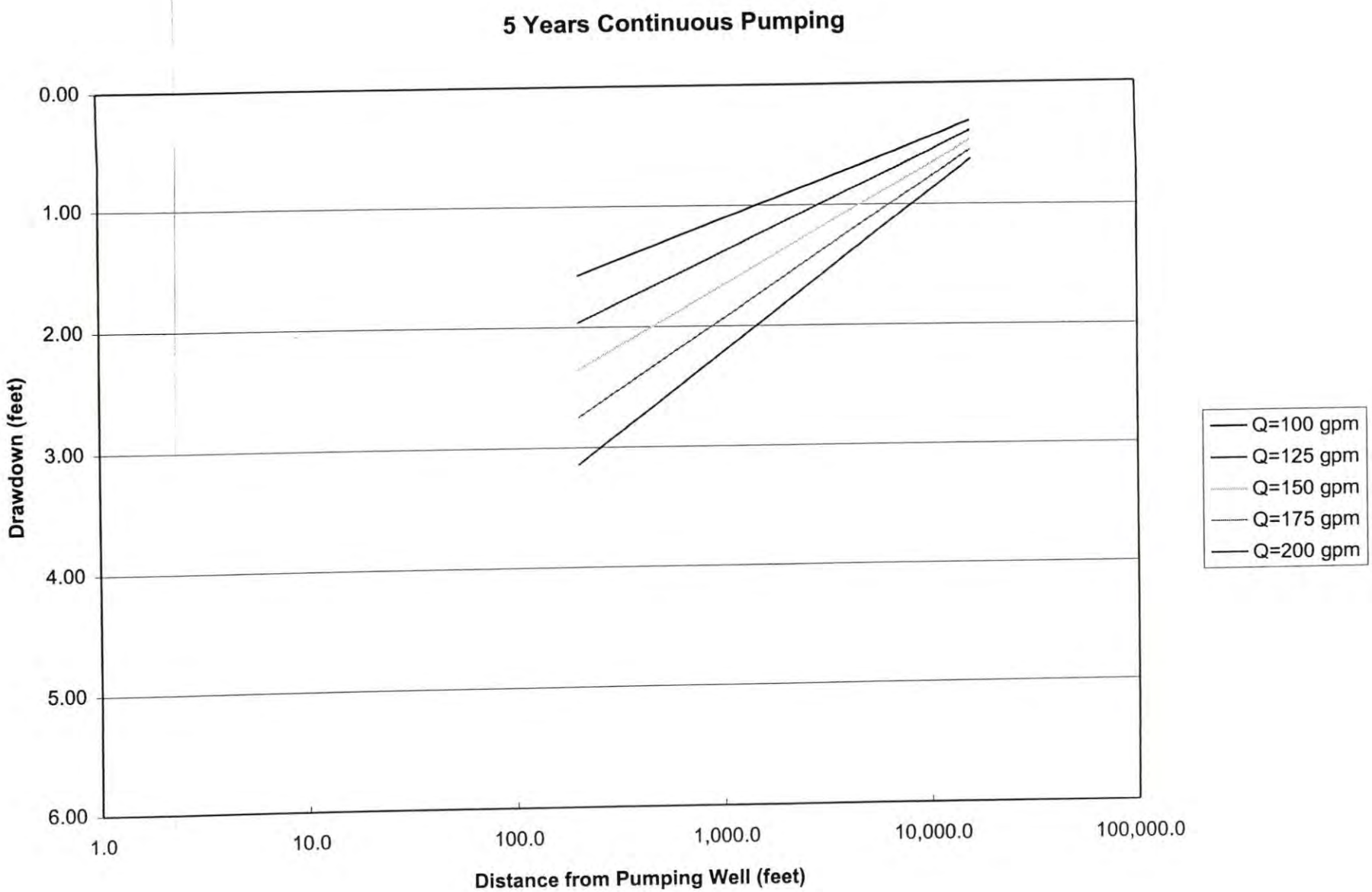

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Distance Drawdown Analytical Model Results
Great Spring Waters of America
Spring Hill Camp

Assumptions

Aquifer transmissivity, T =	79,300	gpd/ft
Storativity, S =	2.00E-02	unitless
Well radius, r =	5	inches
Time, t =	variable	
Discharge, Q =	variable	

	1 Year Continuous Pumping					2 Years Continuous Pumping					5 Years Continuous Pumping				
Distance	Q=100 gpm	Q=125 gpm	Q=150 gpm	Q=175 gpm	Q=200 gpm	Q=100 gpm	Q=125 gpm	Q=150 gpm	Q=175 gpm	Q=200 gpm	Q=100 gpm	Q=125 gpm	Q=150 gpm	Q=175 gpm	Q=200 gpm
0.00	2.76	3.44	4.13	4.82	5.51	2.86	3.57	4.28	5.00	5.71	2.99	3.73	4.48	5.23	5.98
200	1.34	1.68	2.01	2.35	2.68	1.44	1.80	2.16	2.52	2.88	1.57	1.97	2.36	2.75	3.15
400	1.14	1.43	1.71	2.00	2.28	1.24	1.55	1.86	2.17	2.48	1.37	1.72	2.06	2.40	2.75
600	1.02	1.28	1.54	1.79	2.05	1.12	1.41	1.69	1.97	2.25	1.26	1.57	1.89	2.20	2.51
800	0.94	1.18	1.41	1.65	1.88	1.04	1.30	1.56	1.82	2.08	1.17	1.47	1.76	2.05	2.35
1,000	0.88	1.10	1.32	1.53	1.75	0.98	1.22	1.47	1.71	1.95	1.11	1.39	1.66	1.94	2.22
1,200	0.82	1.03	1.24	1.44	1.65	0.92	1.16	1.39	1.62	1.85	1.06	1.32	1.59	1.85	2.11
1,400	0.78	0.97	1.17	1.36	1.56	0.88	1.10	1.32	1.54	1.76	1.01	1.27	1.52	1.77	2.02
1,600	0.74	0.93	1.11	1.30	1.48	0.84	1.05	1.26	1.47	1.68	0.97	1.22	1.46	1.70	1.95
1,800	0.71	0.88	1.06	1.24	1.41	0.81	1.01	1.21	1.41	1.62	0.94	1.17	1.41	1.64	1.88
2,000	0.68	0.85	1.02	1.18	1.35	0.78	0.97	1.17	1.36	1.55	0.91	1.14	1.36	1.59	1.82
2,200	0.65	0.81	0.97	1.14	1.30	0.75	0.94	1.12	1.31	1.50	0.88	1.10	1.32	1.54	1.76
2,400	0.62	0.78	0.94	1.09	1.25	0.72	0.91	1.09	1.27	1.45	0.86	1.07	1.29	1.50	1.71
2,600	0.60	0.75	0.90	1.05	1.20	0.70	0.88	1.05	1.23	1.40	0.83	1.04	1.25	1.46	1.67
2,800	0.58	0.72	0.87	1.01	1.16	0.68	0.85	1.02	1.19	1.36	0.81	1.02	1.22	1.42	1.62
3,000	0.56	0.70	0.84	0.98	1.12	0.66	0.83	0.99	1.16	1.32	0.79	0.99	1.19	1.39	1.58
3,200	0.54	0.68	0.81	0.95	1.08	0.64	0.80	0.96	1.12	1.28	0.77	0.97	1.16	1.35	1.55
3,400	0.52	0.65	0.79	0.92	1.05	0.62	0.78	0.94	1.09	1.25	0.76	0.95	1.13	1.32	1.51
3,600	0.51	0.63	0.76	0.89	1.01	0.61	0.76	0.91	1.06	1.21	0.74	0.92	1.11	1.29	1.48
3,800	0.49	0.61	0.74	0.86	0.98	0.59	0.74	0.89	1.04	1.18	0.72	0.91	1.09	1.27	1.45
4,000	0.48	0.60	0.72	0.83	0.95	0.58	0.72	0.87	1.01	1.15	0.71	0.89	1.06	1.24	1.42
4,200	0.46	0.58	0.69	0.81	0.93	0.56	0.70	0.84	0.99	1.13	0.70	0.87	1.04	1.22	1.39
4,400	0.45	0.56	0.67	0.79	0.90	0.55	0.69	0.82	0.96	1.10	0.68	0.85	1.02	1.19	1.36
4,600	0.44	0.55	0.65	0.76	0.87	0.54	0.67	0.81	0.94	1.07	0.67	0.84	1.00	1.17	1.34
4,800	0.42	0.53	0.64	0.74	0.85	0.52	0.66	0.79	0.92	1.05	0.66	0.82	0.99	1.15	1.31
5,000	0.41	0.52	0.62	0.72	0.83	0.51	0.64	0.77	0.90	1.03	0.64	0.81	0.97	1.13	1.29
5,200	0.40	0.50	0.60	0.70	0.80	0.50	0.63	0.75	0.88	1.00	0.63	0.79	0.95	1.11	1.27
5,400	0.39	0.49	0.59	0.68	0.78	0.49	0.61	0.74	0.86	0.98	0.62	0.78	0.93	1.09	1.25
5,600	0.38	0.47	0.57	0.66	0.76	0.48	0.60	0.72	0.84	0.96	0.61	0.77	0.92	1.07	1.22
5,800	0.37	0.46	0.55	0.65	0.74	0.47	0.59	0.70	0.82	0.94	0.60	0.75	0.90	1.05	1.20
6,000	0.36	0.45	0.54	0.63	0.72	0.46	0.57	0.69	0.80	0.92	0.59	0.74	0.89	1.04	1.18
6,200	0.35	0.44	0.53	0.61	0.70	0.45	0.56	0.68	0.79	0.90	0.58	0.73	0.87	1.02	1.17
6,400	0.34	0.43	0.51	0.60	0.68	0.44	0.55	0.66	0.77	0.88	0.57	0.72	0.86	1.00	1.15
6,600	0.33	0.42	0.50	0.58	0.66	0.43	0.54	0.65	0.76	0.86	0.56	0.71	0.85	0.99	1.13
6,800	0.32	0.40	0.49	0.57	0.65	0.42	0.53	0.64	0.74	0.85	0.56	0.70	0.83	0.97	1.11
7,000	0.32	0.39	0.47	0.55	0.63	0.42	0.52	0.62	0.73	0.83	0.55	0.68	0.82	0.96	1.10
7,200	0.31	0.38	0.46	0.54	0.61	0.41	0.51	0.61	0.71	0.81	0.54	0.67	0.81	0.94	1.08
7,400	0.30	0.37	0.45	0.52	0.60	0.40	0.50	0.60	0.70	0.80	0.53	0.66	0.80	0.93	1.06
7,600	0.29	0.36	0.44	0.51	0.58	0.39	0.49	0.59	0.69	0.78	0.52	0.66	0.79	0.92	1.05
7,800	0.28	0.36	0.43	0.50	0.57	0.38	0.48	0.58	0.67	0.77	0.52	0.65	0.77	0.90	1.03
8,000	0.28	0.35	0.42	0.48	0.55	0.38	0.47	0.57	0.66	0.75	0.51	0.64	0.76	0.89	1.02
8,200	0.27	0.34	0.40	0.47	0.54	0.37	0.46	0.55	0.65	0.74	0.50	0.63	0.75	0.88	1.00
8,400	0.26	0.33	0.39	0.46	0.53	0.36	0.45	0.54	0.63	0.73	0.50	0.62	0.74	0.87	0.99
8,600	0.26	0.32	0.38	0.45	0.51	0.36	0.45	0.53	0.62	0.71	0.49	0.61	0.73	0.85	0.98
8,800	0.25	0.31	0.37	0.44	0.50	0.35	0.44	0.52	0.61	0.70	0.48	0.60	0.72	0.84	0.96
9,000	0.24	0.30	0.36	0.42	0.49	0.34	0.43	0.51	0.60	0.69	0.48	0.59	0.71	0.83	0.95
9,200	0.24	0.30	0.35	0.41	0.47	0.34	0.42	0.50	0.59	0.67	0.47	0.59	0.70	0.82	0.94
9,400	0.23	0.29	0.35	0.40	0.46	0.33	0.41	0.50	0.58	0.66	0.46	0.58	0.69	0.81	0.93
9,600	0.22	0.28	0.34	0.39	0.45	0.32	0.41	0.49	0.57	0.65	0.46	0.57	0.68	0.80	0.91
9,800	0.22	0.27	0.33	0.38	0.44	0.32	0.40	0.48	0.56	0.64	0.45	0.56	0.68	0.79	0.90
10,000	0.21	0.27	0.32	0.37	0.42	0.31	0.39	0.47	0.55	0.62	0.44	0.56	0.67	0.78	0.89
10,200	0.21	0.26	0.31	0.36	0.41	0.31	0.38	0.46	0.54	0.61	0.44	0.55	0.66	0.77	0.88
10,400	0.20	0.25	0.30	0.35	0.40	0.30	0.38	0.45	0.53	0.60	0.43	0.54	0.65	0.76	0.87
10,600	0.20	0.24	0.29	0.34	0.39	0.30	0.37	0.44	0.52	0.59	0.43	0.53	0.64	0.75	0.86
10,800	0.19	0.24	0.29	0.33	0.38	0.29	0.36	0.44	0.51	0.58	0.42	0.53	0.63	0.74	0.85
11,000	0.18	0.23	0.28	0.32	0.37	0.28	0.36	0.43	0.50	0.57	0.42	0.52	0.63	0.73	0.83
11,200	0.18	0.22	0.27	0.31	0.36	0.28	0.35	0.42	0.49	0.56	0.41	0.52	0.62	0.72	0.82
11,400	0.17	0.22	0.26	0.31	0.35	0.27	0.34	0.41	0.48	0.55	0.41	0.51	0.61	0.71	0.81
11,600	0.17	0.21	0.25	0.30	0.34	0.27	0.34	0.40	0.47	0.54	0.40	0.50	0.60	0.70	0.80
11,800	0.16	0.21	0.25	0.29	0.33	0.26	0.33	0.40	0.46	0.53	0.40	0.50	0.60	0.69	0.79
12,000	0.16	0.20	0.24	0.28	0.32	0.26	0.32	0.39	0.45	0.52	0.39	0.49	0.59	0.69	0.78
12,200	0.15	0.19	0.23	0.27	0.31	0.26	0.32	0.38	0.45	0.51	0.39	0.48	0.58	0.68	0.77
12,400	0.15	0.19	0.23	0.26	0.30	0.25	0.31	0.38	0.44	0.50	0.38	0.48	0.57	0.67	0.77
12,600	0.15	0.18	0.22	0.25	0.29	0.25	0.31	0.37	0.43	0.49	0.38	0.47	0.57	0.66	0.76
12,800	0.14	0.18	0.21	0.25	0.28	0.24	0.30	0.36	0.42	0.48	0.37	0.47	0.56	0.65	0.75
13,000	0.14	0.17	0.20	0.24	0.27	0.24	0.30	0.36	0.41	0.47	0.37	0.46	0.55	0.65	0.74
13,200	0.13	0.17	0.20	0.23	0.26	0.23	0.29	0.35	0.41	0.46	0.36	0.46	0.55	0.64	0.73
13,400	0.13	0.16	0.19	0.22	0.26	0.23	0.28	0.34	0.40	0.46	0.36	0.45	0.54	0.63	0.72
13,600	0.12	0.15	0.19	0.22	0.25	0.22	0.28	0.34	0.39	0.45	0.36	0.45	0.53	0.62	0.71
13,800	0.12	0.15	0.18	0.21	0.24	0.22	0.27	0.33	0.39	0.44	0.35	0.44	0.53	0.62	0.70
14,000	0.12	0.14	0.17	0.20	0.23	0.22	0.27	0.32	0.38	0.43	0.35	0.43	0.52	0.61	0.70
14,200	0.11	0.14	0.17	0.19	0.22	0.21	0.26	0.32	0.37	0.42	0.34	0.43	0.52	0.60	0.69
14,400	0.11	0.13	0.16	0.19	0.21	0.21	0.26	0.31	0.36	0.41	0.34	0.42	0.51	0.59	0.68
14,600	0.10	0.13	0.15	0.18	0.21	0.20	0.25	0.30	0.36	0.41	0.34	0.42	0.50	0.59	0.67
14,800	0.10	0.12	0.15	0.17	0.20	0.20	0.25	0.30	0.35	0.40	0.33	0.41	0.50	0.58	0.66
15,000	0.10	0.12	0.14	0.17	0.19	0.20	0.24	0.29	0.34	0.39	0.33	0.41	0.49	0.57	0.66
15,200	0.09	0.11	0.14	0.16	0.18	0.19	0.24	0.29	0.34	0.38	0.32	0.40	0.49	0.57	0.65
15,400	0.09	0.11	0.13	0.15	0.18	0.19	0.23	0.28	0.33	0.38	0.32	0.40	0.48	0.56	0.64
15,600	0.08	0.10	0.13	0.15	0.17	0.18	0.23	0.28	0.32	0.37	0.32	0.40	0.47	0.55	0.63
15,800	0.08	0.10	0.12	0.14	0.16	0.18	0.23	0.27	0.32	0.36	0.31	0.39	0.47	0.55	0.63
16,000	0.08	0.10	0.11	0.13	0.15	0.18	0.22	0.27	0.31	0.35	0.31	0.39	0.46	0.54	0.62

APPENDIX G

WATER SAMPLING ANALYTICAL DATA

9-01-00 15:32

CONFIDENTIAL

alysis Id : 27199 999
nvestigation: SPRING HILL CAMP - MW-5I, 7/21/00
ate sampled : ~~07-12-~~00 2 - 1.0 L 7/21/00
ndition : Blue Ice pack
ceived by : Gowri
eceived Dt : 07-24-00 Due Date Page 1

nstituents.....	Minimum Detection Level	Fed Max Contam Level	Level Found	Unit	
IONS					
Bicarbonate	1.0000	NR	191.5000	mg/l	
Chloride	.5000	250.0000	1.0000	mg/l	
luoride	.1000	2.4000	ND	mg/l	
Nitrate (N03-N)	1.0000	10.0000	ND	mg/l	
Phosphate (P04-P)	.0500	NR	ND	mg/l	
lica	.5000	NR	14.0000	mg/l	
ulfate	.5000	250.0000	10.3000	mg/l	
Nitrite	.1000	1.0000	ND	mg/l	
Bromide	.0030	NR	ND	mg/l	
ATIONS					
luminum	.0100	.2000	.0150	mg/l	
Arsenic	.0050	.0500	ND	mg/l	
arium	.0100	2.0000	.0150	mg/l	
admium	.0010	.0050	ND	mg/l	
Calcium	.5000	NR	46.0000	mg/l	
Chromium	.0020	.1000	ND	mg/l	
opper	.0050	1.0000	ND	mg/l	
ron	.0100	.3000	.0180	mg/l	
Lead	.0010	.0050	ND	mg/l	
agnesium	.0500	NR	16.0000	mg/l	
anganese	.0030	.0500	.0160	mg/l	*
Mercury	.0010	.0020	ND	mg/l	
Potassium	.0100	NR	.5000	mg/l	
elenium	.0050	.0100	ND	mg/l	
ilver	.0050	.1000	ND	mg/l	
Sodium	.2000	NR	2.0000	mg/l	
inc	.0100	5.0000	ND	mg/l	
eryllium	.0005	.0040	ND	mg/l	
Antimony	.0010	.0060	ND	mg/l	
Nickel	.0010	.1000	.0010	mg/l	
hallium	.0005	.0020	ND	mg/l	
ECONDARY QUALITY FACTORS					
Conductivity	1.0000	NR	296.0000	uS/cm	
DS, by evaporation	.5000	NR	180.0000	mg/l	
Total Alkalinity	1.0000	NR	157.0000	mg/l	
Total Hardness	.5000	NR	181.0000	mg/l	
Turbidity Source	.1000	5.0000	.4100	ntu	*
H	.0000	NR	7.7400	pH	

Arrowhead Quality Services Laboratory

ND - None Detected NR - None Required NA - Not Analyzed
* - Lvl Found exceeds Fed or PGA mcl. ** - Exceeds both Fed and PGA mcl.

May-15-00 09:27

CONFIDENTIAL

Analysis Id : 25934 999
Investigation: SPRING HILL CAMP # 2, 5/3/00 Confir
Date sampled : 05-03-00 1 - 1 lr
Condition : Room Temp.
Received by : Anastasia
Received Dt : 05-05-00 Due Date Page 1

Constituents	Minimum Detection Level	Fed Max Contam Level	Level Found	Unit
ANIONS				
Bicarbonate	1.0000	NR	201.0000	mg/l
Chloride	.5000	250.0000	2.6000	mg/l
Flucride	.1000	2.4000	ND	mg/l
Nitrate (N03-N)	1.0000	10.0000	1.5000	mg/l
Phosphate (P04-P)	.0500	NR	ND	mg/l
Silica	.5000	NR	13.0000	mg/l
Sulfate	.5000	250.0000	10.0000	mg/l
Nitrite	.1000	1.0000	ND	mg/l
Bromide	.0030	NR	ND	mg/l
CATIONS				
Aluminum	.0100	.2000	ND	mg/l
Arsenic	.0050	.0500	ND	mg/l
Barium	.0100	2.0000	.0200	mg/l
Cadmium	.0010	.0050	ND	mg/l
Calcium	.5000	NR	46.0000	mg/l
Chromium	.0020	.1000	ND	mg/l
Copper	.0050	1.0000	ND	mg/l
Iron	.0100	.3000	.0160	mg/l ✓
Lead	.0010	.0050	ND	mg/l
Magnesium	.0500	NR	17.0000	mg/l
Manganese	.0030	.0500	ND	mg/l
Mercury	.0010	.0020	ND	mg/l
Potassium	.0100	NR	.5000	mg/l
Selenium	.0050	.0100	ND	mg/l
Silver	.0050	.1000	ND	mg/l
Sodium	1.0000	NR	2.7000	mg/l
Zinc	.0100	5.0000	ND	mg/l
Beryllium	.0005	.0040	ND	mg/l
Antimony	.0010	.0060	ND	mg/l
Nickel	.0010	.1000	ND	mg/l
Thallium	.0005	.0020	ND	mg/l
SECONDARY QUALITY FACTORS				
Conductivity	1.0000	NR	325.0000	uS/cm
TDS, by evaporation	.5000	NR	213.0000	mg/l
Total Alkalinity	1.0000	NR	165.0000	mg/l
Total Hardness	.5000	NR	190.0000	mg/l
Turbidity Source	.1000	5.0000	.1300	ntu
pH	.0000	NR	7.6700	pH

Arrowhead Quality Services Laboratory

ND - None Detected NR - None Required NA - Not Analyzed
* - Lvl Found exceeds Fed or PGA mcl. ** - Exceeds both Fed and PGA mcl.

g-01-00 15:31

CONFIDENTIAL

alysis Id : 27201 999
vestigation: SPRING HILL CAMP MW-7, 7/20/00
Date sampled : 07-20-00 2 - 1.0 L
ndition : Blue Ice pack
ceived by : Gowri
Received Dt : 07-21-00 Due Date Page 1

nstituents.....	Minimum Detection Level	Fed Max Contam Level	Level Found	Unit	
IONS					
Bicarbonate	1.0000	NR	201.0000	mg/l	
Chloride	.5000	250.0000	1.1000	mg/l	
.uoride	.1000	2.4000	ND	mg/l	
Nitrate (N03-N)	1.0000	10.0000	ND	mg/l	
Phosphate (P04-P)	.0500	NR	ND	mg/l	
ilica	.5000	NR	14.0000	mg/l	
ulfate	.5000	250.0000	11.0000	mg/l	
Nitrite	.1000	1.0000	ND	mg/l	
Bromide	.0030	NR	ND	mg/l	
ATIONS					
luminum	.0100	.2000	.0640	mg/l	*
Arsenic	.0050	.0500	ND	mg/l	
arium	.0100	2.0000	.0170	mg/l	
admium	.0010	.0050	ND	mg/l	
Calcium	.5000	NR	46.0000	mg/l	
Chromium	.0020	.1000	ND	mg/l	
opper	.0050	1.0000	ND	mg/l	
ron	.0100	.3000	.0700	mg/l	*
Lead	.0010	.0050	ND	mg/l	
Magnesium	.0500	NR	17.0000	mg/l	
Manganese	.0030	.0500	.0130	mg/l	*
Mercury	.0010	.0020	ND	mg/l	
Potassium	.0100	NR	.5000	mg/l	
Selenium	.0050	.0100	ND	mg/l	
Silver	.0050	.1000	ND	mg/l	
Sodium	.2000	NR	2.1000	mg/l	
Zinc	.0100	5.0000	ND	mg/l	
Beryllium	.0005	.0040	ND	mg/l	
Antimony	.0010	.0060	ND	mg/l	
Nickel	.0010	.1000	.0020	mg/l	
Thallium	.0005	.0020	ND	mg/l	
SECONDARY QUALITY FACTORS					
Conductivity	1.0000	NR	298.0000	uS/cm	
TDS, by evaporation	.5000	NR	200.0000	mg/l	
Total Alkalinity	1.0000	NR	165.0000	mg/l	
Total Hardness	.5000	NR	185.0000	mg/l	
Turbidity Source	.1000	5.0000	2.4000	ntu	*
pH	.0000	NR	7.8000	pH	

Arrowhead Quality Services Laboratory

ND - None Detected NR - None Required NA - Not Analyzed
* - Lvl Found exceeds Fed or PGA mcl. ** - Exceeds both Fed and PGA mcl.

g-01-00 15:32

CONFIDENTIAL

alysis Id : 27200 999
nvestigation: SPRING HILL CAMP - MW-9, 07/24/00
Date sampled : 07-21-00 2 - 1.0 L
ndition : Blue Ice pack
ceived by : Cowri
Received Dt : 07-24-00 Due Date Page 1

nstituents	Minimum Detection Level	Fed Max Contam Level	Level Found	Unit	
IONS					
Bicarbonate	1.0000	NR	207.0000	mg/l	
hloride	.5000	250.0000	1.5000	mg/l	
luoride	.1000	2.4000	ND	mg/l	
itrate (N03-N)	1.0000	10.0000	ND	mg/l	
Phosphate (P04-P)	.0500	NR	ND	mg/l	
ilica	.5000	NR	13.0000	mg/l	
ulfate	.5000	250.0000	12.0000	mg/l	
Nitrite	.1000	1.0000	ND	mg/l	
romide	.0030	NR	ND	mg/l	
ATIONS					
luminum	.0100	.2000	.0110	mg/l	
Arsenic	.0050	.0500	ND	mg/l	
arium	.0100	2.0000	.0200	mg/l	
admium	.0010	.0050	ND	mg/l	
Calcium	.5000	NR	48.0000	mg/l	
Chromium	.0020	.1000	ND	mg/l	
opper	.0050	1.0000	ND	mg/l	
ron	.0100	.3000	.0120	mg/l	
Lead	.0010	.0050	ND	mg/l	
agnesium	.0500	NR	18.0000	mg/l	
anganese	.0030	.0500	.0600	mg/l	***
Mercury	.0010	.0020	ND	mg/l	
Potassium	.0100	NR	.8000	mg/l	
elenium	.0050	.0100	ND	mg/l	
ilver	.0050	.1000	ND	mg/l	
Sodium	.2000	NR	2.1000	mg/l	
inc	.0100	5.0000	ND	mg/l	
eryllium	.0005	.0040	ND	mg/l	
Antimony	.0010	.0060	ND	mg/l	
Nickel	.0010	.1000	.0010	mg/l	
hallium	.0005	.0020	ND	mg/l	
SECONDARY QUALITY FACTORS					
Conductivity	1.0000	NR	317.0000	uS/cm	
TDS, by evaporation	.5000	NR	202.0000	mg/l	
Total Alkalinity	1.0000	NR	170.0000	mg/l	
Total Hardness	.5000	NR	194.0000	mg/l	
Turbidity Source	.1000	5.0000	.3000	ntu	
pH	.0000	NR	7.5700	pH	

Arrowhead Quality Services Laboratory

ND - None Detected NR - None Required NA - Not Analyzed
* - Lvl Found exceeds Fed or PGA mcl. ** - Exceeds both Fed and PGA mcl.

CONFIDENTIAL

Analysis Id : 27302 999
Investigation: SPRING HILL CAMP CENTRAL, 08/2/00
Date sampled : 08-02-00 1 - 1.0 L
Condition : Blue Ice pack
Received by : Lydia
Received Dt : 08-07-00 Due Date Page 1

Constituents	Minimum Detection Level	Fed Max Contam Level	Level Found	Unit
ANIONS				
Bicarbonate	1.0000	NR	210.0000	mg/l
Chloride	.5000	250.0000	3.0000	mg/l
Fluoride	.1000	2.4000	ND	mg/l
Nitrate (N03-N)	1.0000	10.0000	1.0000	mg/l
Phosphate (P04-P)	.0500	NR	ND	mg/l
Silica	.5000	NR	10.0000	mg/l
Sulfate	.5000	250.0000	9.1000	mg/l
Nitrite	.1000	1.0000	ND	mg/l
Bromide	.0030	NR	ND	mg/l
CATIONS				
Aluminum	.0100	.2000	ND	mg/l
Arsenic	.0050	.0500	ND	mg/l
Barium	.0100	2.0000	.0150	mg/l
Cadmium	.0010	.0050	ND	mg/l
Calcium	.5000	NR	47.0000	mg/l
Chromium	.0020	.1000	ND	mg/l
Copper	.0050	1.0000	ND	mg/l
Iron	.0100	.3000	ND	mg/l
Lead	.0010	.0050	ND	mg/l
Magnesium	.0500	NR	16.0000	mg/l
Manganese	.0030	.0500	ND	mg/l
Mercury	.0010	.0020	ND	mg/l
Potassium	.0100	NR	.4000	mg/l
Selenium	.0050	.0100	ND	mg/l
Silver	.0050	.1000	ND	mg/l
Sodium	.2000	NR	2.0000	mg/l
Zinc	.0100	5.0000	ND	mg/l
Beryllium	.0005	.0040	ND	mg/l
Antimony	.0010	.0060	ND	mg/l
Nickel	.0010	.1000	.0010	mg/l
Thallium	.0005	.0020	ND	mg/l
SECONDARY QUALITY FACTORS				
Conductivity	1.0000	NR	336.0000	uS/cm
TDS, by evaporation	.5000	NR	206.0000	mg/l
Total Alkalinity	1.0000	NR	172.0000	mg/l
Total Hardness	.5000	NR	183.0000	mg/l
Turbidity Source	.1000	5.0000	.1600	ntu
pH	.0000	NR	7.4600	pH

Arrowhead Quality Services Laboratory

ND - None Detected NR - None Required NA - Not Analyzed
* - Lvl Found exceeds Fed or PGA mcl. ** - Exceeds both Fed and PGA mcl.

P.G.A Quality Services Laboratory
Water Analysis

Letter: 4882
Date: 31 AUG 2000
Plant: Midwest Spring Search

Attached are results for:
Potential Springs
Sampled: 08/24/00
Received: 08/25/00

The following products exceed P.G.A. and possibly EPA (State) standards. P.G.A. violation is indicated by one asterisk "*", EPA violation indicated by two asterisks "**". See report sheet for MCL's.

Analysis:	Product:	Violations:
999*27384	Spring Hill Camp TW1	None
999*27385	Spring Hill Camp TW2	None
999*27386	Spring Hill Camp TW3	None
999*27387	Spring Hill Camp Seep	None

Laboratory Comments:

Post-it® Fax Note 7671	Date 9/6/00	# of pages ▸ 9
To Mike Brennan	From Gowri Kumar	
Co./Dept.	Co. QS lab	
Phone #	Phone # 213-763-1352	
Fax # (517) 337-0417	Fax # 213-749-3777	

Corrective Action by Plant:

Notes: 1. Total THM is the sum of the results for chloroform, bromodichloromethane, dibromochloromethane, and bromoform. Limits for THM's 2.0 mcg/l for all products.

CONFIDENTIAL

Analysis Id : 27384 999
vestigation: SPRING HILL CAMP TW1, 08/25/00
te sampled : 08-24-00 1 - 1.0 L
dition : Room Temp.
eceived by : Lydia
ceived Dt : 08-25-00 Due Date Page 1

Constituents	Minimum Detection Level	Fed Max Contam Level	Level Found	Unit
IONS				
icarbonate	1.0000	NR	212.0000	mg/l
hloride	.5000	250.0000	3.9000	mg/l
luoride	.1000	2.4000	ND	mg/l
itrate (N03-N)	1.0000	10.0000	2.7000	mg/l
hosphate (P04-P)	.0500	NR	ND	mg/l
Silica	.5000	NR	10.0000	mg/l
lfate	.5000	250.0000	10.2000	mg/l
itrite	.1000	1.0000	ND	mg/l
Bromide	.0030	NR	ND	mg/l
ATIONS				
luminum	.0100	.2000	ND	mg/l
rsenic	.0050	.0500	ND	mg/l
arium	.0100	2.0000	.0160	mg/l
admium	.0010	.0050	ND	mg/l
alcium	.5000	NR	48.6000	mg/l
Chromium	.0020	.1000	ND	mg/l
per	.0050	1.0000	ND	mg/l
on	.0100	.3000	ND	mg/l
Lead	.0010	.0050	ND	mg/l
agnesium	.0500	NR	16.5000	mg/l
anganese	.0030	.0500	ND	mg/l
ercury	.0010	.0020	ND	mg/l
Potassium	.0100	NR	.5000	mg/l
elenium	.0050	.0100	ND	mg/l
ilver	.0050	.1000	ND	mg/l
Sodium	.2000	NR	2.2000	mg/l
inc	.0100	5.0000	.0100	mg/l
eryllium	.0005	.0040	ND	mg/l
Antimony	.0010	.0060	ND	mg/l
ickel	.0010	.1000	ND	mg/l
hallium	.0005	.0020	ND	mg/l
ECONDARY QUALITY FACTORS				
Conductivity	1.0000	NR	367.0000	uS/cm
DS, by evaporation	.5000	NR	224.0000	mg/l
otal Alkalinity	1.0000	NR	174.0000	mg/l
Total Hardness	.5000	NR	189.0000	mg/l
urbidity Source	.1000	5.0000	ND	ntu
H	.0000	NR	7.8700	pH

rrowhead Quality Services Laboratory

ND - None Detected NR - None Required NA - Not Analyzed
* - Lvl Found exceeds Fed or PGA mcl. ** - Exceeds both Fed and PGA mcl.

CONFIDENTIAL

Analysis Id : 27384 999
vestigation: SPRING HILL CAMP TW1, 08/25/00
te sampled : 08-24-00 1 - 1.0 L
ndition : Room Temp.
Received by : Lydia
ceived Dt : 08-25-00 Due Date Page 2

Constituents.....	Minimum Detection Level	Fed Max Contam Level	PGA Max Contam Level	Level Unit Found

Geri Kumar
emist

8/31/00
Laboratory Manager

CONFIDENTIAL

Analysis Id : 27385 999
vestigation: SPRING HILL CAMP TW2, 08/24/00
te sampled : 08-24-00 1 - 1.0 L
ndition : Room Temp.
Received by : Lydia
ceived Dt : 08-25-00 Due Date Page 1

Constituents.....	Minimum Detection Level	Fed Max Contam Level	Level Found	Unit
IONS				
carbonate	1.0000	NR	200.0000	mg/l
Chloride	.5000	250.0000	2.0000	mg/l
Fluoride	.1000	2.4000	ND	mg/l
trate (N03-N)	1.0000	10.0000	ND	mg/l
osphate (P04-P)	.0500	NR	ND	mg/l
Silica	.5000	NR	11.0000	mg/l
lfate	.5000	250.0000	10.0000	mg/l
trite	.1000	1.0000	ND	mg/l
Bromide	.0030	NR	ND	mg/l
ATIONS				
luminum	.0100	.2000	ND	mg/l
Arsenic	.0050	.0500	ND	mg/l
Barium	.0100	2.0000	.0190	mg/l
admium	.0010	.0050	ND	mg/l
alcium	.5000	NR	47.0000	mg/l
Chromium	.0020	.1000	ND	mg/l
pper	.0050	1.0000	ND	mg/l
ron	.0100	.3000	ND	mg/l
Lead	.0010	.0050	ND	mg/l
agnesium	.0500	NR	16.1000	mg/l
anganese	.0030	.0500	ND	mg/l
ercury	.0010	.0020	ND	mg/l
Potassium	.0100	NR	.5000	mg/l
elenium	.0050	.0100	ND	mg/l
ilver	.0050	.1000	ND	mg/l
Sodium	.2000	NR	2.4000	mg/l
inc	.0100	5.0000	.0100	mg/l
eryllium	.0005	.0040	ND	mg/l
Antimony	.0010	.0060	ND	mg/l
ickel	.0010	.1000	.0040	mg/l
hallium	.0005	.0020	ND	mg/l
ECONDARY QUALITY FACTORS				
Conductivity	1.0000	NR	328.0000	uS/cm
DS, by evaporation	.5000	NR	174.0000	mg/l
otal Alkalinity	1.0000	NR	164.0000	mg/l
Total Hardness	.5000	NR	184.0000	mg/l
urbidity Source	.1000	5.0000	ND	ntu
H	.0000	NR	7.9000	pH

rrowhead Quality Services Laboratory

ND - None Detected NR - None Required NA - Not Analyzed
* - Lvl Found exceeds Fed or PGA mcl. ** - Exceeds both Fed and PGA mcl.

CONFIDENTIAL

nalysis Id : 27385 999
-vestigation: SPRING HILL CAMP TW2, 08/24/00
te sampled : 08-24-00 1 - 1.0 L
ıdition : Room Temp.
Received by : Lydia
ceived Dt : 08-25-00 Due Date Page 2

Constituents.....	Minimum Detection Level	Fed Max Contam Level	PGA Max Contam Level	Level Unit Found

Gomi Kumar
ıemist

Laboratory Manager 8/31/00

C O N F I D E N T I A L

nalysis Id : 27386 999
'estigation: SPRING HILL CAMP TW3
.e sampled : 08-25-00 1 - 1.0 L
.dition : Room Temp.
:eived by : Lydia
:eived Dt : 08-25-00 Due Date Page 1

'onstituents.....	Minimum Detection Level	Fed Max Contam Level	Level Found	Unit
IONS				
carbonate	1.0000	NR	201.0000	mg/l
:hloride	.5000	250.0000	1.0000	mg/l
''uoride	.1000	2.4000	ND	mg/l
trate (N03-N)	1.0000	10.0000	ND	mg/l
:hosphate (P04-P)	.0500	NR	ND	mg/l
Silica	.5000	NR	12.0000	mg/l
lfate	.5000	250.0000	10.3000	mg/l
trite	.1000	1.0000	ND	mg/l
Bromide	.0030	NR	ND	mg/l
TIONS				
uminum	.0100	.2000	ND	mg/l
Arsenic	.0050	.0500	ND	mg/l
Barium	.0100	2.0000	.0180	mg/l
dmium	.0010	.0050	ND	mg/l
calcium	.5000	NR	45.0000	mg/l
Chromium	.0020	.1000	ND	mg/l
pper	.0050	1.0000	ND	mg/l
:on	.0100	.3000	.0100	mg/l
Lead	.0010	.0050	ND	mg/l
agnesium	.0500	NR	16.7000	mg/l
anganese	.0030	.0500	.0030	mg/l
Mercury	.0010	.0020	ND	mg/l
Potassium	.0100	NR	.5000	mg/l
elenium	.0050	.0100	ND	mg/l
Silver	.0050	.1000	ND	mg/l
Sodium	.2000	NR	2.5000	mg/l
inc	.0100	5.0000	.0140	mg/l
eryllium	.0005	.0040	ND	mg/l
Antimony	.0010	.0060	ND	mg/l
ickel	.0010	.1000	ND	mg/l
hallium	.0005	.0020	ND	mg/l
SECONDARY QUALITY FACTORS				
Conductivity	1.0000	NR	307.0000	uS/cm
DS, by evaporation	.5000	NR	180.0000	mg/l
Total Alkalinity	1.0000	NR	165.0000	mg/l
Total Hardness	.5000	NR	181.0000	mg/l
urbidity Source	.1000	5.0000	ND	ntu
H	.0000	NR	7.8100	pH

rrowhead Quality Services Laboratory

D - None Detected NR - None Required NA - Not Analyzed
* - Lvl Found exceeds Fed or PGA mcl. ** - Exceeds both Fed and PGA mcl.

C O N F I D E N T I A L

nalysis Id : 27386 999
vestigation: SPRING HILL CAMP TW3
te sampled : 08-25-00 1 - 1.0 L
ndition : Room Temp.
ceived by : Lydia
ceived Dt : 08-25-00 Due Date Page 2

Constituents.....	Minimum Detection Level	Fed Max Contam Level	PGA Max Contam Level	Level Found	Unit

emist

Laboratory Manager 8/31/00

CONFIDENTIAL

nalysis Id : 27387 999
vestigation: SPRING HILL CAMP SEEP, 08/24/00
te sampled : 08-24-00 1 - 1.0 L
ndition : Room Temp.
ceived by : Lydia
ceived Dt : 08-25-00 Due Date Page 1

Constituents.....	Minimum Detection Level	Fed Max Contam Level	Level Found	Unit
IONS				
carbonate	1.0000	NR	207.0000	mg/l
Chloride	.5000	250.0000	3.6000	mg/l
luoride	.1000	2.4000	ND	mg/l
trate (N03-N)	1.0000	10.0000	1.7000	mg/l
hosphate (P04-P)	.0500	NR	ND	mg/l
Silica	.5000	NR	10.0000	mg/l
lfate	.5000	250.0000	9.7000	mg/l
itrite	.1000	1.0000	ND	mg/l
Bromide	.0030	NR	ND	mg/l
ATIONS				
luminum	.0100	.2000	ND	mg/l
Arsenic	.0050	.0500	ND	mg/l
arium	.0100	2.0000	.0150	mg/l
admium	.0010	.0050	ND	mg/l
alcium	.5000	NR	47.0000	mg/l
Chromium	.0020	.1000	ND	mg/l
per	.0050	1.0000	ND	mg/l
on	.0100	.3000	ND	mg/l
Lead	.0010	.0050	ND	mg/l
agnesium	.0500	NR	15.8000	mg/l
anganese	.0030	.0500	ND	mg/l
Mercury	.0010	.0020	ND	mg/l
Potassium	.0100	NR	.6000	mg/l
elenium	.0050	.0100	ND	mg/l
ilver	.0050	.1000	ND	mg/l
Sodium	.2000	NR	2.2000	mg/l
inc	.0100	5.0000	ND	mg/l
eryllium	.0005	.0040	ND	mg/l
Antimony	.0010	.0060	ND	mg/l
ickel	.0010	.1000	ND	mg/l
hallium	.0005	.0020	ND	mg/l
SECONDARY QUALITY FACTORS				
Conductivity	1.0000	NR	348.0000	uS/cm
DS, by evaporation	.5000	NR	201.0000	mg/l
otal Alkalinity	1.0000	NR	170.0000	mg/l
Total Hardness	.5000	NR	182.0000	mg/l
urbidity Source	.1000	5.0000	.1100	ntu
H	.0000	NR	7.8500	pH

rrowhead Quality Services Laboratory

ND - None Detected NR - None Required NA - Not Analyzed
* - Lvl Found exceeds Fed or PGA mcl. ** - Exceeds both Fed and PGA mcl.

C O N F I D E N T I A L

Analysis Id : 27387 999
Investigation: SPRING HILL CAMP SEEP, 08/24/00
Date sampled : 08-24-00 1 - 1.0 L
Condition : Room Temp.
Received by : Lydia
Received Dt : 08-25-00 Due Date Page 2

Constituents.....	Minimum Detection Level	Fed Max Contam Level	PGA Max Contam Level	Level Found	Unit

Chemist

Laboratory Manager 8/31/00

APPENDIX H

SURFACE WATER QUALITY MEASUREMENTS

Figure H-1
Twin Creek Upgradient
Water Temperature vs. Time

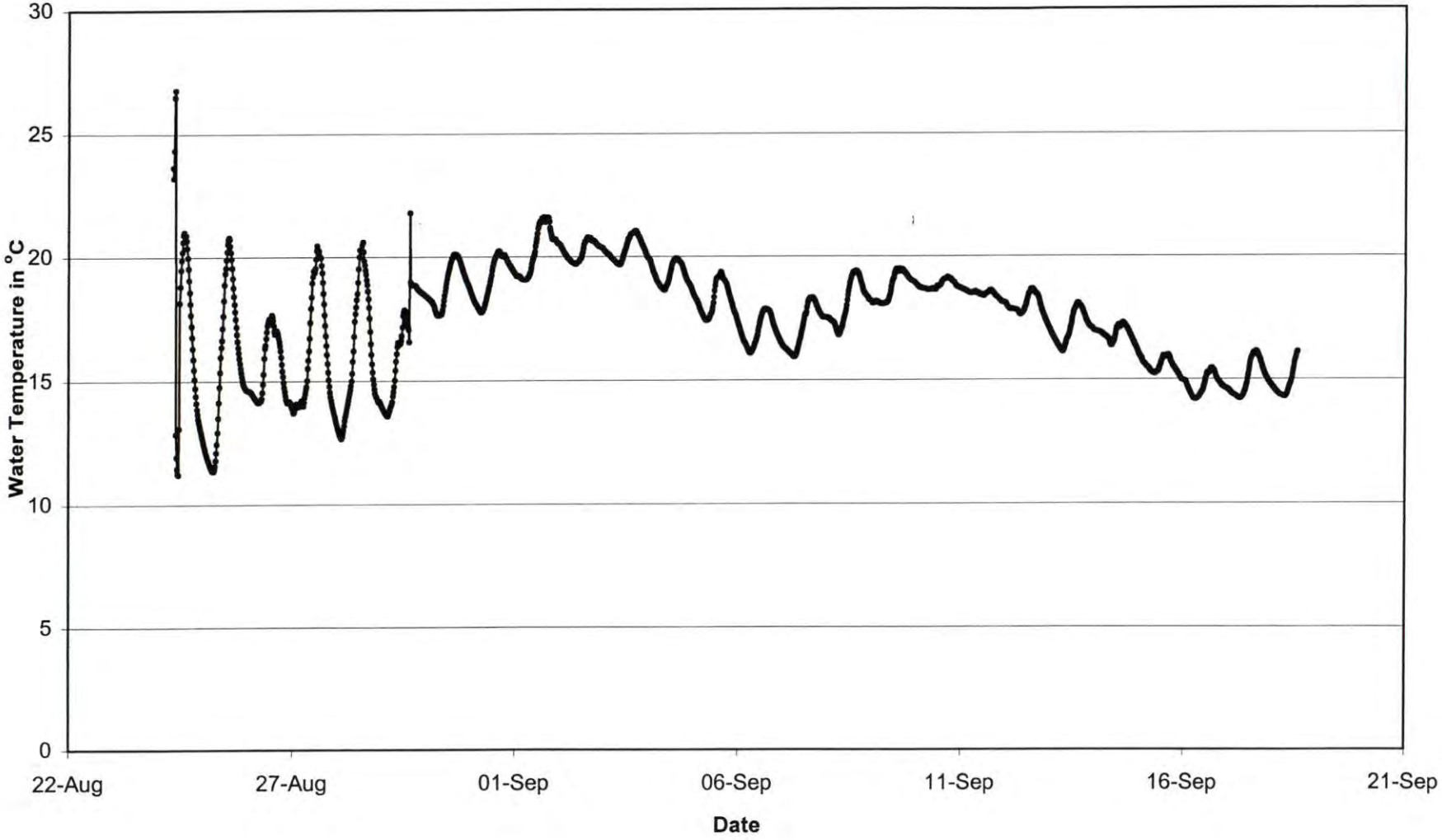

Figure H-2
Twin Creek Upgradient
Water Level vs. Time

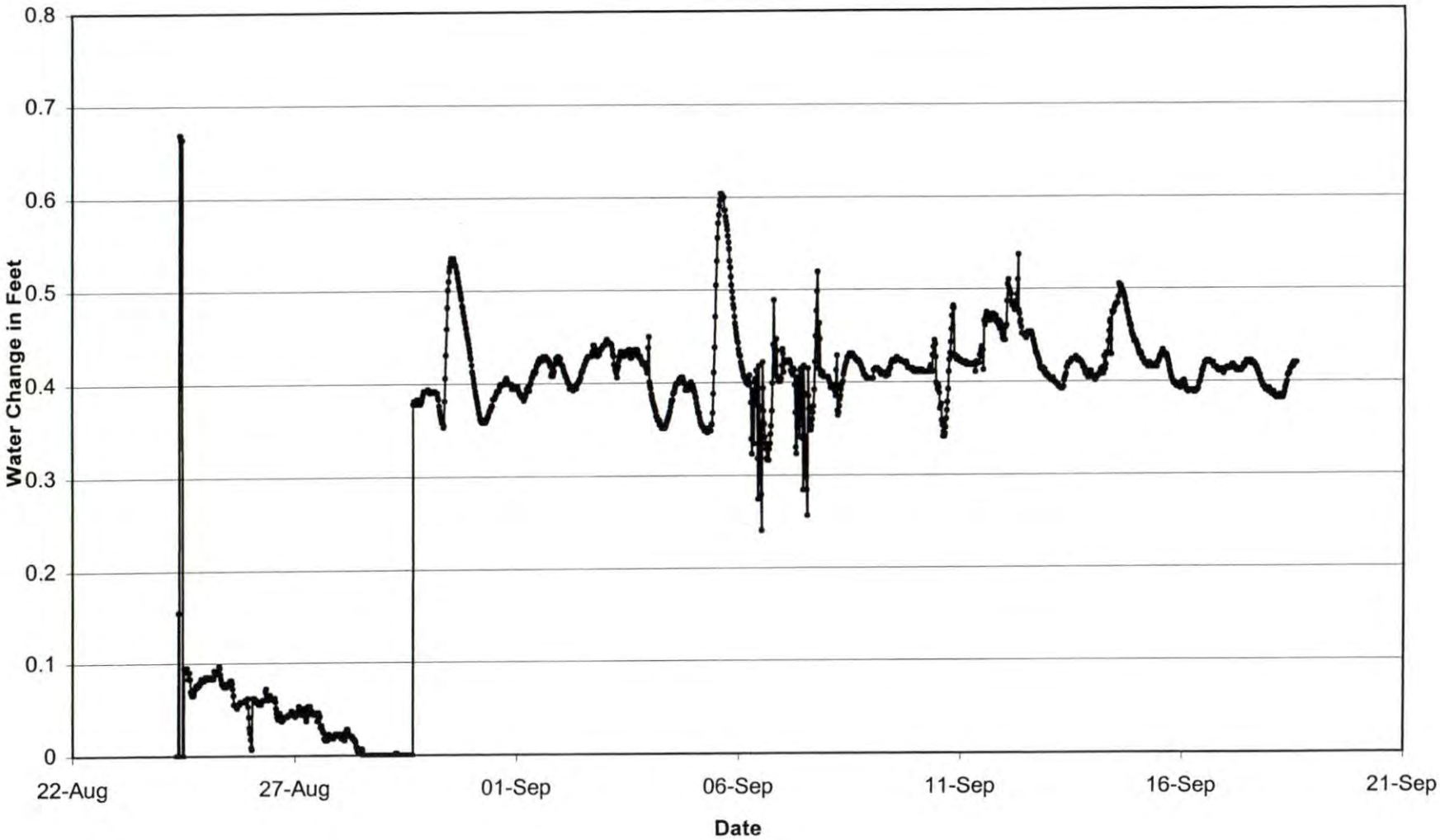

Figure H-3
Twin Creek Upgradient
pH vs. Time

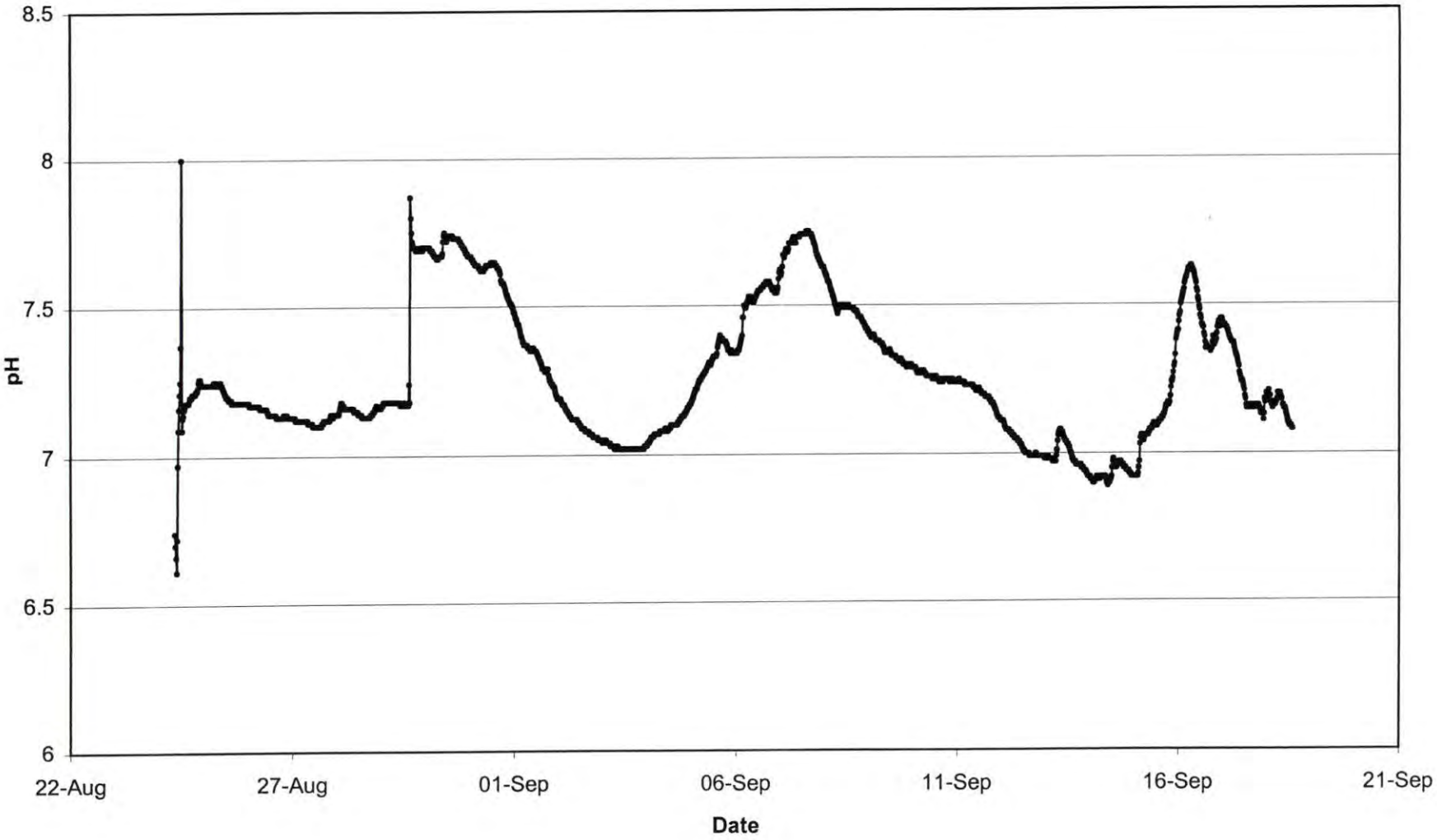

Figure H-4
Twin Creek Upgradient
Conductivity vs. Time

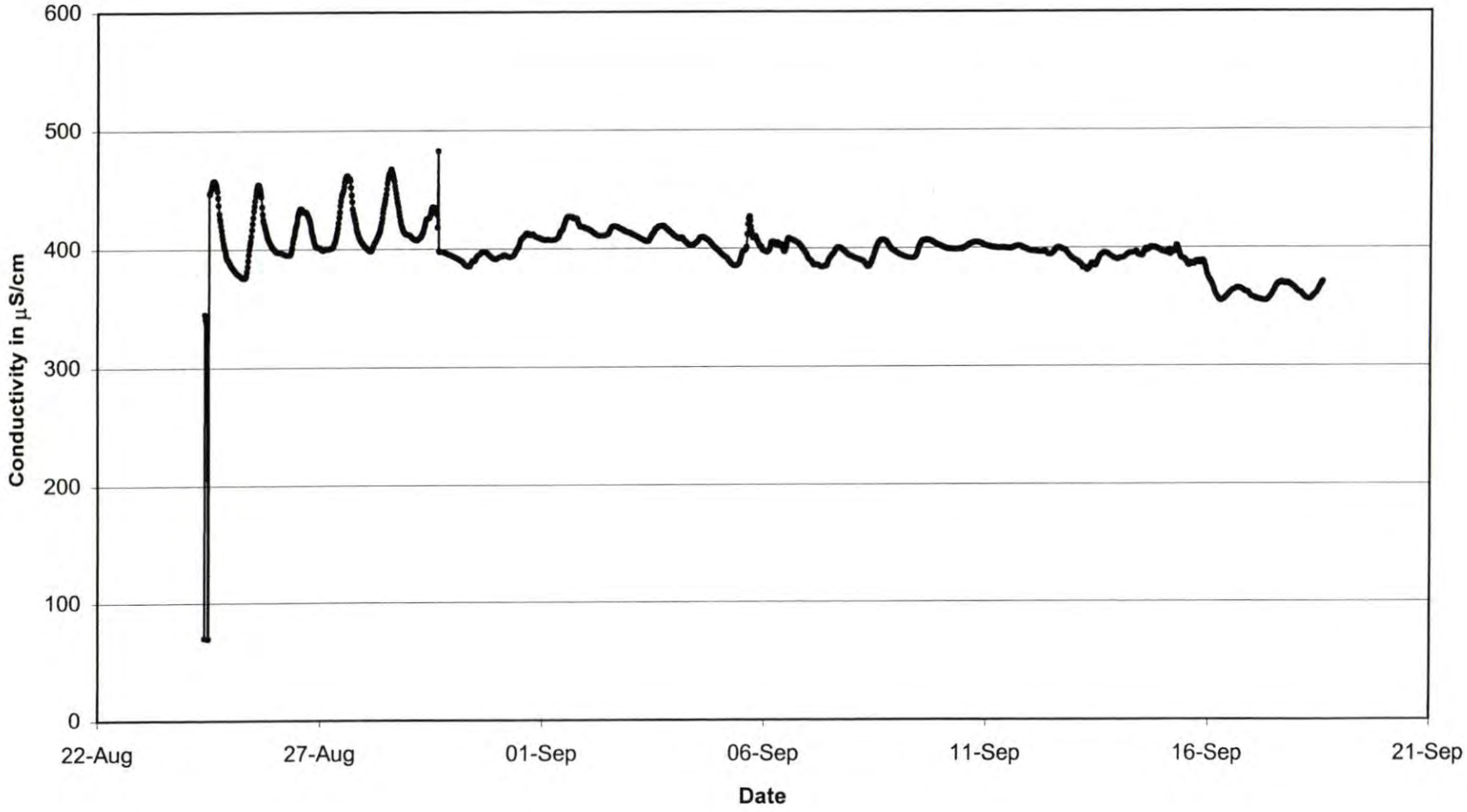

Figure H-5
Twin Creek Upgradient
Dissolved Oxygen vs. Time

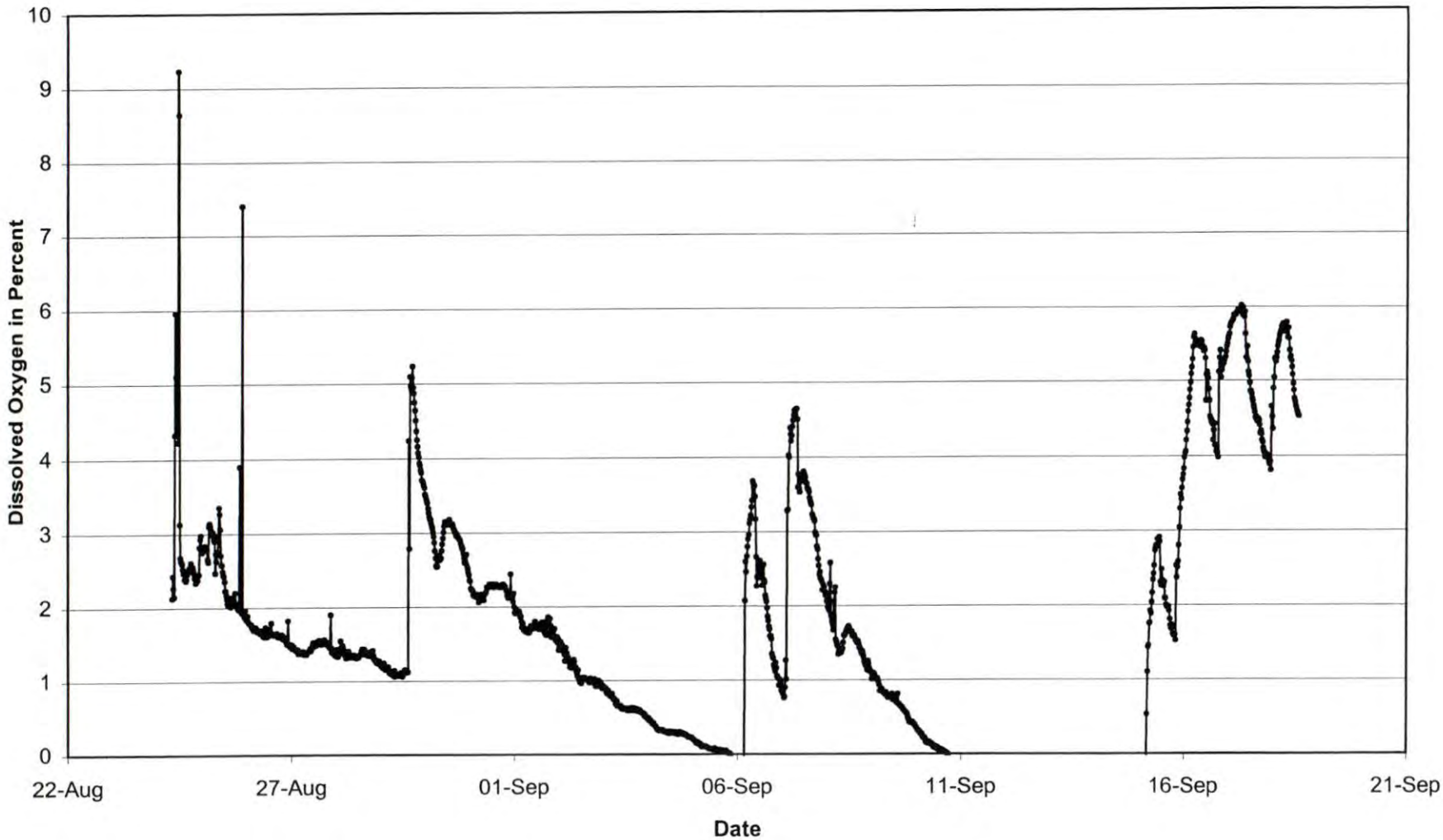

Figure H-6
Vent 1
Water Temperature vs. Time

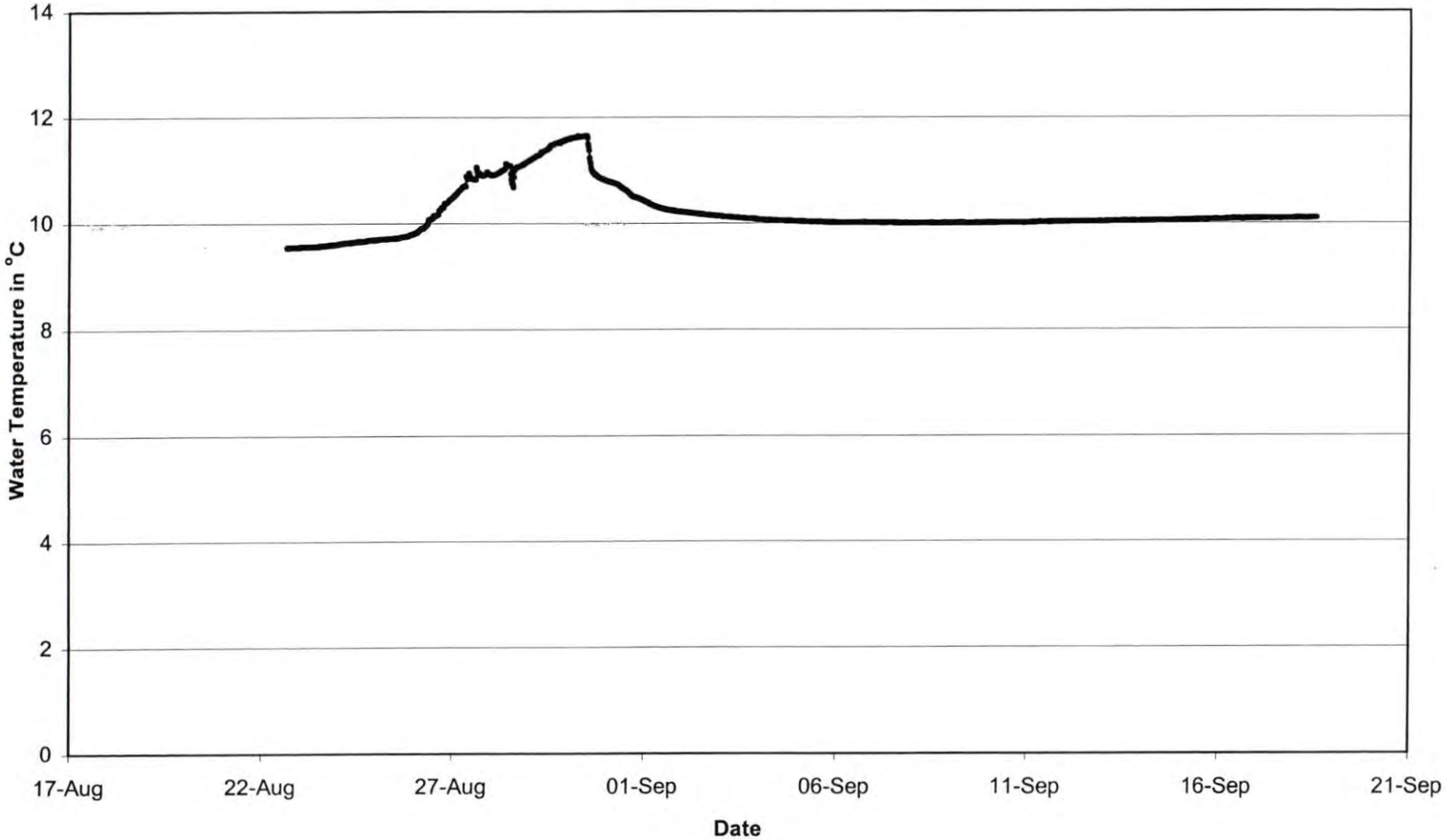

Figure H-7
Vent 1
Water Level vs. Time

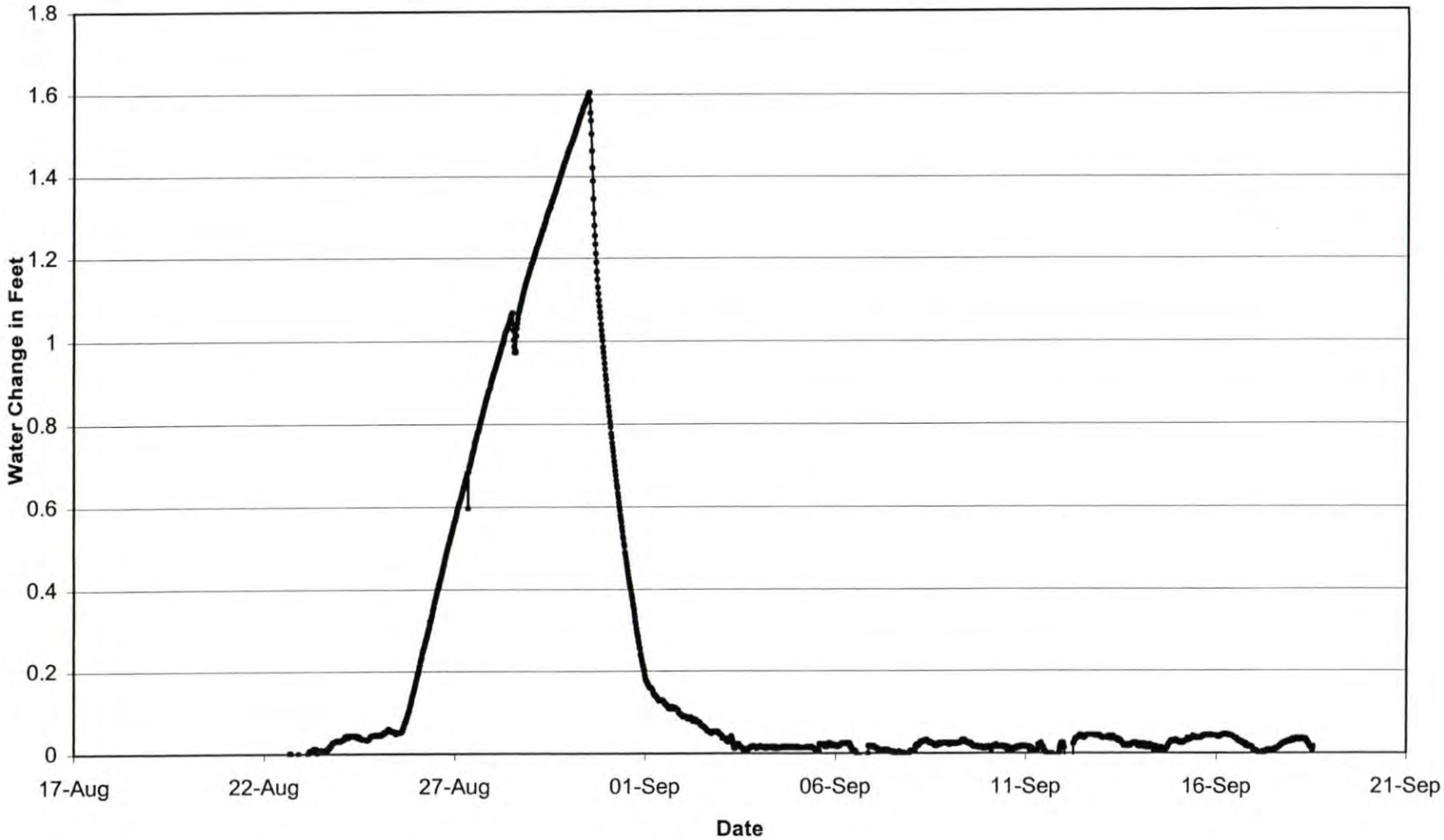

Figure H-8
Vent 1
pH vs. Time

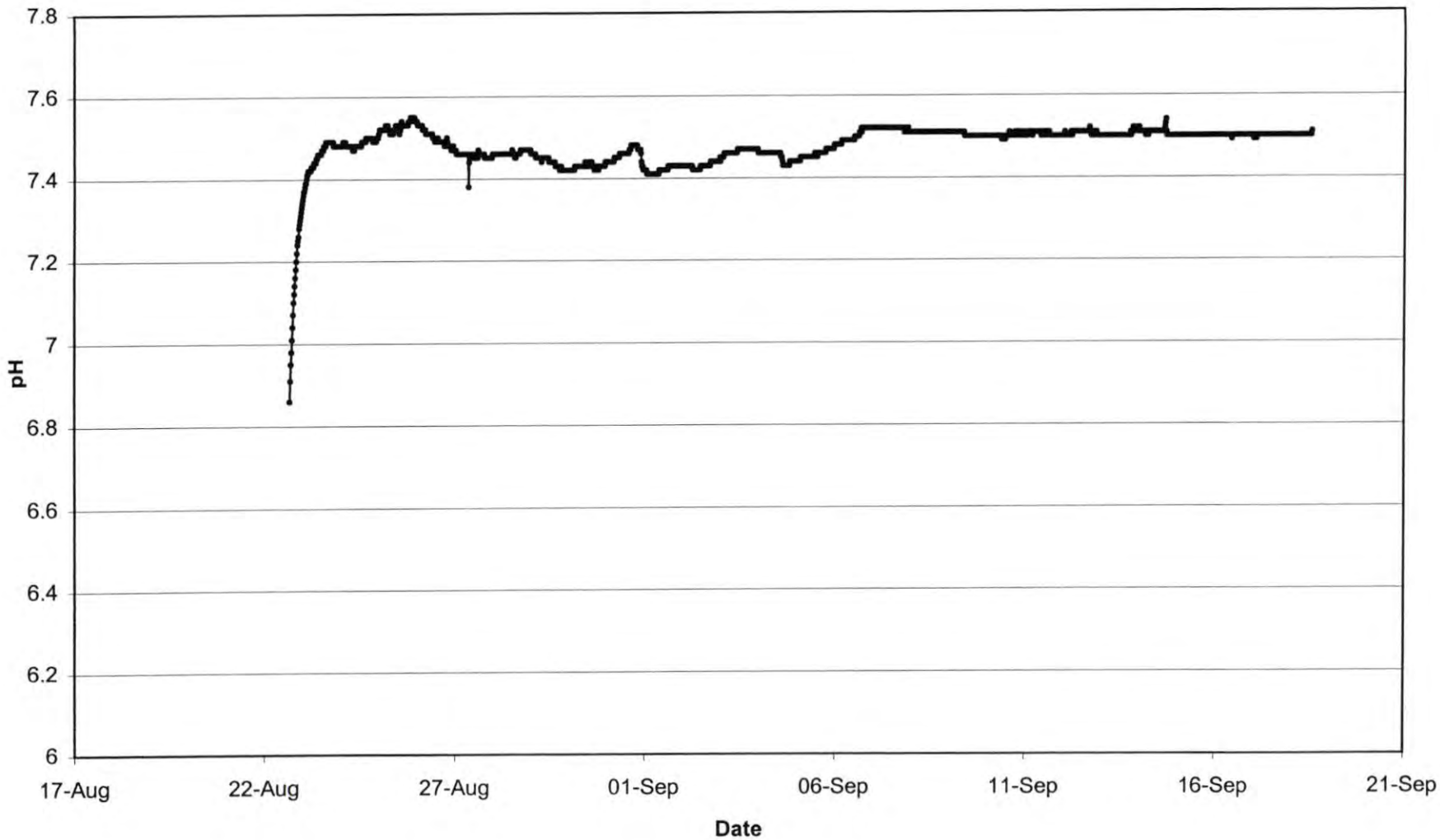

Figure H-9
Vent 1
Conductivity vs. Time

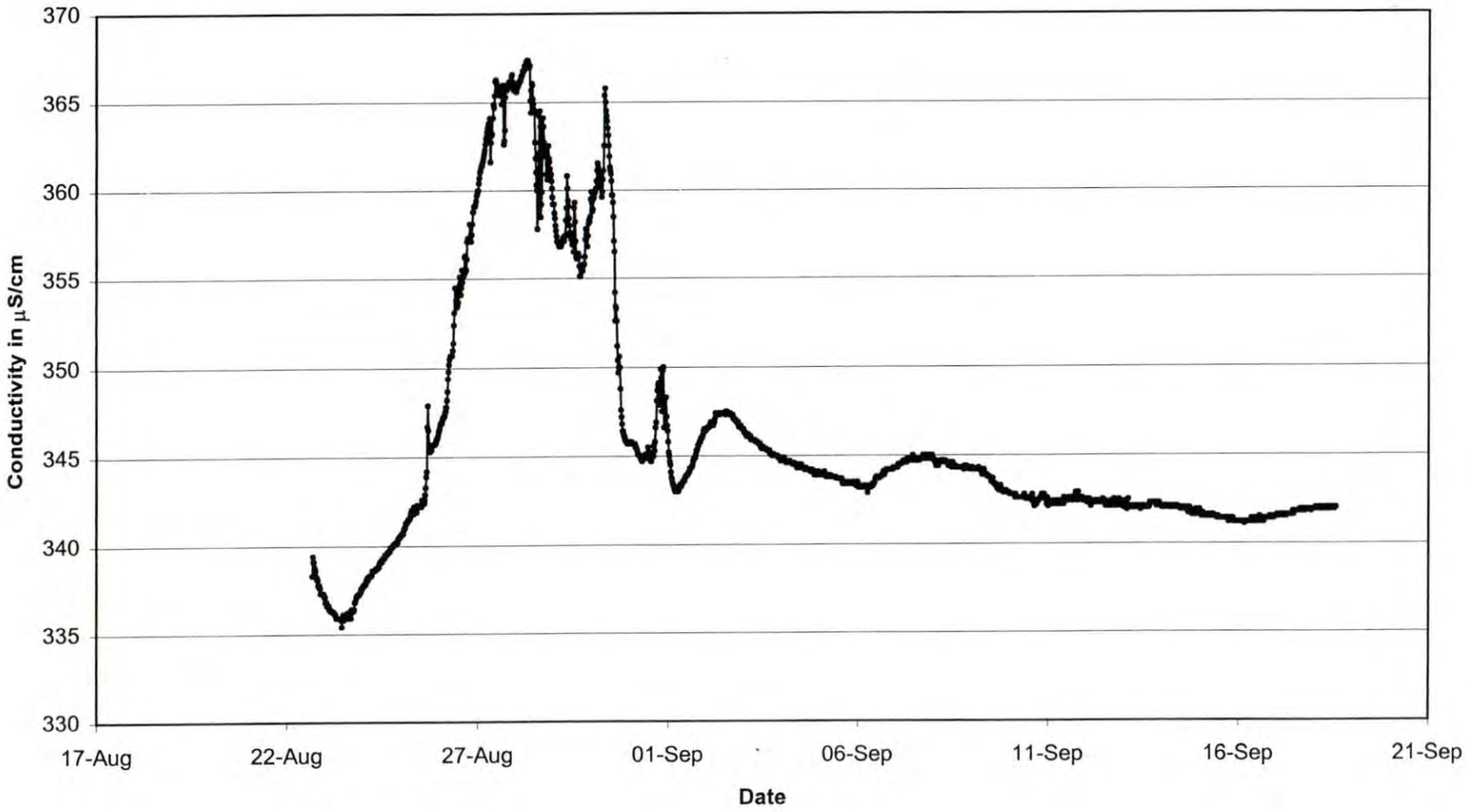

Figure H-10
Vent 1
Dissolved Oxygen vs. Time

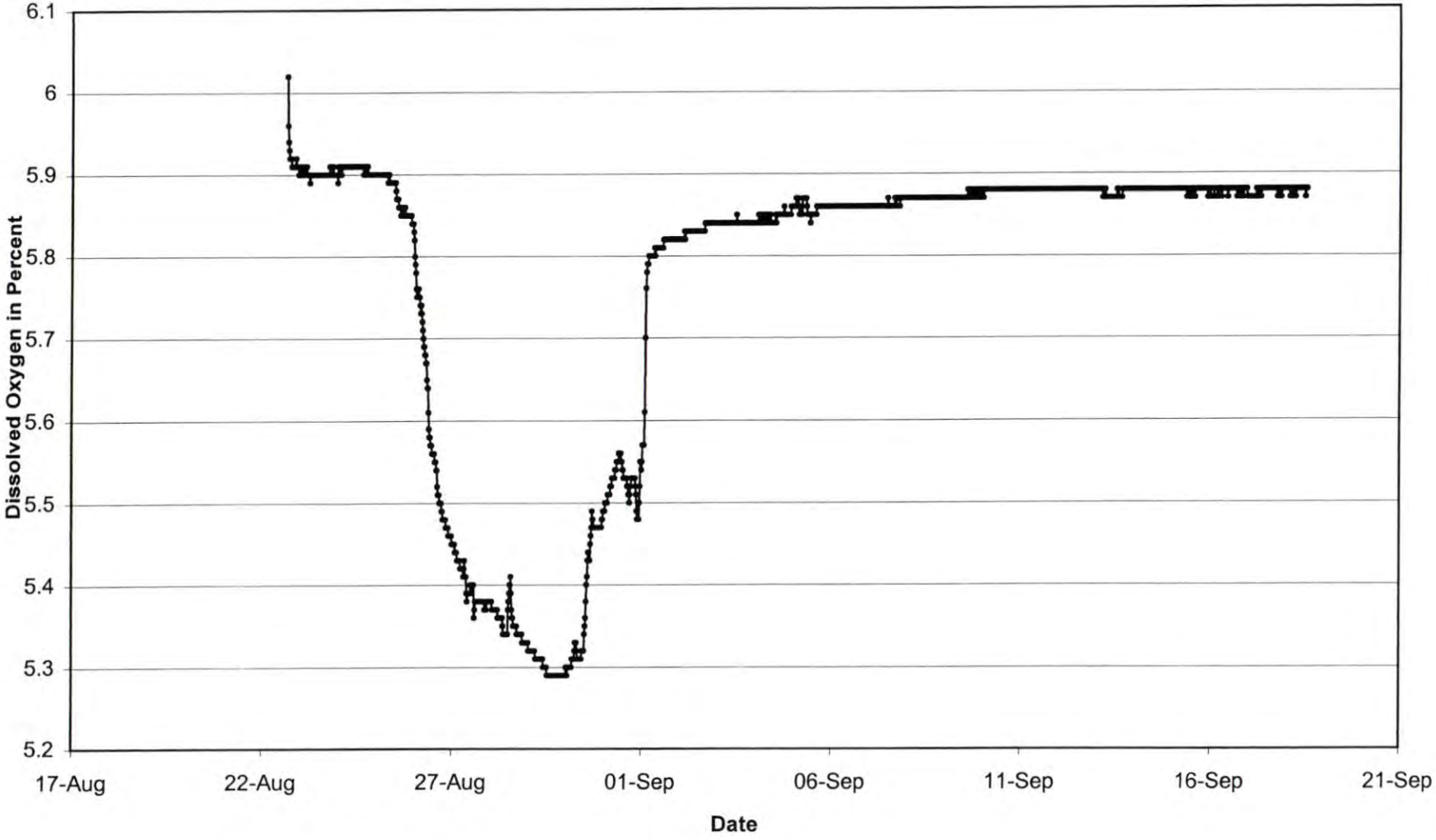

Figure H-11
Twin Creek Downgradient
Temperature vs. Time

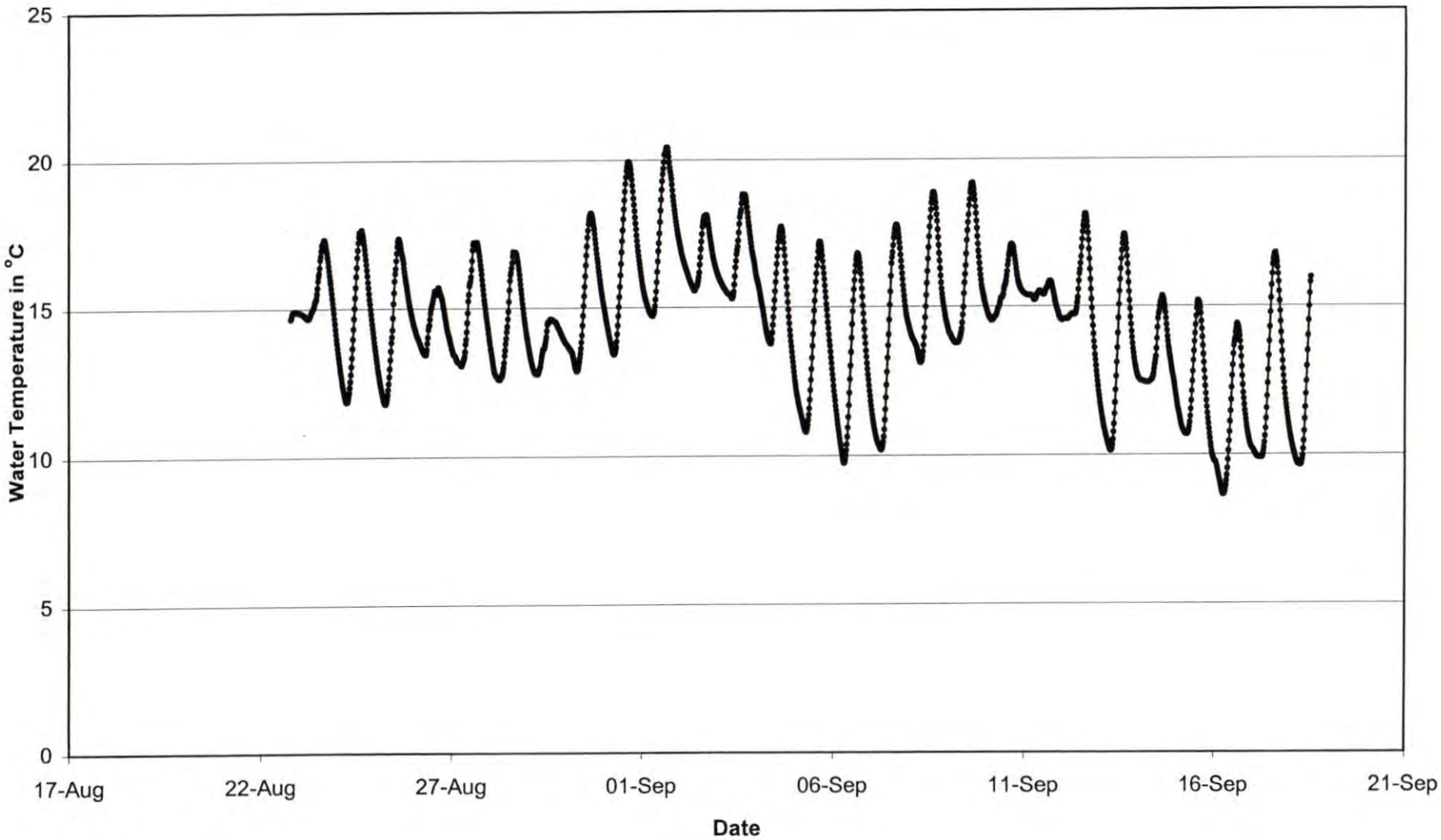

Figure H-12
Twin Creek Downgradient
Water Level vs. Time

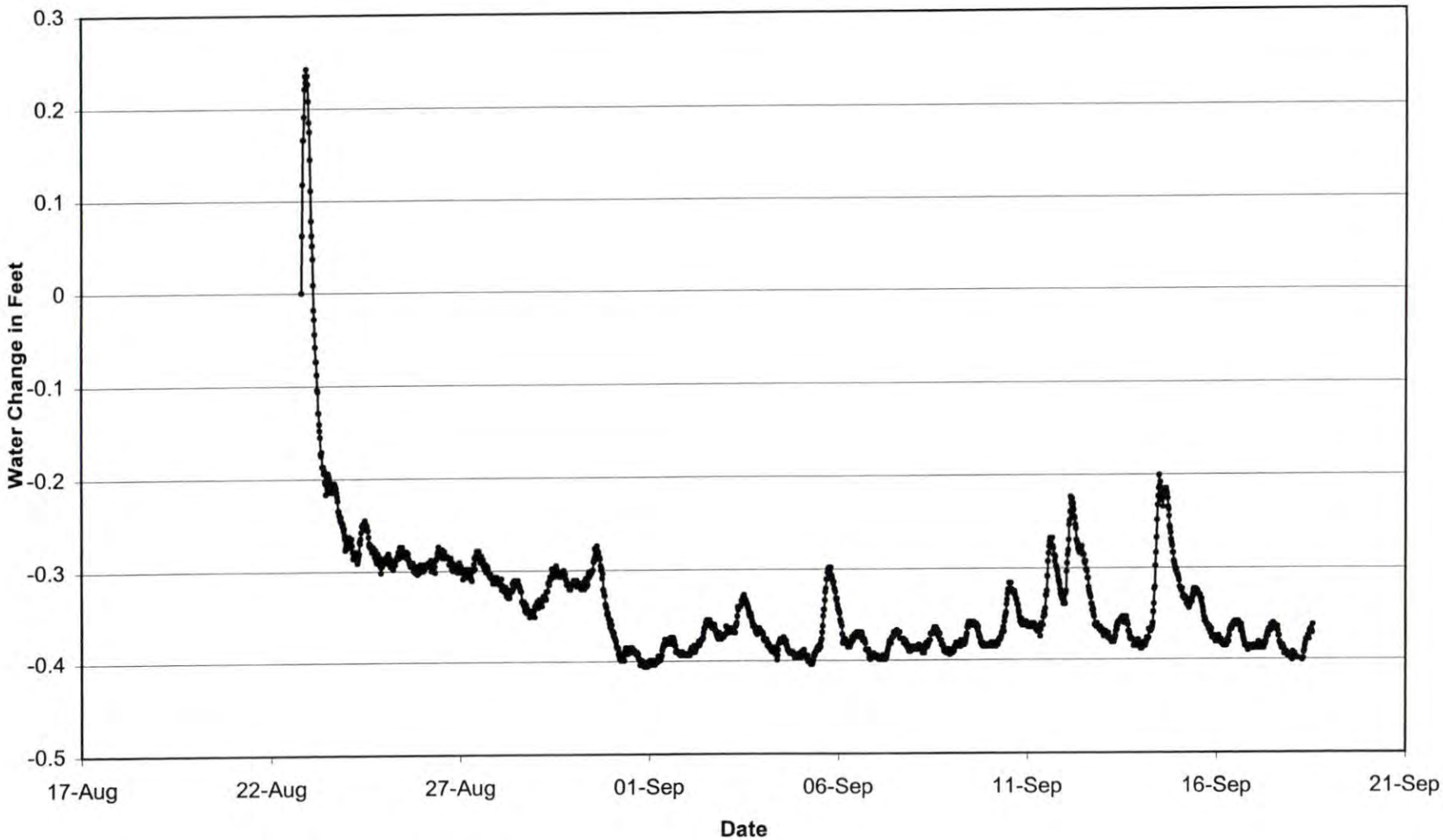

Figure H-13
Twin Creek Downgradient
pH vs. Time

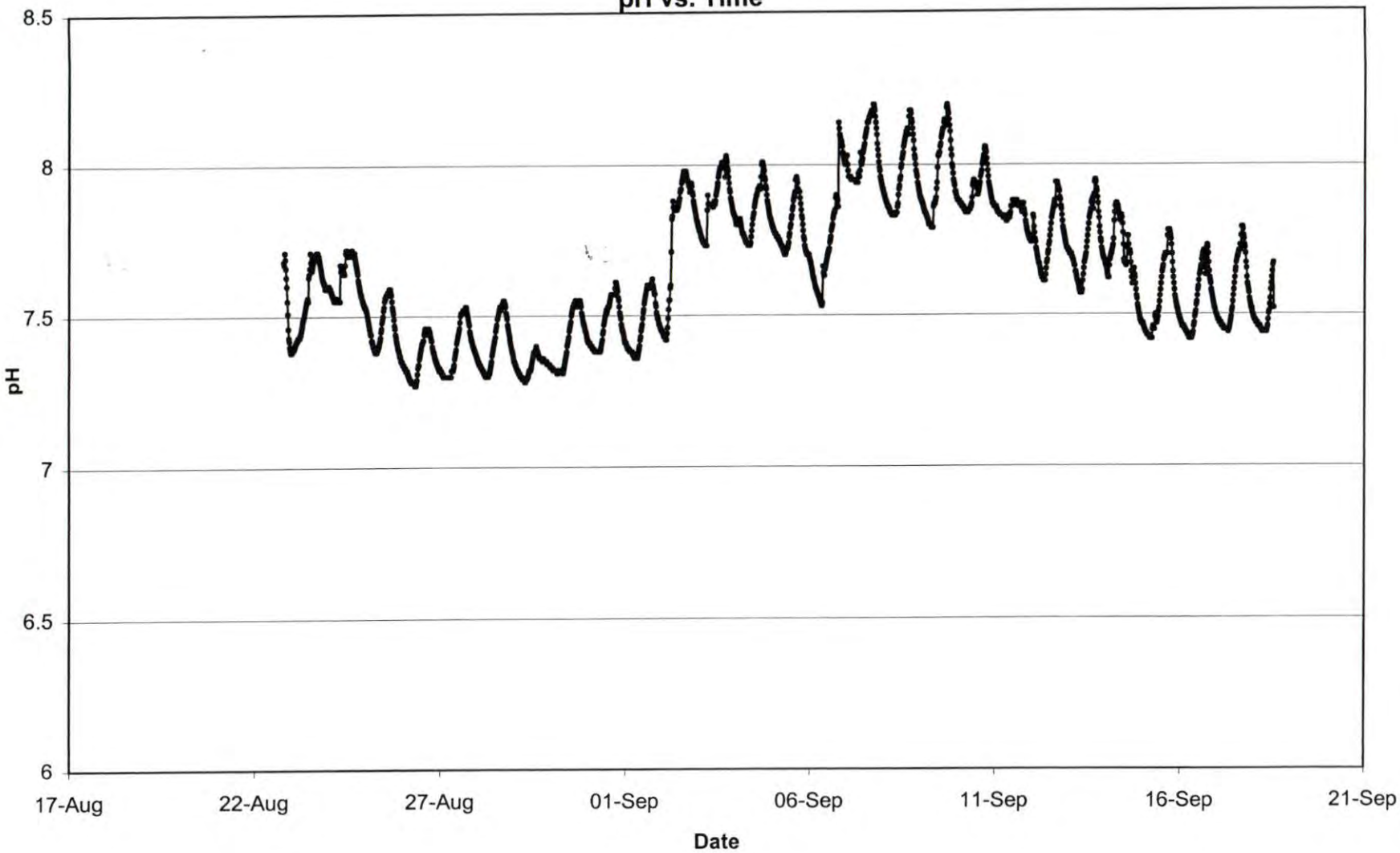

Figure H-14
Twin Creek Downgradient
Conductivity vs. Time

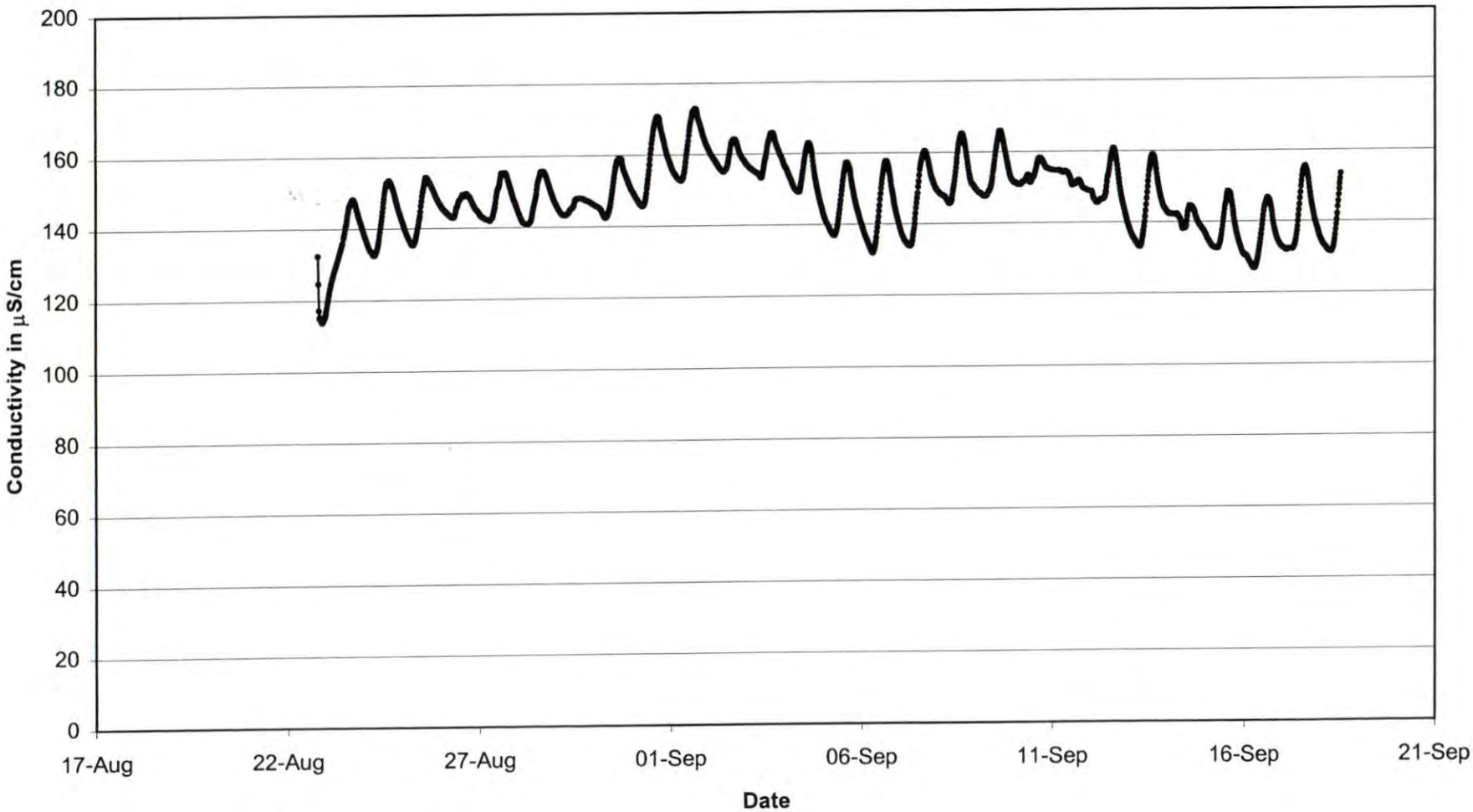
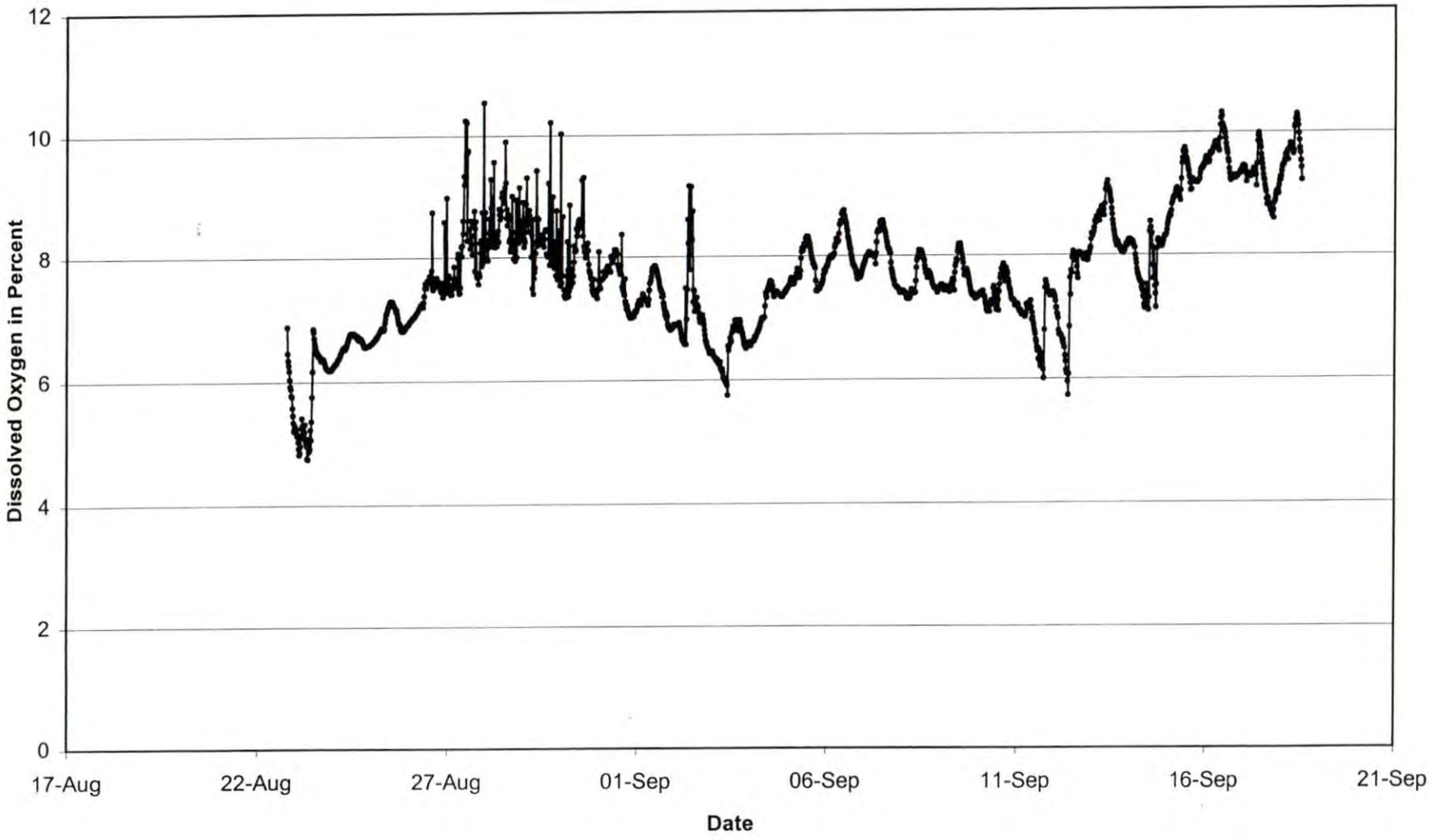
Figure H-15
Twin Creek Downgradient
Dissolved Oxygen