

APPENDIX 5

GHC15-1 - HYDROLOGY TESTING

APPENDIX 5.1

GHC15-1 FHT #1 - 2600'-3025' DEPTH

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FALLING HEAD TEST SIMULATION ANALYSIS

TEST

The falling head test comprises the following elements:

- 1. Water is introduced into the well riser, creating excess head in the well relative to the test formation.
- 2. The excess head causes flow from the wellbore to the formation, resulting in reduction of the water level in the
- 3. As the water drains out, the water level in the well follows an exponential decay over time towards the static level.

ANALYSIS

The rate that water drains out of the well is controlled by well geometry, and hydraulic conductivity of the formation material.

Consider the conditions at a time t:

E_t = water elevation in the well at time t

E_{stat} = static water level in well

Head (H) driving flow from the wellbore into the formation is:

$H = E_t - E_{stat}$ (1)

Radial flow from the well to the formation is (Theim 1870):

$Q = 2 \pi L K H / \ln(R/r')$ (2)

where:

Q = volumetric flow rate

L = test interval formation length

K = hydraulic conductivity of interval

H = excess head in well relative to formation

R = radius of influence of test

r^* = radius of well bore

Using well completion length L for the radius of influence and

applying a form factor for anisotropy (Brown, 2014) gives:

$Q = 2 \alpha \pi L K H / \ln(L/r')$ (3)

where:

α = form factor = 1.12 for Kh/Kv = 0.1

α = form factor = 0.87 for Kh/Kv = 1

α = form factor = 0.61 for Kh/Kv = 10

Flow created by change of water level in the well over time is:

$Q = - \pi r^2 dH/dt$ (4)

where:

r = radius of standpipe at the water surface

Equating Q in equation and equation produces:

$2 \alpha \pi L K H / \ln(L/r') = - \pi r^2 dH$ (5)

Rearranging equation produces:

$dH = - 2 \alpha L K / [r^2 \ln(L/r^*)] H dt$ (6)

Integrating over time and noting that H = Ho at t = 0 gives:

$H = H_o e^{-\beta t}$ (7)

where:

$\beta = 2 \alpha L K / [r^2 \ln(L/r^*)]$ (8)

Hydraulic conductivity is determined from equation (8):

$K = \beta r^2 \ln(L/r^*) / (2 \alpha L)$ (9)

ANALYSIS METHOD

The method of analysis comprises the following:

- 1. Fit the exponential curve to the falling head test varying:
 - E_o = starting water level elevation
 - E_{stat} = static water level elevation
 - β = exponent
- 2. Compute formation hydraulic conductivity from eq. (9):
 $K = \beta r^2 \ln(L/r^*) / (2 \alpha L)$

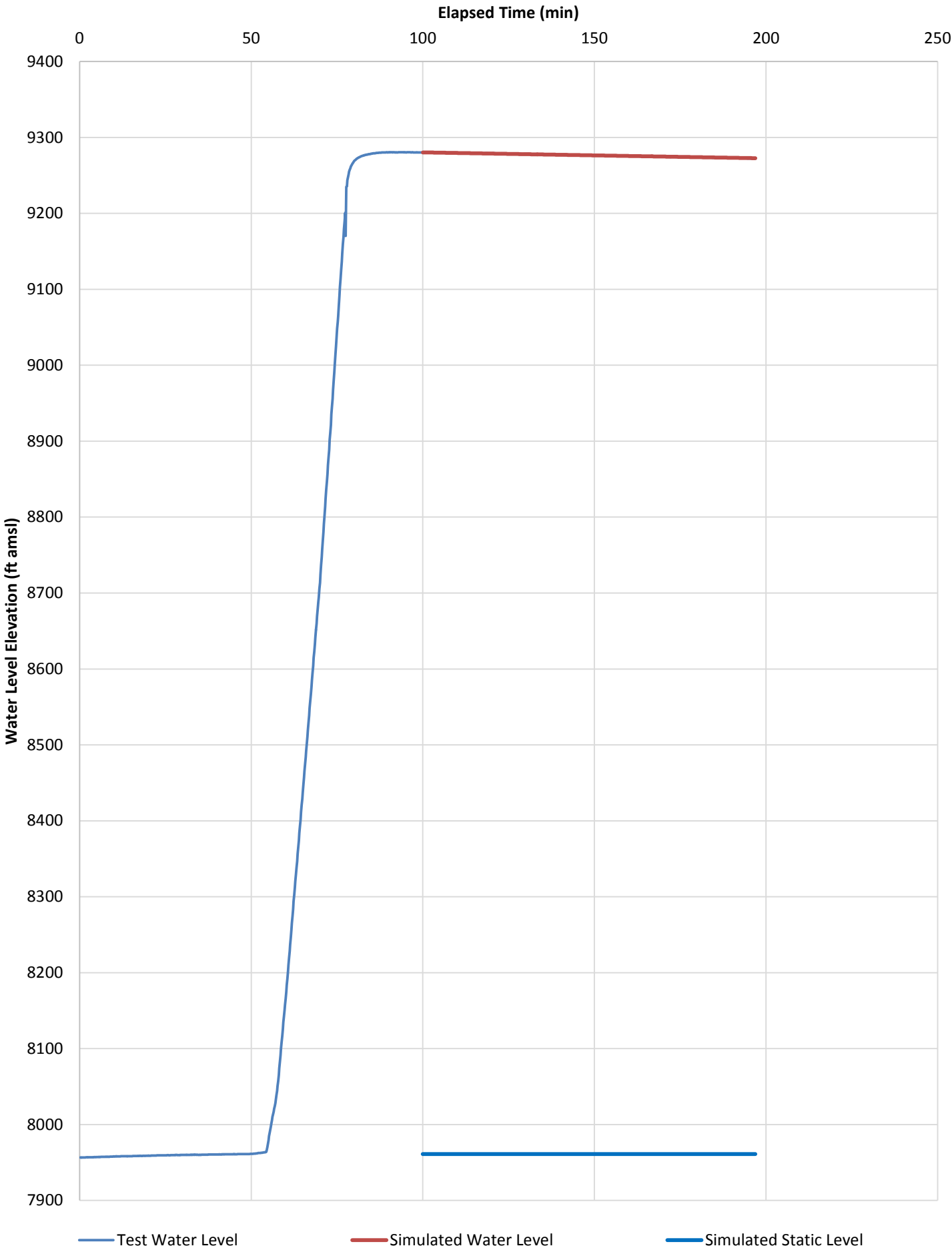
REFERENCES:

Thiem, A., 1870. *The yield of artesian wells, dug wells and filter galleries*. J. Gas Lighting Water Supply (Munich), vol.14

Brown A, 2014. *Reliable Packer Testing and Analysis*. 12th

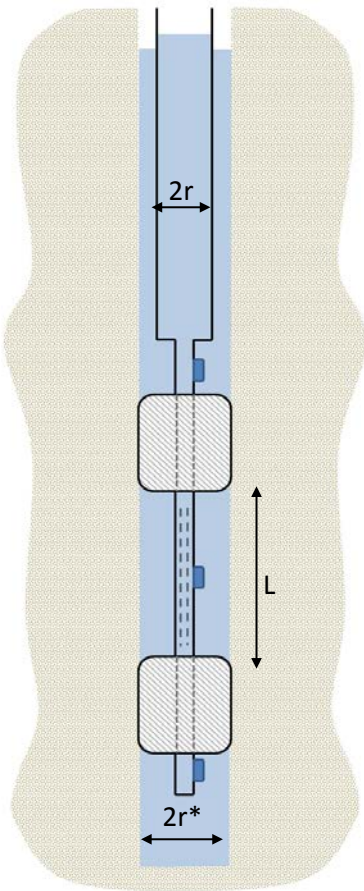
International Mine Water Association Congress, Xuzhou,

FALLING HEAD TEST RESULTS AND BEST-FIT SIMULATION



ANALYSIS OF HYDRAULIC CONDUCTIVITY

TEST INTERVAL GEOMETRY



Stem Radius (r)

ID of HQ (in) 3.06

r = (in) 1.53

Inclination (°) -87.39

r (in) (sloping) 1.53

Well Radius (r*)

OD of NQ (in) 2.965

r* = (in) 1.48

Test Interval (L)

Top depth (ft) 2600

Bottom dep (ft) 3025

L (ft) 425

BEST FIT TO FALLING HEAD TEST DATA

Parameter	Unit	Simulation 1	Simulation 2
E(start)	ft	9280	
E(static)	ft	7961	
β (exponent)	/min	6.00E-05	
t(start)	min	100.00	
t(end)	min	200.00	
Sum of Error	ft	0.00	
RMS of Error	ft	0.25	

COMPUTATION OF HYDRAULIC CONDUCTIVITY

$K = \beta r^2 \ln(L/r^*) / (2 \alpha L)$

Parameter	Unit	Simulation 1	Simulation 2
β (exponent)	/min	6.00E-05	
r (stem radius)	ft	0.128	
L (test interval)	ft	425	
r* (well radius)	ft	0.124	
α (form factor)	--	0.87	
K (hyd.cond.)	ft/min	1.1E-08	
	cm/sec	5.5E-09	



Scale: As shown

Drawn: A.Brown

Date: 2015-12-09

GHC15-1 - Deep Carbonate Borehole Report

APPENDIX 5.1

GHC15-1 FHT #1 - 2600'-3025' DEPTH

Date/Time	Time (min)	Battery (V)	Temp (°C)	Reading (ft)	Sensor Tmp (°C)	Recovery (min)	WLE (ft)
4/9/15 8:13	0.00	1.91	-2.90	126.35	17.40		7956.47
4/9/15 8:14	0.20	1.91	-2.76	126.36	17.40		7956.49
4/9/15 8:14	0.37	2.02	-2.71	126.38	17.40		7956.44
4/9/15 8:14	0.53	2.03	-2.76	126.33	17.40		7956.56
4/9/15 8:14	0.70	2.01	-2.78	126.45	17.50		7956.54
4/9/15 8:14	0.87	2.02	-2.80	126.43	17.50		7956.71
4/9/15 8:15	1.03	2.03	-2.80	126.59	17.50		7956.69
4/9/15 8:15	1.20	2.03	-2.80	126.58	17.50		7956.68
4/9/15 8:15	1.37	2.04	-2.83	126.57	17.50		7956.67
4/9/15 8:15	1.53	2.02	-2.83	126.55	17.50		7956.71
4/9/15 8:15	1.70	2.05	-2.85	126.60	17.50		7956.75
4/9/15 8:15	1.87	2.03	-2.85	126.63	17.50		7956.80
4/9/15 8:16	2.03	2.04	-2.85	126.69	17.50		7956.74
4/9/15 8:16	2.20	2.04	-2.85	126.63	17.50		7956.68
4/9/15 8:16	2.37	2.04	-2.85	126.57	17.50		7956.79
4/9/15 8:16	2.53	2.04	-2.85	126.67	17.50		7956.79
4/9/15 8:16	2.70	2.02	-2.85	126.67	17.50		7956.84
4/9/15 8:16	2.87	2.04	-2.85	126.73	17.50		7956.87
4/9/15 8:17	3.03	2.03	-2.85	126.76	17.60		7956.96
4/9/15 8:17	3.20	2.04	-2.90	126.85	17.60		7956.88
4/9/15 8:17	3.37	2.04	-2.88	126.77	17.60		7956.96
4/9/15 8:17	3.53	2.04	-2.88	126.85	17.60		7957.01
4/9/15 8:17	3.70	2.04	-2.90	126.90	17.60		7956.97
4/9/15 8:17	3.87	1.95	-2.90	126.85	17.60		7957.02
4/9/15 8:18	4.03	2.05	-2.88	126.90	17.60		7956.88
4/9/15 8:18	4.20	2.04	-2.88	126.77	17.60		7957.07
4/9/15 8:18	4.37	2.05	-2.90	126.96	17.60		7957.11
4/9/15 8:18	4.53	1.96	-2.90	127.00	17.60		7956.98
4/9/15 8:18	4.70	1.94	-2.80	126.87	17.60		7957.11
4/9/15 8:18	4.87	2.02	-2.76	127.00	17.60		7957.07
4/9/15 8:19	5.03	2.04	-2.80	126.96	17.60		7957.21
4/9/15 8:19	5.20	2.04	-2.83	127.09	17.60		7957.16
4/9/15 8:19	5.37	2.05	-2.85	127.04	17.60		7957.19
4/9/15 8:19	5.53	2.04	-2.85	127.08	17.60		7957.30
4/9/15 8:19	5.70	2.04	-2.88	127.19	17.60		7957.27
4/9/15 8:19	5.87	2.04	-2.85	127.16	17.60		7957.26
4/9/15 8:20	6.03	2.05	-2.88	127.15	17.60		7957.38
4/9/15 8:20	6.20	2.04	-2.90	127.27	17.60		7957.34
4/9/15 8:20	6.37	2.04	-2.90	127.23	17.60		7957.33
4/9/15 8:20	6.53	2.04	-2.93	127.22	17.60		7957.37
4/9/15 8:20	6.70	2.04	-2.93	127.25	17.60		7957.40
4/9/15 8:20	6.87	2.04	-2.93	127.28	17.60		7957.42
4/9/15 8:21	7.03	2.05	-2.93	127.31	17.70		7957.50
4/9/15 8:21	7.20	2.05	-2.93	127.39	17.70		7957.52
4/9/15 8:21	7.37	2.05	-2.93	127.41	17.70		7957.48
4/9/15 8:21	7.53	2.05	-2.95	127.36	17.70		7957.59
4/9/15 8:21	7.70	2.05	-2.95	127.48	17.70		7957.54
4/9/15 8:21	7.87	2.05	-2.93	127.43	17.70		7957.55
4/9/15 8:22	8.03	2.05	-2.98	127.44	17.70		7957.66
4/9/15 8:22	8.20	2.04	-2.98	127.55	17.70		7957.55
4/9/15 8:22	8.37	2.05	-2.95	127.44	17.70		7957.53
4/9/15 8:22	8.53	2.04	-2.95	127.42	17.70		7957.56
4/9/15 8:22	8.70	2.04	-2.95	127.44	17.70		7957.64
4/9/15 8:22	8.87	2.04	-2.98	127.53	17.70		7957.80
4/9/15 8:23	9.03	2.05	-2.98	127.69	17.70		7957.79
4/9/15 8:23	9.20	2.05	-2.93	127.67	17.70		7957.65
4/9/15 8:23	9.37	2.05	-2.95	127.54	17.70		7957.77
4/9/15 8:23	9.53	2.03	-2.95	127.66	17.70		7957.72
4/9/15 8:23	9.70	2.05	-2.93	127.61	17.70		7957.93
4/9/15 8:23	9.87	2.05	-2.95	127.82	17.70		7957.92
4/9/15 8:24	10.03	2.05	-2.95	127.81	17.70		7957.60
4/9/15 8:24	10.20	2.05	-2.95	127.48	17.70		7957.93
4/9/15 8:24	10.37	2.05	-2.98	127.82	17.70		7958.05
4/9/15 8:24	10.53	2.04	-2.95	127.93	17.70		7958.15
4/9/15 8:24	10.70	2.05	-2.95	128.04	17.70		7957.91
4/9/15 8:24	10.87	2.06	-2.98	127.80	17.70		7958.02
4/9/15 8:25	11.03	2.05	-2.98	127.91	17.70		7957.95
4/9/15 8:25	11.20	2.04	-2.95	127.83	17.70		7958.09
4/9/15 8:25	11.37	2.05	-2.95	127.97	17.70		7958.02
4/9/15 8:25	11.53	2.05	-2.95	127.91	17.70		7957.96
4/9/15 8:25	11.70	2.05	-2.95	127.85	17.70		7958.00
4/9/15 8:25	11.87	2.04	-2.95	127.89	17.70		7958.25

Date/Time	Time (min)	Battery (V)	Temp (°C)	Reading (ft)	Sensor Tmp (°C)	Recovery (min)	WLE (ft)
4/9/15 8:26	12.03	2.04	-2.95	128.13	17.70		7958.40
4/9/15 8:26	12.20	2.04	-2.95	128.28	17.70		7958.21
4/9/15 8:26	12.37	2.05	-2.93	128.09	17.70		7958.26
4/9/15 8:26	12.53	2.05	-2.93	128.14	17.70		7958.25
4/9/15 8:26	12.70	2.05	-2.93	128.13	17.70		7958.32
4/9/15 8:26	12.87	2.05	-2.93	128.21	17.70		7958.31
4/9/15 8:27	13.03	2.04	-2.90	128.19	17.70		7958.15
4/9/15 8:27	13.20	2.06	-2.90	128.04	17.80		7958.26
4/9/15 8:27	13.37	2.04	-2.90	128.14	17.80		7958.14
4/9/15 8:27	13.53	2.05	-2.90	128.03	17.80		7958.25
4/9/15 8:27	13.70	2.04	-2.90	128.14	17.80		7958.09
4/9/15 8:27	13.87	2.05	-2.88	127.97	17.80		7958.19
4/9/15 8:28	14.03	2.06	-2.88	128.07	17.80		7958.29
4/9/15 8:28	14.20	2.06	-2.88	128.18	17.80		7958.20
4/9/15 8:28	14.37	2.06	-2.88	128.09	17.80		7958.19
4/9/15 8:28	14.53	2.05	-2.85	128.08	17.80		7958.27
4/9/15 8:28	14.70	2.05	-2.85	128.16	17.80		7958.32
4/9/15 8:28	14.87	2.04	-2.83	128.21	17.80		7958.27
4/9/15 8:29	15.03	2.05	-2.83	128.15	17.80		7958.39
4/9/15 8:29	15.20	2.05	-2.83	128.28	17.80		7958.37
4/9/15 8:29	15.37	2.04	-2.80	128.25	17.80		7958.45
4/9/15 8:29	15.53	2.06	-2.80	128.34	17.80		7958.42
4/9/15 8:29	15.70	2.05	-2.80	128.31	17.80		7958.42
4/9/15 8:29	15.87	2.05	-2.78	128.31	17.80		7958.46
4/9/15 8:30	16.03	2.05	-2.78	128.35	17.80		7958.51
4/9/15 8:30	16.20	2.06	-2.78	128.40	17.80		7958.51
4/9/15 8:30	16.37	2.05	-2.78	128.40	17.80		7958.58
4/9/15 8:30	16.53	2.05	-2.76	128.47	17.80		7958.53
4/9/15 8:30	16.70	2.06	-2.76	128.42	17.80		7958.52
4/9/15 8:30	16.87	2.05	-2.76	128.41	17.80		7958.71
4/9/15 8:31	17.03	2.06	-2.73	128.60	17.80		7958.49
4/9/15 8:31	17.20	2.04	-2.73	128.37	17.80		7958.69
4/9/15 8:31	17.37	2.04	-2.71	128.58	17.80		7958.81
4/9/15 8:31	17.53	2.05	-2.71	128.70	17.80		7958.76
4/9/15 8:31	17.70	2.06	-2.71	128.65	17.80		7958.66
4/9/15 8:31	17.87	2.05	-2.68	128.55	17.80		7958.69
4/9/15 8:32	18.03	2.05	-2.68	128.58	17.80		7958.71
4/9/15 8:32	18.20	2.04	-2.66	128.60	17.80		7958.66
4/9/15 8:32	18.37	2.05	-2.66	128.55	17.80		7958.79
4/9/15 8:32	18.53	2.06	-2.63	128.67	17.80		7958.84
4/9/15 8:32	18.70	2.06	-2.63	128.73	17.80		7958.77
4/9/15 8:32	18.87	2.05	-2.63	128.66	17.80		7958.68
4/9/15 8:33	19.03	2.05	-2.61	128.56	17.80		7958.86
4/9/15 8:33	19.20	2.05	-2.61	128.75	17.80		7958.85
4/9/15 8:33	19.37	2.06	-2.61	128.74	17.80		7958.96
4/9/15 8:33	19.53	2.04	-2.63	128.85	17.80		7958.77
4/9/15 8:33	19.70	2.05	-2.58	128.66	17.80		7958.84
4/9/15 8:33	19.87	2.05	-2.58	128.72	17.80		7958.99
4/9/15 8:34	20.03	2.05	-2.56	128.88	17.80		7958.95
4/9/15 8:34	20.20	2.05	-2.56	128.83	17.80		7958.98
4/9/15 8:34	20.37	2.05	-2.56	128.87	17.80		7958.94
4/9/15 8:34	20.53	2.05	-2.56	128.83	17.80		7958.95
4/9/15 8:34	20.70	2.05	-2.56	128.83	17.80		7959.09
4/9/15 8:34	20.87	2.05	-2.54	128.98	17.80		7959.09
4/9/15 8:35	21.03	2.05	-2.56	128.98	17.80		7959.23
4/9/15 8:35	21.20	2.05	-2.54	129.11	17.80		7959.13
4/9/15 8:35	21.37	2.05	-2.54	129.02	17.80		7959.23
4/9/15 8:35	21.53	2.06	-2.51	129.12	17.80		7959.09
4/9/15 8:35	21.70	2.05	-2.51	128.98	17.80		7959.10
4/9/15 8:35	21.87	2.05	-2.51	128.99	17.80		7959.19
4/9/15 8:36	22.03	2.04	-2.51	129.08	17.80		7959.16
4/9/15 8:36	22.20	2.05	-2.49	129.05	17.80		7959.17
4/9/15 8:36	22.37	2.05	-2.49	129.06	17.80		7959.28
4/9/15 8:36	22.53	2.05	-2.49	129.17	17.80		7959.29
4/9/15 8:36	22.70	2.05	-2.49	129.18	17.80		7959.41
4/9/15 8:36	22.87	2.05	-2.46	129.30	17.80		7959.33
4/9/15 8:37	23.03	2.05	-2.46	129.22	17.80		7959.31
4/9/15 8:37	23.20	2.05	-2.46	129.19	17.80		7959.34
4/9/15 8:37	23.37	2.05	-2.46	129.22	17.80		7959.37
4/9/15 8:37	23.53	2.05	-2.46	129.25	17.80		7959.27
4/9/15 8:37	23.70	2.05	-2.44	129.15	17.80		7959.41
4/9/15 8:37	23.87	2.06	-2.46	129.29	17.80		7959.44

Date/Time	Time (min)	Battery (V)	Temp (°C)	Reading (ft)	Sensor Tmp (°C)	Recovery (min)	WLE (ft)
4/9/15 8:38	24.03	2.06	-2.46	129.33	17.80		7959.35
4/9/15 8:38	24.20	2.06	-2.44	129.24	17.80		7959.31
4/9/15 8:38	24.37	2.06	-2.44	129.19	17.80		7959.33
4/9/15 8:38	24.53	2.04	-2.44	129.21	17.80		7959.38
4/9/15 8:38	24.70	2.05	-2.41	129.26	17.80		7959.41
4/9/15 8:38	24.87	2.05	-2.41	129.30	17.80		7959.41
4/9/15 8:39	25.03	2.06	-2.41	129.30	17.80		7959.45
4/9/15 8:39	25.20	2.05	-2.41	129.34	17.80		7959.42
4/9/15 8:39	25.37	2.05	-2.44	129.31	17.80		7959.58
4/9/15 8:39	25.53	2.05	-2.44	129.46	17.80		7959.59
4/9/15 8:39	25.70	2.05	-2.44	129.48	17.80		7959.65
4/9/15 8:39	25.87	2.05	-2.44	129.54	17.80		7959.54
4/9/15 8:40	26.03	2.05	-2.44	129.42	17.80		7959.49
4/9/15 8:40	26.20	2.06	-2.41	129.38	17.80		7959.53
4/9/15 8:40	26.37	2.06	-2.41	129.41	17.80		7959.56
4/9/15 8:40	26.53	2.06	-2.41	129.44	17.80		7959.55
4/9/15 8:40	26.70	2.05	-2.41	129.44	17.80		7959.59
4/9/15 8:40	26.87	2.05	-2.41	129.48	17.80		7959.70
4/9/15 8:41	27.03	2.05	-2.41	129.59	17.80		7959.70
4/9/15 8:41	27.20	2.05	-2.41	129.58	17.80		7959.82
4/9/15 8:41	27.37	2.05	-2.41	129.71	17.80		7959.75
4/9/15 8:41	27.53	2.05	-2.41	129.64	17.80		7959.66
4/9/15 8:41	27.70	2.04	-2.41	129.55	17.80		7960.00
4/9/15 8:41	27.87	2.06	-2.41	129.88	17.80		7959.69
4/9/15 8:42	28.03	2.05	-2.41	129.57	17.80		7959.95
4/9/15 8:42	28.20	2.04	-2.41	129.84	17.80		7959.85
4/9/15 8:42	28.37	2.05	-2.39	129.74	17.80		7959.58
4/9/15 8:42	28.53	2.05	-2.41	129.47	17.80		7959.78
4/9/15 8:42	28.70	2.05	-2.41	129.67	17.80		7959.71
4/9/15 8:42	28.87	2.05	-2.41	129.60	17.80		7959.69
4/9/15 8:43	29.03	2.05	-2.39	129.57	17.80		7959.89
4/9/15 8:43	29.20	2.05	-2.39	129.77	17.80		7959.82
4/9/15 8:43	29.37	2.06	-2.41	129.71	17.80		7959.96
4/9/15 8:43	29.53	2.05	-2.41	129.84	17.80		7959.99
4/9/15 8:43	29.70	2.05	-2.39	129.88	17.80		7959.86
4/9/15 8:43	29.87	2.05	-2.41	129.75	17.80		7959.89
4/9/15 8:44	30.03	2.05	-2.41	129.77	17.80		7959.94
4/9/15 8:44	30.20	2.05	-2.41	129.83	17.80		7960.02
4/9/15 8:44	30.37	2.04	-2.41	129.91	17.80		7959.88
4/9/15 8:44	30.53	2.06	-2.39	129.76	17.80		7959.95
4/9/15 8:44	30.70	2.05	-2.39	129.83	17.80		7960.04
4/9/15 8:44	30.87	2.04	-2.41	129.93	17.80		7959.99
4/9/15 8:45	31.03	2.05	-2.39	129.88	17.80		7960.12
4/9/15 8:45	31.20	2.05	-2.39	130.01	17.80		7960.08
4/9/15 8:45	31.37	2.05	-2.39	129.97	17.80		7960.07
4/9/15 8:45	31.53	2.04	-2.39	129.95	17.80		7960.07
4/9/15 8:45	31.70	2.05	-2.39	129.95	17.80		7960.07
4/9/15 8:45	31.87	2.05	-2.41	129.95	17.80		7960.02
4/9/15 8:46	32.03	2.05	-2.39	129.90	17.80		7960.00
4/9/15 8:46	32.20	2.06	-2.39	129.89	17.80		7960.12
4/9/15 8:46	32.37	2.04	-2.39	130.00	17.80		7960.03
4/9/15 8:46	32.53	2.05	-2.39	129.91	17.80		7960.14
4/9/15 8:46	32.70	2.05	-2.39	130.03	17.80		7960.02
4/9/15 8:46	32.87	2.04	-2.39	129.90	17.80		7960.30
4/9/15 8:47	33.03	2.05	-2.39	130.18	17.80		7960.23
4/9/15 8:47	33.20	2.05	-2.36	130.12	17.80		7960.00
4/9/15 8:47	33.37	2.04	-2.36	129.89	17.80		7960.25
4/9/15 8:47	33.53	2.05	-2.39	130.14	17.80		7960.19
4/9/15 8:47	33.70	2.05	-2.39	130.08	17.80		7960.13
4/9/15 8:47	33.87	2.05	-2.39	130.02	17.80		7960.08
4/9/15 8:48	34.03	2.05	-2.39	129.97	17.80		7960.16
4/9/15 8:48	34.20	2.05	-2.39	130.04	17.80		7960.16
4/9/15 8:48	34.37	2.05	-2.39	130.05	17.80		7960.08
4/9/15 8:48	34.53	2.04	-2.39	129.97	17.80		7960.08
4/9/15 8:48	34.70	2.05	-2.39	129.97	17.80		7960.07
4/9/15 8:48	34.87	2.05	-2.36	129.95	17.80		7960.12
4/9/15 8:49	35.03	2.05	-2.36	130.00	17.80		7960.11
4/9/15 8:49	35.20	2.05	-2.34	129.99	17.80		7960.07
4/9/15 8:49	35.37	2.04	-2.34	129.96	17.80		7960.30
4/9/15 8:49	35.53	2.03	-2.32	130.18	17.80		7960.26
4/9/15 8:49	35.70	2.06	-2.32	130.15	17.80		7960.31
4/9/15 8:49	35.87	2.05	-2.29	130.20	17.80		7960.26

Date/Time	Time (min)	Battery (V)	Temp (°C)	Reading (ft)	Sensor Tmp (°C)	Recovery (min)	WLE (ft)
4/9/15 8:50	36.03	2.05	-2.29	130.14	17.80		7960.18
4/9/15 8:50	36.20	2.05	-2.29	130.06	17.80		7960.34
4/9/15 8:50	36.37	2.03	-2.27	130.22	17.80		7960.23
4/9/15 8:50	36.53	2.04	-2.27	130.11	17.80		7960.37
4/9/15 8:50	36.70	2.04	-2.27	130.26	17.80		7960.28
4/9/15 8:50	36.87	2.05	-2.24	130.17	17.80		7960.23
4/9/15 8:51	37.03	2.05	-2.24	130.11	17.80		7960.31
4/9/15 8:51	37.20	2.05	-2.24	130.20	17.80		7960.34
4/9/15 8:51	37.37	2.05	-2.24	130.23	17.90		7960.42
4/9/15 8:51	37.53	2.04	-2.22	130.31	17.90		7960.52
4/9/15 8:51	37.70	2.04	-2.17	130.40	17.90		7960.55
4/9/15 8:53	39.08	3.06	-2.10	130.44	17.90		7960.50
4/9/15 8:53	39.83	3.05	-1.97	130.39	17.90		7960.55
4/9/15 8:54	40.03	3.07	-1.85	130.44	17.90		7960.59
4/9/15 8:54	40.47	3.08	-1.66	130.48	17.90		7960.63
4/9/15 8:54	40.53	3.08	-1.58	130.52	17.90		7960.72
4/9/15 8:54	40.70	3.08	-1.41	130.61	17.90		7960.65
4/9/15 8:54	40.87	3.09	-1.34	130.53	17.90		7960.61
4/9/15 8:55	41.03	3.09	-1.24	130.50	17.90		7960.57
4/9/15 8:55	41.20	3.10	-1.20	130.46	17.90		7960.72
4/9/15 8:55	41.37	3.10	-1.20	130.61	17.90		7960.65
4/9/15 8:55	41.53	3.10	-1.20	130.53	17.90		7960.69
4/9/15 8:55	41.70	3.10	-1.17	130.58	17.90		7960.70
4/9/15 8:55	41.87	3.10	-1.12	130.59	17.90		7960.60
4/9/15 8:56	42.03	3.11	-1.07	130.48	17.90		7960.72
4/9/15 8:56	42.20	3.11	-1.05	130.60	17.90		7960.84
4/9/15 8:56	42.37	3.10	-1.00	130.73	17.90		7960.72
4/9/15 8:56	42.53	3.11	-0.93	130.60	17.90		7960.79
4/9/15 8:56	42.70	3.10	-0.88	130.68	17.90		7960.79
4/9/15 8:56	42.87	3.11	-0.83	130.68	17.90		7960.70
4/9/15 8:57	43.03	3.10	-0.78	130.59	17.90		7960.82
4/9/15 8:57	43.20	3.10	-0.73	130.71	17.90		7960.90
4/9/15 8:57	43.37	3.11	-0.71	130.79	17.90		7960.76
4/9/15 8:57	43.53	3.11	-0.66	130.65	17.90		7960.78
4/9/15 8:57	43.70	3.11	-0.61	130.67	17.90		7960.84
4/9/15 8:57	43.87	3.11	-0.59	130.73	17.90		7960.91
4/9/15 8:58	44.03	3.11	-0.51	130.79	17.90		7960.89
4/9/15 8:58	44.20	3.11	-0.49	130.78	17.90		7960.91
4/9/15 8:58	44.37	3.11	-0.47	130.80	17.90		7960.92
4/9/15 8:58	44.53	3.11	-0.42	130.81	17.90		7960.86
4/9/15 8:58	44.70	3.11	-0.39	130.74	17.90		7961.01
4/9/15 8:58	44.87	3.11	-0.34	130.90	17.90		7960.92
4/9/15 8:59	45.03	3.11	-0.30	130.81	17.90		7960.96
4/9/15 8:59	45.20	3.11	-0.27	130.84	17.90		7960.84
4/9/15 8:59	45.37	3.11	-0.25	130.72	17.90		7960.92
4/9/15 8:59	45.53	3.11	-0.20	130.81	17.90		7960.92
4/9/15 8:59	45.70	3.11	-0.17	130.81	17.90		7960.92
4/9/15 8:59	45.87	3.11	-0.15	130.81	17.90		7960.96
4/9/15 9:00	46.03	3.11	-0.13	130.84	17.90		7960.97
4/9/15 9:00	46.20	3.12	-0.10	130.86	17.90		7961.00
4/9/15 9:00	46.37	3.11	-0.08	130.88	17.90		7961.11
4/9/15 9:00	46.53	3.11	-0.03	131.00	17.90		7960.96
4/9/15 9:00	46.70	3.11	0.00	130.85	17.90		7961.08
4/9/15 9:00	46.87	3.11	0.02	130.97	17.90		7961.07
4/9/15 9:01	47.03	3.12	0.04	130.95	17.90		7961.07
4/9/15 9:01	47.20	3.11	0.07	130.96	17.90		7961.12
4/9/15 9:01	47.37	3.11	0.09	131.01	17.90		7961.02
4/9/15 9:01	47.53	3.11	0.12	130.91	17.90		7961.14
4/9/15 9:01	47.70	3.11	0.17	131.03	17.90		7961.15
4/9/15 9:01	47.87	3.12	0.17	131.04	17.90		7961.08
4/9/15 9:02	48.03	3.11	0.21	130.97	17.90		7961.19
4/9/15 9:02	48.20	3.11	0.21	131.08	17.90		7961.10
4/9/15 9:02	48.37	3.11	0.21	130.98	17.90		7961.12
4/9/15 9:02	48.53	3.12	0.26	131.01	17.90		7961.19
4/9/15 9:02	48.70	3.11	0.29	131.07	17.90		7961.16
4/9/15 9:02	48.87	3.11	0.31	131.05	17.90		7961.09
4/9/15 9:03	49.03	3.11	0.34	130.98	17.90		7961.14
4/9/15 9:03	49.20	3.11	0.36	131.03	17.90		7961.14
4/9/15 9:03	49.37	3.12	0.38	131.03	17.90		7961.12
4/9/15 9:03	49.53	3.11	0.41	131.01	17.90		7961.26
4/9/15 9:03	49.70	3.12	0.41	131.15	17.90		7961.28
4/9/15 9:03	49.87	3.12	0.43	131.17	17.90		7961.24

Date/Time	Time (min)	Battery (V)	Temp (°C)	Reading (ft)	Sensor Tmp (°C)	Recovery (min)	WLE (ft)
4/9/15 9:04	50.03	3.11	0.46	131.13	17.90		7961.31
4/9/15 9:04	50.20	3.11	0.46	131.20	17.90		7961.28
4/9/15 9:04	50.37	3.13	0.48	131.17	17.90		7961.45
4/9/15 9:04	50.53	3.10	0.51	131.34	17.90		7961.55
4/9/15 9:04	50.70	3.10	0.53	131.43	17.90		7961.52
4/9/15 9:04	50.87	3.12	0.53	131.40	17.90		7961.65
4/9/15 9:05	51.03	3.12	0.55	131.54	17.90		7961.78
4/9/15 9:05	51.20	3.12	0.58	131.66	17.90		7961.85
4/9/15 9:05	51.37	3.10	0.58	131.74	17.90		7961.97
4/9/15 9:05	51.53	3.11	0.60	131.86	17.90		7961.99
4/9/15 9:05	51.70	3.11	0.60	131.88	17.90		7962.09
4/9/15 9:05	51.87	3.11	0.63	131.97	17.90		7962.41
4/9/15 9:06	52.03	3.12	0.63	132.30	17.90		7962.55
4/9/15 9:06	52.20	3.11	0.65	132.44	17.90		7962.50
4/9/15 9:06	52.37	3.11	0.68	132.39	17.90		7962.56
4/9/15 9:06	52.53	3.11	0.65	132.44	17.90		7962.55
4/9/15 9:06	52.70	3.12	0.68	132.43	17.90		7962.66
4/9/15 9:06	52.87	3.13	0.68	132.54	17.90		7962.74
4/9/15 9:07	53.03	3.10	0.68	132.63	17.90		7962.88
4/9/15 9:07	53.20	3.11	0.68	132.77	17.90		7963.03
4/9/15 9:07	53.37	3.11	0.70	132.92	17.90		7963.05
4/9/15 9:07	53.53	3.11	0.68	132.94	17.90		7963.22
4/9/15 9:07	53.70	3.12	0.70	133.10	17.90		7963.39
4/9/15 9:07	53.87	3.12	0.72	133.28	17.90		7963.40
4/9/15 9:08	54.03	3.11	0.70	133.29	17.90		7963.65
4/9/15 9:08	54.20	3.12	0.70	133.53	17.90		7964.00
4/9/15 9:08	54.37	3.11	0.72	133.89	17.90		7965.86
4/9/15 9:08	54.53	3.11	0.75	135.75	17.90		7969.71
4/9/15 9:08	54.70	3.13	0.75	139.59	17.90		7974.58
4/9/15 9:08	54.87	3.13	0.75	144.46	17.90		7979.49
4/9/15 9:09	55.03	3.13	0.77	149.38	18.00		7984.76
4/9/15 9:09	55.20	3.13	0.77	154.65	17.90		7988.90
4/9/15 9:09	55.37	3.12	0.75	158.79	18.00		7993.48
4/9/15 9:09	55.53	3.10	0.80	163.37	18.00		7996.24
4/9/15 9:09	55.70	3.13	0.80	166.13	18.00		8001.32
4/9/15 9:09	55.87	3.13	0.82	171.21	18.00		8005.74
4/9/15 9:10	56.03	3.10	0.84	175.63	18.00		8009.94
4/9/15 9:10	56.20	3.11	0.84	179.82	18.00		8013.46
4/9/15 9:10	56.37	3.11	0.84	183.35	18.00		8016.98
4/9/15 9:10	56.53	3.12	0.84	186.87	18.00		8020.76
4/9/15 9:10	56.70	3.10	0.84	190.65	18.00		8024.11
4/9/15 9:10	56.87	3.13	0.84	194.00	18.00		8028.21
4/9/15 9:11	57.03	3.13	0.87	198.09	18.00		8032.86
4/9/15 9:11	57.20	3.12	0.84	202.75	18.00		8038.89
4/9/15 9:11	57.37	3.13	0.87	208.78	18.00		8044.26
4/9/15 9:11	57.53	3.13	0.87	214.15	18.00		8050.73
4/9/15 9:11	57.70	3.11	0.87	220.62	18.00		8057.05
4/9/15 9:11	57.87	3.13	0.89	226.93	18.00		8065.13
4/9/15 9:12	58.03	3.13	0.92	235.02	18.00		8074.11
4/9/15 9:12	58.20	3.13	0.92	243.99	18.00		8082.65
4/9/15 9:12	58.37	3.10	0.89	252.53	18.00		8091.44
4/9/15 9:12	58.53	3.11	0.94	261.33	18.00		8099.75
4/9/15 9:12	58.70	3.13	0.94	269.64	18.00		8108.56
4/9/15 9:12	58.87	3.11	0.94	278.44	18.00		8116.43
4/9/15 9:13	59.03	3.10	0.97	286.32	18.00		8126.05
4/9/15 9:13	59.20	3.13	0.97	295.93	18.00		8134.65
4/9/15 9:13	59.37	3.10	0.99	304.54	18.00		8142.56
4/9/15 9:13	59.53	3.12	0.99	312.44	18.00		8151.08
4/9/15 9:13	59.70	3.12	1.01	320.97	18.00		8157.78
4/9/15 9:13	59.87	3.10	1.01	327.67	18.00		8165.46
4/9/15 9:14	60.03	3.13	1.01	335.35	18.00		8174.90
4/9/15 9:14	60.20	3.12	1.04	344.78	18.00		8183.69
4/9/15 9:14	60.37	3.11	1.06	353.58	18.00		8191.60
4/9/15 9:14	60.53	3.12	1.06	361.49	18.00		8201.64
4/9/15 9:14	60.70	3.12	1.06	371.52	18.00		8209.97
4/9/15 9:14	60.87	3.12	1.06	379.86	18.00		8219.46
4/9/15 9:15	61.03	3.11	1.09	389.35	18.00		8228.31
4/9/15 9:15	61.20	3.12	1.09	398.20	18.00		8236.92
4/9/15 9:15	61.37	3.11	1.09	406.80	18.00		8246.14
4/9/15 9:15	61.53	3.11	1.11	416.03	18.00		8256.75
4/9/15 9:15	61.70	3.13	1.11	426.64	18.00		8265.10
4/9/15 9:15	61.87	3.11	1.14	434.99	18.00		8273.75

Date/Time	Time (min)	Battery (V)	Temp (°C)	Reading (ft)	Sensor Tmp (°C)	Recovery (min)	WLE (ft)
4/9/15 9:16	62.03	3.11	1.14	443.63	18.00		8283.70
4/9/15 9:16	62.20	3.13	1.14	453.59	18.00		8293.99
4/9/15 9:16	62.37	3.13	1.16	463.88	18.00		8302.00
4/9/15 9:16	62.53	3.13	1.16	471.89	18.00		8311.91
4/9/15 9:16	62.70	3.12	1.18	481.80	18.00		8319.86
4/9/15 9:16	62.87	3.12	1.18	489.75	18.10		8329.05
4/9/15 9:17	63.03	3.12	1.16	498.94	18.10		8338.63
4/9/15 9:17	63.20	3.11	1.18	508.51	18.10		8346.64
4/9/15 9:17	63.37	3.12	1.18	516.53	18.10		8356.23
4/9/15 9:17	63.53	3.12	1.21	526.11	18.10		8365.32
4/9/15 9:17	63.70	3.12	1.21	535.21	18.10		8374.35
4/9/15 9:17	63.87	3.12	1.21	544.24	18.10		8384.06
4/9/15 9:18	64.03	3.11	1.23	553.95	18.10		8393.06
4/9/15 9:18	64.20	3.11	1.23	562.95	18.10		8401.59
4/9/15 9:18	64.37	3.12	1.26	571.47	18.10		8411.28
4/9/15 9:18	64.53	3.11	1.23	581.17	18.10		8421.22
4/9/15 9:18	64.70	3.12	1.23	591.11	18.10		8428.75
4/9/15 9:18	64.87	3.11	1.23	598.64	18.10		8437.02
4/9/15 9:19	65.03	3.11	1.23	606.91	18.10		8447.29
4/9/15 9:19	65.20	3.12	1.26	617.18	18.10		8457.34
4/9/15 9:19	65.37	3.13	1.23	627.22	18.10		8465.28
4/9/15 9:19	65.53	3.11	1.26	635.16	18.10		8474.80
4/9/15 9:19	65.70	3.13	1.26	644.69	18.10		8483.76
4/9/15 9:19	65.87	3.13	1.26	653.65	18.10		8492.07
4/9/15 9:20	66.03	3.11	1.26	661.95	18.10		8501.55
4/9/15 9:20	66.20	3.12	1.26	671.44	18.10		8511.10
4/9/15 9:20	66.37	3.12	1.23	680.98	18.10		8519.52
4/9/15 9:20	66.53	3.12	1.26	689.41	18.10		8529.13
4/9/15 9:20	66.70	3.11	1.26	699.02	18.10		8538.50
4/9/15 9:20	66.87	3.11	1.28	708.39	18.10		8548.40
4/9/15 9:21	67.03	3.13	1.23	718.29	18.10		8557.25
4/9/15 9:21	67.20	3.11	1.26	727.14	18.10		8566.35
4/9/15 9:21	67.37	3.11	1.26	736.23	18.10		8576.66
4/9/15 9:21	67.53	3.11	1.26	746.54	18.10		8584.83
4/9/15 9:21	67.70	3.11	1.28	754.72	18.10		8595.08
4/9/15 9:21	67.87	3.12	1.28	764.97	18.10		8604.08
4/9/15 9:22	68.03	3.13	1.28	773.97	18.10		8614.89
4/9/15 9:22	68.20	3.13	1.28	784.77	18.10		8622.77
4/9/15 9:22	68.37	3.12	1.31	792.66	18.10		8632.68
4/9/15 9:22	68.53	3.12	1.28	802.56	18.10		8641.53
4/9/15 9:22	68.70	3.12	1.28	811.42	18.10		8651.54
4/9/15 9:22	68.87	3.12	1.31	821.43	18.10		8659.78
4/9/15 9:23	69.03	3.13	1.31	829.66	18.10		8669.28
4/9/15 9:23	69.20	3.12	1.33	839.16	18.10		8678.66
4/9/15 9:23	69.37	3.11	1.33	848.54	18.10		8688.60
4/9/15 9:23	69.53	3.11	1.33	858.48	18.10		8693.67
4/9/15 9:23	69.70	3.12	1.35	863.56	18.10		8705.52
4/9/15 9:23	69.87	3.12	1.35	875.41	18.10		8713.44
4/9/15 9:24	70.03	3.11	1.35	883.32	18.10		8724.44
4/9/15 9:24	70.20	3.12	1.35	894.32	18.10		8737.02
4/9/15 9:24	70.37	3.12	1.35	906.90	18.10		8747.20
4/9/15 9:24	70.53	3.11	1.38	917.09	18.10		8757.06
4/9/15 9:24	70.70	3.11	1.38	926.95	18.10		8769.01
4/9/15 9:24	70.87	3.11	1.40	938.90	18.10		8780.48
4/9/15 9:25	71.03	3.12	1.43	950.37	18.10		8790.95
4/9/15 9:25	71.20	3.11	1.43	960.84	18.10		8801.86
4/9/15 9:25	71.37	3.13	1.43	971.74	18.10		8813.54
4/9/15 9:25	71.53	3.13	1.45	983.42	18.10		8824.21
4/9/15 9:25	71.70	3.12	1.45	994.10	18.10		8836.33
4/9/15 9:25	71.87	3.13	1.45	1006.22	18.10		8845.88
4/9/15 9:26	72.03	3.11	1.48	1015.77	18.10		8857.04
4/9/15 9:26	72.20	3.12	1.48	1026.92	18.10		8868.06
4/9/15 9:26	72.37	3.12	1.48	1037.95	18.10		8878.89
4/9/15 9:26	72.53	3.12	1.50	1048.78	18.10		8888.78
4/9/15 9:26	72.70	3.11	1.50	1058.66	18.10		8901.70
4/9/15 9:26	72.87	3.11	1.52	1071.58	18.10		8911.06
4/9/15 9:27	73.03	3.12	1.52	1080.95	18.10		8921.26
4/9/15 9:27	73.20	3.12	1.52	1091.15	18.10		8935.33
4/9/15 9:27	73.37	3.11	1.55	1105.22	18.10		8946.05
4/9/15 9:27	73.53	3.11	1.57	1115.93	18.10		8955.84
4/9/15 9:27	73.70	3.12	1.57	1125.73	18.10		8967.44
4/9/15 9:27	73.87	3.12	1.57	1137.33	18.10		8979.85

Date/Time	Time (min)	Battery (V)	Temp (°C)	Reading (ft)	Sensor Tmp (°C)	Recovery (min)	WLE (ft)
4/9/15 9:28	74.03	3.12	1.60	1149.73	18.10		8991.27
4/9/15 9:28	74.20	3.11	1.60	1161.16	18.10		9001.06
4/9/15 9:28	74.37	3.11	1.60	1170.94	18.10		9013.69
4/9/15 9:28	74.53	3.12	1.62	1183.58	18.10		9025.73
4/9/15 9:28	74.70	3.12	1.62	1195.62	18.10		9034.79
4/9/15 9:28	74.87	3.12	1.62	1204.68	18.10		9048.12
4/9/15 9:29	75.03	3.12	1.65	1218.01	18.10		9056.82
4/9/15 9:29	75.20	3.11	1.67	1226.71	18.10		9064.62
4/9/15 9:29	75.37	3.12	1.65	1234.50	18.10		9078.61
4/9/15 9:29	75.53	3.11	1.67	1248.50	18.10		9091.92
4/9/15 9:29	75.70	3.12	1.65	1261.80	18.10		9102.38
4/9/15 9:29	75.87	3.11	1.67	1272.27	18.10		9113.29
4/9/15 9:30	76.03	3.13	1.69	1283.18	18.10		9125.53
4/9/15 9:30	76.20	3.12	1.69	1295.42	18.10		9136.43
4/9/15 9:30	76.37	3.11	1.69	1306.31	18.10		9147.26
4/9/15 9:30	76.53	3.11	1.69	1317.15	18.10		9159.59
4/9/15 9:30	76.70	3.12	1.69	1329.47	18.10		9169.22
4/9/15 9:30	76.87	3.12	1.72	1339.10	18.10		9179.34
4/9/15 9:31	77.03	3.12	1.74	1349.22	18.10		9189.08
4/9/15 9:31	77.20	3.12	1.74	1358.96	18.10		9200.57
4/9/15 9:31	77.37	3.12	1.74	1370.45	18.10		9170.23
4/9/15 9:31	77.53	3.11	1.72	1340.11	18.10		9235.08
4/9/15 9:31	77.70	3.11	1.74	1404.96	18.10		9235.60
4/9/15 9:31	77.87	3.11	1.74	1405.49	18.10		9243.70
4/9/15 9:32	78.03	3.11	1.74	1413.59	18.10		9247.73
4/9/15 9:32	78.20	3.11	1.77	1417.61	18.10		9251.62
4/9/15 9:32	78.37	3.12	1.79	1421.50	18.10		9254.87
4/9/15 9:32	78.53	3.12	1.77	1424.75	18.10		9257.52
4/9/15 9:32	78.70	3.11	1.77	1427.40	18.10		9259.54
4/9/15 9:32	78.87	3.12	1.79	1429.43	18.10		9261.34
4/9/15 9:33	79.03	3.12	1.82	1431.22	18.10		9263.03
4/9/15 9:33	79.20	3.12	1.79	1432.91	18.10		9264.38
4/9/15 9:33	79.37	3.12	1.74	1434.27	18.10		9265.55
4/9/15 9:33	79.53	3.12	1.82	1435.44	18.10		9266.68
4/9/15 9:33	79.70	3.12	1.82	1436.57	18.10		9268.04
4/9/15 9:33	79.87	3.12	1.82	1437.93	18.10		9268.93
4/9/15 9:34	80.03	3.12	1.84	1438.81	18.10		9269.71
4/9/15 9:34	80.20	3.12	1.84	1439.60	18.10		9270.50
4/9/15 9:34	80.37	3.12	1.84	1440.39	18.10		9271.21
4/9/15 9:34	80.53	3.12	1.84	1441.10	18.10		9271.73
4/9/15 9:34	80.70	3.11	1.86	1441.61	18.10		9272.31
4/9/15 9:34	80.87	3.11	1.86	1442.19	18.10		9272.84
4/9/15 9:35	81.03	3.12	1.89	1442.73	18.10		9273.35
4/9/15 9:35	81.20	3.12	1.89	1443.24	18.10		9273.80
4/9/15 9:35	81.37	3.12	1.89	1443.69	18.10		9274.18
4/9/15 9:35	81.53	3.12	1.91	1444.07	18.10		9274.45
4/9/15 9:35	81.70	3.11	1.91	1444.34	18.10		9274.83
4/9/15 9:35	81.87	3.11	1.94	1444.71	18.10		9275.11
4/9/15 9:36	82.03	3.11	1.94	1444.99	18.10		9275.51
4/9/15 9:36	82.20	3.11	1.96	1445.40	18.10		9275.68
4/9/15 9:36	82.37	3.11	1.94	1445.57	18.10		9276.02
4/9/15 9:36	82.53	3.11	1.96	1445.91	18.10		9276.18
4/9/15 9:36	82.70	3.12	1.96	1446.06	18.10		9276.48
4/9/15 9:36	82.87	3.12	1.99	1446.37	18.10		9276.58
4/9/15 9:37	83.03	3.11	1.99	1446.46	18.10		9276.79
4/9/15 9:37	83.20	3.12	2.01	1446.68	18.10		9277.04
4/9/15 9:37	83.37	3.12	2.01	1446.93	18.10		9277.29
4/9/15 9:37	83.53	3.11	2.03	1447.17	18.10		9277.37
4/9/15 9:37	83.70	3.12	2.03	1447.25	18.10		9277.55
4/9/15 9:37	83.87	3.11	2.03	1447.44	18.10		9277.71
4/9/15 9:38	84.03	3.11	2.06	1447.60	18.10		9277.91
4/9/15 9:38	84.20	3.12	2.06	1447.80	18.10		9278.00
4/9/15 9:38	84.37	3.12	2.08	1447.89	18.10		9278.11
4/9/15 9:38	84.53	3.11	2.08	1447.99	18.10		9278.24
4/9/15 9:38	84.70	3.12	2.11	1448.12	18.10		9278.50
4/9/15 9:38	84.87	3.12	2.11	1448.39	18.10		9278.55
4/9/15 9:39	85.03	3.12	2.13	1448.43	18.10		9278.75
4/9/15 9:39	85.20	3.12	2.16	1448.63	18.10		9278.81
4/9/15 9:39	85.37	3.12	2.16	1448.70	18.10		9279.00
4/9/15 9:39	85.53	3.12	2.18	1448.89	18.10		9279.01
4/9/15 9:39	85.70	3.11	2.20	1448.89	18.10		9279.11
4/9/15 9:39	85.87	3.12	2.20	1449.00	18.10		9279.21

Date/Time	Time (min)	Battery (V)	Temp (°C)	Reading (ft)	Sensor Tmp (°C)	Recovery (min)	WLE (ft)
4/9/15 9:40	86.03	3.11	2.23	1449.10	18.10		9279.32
4/9/15 9:40	86.20	3.12	2.25	1449.21	18.10		9279.45
4/9/15 9:40	86.37	3.12	2.25	1449.34	18.10		9279.57
4/9/15 9:40	86.53	3.12	2.28	1449.46	18.10		9279.58
4/9/15 9:40	86.70	3.11	2.30	1449.47	18.10		9279.63
4/9/15 9:40	86.87	3.11	2.30	1449.52	18.10		9279.74
4/9/15 9:41	87.03	3.12	2.33	1449.63	18.10		9279.88
4/9/15 9:41	87.20	3.12	2.33	1449.77	18.10		9279.90
4/9/15 9:41	87.37	3.12	2.35	1449.79	18.10		9280.00
4/9/15 9:41	87.53	3.12	2.37	1449.89	18.10		9280.06
4/9/15 9:41	87.70	3.12	2.40	1449.94	18.10		9280.08
4/9/15 9:41	87.87	3.12	2.40	1449.97	18.10		9280.21
4/9/15 9:42	88.03	3.12	2.40	1450.10	18.10		9280.21
4/9/15 9:42	88.20	3.12	2.45	1450.10	18.10		9280.24
4/9/15 9:42	88.37	3.12	2.47	1450.13	18.10		9280.34
4/9/15 9:42	88.53	3.12	2.47	1450.23	18.10		9280.34
4/9/15 9:42	88.70	3.12	2.50	1450.23	18.10		9280.40
4/9/15 9:42	88.87	3.12	2.50	1450.28	18.10		9280.34
4/9/15 9:43	89.03	3.12	2.52	1450.23	18.10		9280.37
4/9/15 9:43	89.20	3.12	2.55	1450.26	18.10		9280.45
4/9/15 9:43	89.37	3.12	2.57	1450.34	18.10		9280.44
4/9/15 9:43	89.53	3.12	2.57	1450.33	18.10		9280.38
4/9/15 9:43	89.70	3.12	2.59	1450.27	18.10		9280.39
4/9/15 9:43	89.87	3.12	2.62	1450.28	18.10		9280.48
4/9/15 9:44	90.03	3.12	2.64	1450.36	18.10		9280.42
4/9/15 9:44	90.20	3.12	2.64	1450.30	18.10		9280.40
4/9/15 9:44	90.37	3.11	2.67	1450.28	18.10		9280.45
4/9/15 9:44	90.53	3.12	2.67	1450.34	18.10		9280.45
4/9/15 9:44	90.70	3.12	2.69	1450.34	18.10		9280.50
4/9/15 9:44	90.87	3.12	2.69	1450.38	18.10		9280.42
4/9/15 9:45	91.03	3.12	2.72	1450.31	18.10		9280.40
4/9/15 9:45	91.20	3.12	2.72	1450.28	18.10		9280.42
4/9/15 9:45	91.37	3.12	2.74	1450.31	18.10		9280.45
4/9/15 9:45	91.53	3.12	2.74	1450.34	18.10		9280.42
4/9/15 9:45	91.70	3.12	2.76	1450.30	18.10		9280.37
4/9/15 9:45	91.87	3.12	2.79	1450.26	18.10		9280.36
4/9/15 9:46	92.03	3.12	2.79	1450.25	18.10		9280.45
4/9/15 9:46	92.20	3.12	2.81	1450.33	18.10		9280.39
4/9/15 9:46	92.37	3.12	2.84	1450.28	18.10		9280.38
4/9/15 9:46	92.53	3.12	2.84	1450.27	18.10		9280.32
4/9/15 9:46	92.70	3.12	2.84	1450.21	18.10		9280.41
4/9/15 9:46	92.87	3.12	2.89	1450.29	18.10		9280.51
4/9/15 9:47	93.03	3.12	2.91	1450.40	18.10		9280.46
4/9/15 9:47	93.20	3.12	2.93	1450.35	18.10		9280.41
4/9/15 9:47	93.37	3.11	2.93	1450.30	18.10		9280.45
4/9/15 9:47	93.53	3.12	2.93	1450.34	18.10		9280.40
4/9/15 9:47	93.70	3.12	2.98	1450.29	18.10		9280.45
4/9/15 9:47	93.87	3.12	3.01	1450.34	18.10		9280.46
4/9/15 9:48	94.03	3.11	3.03	1450.35	18.10		9280.42
4/9/15 9:48	94.20	3.12	3.03	1450.30	18.10		9280.43
4/9/15 9:48	94.37	3.12	3.03	1450.32	18.10		9280.39
4/9/15 9:48	94.53	3.12	3.06	1450.28	18.10		9280.42
4/9/15 9:48	94.70	3.12	3.08	1450.30	18.10		9280.42
4/9/15 9:48	94.87	3.12	3.10	1450.30	18.10		9280.37
4/9/15 9:49	95.03	3.12	3.10	1450.26	18.10		9280.36
4/9/15 9:49	95.20	3.12	3.13	1450.25	18.10		9280.42
4/9/15 9:49	95.37	3.12	3.15	1450.30	18.10		9280.44
4/9/15 9:49	95.53	3.12	3.18	1450.33	18.10		9280.44
4/9/15 9:49	95.70	3.12	3.20	1450.32	18.10		9280.43
4/9/15 9:49	95.87	3.12	3.23	1450.32	18.10		9280.42
4/9/15 9:50	96.03	3.12	3.23	1450.31	18.10		9280.46
4/9/15 9:50	96.20	3.11	3.23	1450.35	18.10		9280.40
4/9/15 9:50	96.37	3.12	3.25	1450.29	18.10		9280.39
4/9/15 9:50	96.53	3.12	3.25	1450.27	18.10		9280.40
4/9/15 9:50	96.70	3.12	3.28	1450.28	18.10		9280.42
4/9/15 9:50	96.87	3.12	3.28	1450.31	18.10		9280.41
4/9/15 9:51	97.03	3.12	3.28	1450.30	18.10		9280.39
4/9/15 9:51	97.20	3.12	3.30	1450.28	18.10		9280.33
4/9/15 9:51	97.37	3.12	3.30	1450.22	18.10		9280.38
4/9/15 9:51	97.53	3.12	3.32	1450.26	18.10		9280.38
4/9/15 9:51	97.70	3.12	3.32	1450.26	18.10		9280.35
4/9/15 9:51	97.87	3.12	3.35	1450.24	18.10		9280.37

Date/Time	Time (min)	Battery (V)	Temp (°C)	Reading (ft)	Sensor Tmp (°C)	Recovery (min)	WLE (ft)
4/9/15 9:52	98.03	3.12	3.35	1450.26	18.10		9280.42
4/9/15 9:52	98.20	3.12	3.32	1450.30	18.10		9280.37
4/9/15 9:52	98.37	3.12	3.35	1450.26	18.10		9280.37
4/9/15 9:52	98.53	3.12	3.32	1450.26	18.10		9280.36
4/9/15 9:52	98.70	3.12	3.35	1450.25	18.10		9280.34
4/9/15 9:52	98.87	3.12	3.35	1450.23	18.10		9280.40
4/9/15 9:53	99.03	3.11	3.35	1450.28	18.10		9280.37
4/9/15 9:53	99.20	3.12	3.35	1450.25	18.10		9280.36
4/9/15 9:53	99.37	3.12	3.37	1450.25	18.10		9280.34
4/9/15 9:53	99.53	3.12	3.37	1450.23	18.10		9280.35
4/9/15 9:53	99.70	3.12	3.37	1450.24	18.10		9280.29
4/9/15 9:53	99.87	3.12	3.40	1450.18	18.10		9280.36
4/9/15 9:54	100.03	3.12	3.42	1450.24	18.10		9280.28
4/9/15 9:54	100.20	3.12	3.42	1450.17	18.10		9280.32
4/9/15 9:54	100.37	3.12	3.45	1450.20	18.10		9280.29
4/9/15 9:54	100.53	3.12	3.45	1450.18	18.10		9280.38
4/9/15 9:54	100.70	3.12	3.47	1450.27	18.10		9280.34
4/9/15 9:54	100.87	3.12	3.47	1450.23	18.10		9280.28
4/9/15 9:55	101.03	3.12	3.49	1450.17	18.10		9280.29
4/9/15 9:55	101.20	3.12	3.49	1450.18	18.10		9280.27
4/9/15 9:55	101.37	3.11	3.49	1450.16	18.10		9280.28
4/9/15 9:55	101.53	3.12	3.54	1450.17	18.10		9280.27
4/9/15 9:55	101.70	3.12	3.54	1450.16	18.10		9280.24
4/9/15 9:55	101.87	3.12	3.59	1450.13	18.10		9280.26
4/9/15 9:56	102.03	3.11	3.62	1450.14	18.10		9280.25
4/9/15 9:56	102.20	3.12	3.64	1450.13	18.10		9280.30
4/9/15 9:56	102.37	3.12	3.66	1450.18	18.10		9280.23
4/9/15 9:56	102.53	3.12	3.66	1450.12	18.10		9280.24
4/9/15 9:56	102.70	3.12	3.69	1450.13	18.10		9280.25
4/9/15 9:56	102.87	3.12	3.71	1450.13	18.10		9280.24
4/9/15 9:57	103.03	3.12	3.74	1450.13	18.10		9280.27
4/9/15 9:57	103.20	3.12	3.76	1450.15	18.10		9280.17
4/9/15 9:57	103.37	3.12	3.76	1450.05	18.10		9280.21
4/9/15 9:57	103.53	3.12	3.79	1450.09	18.10		9280.21
4/9/15 9:57	103.70	3.11	3.81	1450.10	18.10		9280.10
4/9/15 9:57	103.87	3.12	3.81	1449.99	18.10		9280.18
4/9/15 9:58	104.03	3.12	3.84	1450.06	18.10		9280.13
4/9/15 9:58	104.20	3.12	3.86	1450.02	18.20		9280.18
4/9/15 9:58	104.37	3.12	3.88	1450.07	18.20		9280.11
4/9/15 9:58	104.53	3.12	3.88	1449.99	18.10		9280.14
4/9/15 9:58	104.70	3.12	3.88	1450.03	18.20		9280.13
4/9/15 9:58	104.87	3.12	3.91	1450.02	18.10		9280.17
4/9/15 9:59	105.03	3.12	3.91	1450.05	18.20		9280.09
4/9/15 9:59	105.20	3.12	3.93	1449.98	18.20		9280.08
4/9/15 9:59	105.37	3.12	3.96	1449.96	18.20		9280.14
4/9/15 9:59	105.53	3.12	3.96	1450.03	18.20		9280.12
4/9/15 9:59	105.70	3.12	4.01	1450.01	18.20		9280.15
4/9/15 9:59	105.87	3.12	4.01	1450.04	18.20		9280.05
4/9/15 10:00	106.03	3.12	4.03	1449.94	18.20		9280.01
4/9/15 10:00	106.20	3.12	4.05	1449.90	18.20		9280.14
4/9/15 10:00	106.37	3.12	4.08	1450.02	18.20		9280.00
4/9/15 10:00	106.53	3.12	4.08	1449.88	18.20		9280.04
4/9/15 10:00	106.70	3.12	4.10	1449.93	18.20		9280.05
4/9/15 10:00	106.87	3.12	4.13	1449.94	18.20		9280.05
4/9/15 10:01	107.03	3.12	4.15	1449.93	18.20		9280.06
4/9/15 10:01	107.20	3.12	4.15	1449.95	18.20		9280.05
4/9/15 10:01	107.37	3.12	4.18	1449.94	18.20		9280.05
4/9/15 10:01	107.53	3.12	4.20	1449.94	18.20		9279.98
4/9/15 10:01	107.70	3.12	4.23	1449.87	18.20		9279.98
4/9/15 10:01	107.87	3.12	4.25	1449.87	18.20		9280.11
4/9/15 10:02	108.03	3.12	4.25	1450.00	18.20		9279.94
4/9/15 10:02	108.20	3.12	4.30	1449.82	18.20		9279.93
4/9/15 10:02	108.37	3.12	4.30	1449.81	18.20		9279.95
4/9/15 10:02	108.53	3.12	4.32	1449.83	18.20		9279.89
4/9/15 10:02	108.70	3.12	4.35	1449.78	18.20		9279.90
4/9/15 10:02	108.87	3.12	4.40	1449.79	18.20		9279.90
4/9/15 10:03	109.03	3.12	4.37	1449.79	18.20		9279.91
4/9/15 10:03	109.20	3.12	4.42	1449.80	18.20		9279.85
4/9/15 10:03	109.37	3.12	4.47	1449.74	18.20		9279.91
4/9/15 10:03	109.53	3.12	4.47	1449.80	18.20		9279.91
4/9/15 10:03	109.70	3.12	4.52	1449.80	18.20		9279.84
4/9/15 10:03	109.87	3.12	4.54	1449.72	18.20		9279.85

Date/Time	Time (min)	Battery (V)	Temp (°C)	Reading (ft)	Sensor Tmp (°C)	Recovery (min)	WLE (ft)
4/9/15 10:04	110.03	3.12	4.59	1449.74	18.20		9279.88
4/9/15 10:04	110.20	3.12	4.62	1449.77	18.20		9279.80
4/9/15 10:04	110.37	3.12	4.67	1449.69	18.20		9279.83
4/9/15 10:04	110.53	3.12	4.71	1449.72	18.20		9279.76
4/9/15 10:04	110.70	3.12	4.76	1449.65	18.20		9279.74
4/9/15 10:04	110.87	3.11	4.79	1449.62	18.20		9279.70
4/9/15 10:05	111.03	3.12	4.84	1449.59	18.20		9279.62
4/9/15 10:05	111.20	3.12	4.89	1449.51	17.40		9279.79
4/9/15 10:05	111.37	3.12	4.91	1449.68	17.50		9279.68
4/9/15 10:05	111.53	3.11	5.01	1449.57	18.40		9279.65
4/9/15 10:05	111.70	3.11	5.13	1449.54	17.90		9279.75
4/9/15 10:05	111.87	3.10	5.25	1449.63	18.30		9279.78
4/9/15 10:06	112.03	3.10	5.35	1449.67	19.00		9279.72
4/9/15 10:06	112.20	3.10	5.45	1449.61	17.50		9279.70
4/9/15 10:06	112.37	3.11	5.52	1449.59	18.20		9279.52
4/9/15 10:06	112.53	3.11	5.64	1449.40	18.10		9279.66
4/9/15 10:06	112.70	3.10	5.69	1449.54	17.40		9279.67
4/9/15 10:06	112.87	3.10	5.77	1449.56	18.40		9279.64
4/9/15 10:07	113.03	3.10	5.77	1449.53	18.10		9279.81
4/9/15 10:07	113.20	3.10	5.89	1449.69	18.40		9279.79
4/9/15 10:07	113.37	3.10	5.94	1449.68	17.90		9279.77
4/9/15 10:07	113.53	3.11	5.96	1449.66	17.40		9279.59
4/9/15 10:07	113.70	3.11	5.99	1449.48	17.40		9279.70
4/9/15 10:07	113.87	3.11	6.01	1449.59	18.60		9279.31
4/9/15 10:08	114.03	3.11	5.99	1449.20	17.60		9279.47
4/9/15 10:08	114.20	3.11	5.99	1449.36	18.20		9279.56
4/9/15 10:08	114.37	3.11	5.99	1449.44	17.90		9279.44
4/9/15 10:08	114.53	3.12	6.01	1449.33	17.30		9279.65
4/9/15 10:08	114.70	3.12	6.04	1449.54	18.00		9279.65
4/9/15 10:08	114.87	3.12	6.04	1449.54	17.10		9279.67
4/9/15 10:09	115.03	3.12	6.04	1449.56	17.50		9279.53
4/9/15 10:09	115.20	3.12	6.09	1449.41	19.00		9279.61
4/9/15 10:09	115.37	3.12	6.11	1449.49	18.80		9279.43
4/9/15 10:09	115.53	3.12	6.18	1449.31	18.70		9279.43
4/9/15 10:09	115.70	3.12	6.23	1449.31	17.60		9279.38
4/9/15 10:09	115.87	3.12	6.31	1449.26	18.50		9279.22
4/9/15 10:10	116.03	3.12	6.36	1449.11	18.70		9279.55
4/9/15 10:10	116.20	3.12	6.40	1449.44	18.10		9279.57
4/9/15 10:10	116.37	3.12	6.48	1449.46	18.10		9279.56
4/9/15 10:10	116.53	3.12	6.58	1449.44	17.70		9279.47
4/9/15 10:10	116.70	3.12	6.65	1449.36	17.70		9279.62
4/9/15 10:10	116.87	3.12	6.72	1449.51	17.80		9279.36
4/9/15 10:11	117.03	3.12	6.82	1449.24	17.50		9279.47
4/9/15 10:11	117.20	3.12	6.92	1449.36	18.10		9279.21
4/9/15 10:11	117.37	3.12	7.02	1449.10	17.40		9279.16
4/9/15 10:11	117.53	3.12	7.12	1449.05	17.80		9279.11
4/9/15 10:11	117.70	3.12	7.22	1448.99	18.00		9279.13
4/9/15 10:11	117.87	3.12	7.32	1449.02	17.40		9279.25
4/9/15 10:12	118.03	3.12	7.41	1449.14	18.10		9279.21
4/9/15 10:12	118.20	3.12	7.51	1449.10	17.30		9279.33
4/9/15 10:12	118.37	3.12	7.64	1449.22	17.30		9279.41
4/9/15 10:12	118.53	3.12	7.74	1449.30	17.30		9279.24
4/9/15 10:12	118.70	3.12	7.83	1449.13	18.40		9279.40
4/9/15 10:12	118.87	3.12	7.91	1449.28	17.90		9279.15
4/9/15 10:13	119.03	3.12	8.03	1449.04	18.10		9279.16
4/9/15 10:13	119.20	3.12	8.16	1449.05	18.30		9279.10
4/9/15 10:13	119.37	3.13	8.25	1448.98	19.00		9279.00
4/9/15 10:13	119.53	3.12	8.38	1448.88	18.00		9279.05
4/9/15 10:13	119.70	3.12	8.50	1448.94	18.90		9278.95
4/9/15 10:13	119.87	3.12	8.58	1448.84	17.70		9278.79
4/9/15 10:14	120.03	3.12	8.68	1448.67	17.90		9279.15
4/9/15 10:14	120.20	3.12	8.82	1449.03	17.70		9279.05
4/9/15 10:14	120.37	3.12	8.90	1448.94	17.20		9279.13
4/9/15 10:14	120.53	3.13	9.05	1449.02	17.20		9279.08
4/9/15 10:14	120.70	3.12	9.15	1448.96	18.00		9279.01
4/9/15 10:14	120.87	3.12	9.27	1448.90	17.80		9279.10
4/9/15 10:15	121.03	3.12	9.40	1448.99	18.10		9279.02
4/9/15 10:15	121.20	3.12	9.52	1448.91	18.50		9278.82
4/9/15 10:15	121.37	3.13	9.62	1448.70	18.90		9278.80
4/9/15 10:15	121.53	3.12	9.77	1448.69	18.50		9278.74
4/9/15 10:15	121.70	3.13	9.87	1448.62	17.30		9278.79
4/9/15 10:15	121.87	3.13	9.94	1448.68	17.40		9278.91

Date/Time	Time (min)	Battery (V)	Temp (°C)	Reading (ft)	Sensor Tmp (°C)	Recovery (min)	WLE (ft)
4/9/15 10:16	122.03	3.13	10.12	1448.80	17.30		9278.77
4/9/15 10:16	122.20	3.13	10.24	1448.65	17.50		9278.74
4/9/15 10:16	122.37	3.13	10.29	1448.63	18.10		9278.78
4/9/15 10:16	122.53	3.12	10.42	1448.67	17.40		9278.89
4/9/15 10:16	122.70	3.13	10.52	1448.78	18.10		9278.75
4/9/15 10:16	122.87	3.13	10.67	1448.64	18.90		9279.05
4/9/15 10:17	123.03	3.13	10.77	1448.94	17.70		9278.93
4/9/15 10:17	123.20	3.13	10.94	1448.82	17.30		9278.90
4/9/15 10:17	123.37	3.13	11.09	1448.78	17.30		9278.81
4/9/15 10:17	123.53	3.13	11.22	1448.70	17.80		9278.48
4/9/15 10:17	123.70	3.12	11.35	1448.37	18.10		9278.54
4/9/15 10:17	123.87	3.13	11.45	1448.43	18.90		9278.52
4/9/15 10:18	124.03	3.13	11.57	1448.41	17.80		9278.69
4/9/15 10:18	124.20	3.13	11.70	1448.58	18.00		9278.35
4/9/15 10:18	124.37	3.12	11.80	1448.23	18.20		9278.87
4/9/15 10:18	124.53	3.13	11.92	1448.75	17.30		9278.75
4/9/15 10:18	124.70	3.13	12.03	1448.64	17.10		9278.49
4/9/15 10:18	124.87	3.13	12.15	1448.37	18.30		9278.68
4/9/15 10:19	125.03	3.13	12.25	1448.57	18.30		9278.71
4/9/15 10:19	125.20	3.13	12.40	1448.59	18.00		9278.66
4/9/15 10:19	125.37	3.13	12.53	1448.54	17.40		9278.74
4/9/15 10:19	125.53	3.13	12.63	1448.62	18.60		9278.68
4/9/15 10:19	125.70	3.13	12.76	1448.57	18.50		9278.37
4/9/15 10:19	125.87	3.13	12.86	1448.26	17.40		9278.54
4/9/15 10:20	126.03	3.13	12.99	1448.43	17.90		9278.22
4/9/15 10:20	126.20	3.13	13.06	1448.11	17.80		9278.51
4/9/15 10:20	126.37	3.13	13.19	1448.40	17.40		9278.32
4/9/15 10:20	126.53	3.13	13.27	1448.21	18.40		9278.04
4/9/15 10:20	126.70	3.13	13.42	1447.92	18.20		9278.23
4/9/15 10:20	126.87	3.13	13.49	1448.11	17.70		9278.25
4/9/15 10:21	127.03	3.13	13.60	1448.13	18.50		9278.25
4/9/15 10:21	127.20	3.13	13.75	1448.14	17.70		9278.46
4/9/15 10:21	127.37	3.13	13.80	1448.35	17.30		9278.59
4/9/15 10:21	127.53	3.13	13.90	1448.48	18.10		9278.43
4/9/15 10:21	127.70	3.13	13.98	1448.31	17.90		9278.65
4/9/15 10:21	127.87	3.13	14.00	1448.53	17.30		9278.51
4/9/15 10:22	128.03	3.13	14.16	1448.40	17.20		9278.32
4/9/15 10:22	128.20	3.13	14.23	1448.21	18.10		9278.49
4/9/15 10:22	128.37	3.13	14.36	1448.38	18.80		9278.59
4/9/15 10:22	128.53	3.13	14.49	1448.48	18.00		9278.34
4/9/15 10:22	128.70	3.13	14.62	1448.23	17.30		9277.99
4/9/15 10:22	128.87	3.13	14.69	1447.88	18.00		9278.15
4/9/15 10:23	129.03	3.13	14.77	1448.03	18.10		9278.08
4/9/15 10:23	129.20	3.13	14.90	1447.97	18.30		9277.94
4/9/15 10:23	129.37	3.13	15.00	1447.83	17.30		9278.16
4/9/15 10:23	129.53	3.13	15.11	1448.05	17.90		9278.16
4/9/15 10:23	129.70	3.13	15.23	1448.05	18.80		9278.27
4/9/15 10:23	129.87	3.13	15.36	1448.15	18.30		9278.42
4/9/15 10:24	130.03	3.13	15.49	1448.30	18.60		9278.25
4/9/15 10:24	130.20	3.13	15.52	1448.14	17.50		9278.25
4/9/15 10:24	130.37	3.13	15.67	1448.14	18.50		9278.26
4/9/15 10:24	130.53	3.13	15.80	1448.15	18.20		9278.46
4/9/15 10:24	130.70	3.13	15.88	1448.34	18.20		9278.05
4/9/15 10:24	130.87	3.13	15.98	1447.94	18.30		9278.28
4/9/15 10:25	131.03	3.13	16.09	1448.17	17.30		9278.16
4/9/15 10:25	131.20	3.13	16.17	1448.05	18.80		9278.23
4/9/15 10:25	131.37	3.13	16.27	1448.12	17.20		9278.06
4/9/15 10:25	131.53	3.13	16.37	1447.95	17.20		9278.01
4/9/15 10:25	131.70	3.13	16.45	1447.90	18.00		9277.82
4/9/15 10:25	131.87	3.14	16.56	1447.70	18.80		9278.11
4/9/15 10:26	132.03	3.13	16.69	1448.00	17.20		9278.06
4/9/15 10:26	132.20	3.13	16.79	1447.95	18.70		9277.67
4/9/15 10:26	132.37	3.13	16.92	1447.56	18.70		9277.80
4/9/15 10:26	132.53	3.13	17.00	1447.69	18.90		9277.94
4/9/15 10:26	132.70	3.13	17.10	1447.82	18.40		9278.09
4/9/15 10:26	132.87	3.13	17.23	1447.98	17.50		9277.98
4/9/15 10:27	133.03	3.13	17.31	1447.87	17.80		9278.35
4/9/15 10:27	133.20	3.13	17.39	1448.24	18.50		9277.95
4/9/15 10:27	133.37	3.13	17.55	1447.84	17.30		9277.69
4/9/15 10:27	133.53	3.14	17.63	1447.58	17.50		9277.83
4/9/15 10:27	133.70	3.13	17.73	1447.72	18.70		9277.92
4/9/15 10:27	133.87	3.13	17.84	1447.80	18.30		9277.92

Date/Time	Time (min)	Battery (V)	Temp (°C)	Reading (ft)	Sensor Tmp (°C)	Recovery (min)	WLE (ft)
4/9/15 10:28	134.03	3.13	17.92	1447.80	17.60		9277.97
4/9/15 10:28	134.20	3.13	18.02	1447.85	17.80		9277.86
4/9/15 10:28	134.37	3.13	18.13	1447.74	17.30		9277.59
4/9/15 10:28	134.53	3.14	18.21	1447.48	18.80		9277.46
4/9/15 10:28	134.70	3.14	18.34	1447.34	17.30		9277.64
4/9/15 10:28	134.87	3.13	18.45	1447.52	17.50		9277.80
4/9/15 10:29	135.03	3.14	18.55	1447.69	18.60		9277.68
4/9/15 10:29	135.20	3.14	18.63	1447.56	17.20		9277.62
4/9/15 10:29	135.37	3.13	18.71	1447.51	17.90		9277.43
4/9/15 10:29	135.53	3.14	18.79	1447.32	17.60		9277.94
4/9/15 10:29	135.70	3.14	18.87	1447.82	18.20		9277.40
4/9/15 10:29	135.87	3.14	18.93	1447.28	18.70		9277.63
4/9/15 10:30	136.03	3.14	19.01	1447.52	18.00		9277.82
4/9/15 10:30	136.20	3.14	19.17	1447.71	17.10		9277.62
4/9/15 10:30	136.37	3.14	19.19	1447.51	18.30		9277.63
4/9/15 10:30	136.53	3.13	19.30	1447.52	17.10		9277.72
4/9/15 10:30	136.70	3.14	19.41	1447.61	18.60		9277.62
4/9/15 10:30	136.87	3.14	19.52	1447.51	17.80		9277.73
4/9/15 10:31	137.03	3.14	19.65	1447.62	17.90		9277.57
4/9/15 10:31	137.20	3.14	19.76	1447.45	18.20		9277.56
4/9/15 10:31	137.37	3.14	19.84	1447.45	18.80		9277.34
4/9/15 10:31	137.53	3.14	19.95	1447.23	17.60		9277.47
4/9/15 10:31	137.70	3.14	20.06	1447.35	17.80		9277.50
4/9/15 10:31	137.87	3.14	20.14	1447.39	17.90		9277.23
4/9/15 10:32	138.03	3.14	20.19	1447.12	17.60		9277.39
4/9/15 10:32	138.20	3.14	20.27	1447.28	17.20		9277.58
4/9/15 10:32	138.37	3.14	20.41	1447.46	18.20		9277.33
4/9/15 10:32	138.53	3.14	20.49	1447.22	17.70		9277.62
4/9/15 10:32	138.70	3.14	20.60	1447.51	17.20		9277.37
4/9/15 10:32	138.87	3.14	20.65	1447.26	18.10		9277.53
4/9/15 10:33	139.03	3.14	20.76	1447.41	18.40		9277.51
4/9/15 10:33	139.20	3.14	20.90	1447.40	18.50		9277.38
4/9/15 10:33	139.37	3.14	20.95	1447.26	18.70		9277.47
4/9/15 10:33	139.53	3.14	21.09	1447.35	18.80		9277.49
4/9/15 10:33	139.70	3.14	21.17	1447.38	18.60		9277.43
4/9/15 10:33	139.87	3.14	21.23	1447.32	17.70		9277.41
4/9/15 10:34	140.03	3.14	21.34	1447.29	17.40		9277.29
4/9/15 10:34	140.20	3.14	21.39	1447.17	18.20		9277.15
4/9/15 10:34	140.37	3.14	21.51	1447.04	18.80		9277.02
4/9/15 10:34	140.53	3.14	21.64	1446.91	18.10		9277.07
4/9/15 10:34	140.70	3.14	21.73	1446.95	17.90		9277.03
4/9/15 10:34	140.87	3.14	21.84	1446.91	17.30		9276.88
4/9/15 10:35	141.03	3.14	21.89	1446.77	17.90		9276.90
4/9/15 10:35	141.20	3.14	22.03	1446.79	18.20		9276.87
4/9/15 10:35	141.37	3.14	22.12	1446.76	17.20		9276.94
4/9/15 10:35	141.53	3.14	22.26	1446.83	17.80		9276.99
4/9/15 10:35	141.70	3.14	22.31	1446.88	17.80		9277.04
4/9/15 10:35	141.87	3.14	22.40	1446.93	17.60		9277.01
4/9/15 10:36	142.03	3.14	22.48	1446.90	17.60		9277.25
4/9/15 10:36	142.20	3.14	22.56	1447.14	17.50		9277.35
4/9/15 10:36	142.37	3.14	22.68	1447.23	18.30		9276.93
4/9/15 10:36	142.53	3.14	22.76	1446.81	18.20		9277.18
4/9/15 10:36	142.70	3.14	22.85	1447.07	18.50		9277.24
4/9/15 10:36	142.87	3.14	22.93	1447.13	17.20		9276.87
4/9/15 10:37	143.03	3.14	22.99	1446.76	18.10		9277.10
4/9/15 10:37	143.20	3.14	23.10	1446.98	17.20		9277.22
4/9/15 10:37	143.37	3.14	23.19	1447.11	17.10		9276.97
4/9/15 10:37	143.53	3.14	23.24	1446.86	17.80		9277.09
4/9/15 10:37	143.70	3.14	23.24	1446.97	18.80		9277.14
4/9/15 10:37	143.87	3.14	23.39	1447.03	18.60		9276.73
4/9/15 10:38	144.03	3.14	23.50	1446.62	18.40		9276.69
4/9/15 10:38	144.20	3.14	23.53	1446.57	18.40		9276.86
4/9/15 10:38	144.37	3.14	23.56	1446.74	18.40		9276.54
4/9/15 10:38	144.53	3.14	23.67	1446.43	18.20		9276.61
4/9/15 10:38	144.70	3.14	23.79	1446.50	17.70		9276.63
4/9/15 10:38	144.87	3.14	23.87	1446.52	17.80		9276.80
4/9/15 10:39	145.03	3.14	23.90	1446.68	18.60		9276.74
4/9/15 10:39	145.20	3.14	24.02	1446.62	17.20		9276.87
4/9/15 10:39	145.37	3.14	24.10	1446.75	18.30		9276.79
4/9/15 10:39	145.53	3.14	24.13	1446.67	17.80		9276.82
4/9/15 10:39	145.70	3.14	24.22	1446.70	17.10		9276.86
4/9/15 10:39	145.87	3.14	24.25	1446.75	18.10		9276.80

Date/Time	Time (min)	Battery (V)	Temp (°C)	Reading (ft)	Sensor Tmp (°C)	Recovery (min)	WLE (ft)
4/9/15 10:40	146.03	3.14	24.42	1446.69	18.50		9276.72
4/9/15 10:40	146.20	3.14	24.45	1446.61	18.30		9276.84
4/9/15 10:40	146.37	3.14	24.60	1446.72	18.60		9276.86
4/9/15 10:40	146.53	3.14	24.57	1446.75	18.70		9276.57
4/9/15 10:40	146.70	3.14	24.63	1446.46	18.20		9276.84
4/9/15 10:40	146.87	3.14	24.77	1446.72	17.30		9276.84
4/9/15 10:41	147.03	3.15	24.83	1446.73	18.70		9276.69
4/9/15 10:41	147.20	3.14	24.86	1446.58	18.30		9276.70
4/9/15 10:41	147.37	3.14	24.89	1446.58	17.20		9276.58
4/9/15 10:41	147.53	3.14	25.01	1446.47	17.50		9276.57
4/9/15 10:41	147.70	3.14	25.13	1446.46	17.70		9276.58
4/9/15 10:41	147.87	3.14	25.22	1446.47	18.30		9276.37
4/9/15 10:42	148.03	3.14	25.25	1446.25	18.30		9276.23
4/9/15 10:42	148.20	3.14	25.36	1446.12	18.00		9276.40
4/9/15 10:42	148.37	3.14	25.45	1446.29	17.60		9276.35
4/9/15 10:42	148.53	3.14	25.51	1446.24	18.20		9276.55
4/9/15 10:42	148.70	3.14	25.63	1446.43	17.10		9276.65
4/9/15 10:42	148.87	3.14	25.75	1446.54	17.40		9276.21
4/9/15 10:43	149.03	3.14	25.81	1446.10	17.20		9276.63
4/9/15 10:43	149.20	3.14	25.87	1446.52	17.60		9276.42
4/9/15 10:43	149.37	3.14	25.78	1446.31	18.10		9276.46
4/9/15 10:43	149.53	3.14	25.99	1446.34	18.70		9276.58
4/9/15 10:43	149.70	3.14	26.11	1446.47	18.80		9276.72
4/9/15 10:43	149.87	3.14	26.14	1446.61	17.90		9276.40
4/9/15 10:44	150.03	3.14	26.14	1446.29	17.70		9276.58
4/9/15 10:44	150.20	3.14	26.26	1446.47	17.70		9276.46
4/9/15 10:44	150.37	3.14	26.38	1446.35	18.20		9276.60
4/9/15 10:44	150.53	3.15	26.38	1446.49	18.40		9276.32
4/9/15 10:44	150.70	3.14	26.35	1446.21	18.20		9276.57
4/9/15 10:44	150.87	3.14	26.51	1446.46	18.20		9276.26
4/9/15 10:45	151.03	3.14	26.57	1446.15	18.00		9276.25
4/9/15 10:45	151.20	3.14	26.63	1446.13	17.30		9276.07
4/9/15 10:45	151.37	3.14	26.66	1445.95	18.30		9276.18
4/9/15 10:45	151.53	3.14	26.81	1446.06	17.90		9276.23
4/9/15 10:45	151.70	3.14	26.81	1446.11	18.70		9276.09
4/9/15 10:45	151.87	3.14	26.90	1445.98	17.50		9276.30
4/9/15 10:46	152.03	3.14	26.90	1446.19	17.80		9276.32
4/9/15 10:46	152.20	3.14	26.99	1446.21	18.40		9276.27
4/9/15 10:46	152.37	3.14	27.06	1446.16	18.60		9276.32
4/9/15 10:46	152.53	3.14	27.12	1446.21	17.20		9276.02
4/9/15 10:46	152.70	3.14	27.24	1445.91	17.40		9276.18
4/9/15 10:46	152.87	3.14	27.30	1446.07	17.60		9276.35
4/9/15 10:47	153.03	3.14	27.33	1446.24	18.80		9276.22
4/9/15 10:47	153.20	3.14	27.40	1446.11	18.60		9276.19
4/9/15 10:47	153.37	3.15	27.43	1446.08	18.30		9276.35
4/9/15 10:47	153.53	3.14	27.49	1446.23	17.40		9275.98
4/9/15 10:47	153.70	3.15	27.49	1445.87	17.30		9276.16
4/9/15 10:47	153.87	3.14	27.61	1446.04	18.10		9276.15
4/9/15 10:48	154.03	3.15	27.68	1446.03	18.70		9276.18
4/9/15 10:48	154.20	3.14	27.65	1446.07	18.60		9276.11
4/9/15 10:48	154.37	3.14	27.77	1445.99	17.10		9275.98
4/9/15 10:48	154.53	3.14	27.74	1445.86	17.70		9276.05
4/9/15 10:48	154.70	3.15	27.77	1445.94	17.30		9275.87
4/9/15 10:48	154.87	3.15	27.90	1445.76	17.40		9275.91
4/9/15 10:49	155.03	3.14	27.83	1445.79	18.00		9275.68
4/9/15 10:49	155.20	3.15	27.96	1445.56	17.40		9276.19
4/9/15 10:49	155.37	3.15	28.02	1446.08	18.60		9276.02
4/9/15 10:49	155.53	3.15	28.09	1445.90	17.40		9275.90
4/9/15 10:49	155.70	3.14	28.02	1445.79	18.00		9275.89
4/9/15 10:49	155.87	3.14	28.15	1445.78	17.80		9275.98
4/9/15 10:50	156.03	3.14	28.31	1445.87	17.50		9275.76
4/9/15 10:50	156.20	3.15	28.37	1445.65	18.10		9275.81
4/9/15 10:50	156.37	3.15	28.50	1445.70	18.10		9276.04
4/9/15 10:50	156.53	3.15	28.50	1445.92	17.80		9275.99
4/9/15 10:50	156.70	3.14	28.31	1445.87	17.40		9275.68
4/9/15 10:50	156.87	3.14	28.56	1445.57	17.90		9275.88
4/9/15 10:51	157.03	3.14	28.59	1445.76	17.70		9275.70
4/9/15 10:51	157.20	3.14	28.66	1445.59	17.10		9275.85
4/9/15 10:51	157.37	3.15	28.63	1445.74	17.20		9275.71
4/9/15 10:51	157.53	3.15	28.59	1445.60	17.60		9275.70
4/9/15 10:51	157.70	3.15	28.66	1445.58	18.70		9275.45
4/9/15 10:51	157.87	3.14	28.76	1445.34	17.10		9275.61

Date/Time	Time (min)	Battery (V)	Temp (°C)	Reading (ft)	Sensor Tmp (°C)	Recovery (min)	WLE (ft)
4/9/15 10:52	158.03	3.15	28.82	1445.50	17.40		9275.74
4/9/15 10:52	158.20	3.14	28.92	1445.62	18.00		9275.63
4/9/15 10:52	158.37	3.14	28.92	1445.51	17.20		9275.61
4/9/15 10:52	158.53	3.15	28.82	1445.49	18.50		9275.62
4/9/15 10:52	158.70	3.15	29.08	1445.51	18.10		9275.73
4/9/15 10:52	158.87	3.15	29.11	1445.62	17.90		9275.64
4/9/15 10:53	159.03	3.15	29.18	1445.53	17.80		9275.53
4/9/15 10:53	159.20	3.15	29.14	1445.42	17.30		9275.52
4/9/15 10:53	159.37	3.15	29.31	1445.41	17.60		9275.55
4/9/15 10:53	159.53	3.15	29.37	1445.44	17.80		9275.36
4/9/15 10:53	159.70	3.14	29.44	1445.25	17.90		9275.31
4/9/15 10:53	159.87	3.14	29.50	1445.19	18.30		9275.44
4/9/15 10:54	160.03	3.15	29.57	1445.33	18.70		9275.47
4/9/15 10:54	160.20	3.14	29.60	1445.36	18.20		9275.65
4/9/15 10:54	160.37	3.13	29.47	1445.53	18.00		9275.94
4/9/15 10:54	160.53	3.14	29.70	1445.83	18.80		9275.51
4/9/15 10:54	160.70	3.13	29.67	1445.40	18.00		9275.39
4/9/15 10:54	160.87	3.15	29.73	1445.28	17.80		9275.40
4/9/15 10:55	161.03	3.15	29.90	1445.28	18.10		9275.51
4/9/15 10:55	161.20	3.15	29.90	1445.40	18.80		9275.55
4/9/15 10:55	161.37	3.15	29.93	1445.44	18.30		9275.48
4/9/15 10:55	161.53	3.15	30.06	1445.36	17.90		9275.44
4/9/15 10:55	161.70	3.15	30.06	1445.32	18.20		9275.35
4/9/15 10:55	161.87	3.15	30.20	1445.24	17.50		9275.38
4/9/15 10:56	162.03	3.15	30.30	1445.27	18.20		9275.45
4/9/15 10:56	162.20	3.15	30.33	1445.34	17.80		9275.48
4/9/15 10:56	162.37	3.12	30.46	1445.37	18.20		9275.36
4/9/15 10:56	162.53	3.15	30.43	1445.24	18.70		9275.46
4/9/15 10:56	162.70	3.15	30.57	1445.35	18.80		9275.23
4/9/15 10:56	162.87	3.15	30.60	1445.12	18.80		9275.43
4/9/15 10:57	163.03	3.15	30.60	1445.32	18.10		9274.97
4/9/15 10:57	163.20	3.15	30.67	1444.86	18.10		9275.33
4/9/15 10:57	163.37	3.13	30.77	1445.22	18.10		9275.17
4/9/15 10:57	163.53	3.15	30.90	1445.06	18.20		9275.22
4/9/15 10:57	163.70	3.15	30.97	1445.10	17.40		9275.05
4/9/15 10:57	163.87	3.15	30.97	1444.94	17.90		9275.14
4/9/15 10:58	164.03	3.15	30.97	1445.03	17.40		9275.15
4/9/15 10:58	164.20	3.15	30.97	1445.04	18.80		9275.11
4/9/15 10:58	164.37	3.15	30.94	1445.00	18.40		9275.05
4/9/15 10:58	164.53	3.13	31.04	1444.94	18.10		9274.84
4/9/15 10:58	164.70	3.13	31.04	1444.73	18.40		9275.37
4/9/15 10:58	164.87	3.13	31.07	1445.26	17.10		9274.96
4/9/15 10:59	165.03	3.15	30.94	1444.84	18.40		9274.78
4/9/15 10:59	165.20	3.15	31.07	1444.67	18.20		9274.97
4/9/15 10:59	165.37	3.13	31.21	1444.86	17.40		9274.95
4/9/15 10:59	165.53	3.12	31.28	1444.83	17.80		9274.92
4/9/15 10:59	165.70	3.14	31.38	1444.81	17.40		9275.01
4/9/15 10:59	165.87	3.15	31.49	1444.90	18.60		9274.85
4/9/15 11:00	166.03	3.14	31.52	1444.73	17.90		9275.06
4/9/15 11:00	166.20	3.15	31.59	1444.94	18.00		9274.85
4/9/15 11:00	166.37	3.13	31.59	1444.73	18.10		9275.05
4/9/15 11:00	166.53	3.15	31.73	1444.94	17.40		9274.89
4/9/15 11:00	166.70	3.15	31.66	1444.78	18.40		9274.83
4/9/15 11:00	166.87	3.15	31.77	1444.72	18.80		9274.85
4/9/15 11:01	167.03	3.15	31.84	1444.73	18.80		9275.08
4/9/15 11:01	167.20	3.14	31.91	1444.97	18.70		9275.04
4/9/15 11:01	167.37	3.15	32.01	1444.93	18.00		9274.85
4/9/15 11:01	167.53	3.15	32.05	1444.73	18.00		9274.72
4/9/15 11:01	167.70	3.15	32.08	1444.61	18.80		9274.71
4/9/15 11:01	167.87	3.15	32.19	1444.60	17.40		9274.63
4/9/15 11:02	168.03	3.15	32.26	1444.52	17.50		9274.70
4/9/15 11:02	168.20	3.14	32.33	1444.58	17.50		9274.81
4/9/15 11:02	168.37	3.15	32.40	1444.70	18.60		9274.51
4/9/15 11:02	168.53	3.15	32.47	1444.40	18.10		9274.67
4/9/15 11:02	168.70	3.15	32.47	1444.55	17.30		9274.45
4/9/15 11:02	168.87	3.15	32.51	1444.33	18.00		9274.79
4/9/15 11:03	169.03	3.13	32.54	1444.68	18.80		9275.02
4/9/15 11:03	169.20	3.13	32.65	1444.90	17.30		9274.66
4/9/15 11:03	169.37	3.15	32.47	1444.54	18.30		9274.51
4/9/15 11:03	169.53	3.13	32.33	1444.39	18.60		9274.53
4/9/15 11:03	169.70	3.15	32.29	1444.42	18.10		9274.60
4/9/15 11:03	169.87	3.15	32.47	1444.49	18.30		9274.72

Date/Time	Time (min)	Battery (V)	Temp (°C)	Reading (ft)	Sensor Tmp (°C)	Recovery (min)	WLE (ft)
4/9/15 11:04	170.03	3.15	32.40	1444.61	18.10		9275.15
4/9/15 11:04	170.20	3.14	32.33	1445.03	18.80		9274.86
4/9/15 11:04	170.37	3.14	32.33	1444.75	18.50		9274.92
4/9/15 11:04	170.53	3.13	32.29	1444.80	18.50		9274.66
4/9/15 11:04	170.70	3.14	32.29	1444.55	17.30		9274.62
4/9/15 11:04	170.87	3.14	32.36	1444.51	18.00		9274.63
4/9/15 11:05	171.03	3.14	32.36	1444.51	17.40		9274.64
4/9/15 11:05	171.20	3.14	32.61	1444.53	18.80		9274.68
4/9/15 11:05	171.37	3.15	32.76	1444.57	17.30		9274.53
4/9/15 11:05	171.53	3.14	32.68	1444.42	17.30		9274.44
4/9/15 11:05	171.70	3.13	32.79	1444.33	18.00		9274.68
4/9/15 11:05	171.87	3.14	32.76	1444.56	17.80		9274.15
4/9/15 11:06	172.03	3.13	32.79	1444.04	17.10		9274.44
4/9/15 11:06	172.20	3.13	32.79	1444.33	18.10		9274.45
4/9/15 11:06	172.37	3.13	32.51	1444.34	18.10		9274.41
4/9/15 11:06	172.53	3.14	32.72	1444.30	17.80		9274.51
4/9/15 11:06	172.70	3.14	32.61	1444.40	18.10		9274.33
4/9/15 11:06	172.87	3.12	32.40	1444.22	17.40		9274.40
4/9/15 11:07	173.03	3.14	32.61	1444.29	18.60		9274.29
4/9/15 11:07	173.20	3.14	32.40	1444.18	17.50		9274.28
4/9/15 11:07	173.37	3.14	32.47	1444.16	18.10		9274.38
4/9/15 11:07	173.53	3.14	32.51	1444.26	17.80		9274.39
4/9/15 11:07	173.70	3.14	32.47	1444.28	17.50		9274.19
4/9/15 11:07	173.87	3.14	32.40	1444.08	17.60		9274.28
4/9/15 11:08	174.03	3.14	32.47	1444.17	17.40		9274.35
4/9/15 11:08	174.20	3.14	32.36	1444.23	18.80		9274.44
4/9/15 11:08	174.37	3.14	32.47	1444.33	18.50		9274.23
4/9/15 11:08	174.53	3.14	32.51	1444.11	17.60		9274.31
4/9/15 11:08	174.70	3.14	32.43	1444.20	18.70		9274.20
4/9/15 11:08	174.87	3.14	32.43	1444.08	17.20		9274.36
4/9/15 11:09	175.03	3.14	32.36	1444.24	18.30		9274.36
4/9/15 11:09	175.20	3.14	32.29	1444.25	18.70		9274.38
4/9/15 11:09	175.37	3.14	32.29	1444.27	18.60		9274.20
4/9/15 11:09	175.53	3.14	32.12	1444.09	17.50		9274.14
4/9/15 11:09	175.70	3.14	32.22	1444.03	17.70		9274.22
4/9/15 11:09	175.87	3.14	32.29	1444.11	17.40		9274.03
4/9/15 11:10	176.03	3.14	32.15	1443.92	17.40		9274.09
4/9/15 11:10	176.20	3.14	32.29	1443.98	18.00		9273.97
4/9/15 11:10	176.37	3.14	32.12	1443.86	17.40		9274.01
4/9/15 11:10	176.53	3.14	32.05	1443.90	18.50		9274.22
4/9/15 11:10	176.70	3.14	31.98	1444.11	18.30		9274.04
4/9/15 11:10	176.87	3.14	31.70	1443.93	17.70		9273.92
4/9/15 11:11	177.03	3.14	31.45	1443.81	18.10		9273.95
4/9/15 11:11	177.20	3.14	31.70	1443.84	17.30		9274.00
4/9/15 11:11	177.37	3.14	31.63	1443.88	18.70		9274.07
4/9/15 11:11	177.53	3.14	31.45	1443.96	17.90		9273.86
4/9/15 11:11	177.70	3.14	31.42	1443.75	18.10		9274.02
4/9/15 11:11	177.87	3.14	31.38	1443.91	17.80		9274.01
4/9/15 11:12	178.03	3.14	31.38	1443.90	17.50		9273.73
4/9/15 11:12	178.20	3.14	31.45	1443.61	18.20		9274.02
4/9/15 11:12	178.37	3.14	31.45	1443.90	17.80		9273.92
4/9/15 11:12	178.53	3.14	31.42	1443.81	17.20		9274.04
4/9/15 11:12	178.70	3.14	31.31	1443.92	17.20		9274.13
4/9/15 11:12	178.87	3.14	31.14	1444.02	18.90		9273.99
4/9/15 11:13	179.03	3.14	31.11	1443.88	18.90		9273.84
4/9/15 11:13	179.20	3.14	31.25	1443.72	17.80		9273.91
4/9/15 11:13	179.37	3.14	31.21	1443.80	17.90		9273.77
4/9/15 11:13	179.53	3.14	31.25	1443.65	18.50		9273.88
4/9/15 11:13	179.70	3.14	31.38	1443.77	18.20		9273.89
4/9/15 11:13	179.87	3.14	31.42	1443.77	17.60		9273.78
4/9/15 11:14	180.03	3.13	31.38	1443.67	17.40		9273.73
4/9/15 11:14	180.20	3.14	31.25	1443.61	17.50		9273.85
4/9/15 11:14	180.37	3.14	31.28	1443.73	18.10		9273.72
4/9/15 11:14	180.53	3.14	31.38	1443.61	18.90		9273.49
4/9/15 11:14	180.70	3.14	31.42	1443.38	18.30		9273.58
4/9/15 11:14	180.87	3.14	31.38	1443.46	18.60		9273.52
4/9/15 11:15	181.03	3.14	31.49	1443.40	18.10		9273.63
4/9/15 11:15	181.20	3.14	31.52	1443.51	18.80		9273.66
4/9/15 11:15	181.37	3.14	31.35	1443.55	18.20		9273.61
4/9/15 11:15	181.53	3.14	31.35	1443.49	18.10		9273.52
4/9/15 11:15	181.70	3.14	31.42	1443.40	18.10		9273.57
4/9/15 11:15	181.87	3.14	31.18	1443.46	18.00		9273.49

Date/Time	Time (min)	Battery (V)	Temp (°C)	Reading (ft)	Sensor Tmp (°C)	Recovery (min)	WLE (ft)
4/9/15 11:16	182.03	3.14	31.38	1443.38	17.60		9273.47
4/9/15 11:16	182.20	3.14	31.25	1443.35	18.30		9273.49
4/9/15 11:16	182.37	3.13	31.21	1443.38	17.50		9273.52
4/9/15 11:16	182.53	3.14	31.25	1443.40	18.00		9273.47
4/9/15 11:16	182.70	3.14	30.97	1443.36	18.90		9273.56
4/9/15 11:16	182.87	3.14	30.87	1443.45	17.90		9273.52
4/9/15 11:17	183.03	3.14	30.77	1443.40	17.50		9273.65
4/9/15 11:17	183.20	3.14	30.77	1443.54	18.00		9273.66
4/9/15 11:17	183.37	3.14	30.80	1443.55	18.90		9273.60
4/9/15 11:17	183.53	3.14	30.84	1443.49	17.10		9273.65
4/9/15 11:17	183.70	3.14	30.73	1443.54	18.00		9273.59
4/9/15 11:17	183.87	3.14	30.53	1443.48	17.80		9273.50
4/9/15 11:18	184.03	3.14	30.77	1443.39	18.80		9273.39
4/9/15 11:18	184.20	3.14	30.84	1443.28	18.70		9273.36
4/9/15 11:18	184.37	3.14	30.90	1443.24	18.90		9273.32
4/9/15 11:18	184.53	3.14	30.97	1443.21	18.50		9273.36
4/9/15 11:18	184.70	3.14	31.11	1443.24	18.50		9273.52
4/9/15 11:18	184.87	3.14	31.18	1443.40	17.40		9273.40
4/9/15 11:19	185.03	3.14	31.04	1443.29	18.30		9273.44
4/9/15 11:19	185.20	3.14	31.14	1443.33	17.20		9273.45
4/9/15 11:19	185.37	3.14	31.21	1443.34	17.80		9273.23
4/9/15 11:19	185.53	3.14	31.38	1443.11	18.90		9273.31
4/9/15 11:19	185.70	3.14	31.35	1443.19	17.50		9273.15
4/9/15 11:19	185.87	3.14	31.35	1443.04	17.50		9273.14
4/9/15 11:20	186.03	3.14	31.45	1443.03	17.60		9273.39
4/9/15 11:20	186.20	3.14	31.49	1443.28	18.70		9273.09
4/9/15 11:20	186.37	3.14	31.56	1442.97	18.10		9273.14
4/9/15 11:20	186.53	3.14	31.31	1443.03	18.30		9272.93
4/9/15 11:20	186.70	3.14	31.28	1442.82	18.20		9273.06
4/9/15 11:20	186.87	3.14	31.38	1442.94	18.20		9272.77
4/9/15 11:21	187.03	3.14	31.42	1442.66	18.30		9273.05
4/9/15 11:21	187.20	3.14	31.18	1442.94	17.90		9273.08
4/9/15 11:21	187.37	3.14	31.49	1442.96	17.60		9273.19
4/9/15 11:21	187.53	3.14	31.52	1443.08	18.50		9273.42
4/9/15 11:21	187.70	3.14	31.45	1443.30	18.20		9273.29
4/9/15 11:21	187.87	3.14	31.56	1443.17	17.50		9273.30
4/9/15 11:22	188.03	3.14	31.56	1443.19	18.30		9273.24
4/9/15 11:22	188.20	3.14	31.56	1443.13	18.30		9273.17
4/9/15 11:22	188.37	3.14	31.77	1443.05	18.80		9273.20
4/9/15 11:22	188.53	3.14	31.91	1443.09	17.40		9273.03
4/9/15 11:22	188.70	3.14	32.01	1442.92	17.60		9273.10
4/9/15 11:22	188.87	3.14	31.91	1442.99	17.70		9273.00
4/9/15 11:23	189.03	3.14	32.15	1442.88	17.90		9273.17
4/9/15 11:23	189.20	3.14	32.08	1443.05	18.20		9273.46
4/9/15 11:23	189.37	3.14	32.19	1443.34	17.90		9273.12
4/9/15 11:23	189.53	3.14	32.15	1443.01	18.20		9273.06
4/9/15 11:23	189.70	3.14	31.94	1442.95	17.20		9273.00
4/9/15 11:23	189.87	3.14	32.01	1442.89	18.30		9273.22
4/9/15 11:24	190.03	3.13	32.05	1443.10	18.20		9272.97
4/9/15 11:24	190.20	3.14	32.01	1442.86	17.40		9272.93
4/9/15 11:24	190.37	3.14	32.22	1442.81	18.80		9272.79
4/9/15 11:24	190.53	3.14	32.26	1442.67	17.50		9272.92
4/9/15 11:24	190.70	3.14	32.36	1442.81	17.40		9272.89
4/9/15 11:24	190.87	3.14	32.40	1442.78	17.80		9272.78
4/9/15 11:25	191.03	3.13	32.29	1442.67	18.20		9272.87
4/9/15 11:25	191.20	3.14	32.40	1442.76	17.30		9272.72
4/9/15 11:25	191.37	3.14	32.51	1442.61	18.20		9272.94
4/9/15 11:25	191.53	3.14	32.36	1442.82	17.60		9273.01
4/9/15 11:25	191.70	3.14	32.19	1442.90	18.40		9272.91
4/9/15 11:25	191.87	3.14	32.15	1442.79	17.40		9272.64
4/9/15 11:26	192.03	3.14	32.29	1442.53	17.80		9272.74
4/9/15 11:26	192.20	3.14	32.19	1442.62	17.50		9272.66
4/9/15 11:26	192.37	3.14	32.05	1442.54	18.80		9272.73
4/9/15 11:26	192.53	3.14	32.08	1442.62	18.90		9272.75
4/9/15 11:26	192.70	3.14	32.26	1442.63	17.90		9272.71
4/9/15 11:26	192.87	3.14	32.33	1442.59	18.00		9272.69
4/9/15 11:27	193.03	3.14	32.33	1442.58	18.90		9272.83
4/9/15 11:27	193.20	3.14	32.36	1442.72	18.60		9272.63
4/9/15 11:27	193.37	3.14	32.12	1442.52	17.20		9272.61
4/9/15 11:27	193.53	3.14	32.26	1442.50	17.30		9272.77
4/9/15 11:27	193.70	3.14	32.36	1442.66	18.80		9272.83
4/9/15 11:27	193.87	3.14	32.40	1442.71	18.50		9272.83

Date/Time	Time (min)	Battery (V)	Temp (°C)	Reading (ft)	Sensor Tmp (°C)	Recovery (min)	WLE (ft)
4/9/15 11:28	194.03	3.13	32.33	1442.72	18.90		9272.72
4/9/15 11:28	194.20	3.14	32.33	1442.60	18.10		9272.58
4/9/15 11:28	194.37	3.14	32.43	1442.46	17.70		9272.50
4/9/15 11:28	194.53	3.14	32.33	1442.38	17.40		9272.36
4/9/15 11:28	194.70	3.14	32.33	1442.24	17.20		9272.50
4/9/15 11:28	194.87	3.14	32.01	1442.38	17.90		9272.43
4/9/15 11:29	195.03	3.13	32.22	1442.31	18.30		9272.44
4/9/15 11:29	195.20	3.14	31.91	1442.33	17.90		9272.41
4/9/15 11:29	195.37	3.13	32.22	1442.30	17.30		9272.39
4/9/15 11:29	195.53	3.14	32.19	1442.28	18.50		9272.06
4/9/15 11:29	195.70	3.14	32.22	1441.94	18.30		9272.47
4/9/15 11:29	195.87	3.14	32.36	1442.36	18.80		9272.49
4/9/15 11:30	196.03	3.13	32.15	1442.38	18.00		9272.34
4/9/15 11:30	196.20	3.13	32.43	1442.23	18.70		9272.53
4/9/15 11:30	196.37	3.13	32.51	1442.42	18.20		9272.48
4/9/15 11:30	196.53	3.13	32.43	1442.37	17.40		9272.20
4/9/15 11:30	196.70	3.14	32.58	1442.09	17.50		9272.40
4/9/15 11:30	196.87	3.13	32.65	1442.29	18.10		
	Sensor install length	2536	Bit length	2600	Injection start:		
	Sensor install length	2530	Hole Length	3025	Injection End:		

APPENDIX 5.2

GHC15-1 FHT #2 - 3043'-3433' DEPTH

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FALLING HEAD TEST SIMULATION ANALYSIS

TEST

The falling head test comprises the following elements:

- 1. Water is introduced into the well riser, creating excess head in the well relative to the test formation.
- 2. The excess head causes flow from the wellbore to the formation, resulting in reduction of the water level in the
- 3. As the water drains out, the water level in the well follows an exponential decay over time towards the static level.

ANALYSIS

The rate that water drains out of the well is controlled by well geometry, and hydraulic conductivity of the formation material.

Consider the conditions at a time t:

E_t = water elevation in the well at time t

E_{stat} = static water level in well

Head (H) driving flow from the wellbore into the formation is:

$H = E_t - E_{stat}$ (1)

Radial flow from the well to the formation is (Theim 1870):

$Q = 2 \pi L K H / \ln(R/r')$ (2)

where:

Q = volumetric flow rate

L = test interval formation length

K = hydraulic conductivity of interval

H = excess head in well relative to formation

R = radius of influence of test

r^* = radius of well bore

Using well completion length L for the radius of influence and applying a form factor for anisotropy (Brown, 2014) gives:

$Q = 2 \alpha \pi L K H / \ln(L/r')$ (3)

where:

α = form factor = 1.12 for Kh/Kv = 0.1

α = form factor = 0.87 for Kh/Kv = 1

α = form factor = 0.61 for Kh/Kv = 10

Flow created by change of water level in the well over time is:

$Q = - \pi r^2 dH/dt$ (4)

where: r = radius of standpipe at the water surface

Equating Q in equation and equation produces:

$2 \alpha \pi L K H / \ln(L/r') = - \pi r^2 dH$ (5)

Rearranging equation produces:

$dH = - 2 \alpha L K / [r^2 \ln(L/r^*)] H dt$ (6)

Integrating over time and noting that H = Ho at t = 0 gives:

$H = H_o e^{-\beta t}$ (7)

where:

$\beta = 2 \alpha L K / [r^2 \ln(L/r^*)]$ (8)

Hydraulic conductivity is determined from equation (8):

$K = \beta r^2 \ln(L/r^*) / (2 \alpha L)$ (9)

ANALYSIS METHOD

The method of analysis comprises the following:

- 1. Fit the exponential curve to the falling head test varying:
 - E_o = starting water level elevation
 - E_{stat} = static water level elevation
 - β = exponent

- 2. Compute formation hydraulic conductivity from eq. (9):

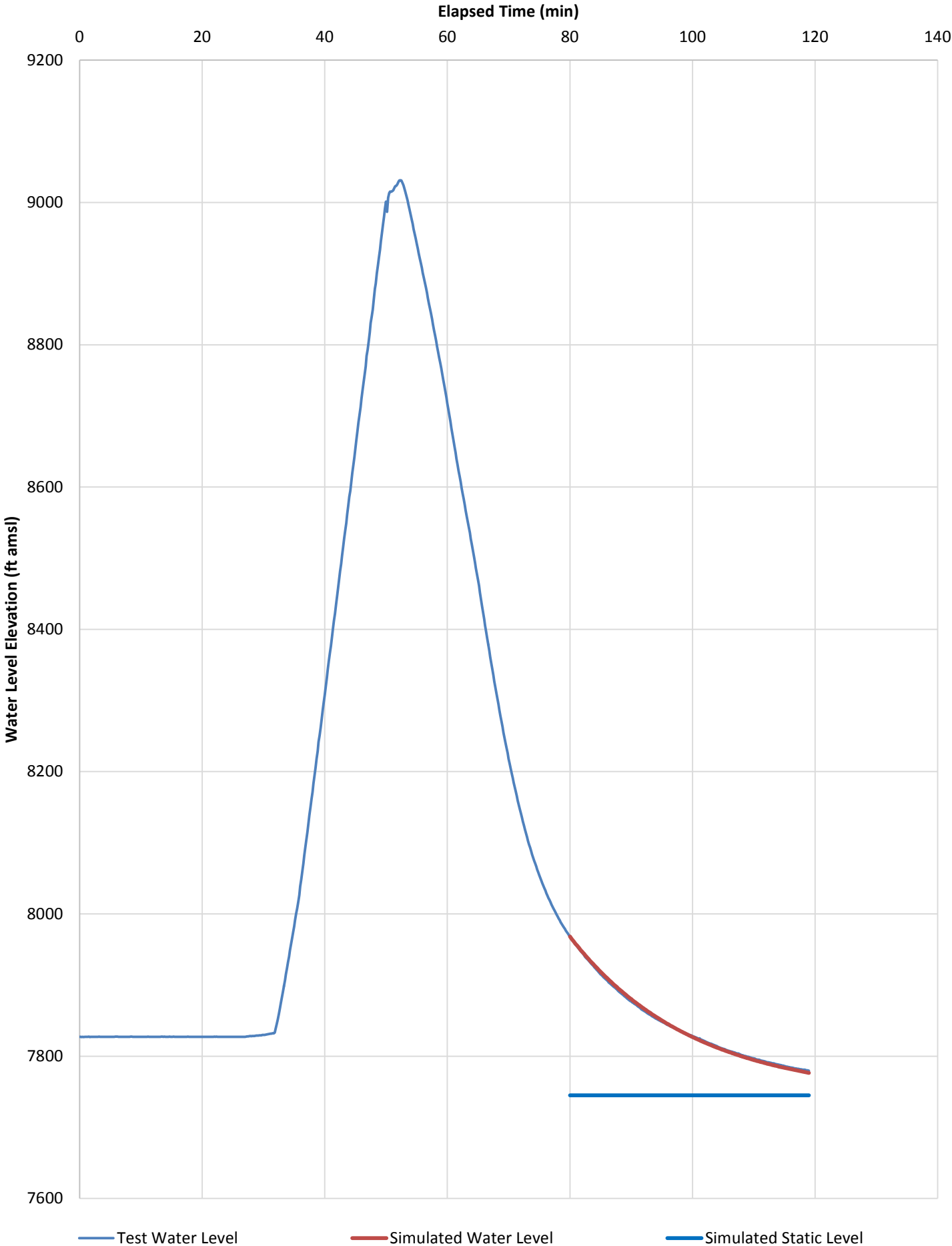
$K = \beta r^2 \ln(L/r^*) / (2 \alpha L)$

REFERENCES:

Thiem, A., 1870. *The yield of artesian wells, dug wells and filter galleries*. J. Gas Lighting Water Supply (Munich), vol.14

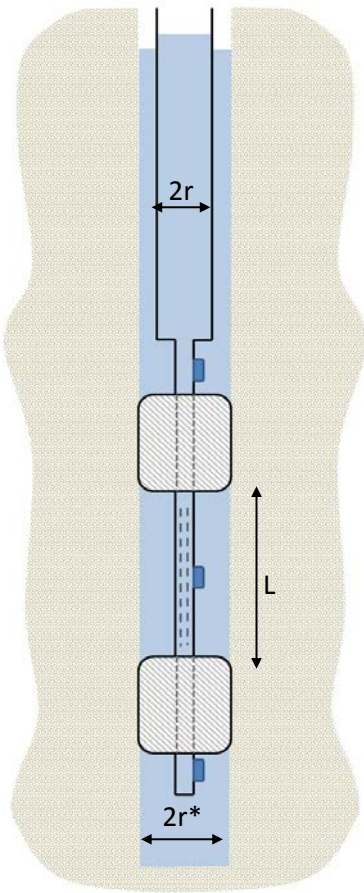
Brown A, 2014. *Reliable Packer Testing and Analysis*. 12th International Mine Water Association Congress, Xuzhou,

FALLING HEAD TEST RESULTS AND BEST-FIT SIMULATION



ANALYSIS OF HYDRAULIC CONDUCTIVITY

TEST INTERVAL GEOMETRY



Stem Radius (r)

ID of HQ (in) 3.06

r = (in) 1.53

Inclination (°) -87.31

r (in) (sloping) 1.53

Well Radius (r*)

OD of NQ^[1] (in) 2.965

r* = (in) 1.48

Test Interval (L)

Top depth (ft) 3043

Bottom dep (ft) 3433

L (ft) 390

Note [1]:

The upper half of the test section is HQ and the balance is NQ. An average bit radius for the two is used.

BEST FIT TO FALLING HEAD TEST DATA

Parameter	Unit	Mid Time	Late Time
E(start)	ft	8370	7968
E(static)	ft	7800	7745
β (exponent)	/min	0.0903	0.0501
t(start)	min	66.67	80.00
t(end)	min	100.00	120.00
Sum of Error	ft	0.00	0.00
RMS Error	ft	7.53	2.37

COMPUTATION OF HYDRAULIC CONDUCTIVITY

$K = \beta r^2 \ln(L/r^*) / (2 \alpha L)$

Parameter	Unit	Early Time	Late Time
β (exponent)	/min	0.0903	0.0501
r (stem radius)	ft	0.128	0.128
L (test interval)	ft	390	390
r* (well radius)	ft	0.124	0.124
α (form factor)	--	0.87	0.87
K (hyd.cond.)	ft/min	1.7E-05	9.7E-06
	cm/sec	8.9E-06	4.9E-06



Scale: As shown

Drawn: A.Brown

Date: 2015-12-09

GHC15-1 - Deep Carbonate Borehole Report

APPENDIX 5.2

GHC15-1 FHT #2 - 3043'-3433' DEPTH

Date/Time	Time (min)	Battery (V)	Int Temp (°C)	Reading (ft)	Sensor Tmp (°C)	Recovery (min)	DTW (vert, ft)
4/14/15 16:40	0.00	3.07	12.76	213.74	-99.00	1275.00	7827.10
4/14/15 16:40	0.17	3.07	12.76	213.76	-99.00	1276.00	7827.11
4/14/15 16:40	0.33	3.07	12.78	213.62	-99.00	1277.00	7826.97
4/14/15 16:41	0.50	3.07	12.83	213.84	18.10	1278.00	7827.20
4/14/15 16:41	0.67	3.03	12.76	213.64	18.20	1279.00	7827.00
4/14/15 16:41	0.83	3.07	12.71	213.75	18.20	1280.00	7827.11
4/14/15 16:41	1.00	3.07	12.76	213.71	18.30	1281.00	7827.07
4/14/15 16:41	1.17	3.06	12.73	213.94	18.30	1282.00	7827.30
4/14/15 16:41	1.33	3.05	12.91	213.82	18.30	1283.00	7827.18
4/14/15 16:42	1.50	3.06	12.91	214.12	18.30	1284.00	7827.48
4/14/15 16:42	1.67	3.07	12.88	213.57	18.40	1285.00	7826.93
4/14/15 16:42	1.83	3.07	12.88	213.70	18.40	1286.00	7827.06
4/14/15 16:42	2.00	3.07	12.78	213.81	18.40	1287.00	7827.16
4/14/15 16:42	2.17	3.07	12.81	213.86	18.40	1288.00	7827.22
4/14/15 16:42	2.33	3.07	12.91	213.83	18.50	1289.00	7827.18
4/14/15 16:43	2.50	3.07	12.94	213.71	18.50	1290.00	7827.06
4/14/15 16:43	2.67	3.07	12.88	213.69	18.50	1291.00	7827.04
4/14/15 16:43	2.83	3.07	12.94	213.71	18.50	1292.00	7827.06
4/14/15 16:43	3.00	3.07	12.81	213.78	18.60	1293.00	7827.14
4/14/15 16:43	3.17	3.07	12.83	213.98	18.60	1294.00	7827.34
4/14/15 16:43	3.33	3.07	12.94	213.91	18.60	1295.00	7827.26
4/14/15 16:44	3.50	3.08	13.04	213.85	18.60	1296.00	7827.20
4/14/15 16:44	3.67	3.07	13.14	213.94	18.60	1297.00	7827.29
4/14/15 16:44	3.83	3.07	13.21	213.70	18.60	1298.00	7827.05
4/14/15 16:44	4.00	3.07	13.27	213.86	18.60	1299.00	7827.22
4/14/15 16:44	4.17	3.07	13.34	213.80	18.60	1300.00	7827.16
4/14/15 16:44	4.33	3.07	13.47	213.89	18.60	1301.00	7827.24
4/14/15 16:45	4.50	3.08	13.52	213.90	18.70	1302.00	7827.26
4/14/15 16:45	4.67	3.07	13.65	213.85	18.70	1303.00	7827.21
4/14/15 16:45	4.83	3.07	13.72	213.87	18.70	1304.00	7827.23
4/14/15 16:45	5.00	3.07	13.85	213.96	18.70	1305.00	7827.31
4/14/15 16:45	5.17	3.06	13.90	213.93	18.70	1306.00	7827.29
4/14/15 16:45	5.33	3.07	13.93	213.94	18.60	1307.00	7827.30
4/14/15 16:46	5.50	3.07	13.93	213.91	18.50	1308.00	7827.26
4/14/15 16:46	5.67	3.07	13.93	213.96	18.70	1309.00	7827.32
4/14/15 16:46	5.83	3.07	13.95	214.00	18.70	1310.00	7827.36
4/14/15 16:46	6.00	3.07	13.95	214.00	18.60	1311.00	7827.36
4/14/15 16:46	6.17	3.07	13.93	214.00	18.50	1312.00	7827.36
4/14/15 16:46	6.33	3.07	13.88	213.93	18.40	1313.00	7827.28
4/14/15 16:47	6.50	3.07	13.90	213.95	18.50	1314.00	7827.31
4/14/15 16:47	6.67	3.07	13.83	213.88	18.80	1315.00	7827.24
4/14/15 16:47	6.83	3.07	13.80	213.85	18.50	1316.00	7827.20
4/14/15 16:47	7.00	3.07	13.75	213.84	18.70	1317.00	7827.20
4/14/15 16:47	7.17	3.07	13.72	213.82	18.40	1318.00	7827.17
4/14/15 16:47	7.33	3.07	13.65	213.89	18.90	1319.00	7827.25
4/14/15 16:48	7.50	3.07	13.62	213.89	18.80	1320.00	7827.24
4/14/15 16:48	7.67	3.07	13.60	213.80	18.50	1321.00	7827.15
4/14/15 16:48	7.83	3.07	13.54	213.91	18.70	1322.00	7827.26
4/14/15 16:48	8.00	3.07	13.54	213.92	18.70	1323.00	7827.28
4/14/15 16:48	8.17	3.07	13.49	213.90	18.70	1324.00	7827.25
4/14/15 16:48	8.33	3.07	13.49	213.97	18.90	1325.00	7827.33
4/14/15 16:49	8.50	3.07	13.42	213.98	18.80	1326.00	7827.34
4/14/15 16:49	8.67	3.08	13.34	213.92	18.70	1327.00	7827.27
4/14/15 16:49	8.83	3.07	13.34	213.92	18.60	1328.00	7827.28
4/14/15 16:49	9.00	3.07	13.34	213.93	18.40	1329.00	7827.28
4/14/15 16:49	9.17	3.07	13.32	213.89	18.60	1330.00	7827.25
4/14/15 16:49	9.33	3.08	13.24	213.82	18.60	1331.00	7827.17
4/14/15 16:50	9.50	3.07	13.24	213.86	18.80	1332.00	7827.22
4/14/15 16:50	9.67	3.07	13.34	213.87	18.80	1333.00	7827.22
4/14/15 16:50	9.83	3.07	13.39	213.97	18.70	1334.00	7827.32
4/14/15 16:50	10.00	3.07	13.27	213.91	18.80	1335.00	7827.26
4/14/15 16:50	10.17	3.07	13.24	213.92	18.70	1336.00	7827.27
4/14/15 16:50	10.33	3.07	13.27	213.92	18.70	1337.00	7827.27
4/14/15 16:51	10.50	3.07	13.16	213.87	18.70	1338.00	7827.23
4/14/15 16:51	10.67	3.07	13.06	213.92	18.80	1339.00	7827.28
4/14/15 16:51	10.83	3.07	13.06	213.95	18.70	1340.00	7827.31
4/14/15 16:51	11.00	3.08	12.91	213.86	18.60	1341.00	7827.22
4/14/15 16:51	11.17	3.07	12.81	214.04	18.70	1342.00	7827.40

Date/Time	Time (min)	Battery (V)	Int Temp (°C)	Reading (ft)	Sensor Tmp (°C)	Recovery (min)	DTW (vert, ft)
4/14/15 16:51	11.33	3.07	12.73	213.97	18.70	1343.00	7827.32
4/14/15 16:52	11.50	3.07	12.78	213.97	18.90	1344.00	7827.32
4/14/15 16:52	11.67	3.07	12.78	213.93	18.60	1345.00	7827.28
4/14/15 16:52	11.83	3.07	12.68	213.96	18.90	1346.00	7827.32
4/14/15 16:52	12.00	3.07	12.71	213.96	18.60	1347.00	7827.31
4/14/15 16:52	12.17	3.06	12.68	213.95	18.60	1348.00	7827.31
4/14/15 16:52	12.33	3.07	12.68	213.92	18.70	1349.00	7827.27
4/14/15 16:53	12.50	3.07	12.68	213.90	18.90	1350.00	7827.25
4/14/15 16:53	12.67	3.07	12.58	213.92	18.70	1351.00	7827.27
4/14/15 16:53	12.83	3.07	12.53	213.93	19.00	1352.00	7827.29
4/14/15 16:53	13.00	3.07	12.50	213.92	18.60	1353.00	7827.28
4/14/15 16:53	13.17	3.08	12.48	213.92	18.90	1354.00	7827.28
4/14/15 16:53	13.33	3.07	12.43	213.98	18.90	1355.00	7827.34
4/14/15 16:54	13.50	3.08	12.33	213.98	19.00	1356.00	7827.34
4/14/15 16:54	13.67	3.07	12.40	213.95	19.00	1357.00	7827.31
4/14/15 16:54	13.83	3.07	12.25	214.02	19.00	1358.00	7827.38
4/14/15 16:54	14.00	3.08	12.25	213.89	18.60	1359.00	7827.25
4/14/15 16:54	14.17	3.07	12.18	213.91	18.90	1360.00	7827.26
4/14/15 16:54	14.33	3.07	12.15	213.89	18.60	1361.00	7827.25
4/14/15 16:55	14.50	3.07	12.18	213.95	18.60	1362.00	7827.31
4/14/15 16:55	14.67	3.07	12.10	214.01	18.90	1363.00	7827.36
4/14/15 16:55	14.83	3.07	12.13	213.92	18.70	1364.00	7827.28
4/14/15 16:55	15.00	3.07	12.05	213.97	18.80	1365.00	7827.32
4/14/15 16:55	15.17	3.07	12.08	213.96	18.60	1366.00	7827.32
4/14/15 16:55	15.33	3.08	12.10	213.98	19.00	1367.00	7827.34
4/14/15 16:56	15.50	3.07	12.10	213.97	18.80	1368.00	7827.32
4/14/15 16:56	15.67	3.07	12.08	213.94	18.60	1369.00	7827.30
4/14/15 16:56	15.83	3.07	11.97	213.88	18.60	1370.00	7827.23
4/14/15 16:56	16.00	3.08	11.95	213.94	19.00	1371.00	7827.29
4/14/15 16:56	16.17	3.07	11.95	213.91	18.70	1372.00	7827.26
4/14/15 16:56	16.33	3.07	11.95	213.90	18.90	1373.00	7827.25
4/14/15 16:57	16.50	3.07	11.95	213.94	19.00	1374.00	7827.30
4/14/15 16:57	16.67	3.07	11.87	213.92	19.00	1375.00	7827.28
4/14/15 16:57	16.83	3.07	11.87	213.96	18.70	1376.00	7827.31
4/14/15 16:57	17.00	3.07	11.87	213.89	19.10	1377.00	7827.25
4/14/15 16:57	17.17	3.07	11.85	213.87	19.10	1378.00	7827.22
4/14/15 16:57	17.33	3.07	11.80	213.82	18.50	1379.00	7827.17
4/14/15 16:58	17.50	3.07	11.77	213.92	18.80	1380.00	7827.28
4/14/15 16:58	17.67	3.07	11.80	214.00	18.50	1381.00	7827.35
4/14/15 16:58	17.83	3.07	11.80	213.92	19.10	1382.00	7827.28
4/14/15 16:58	18.00	3.07	11.75	213.95	18.60	1383.00	7827.31
4/14/15 16:58	18.17	3.07	11.77	213.93	19.00	1384.00	7827.28
4/14/15 16:58	18.33	3.07	11.72	213.92	19.00	1385.00	7827.27
4/14/15 16:59	18.50	3.07	11.70	213.90	19.10	1386.00	7827.25
4/14/15 16:59	18.67	3.07	11.72	213.82	18.70	1387.00	7827.18
4/14/15 16:59	18.83	3.07	11.67	213.97	18.80	1388.00	7827.32
4/14/15 16:59	19.00	3.07	11.62	213.92	18.80	1389.00	7827.27
4/14/15 16:59	19.17	3.07	11.65	213.90	18.60	1390.00	7827.25
4/14/15 16:59	19.33	3.07	11.57	213.96	19.10	1391.00	7827.32
4/14/15 17:00	19.50	3.07	11.65	213.85	18.70	1392.00	7827.20
4/14/15 17:00	19.67	3.08	11.60	213.92	19.10	1393.00	7827.27
4/14/15 17:00	19.83	3.07	11.60	213.85	18.80	1394.00	7827.20
4/14/15 17:00	20.00	3.07	11.60	213.81	18.70	1395.00	7827.17
4/14/15 17:00	20.17	3.07	11.52	213.93	18.60	1396.00	7827.28
4/14/15 17:00	20.33	3.07	11.50	213.93	18.50	1397.00	7827.29
4/14/15 17:01	20.50	3.07	11.47	213.83	19.10	1398.00	7827.18
4/14/15 17:01	20.67	3.07	11.45	213.89	18.50	1399.00	7827.24
4/14/15 17:01	20.83	3.07	11.42	213.96	19.10	1400.00	7827.32
4/14/15 17:01	21.00	3.07	11.45	213.91	18.80	1401.00	7827.27
4/14/15 17:01	21.17	3.07	11.45	213.81	18.80	1402.00	7827.16
4/14/15 17:01	21.33	3.07	11.45	213.93	18.80	1403.00	7827.28
4/14/15 17:02	21.50	3.08	11.40	213.91	19.00	1404.00	7827.27
4/14/15 17:02	21.67	3.07	11.40	213.85	19.00	1405.00	7827.20
4/14/15 17:02	21.83	3.07	11.40	213.94	19.00	1406.00	7827.29
4/14/15 17:02	22.00	3.07	11.37	214.01	19.00	1407.00	7827.37
4/14/15 17:02	22.17	3.08	11.35	213.91	19.00	1408.00	7827.27
4/14/15 17:02	22.33	3.07	11.35	213.98	19.10	1409.00	7827.34
4/14/15 17:03	22.50	3.07	11.30	213.88	19.10	1410.00	7827.24

Date/Time	Time (min)	Battery (V)	Int Temp (°C)	Reading (ft)	Sensor Tmp (°C)	Recovery (min)	DTW (vert, ft)
4/14/15 17:03	22.67	3.07	11.25	213.86	19.10	1411.00	7827.22
4/14/15 17:03	22.83	3.08	11.27	213.96	18.70	1412.00	7827.32
4/14/15 17:03	23.00	3.07	11.22	213.74	18.60	1413.00	7827.10
4/14/15 17:03	23.17	3.07	11.20	213.85	18.80	1414.00	7827.20
4/14/15 17:03	23.33	3.07	11.20	213.91	18.60	1415.00	7827.27
4/14/15 17:04	23.50	3.07	11.14	213.91	19.10	1416.00	7827.27
4/14/15 17:04	23.67	3.07	11.17	213.88	18.40	1417.00	7827.23
4/14/15 17:04	23.83	3.07	11.09	213.94	18.90	1418.00	7827.30
4/14/15 17:04	24.00	3.07	11.12	213.78	19.10	1419.00	7827.14
4/14/15 17:04	24.17	3.07	11.09	213.87	19.10	1420.00	7827.22
4/14/15 17:04	24.33	3.07	11.12	213.83	18.80	1421.00	7827.19
4/14/15 17:05	24.50	3.08	11.12	213.86	18.50	1422.00	7827.22
4/14/15 17:05	24.67	3.07	11.09	213.89	18.90	1423.00	7827.25
4/14/15 17:05	24.83	3.07	11.09	213.83	18.90	1424.00	7827.19
4/14/15 17:05	25.00	3.07	11.09	213.81	19.10	1425.00	7827.17
4/14/15 17:05	25.17	3.07	11.09	213.88	19.00	1426.00	7827.24
4/14/15 17:05	25.33	3.07	11.07	213.89	18.80	1427.00	7827.25
4/14/15 17:06	25.50	3.07	10.94	213.85	18.50	1428.00	7827.20
4/14/15 17:06	25.67	3.07	10.94	213.80	19.10	1429.00	7827.16
4/14/15 17:06	25.83	3.07	10.94	213.80	18.90	1430.00	7827.16
4/14/15 17:06	26.00	3.07	10.94	213.92	18.90	1431.00	7827.27
4/14/15 17:06	26.17	3.07	10.94	213.84	19.10	1432.00	7827.20
4/14/15 17:06	26.33	3.07	10.94	213.82	18.90	1433.00	7827.17
4/14/15 17:07	26.50	3.07	10.92	213.81	18.60	1434.00	7827.16
4/14/15 17:07	26.67	3.07	10.87	213.92	18.70	1435.00	7827.28
4/14/15 17:07	26.83	3.07	10.84	213.78	19.10	1436.00	7827.14
4/14/15 17:07	27.00	3.07	10.82	213.97	19.10	1437.00	7827.32
4/14/15 17:07	27.17	3.07	10.84	214.11	18.50	1438.00	7827.46
4/14/15 17:07	27.33	3.07	10.82	214.27	19.10	1439.00	7827.63
4/14/15 17:08	27.50	3.07	10.77	214.53	19.10	1440.00	7827.88
4/14/15 17:08	27.67	3.07	10.79	214.80	18.90	1441.00	7828.15
4/14/15 17:08	27.83	3.07	10.74	214.94	18.60	1442.00	7828.29
4/14/15 17:08	28.00	3.07	10.74	214.81	18.80	1443.00	7828.17
4/14/15 17:08	28.17	3.07	10.74	214.88	19.10	1444.00	7828.23
4/14/15 17:08	28.33	3.07	10.72	215.14	19.10	1445.00	7828.49
4/14/15 17:09	28.50	3.07	10.74	215.02	18.90	1446.00	7828.37
4/14/15 17:09	28.67	3.07	10.77	215.30	18.60	1447.00	7828.66
4/14/15 17:09	28.83	3.07	10.77	215.51	19.10	1448.00	7828.87
4/14/15 17:09	29.00	3.07	10.74	215.53	19.20	1449.00	7828.88
4/14/15 17:09	29.17	3.07	10.72	215.70	19.20	1450.00	7829.06
4/14/15 17:09	29.33	3.07	10.69	215.99	18.70	1451.00	7829.34
4/14/15 17:10	29.50	3.07	10.69	216.05	19.20	1452.00	7829.41
4/14/15 17:10	29.67	3.07	10.67	216.06	19.20	1453.00	7829.41
4/14/15 17:10	29.83	3.07	10.64	216.48	19.00	1454.00	7829.84
4/14/15 17:10	30.00	3.07	10.59	216.49	19.00	1455.00	7829.84
4/14/15 17:10	30.17	3.07	10.59	216.53	18.90	1456.00	7829.89
4/14/15 17:10	30.33	3.07	10.59	216.91	19.10	1457.00	7830.27
4/14/15 17:11	30.50	3.07	10.57	217.11	18.80	1458.00	7830.46
4/14/15 17:11	30.67	3.07	10.57	217.32	19.00	1459.00	7830.68
4/14/15 17:11	30.83	3.07	10.54	217.75	18.70	1460.00	7831.10
4/14/15 17:11	31.00	3.07	10.52	217.89	19.10	1461.00	7831.25
4/14/15 17:11	31.17	3.07	10.52	218.26	19.10	1462.00	7831.62
4/14/15 17:11	31.33	3.07	10.49	218.32	19.20	1463.00	7831.67
4/14/15 17:12	31.50	3.07	10.47	218.77	18.90	1464.00	7832.13
4/14/15 17:12	31.67	3.07	10.44	218.71	19.10	1465.00	7832.06
4/14/15 17:12	31.83	3.07	10.47	219.85	19.10	1466.00	7833.21
4/14/15 17:12	32.00	3.07	10.47	225.10	19.10	1467.00	7838.46
4/14/15 17:12	32.17	3.07	10.47	231.54	19.00	1468.00	7844.89
4/14/15 17:12	32.33	3.07	10.47	238.05	19.00	1469.00	7851.40
4/14/15 17:13	32.50	3.07	10.47	245.67	19.10	1470.00	7859.03
4/14/15 17:13	32.67	3.07	10.47	253.85	19.20	1471.00	7867.20
4/14/15 17:13	32.83	3.07	10.44	260.76	18.80	1472.00	7874.12
4/14/15 17:13	33.00	3.07	10.44	268.77	19.10	1473.00	7882.13
4/14/15 17:13	33.17	3.07	10.42	276.95	19.10	1474.00	7890.31
4/14/15 17:13	33.33	3.07	10.44	285.10	19.10	1475.00	7898.46
4/14/15 17:14	33.50	3.07	10.42	293.22	18.80	1476.00	7906.58
4/14/15 17:14	33.67	3.07	10.37	301.72	18.90	1477.00	7915.08
4/14/15 17:14	33.83	3.07	10.39	309.83	19.10	1478.00	7923.19

Date/Time	Time (min)	Battery (V)	Int Temp (°C)	Reading (ft)	Sensor Tmp (°C)	Recovery (min)	DTW (vert, ft)
4/14/15 17:14	34.00	3.07	10.39	318.98	18.90	1479.00	7932.33
4/14/15 17:14	34.17	3.07	10.37	326.71	18.70	1480.00	7940.07
4/14/15 17:14	34.33	3.07	10.34	335.21	19.10	1481.00	7948.56
4/14/15 17:15	34.50	3.07	10.39	343.76	19.20	1482.00	7957.12
4/14/15 17:15	34.67	3.07	10.37	352.20	18.90	1483.00	7965.55
4/14/15 17:15	34.83	3.07	10.39	360.82	19.10	1484.00	7974.18
4/14/15 17:15	35.00	3.07	10.34	369.33	19.00	1485.00	7982.69
4/14/15 17:15	35.17	3.07	10.32	377.86	18.70	1486.00	7991.21
4/14/15 17:15	35.33	3.07	10.32	386.83	19.10	1487.00	8000.19
4/14/15 17:16	35.50	3.07	10.29	394.56	19.00	1488.00	8007.91
4/14/15 17:16	35.67	3.07	10.27	403.44	19.00	1489.00	8016.80
4/14/15 17:16	35.83	3.07	10.27	413.06	18.80	1490.00	8026.42
4/14/15 17:16	36.00	3.07	10.29	425.38	19.00	1491.00	8038.74
4/14/15 17:16	36.17	3.07	10.24	435.03	19.20	1492.00	8048.38
4/14/15 17:16	36.33	3.07	10.22	446.46	18.90	1493.00	8059.82
4/14/15 17:17	36.50	3.07	10.22	457.35	19.10	1494.00	8070.70
4/14/15 17:17	36.67	3.07	10.22	468.45	18.70	1495.00	8081.81
4/14/15 17:17	36.83	3.07	10.22	479.98	19.00	1496.00	8093.34
4/14/15 17:17	37.00	3.07	10.19	490.98	19.00	1497.00	8104.34
4/14/15 17:17	37.17	3.07	10.17	501.88	19.20	1498.00	8115.24
4/14/15 17:17	37.33	3.07	10.12	514.78	18.90	1499.00	8128.14
4/14/15 17:18	37.50	3.07	10.12	525.35	18.70	1500.00	8138.70
4/14/15 17:18	37.67	3.07	10.12	536.13	19.20	1501.00	8149.48
4/14/15 17:18	37.83	3.07	10.12	547.85	19.10	1502.00	8161.20
4/14/15 17:18	38.00	3.07	10.14	557.92	19.00	1503.00	8171.27
4/14/15 17:18	38.17	3.07	10.09	569.78	18.70	1504.00	8183.14
4/14/15 17:18	38.33	3.07	10.12	580.81	19.10	1505.00	8194.17
4/14/15 17:19	38.50	3.07	10.12	592.22	19.20	1506.00	8205.57
4/14/15 17:19	38.67	3.07	10.12	604.93	18.70	1507.00	8218.29
4/14/15 17:19	38.83	3.07	10.12	615.23	19.00	1508.00	8228.59
4/14/15 17:19	39.00	3.07	10.09	628.52	19.10	1509.00	8241.88
4/14/15 17:19	39.17	3.07	10.12	637.31	19.20	1510.00	8250.67
4/14/15 17:19	39.33	3.07	10.07	648.55	19.20	1511.00	8261.91
4/14/15 17:20	39.50	3.07	10.09	661.26	18.70	1512.00	8274.61
4/14/15 17:20	39.67	3.07	10.09	674.16	19.30	1513.00	8287.52
4/14/15 17:20	39.83	3.07	10.07	683.49	18.80	1514.00	8296.84
4/14/15 17:20	40.00	3.07	10.09	694.07	19.00	1515.00	8307.43
4/14/15 17:20	40.17	3.07	10.09	706.35	19.20	1516.00	8319.71
4/14/15 17:20	40.33	3.07	10.07	718.31	18.80	1517.00	8331.67
4/14/15 17:21	40.50	3.07	10.12	729.80	19.00	1518.00	8343.16
4/14/15 17:21	40.67	3.07	10.07	741.94	18.70	1519.00	8355.29
4/14/15 17:21	40.83	3.07	10.07	753.01	19.00	1520.00	8366.37
4/14/15 17:21	41.00	3.07	10.04	763.02	19.00	1521.00	8376.38
4/14/15 17:21	41.17	3.07	10.04	775.62	18.90	1522.00	8388.98
4/14/15 17:21	41.33	3.07	10.02	786.30	19.30	1523.00	8399.65
4/14/15 17:22	41.50	3.07	9.99	798.46	18.80	1524.00	8411.82
4/14/15 17:22	41.67	3.07	9.99	808.54	18.80	1525.00	8421.90
4/14/15 17:22	41.83	3.07	9.97	821.43	19.20	1526.00	8434.78
4/14/15 17:22	42.00	3.07	9.97	833.26	19.00	1527.00	8446.62
4/14/15 17:22	42.17	3.07	9.97	843.38	18.70	1528.00	8456.74
4/14/15 17:22	42.33	3.07	9.97	855.83	19.20	1529.00	8469.18
4/14/15 17:23	42.50	3.07	9.97	868.60	19.10	1530.00	8481.95
4/14/15 17:23	42.67	3.07	9.97	878.55	18.80	1531.00	8491.91
4/14/15 17:23	42.83	3.07	9.94	889.84	19.20	1532.00	8503.20
4/14/15 17:23	43.00	3.07	9.89	901.66	19.20	1533.00	8515.02
4/14/15 17:23	43.17	3.07	9.89	914.40	19.00	1534.00	8527.76
4/14/15 17:23	43.33	3.07	9.92	925.52	19.00	1535.00	8538.88
4/14/15 17:24	43.50	3.07	9.89	936.02	19.20	1536.00	8549.38
4/14/15 17:24	43.67	3.07	9.87	948.13	18.80	1537.00	8561.48
4/14/15 17:24	43.83	3.07	9.87	960.09	18.90	1538.00	8573.44
4/14/15 17:24	44.00	3.07	9.87	972.73	19.20	1539.00	8586.09
4/14/15 17:24	44.17	3.07	9.87	981.69	18.80	1540.00	8595.05
4/14/15 17:24	44.33	3.07	9.87	995.36	19.10	1541.00	8608.72
4/14/15 17:25	44.50	3.07	9.87	1006.08	19.20	1542.00	8619.43
4/14/15 17:25	44.67	3.07	9.87	1017.26	19.30	1543.00	8630.62
4/14/15 17:25	44.83	3.07	9.89	1028.63	19.30	1544.00	8641.99
4/14/15 17:25	45.00	3.07	9.87	1041.85	18.80	1545.00	8655.21
4/14/15 17:25	45.17	3.07	9.89	1052.47	18.90	1546.00	8665.83

Date/Time	Time (min)	Battery (V)	Int Temp (°C)	Reading (ft)	Sensor Tmp (°C)	Recovery (min)	DTW (vert, ft)
4/14/15 17:25	45.33	3.07	9.87	1064.70	18.80	1547.00	8678.06
4/14/15 17:26	45.50	3.07	9.84	1077.58	18.80	1548.00	8690.94
4/14/15 17:26	45.67	3.07	9.84	1088.13	18.80	1549.00	8701.49
4/14/15 17:26	45.83	3.07	9.84	1098.90	18.90	1550.00	8712.26
4/14/15 17:26	46.00	3.07	9.87	1110.73	19.20	1551.00	8724.09
4/14/15 17:26	46.17	3.07	9.84	1122.18	18.90	1552.00	8735.54
4/14/15 17:26	46.33	3.07	9.84	1133.70	18.80	1553.00	8747.06
4/14/15 17:27	46.50	3.07	9.84	1144.84	19.20	1554.00	8758.20
4/14/15 17:27	46.67	3.07	9.84	1156.20	18.90	1555.00	8769.56
4/14/15 17:27	46.83	3.07	9.82	1170.92	19.20	1556.00	8784.28
4/14/15 17:27	47.00	3.07	9.84	1179.56	19.30	1557.00	8792.92
4/14/15 17:27	47.17	3.07	9.84	1191.35	18.80	1558.00	8804.71
4/14/15 17:27	47.33	3.07	9.84	1203.86	19.00	1559.00	8817.22
4/14/15 17:28	47.50	3.07	9.82	1217.09	19.10	1560.00	8830.44
4/14/15 17:28	47.67	3.07	9.84	1226.12	19.30	1561.00	8839.47
4/14/15 17:28	47.83	3.07	9.84	1236.07	18.80	1562.00	8849.43
4/14/15 17:28	48.00	3.07	9.82	1250.91	19.30	1563.00	8864.27
4/14/15 17:28	48.17	3.07	9.84	1265.54	19.10	1564.00	8878.89
4/14/15 17:28	48.33	3.07	9.82	1272.72	19.30	1565.00	8886.08
4/14/15 17:29	48.50	3.07	9.84	1287.02	18.80	1566.00	8900.37
4/14/15 17:29	48.67	3.07	9.82	1297.67	18.80	1567.00	8911.03
4/14/15 17:29	48.83	3.07	9.82	1309.65	19.20	1568.00	8923.00
4/14/15 17:29	49.00	3.07	9.82	1320.17	18.80	1569.00	8933.53
4/14/15 17:29	49.17	3.07	9.84	1332.11	19.30	1570.00	8945.47
4/14/15 17:29	49.33	3.07	9.84	1343.83	18.90	1571.00	8957.19
4/14/15 17:30	49.50	3.07	9.84	1355.71	19.10	1572.00	8969.06
4/14/15 17:30	49.67	3.07	9.87	1367.25	18.90	1573.00	8980.60
4/14/15 17:30	49.83	3.07	9.87	1378.03	19.10	1574.00	8991.39
4/14/15 17:30	50.00	3.07	9.87	1387.70	19.30	1575.00	9001.05
4/14/15 17:30	50.17	3.07	9.87	1373.45	19.30	1576.00	8986.80
4/14/15 17:30	50.33	3.07	9.87	1393.08	19.00	1577.00	9006.43
4/14/15 17:31	50.50	3.07	9.87	1399.90	19.00	1578.00	9013.26
4/14/15 17:31	50.67	3.07	9.84	1402.04	19.20	1579.00	9015.40
4/14/15 17:31	50.83	3.07	9.87	1401.54	19.20	1580.00	9014.90
4/14/15 17:31	51.00	3.07	9.87	1402.61	18.90	1581.00	9015.97
4/14/15 17:31	51.17	3.07	9.82	1403.83	19.00	1582.00	9017.19
4/14/15 17:31	51.33	3.07	9.79	1407.06	19.20	1583.00	9020.41
4/14/15 17:32	51.50	3.07	9.77	1409.45	19.00	1584.00	9022.80
4/14/15 17:32	51.67	3.07	9.74	1410.02	18.70	1585.00	9023.38
4/14/15 17:32	51.83	3.07	9.72	1412.17	19.00	1586.00	9025.52
4/14/15 17:32	52.00	3.07	9.74	1415.39	19.00	1587.00	9028.74
4/14/15 17:32	52.17	3.07	9.74	1417.52	19.10	1588.00	9030.88
4/14/15 17:32	52.33	3.07	9.72	1417.96	18.80	1589.00	9031.31
4/14/15 17:33	52.50	3.07	9.74	1417.39	18.90	1590.00	9030.74
4/14/15 17:33	52.67	3.07	9.72	1414.30	19.00	1591.00	9027.65
4/14/15 17:33	52.83	3.07	9.74	1410.67	18.70	1592.00	9024.03
4/14/15 17:33	53.00	3.07	9.72	1406.31	18.70	1593.00	9019.67
4/14/15 17:33	53.17	3.07	9.72	1401.03	19.00	1594.00	9014.39
4/14/15 17:33	53.33	3.07	9.72	1395.25	18.80	1595.00	9008.60
4/14/15 17:34	53.50	3.07	9.72	1389.48	19.00	1596.00	9002.83
4/14/15 17:34	53.67	3.07	9.67	1383.51	18.70	1597.00	8996.86
4/14/15 17:34	53.83	3.07	9.72	1377.03	18.80	1598.00	8990.39
4/14/15 17:34	54.00	3.07	9.72	1370.05	18.70	1599.00	8983.41
4/14/15 17:34	54.17	3.07	9.74	1363.28	18.50	1600.00	8976.63
4/14/15 17:34	54.33	3.07	9.69	1356.49	18.90	1601.00	8969.85
4/14/15 17:35	54.50	3.07	9.69	1349.45	18.60	1602.00	8962.81
4/14/15 17:35	54.67	3.07	9.67	1342.77	18.60	1603.00	8956.12
4/14/15 17:35	54.83	3.07	9.65	1336.12	18.50	1604.00	8949.48
4/14/15 17:35	55.00	3.07	9.62	1328.75	18.80	1605.00	8942.11
4/14/15 17:35	55.17	3.07	9.65	1321.84	18.40	1606.00	8935.20
4/14/15 17:35	55.33	3.07	9.65	1315.13	18.50	1607.00	8928.49
4/14/15 17:36	55.50	3.07	9.65	1308.35	18.50	1608.00	8921.71
4/14/15 17:36	55.67	3.07	9.67	1301.66	18.40	1609.00	8915.02
4/14/15 17:36	55.83	3.07	9.65	1294.70	18.70	1610.00	8908.06
4/14/15 17:36	56.00	3.07	9.65	1287.71	18.60	1611.00	8901.07
4/14/15 17:36	56.17	3.07	9.65	1280.98	18.50	1612.00	8894.33
4/14/15 17:36	56.33	3.07	9.67	1274.11	18.50	1613.00	8887.47
4/14/15 17:37	56.50	3.07	9.67	1267.09	18.20	1614.00	8880.45

Date/Time	Time (min)	Battery (V)	Int Temp (°C)	Reading (ft)	Sensor Tmp (°C)	Recovery (min)	DTW (vert, ft)
4/14/15 17:37	56.67	3.07	9.67	1259.60	18.50	1615.00	8872.96
4/14/15 17:37	56.83	3.07	9.67	1252.29	18.40	1616.00	8865.65
4/14/15 17:37	57.00	3.07	9.65	1244.45	18.50	1617.00	8857.80
4/14/15 17:37	57.17	3.07	9.65	1237.37	18.20	1618.00	8850.72
4/14/15 17:37	57.33	3.07	9.62	1230.26	18.10	1619.00	8843.62
4/14/15 17:38	57.50	3.07	9.65	1222.42	18.30	1620.00	8835.77
4/14/15 17:38	57.67	3.07	9.65	1214.85	18.40	1621.00	8828.21
4/14/15 17:38	57.83	3.07	9.65	1206.76	18.30	1622.00	8820.12
4/14/15 17:38	58.00	3.07	9.62	1199.75	18.20	1623.00	8813.11
4/14/15 17:38	58.17	3.07	9.65	1191.79	18.10	1624.00	8805.15
4/14/15 17:38	58.33	3.07	9.62	1184.27	18.10	1625.00	8797.62
4/14/15 17:39	58.50	3.07	9.65	1176.72	18.00	1626.00	8790.08
4/14/15 17:39	58.67	3.07	9.62	1168.62	18.30	1627.00	8781.98
4/14/15 17:39	58.83	3.07	9.62	1161.22	18.00	1628.00	8774.58
4/14/15 17:39	59.00	3.07	9.65	1153.55	18.10	1629.00	8766.91
4/14/15 17:39	59.17	3.07	9.62	1146.33	18.10	1630.00	8759.69
4/14/15 17:39	59.33	3.07	9.62	1137.46	18.20	1631.00	8750.81
4/14/15 17:40	59.50	3.07	9.62	1129.45	18.10	1632.00	8742.81
4/14/15 17:40	59.67	3.07	9.62	1121.06	18.00	1633.00	8734.41
4/14/15 17:40	59.83	3.07	9.62	1112.84	17.80	1634.00	8726.20
4/14/15 17:40	60.00	3.07	9.60	1104.41	17.90	1635.00	8717.76
4/14/15 17:40	60.17	3.07	9.57	1095.95	17.70	1636.00	8709.31
4/14/15 17:40	60.33	3.07	9.57	1087.15	17.80	1637.00	8700.51
4/14/15 17:41	60.50	3.07	9.60	1078.60	17.90	1638.00	8691.96
4/14/15 17:41	60.67	3.07	9.62	1069.73	17.50	1639.00	8683.08
4/14/15 17:41	60.83	3.07	9.60	1061.02	17.60	1640.00	8674.38
4/14/15 17:41	61.00	3.07	9.60	1052.28	17.80	1641.00	8665.63
4/14/15 17:41	61.17	3.07	9.60	1043.46	17.70	1642.00	8656.81
4/14/15 17:41	61.33	3.07	9.60	1034.85	17.50	1643.00	8648.21
4/14/15 17:42	61.50	3.07	9.57	1026.31	17.70	1644.00	8639.67
4/14/15 17:42	61.67	3.07	9.57	1018.10	17.60	1645.00	8631.45
4/14/15 17:42	61.83	3.07	9.57	1009.09	17.60	1646.00	8622.45
4/14/15 17:42	62.00	3.07	9.55	1001.77	17.40	1647.00	8615.13
4/14/15 17:42	62.17	3.07	9.55	993.59	17.50	1648.00	8606.95
4/14/15 17:42	62.33	3.07	9.55	985.41	17.20	1649.00	8598.77
4/14/15 17:43	62.50	3.07	9.55	977.41	17.50	1650.00	8590.76
4/14/15 17:43	62.67	3.07	9.55	969.78	17.10	1651.00	8583.13
4/14/15 17:43	62.83	3.07	9.55	961.61	17.20	1652.00	8574.97
4/14/15 17:43	63.00	3.07	9.52	953.80	17.40	1653.00	8567.15
4/14/15 17:43	63.17	3.07	9.52	945.66	17.00	1654.00	8559.01
4/14/15 17:43	63.33	3.07	9.52	937.83	17.20	1655.00	8551.18
4/14/15 17:44	63.50	3.07	9.52	930.12	17.30	1656.00	8543.47
4/14/15 17:44	63.67	3.07	9.52	922.36	17.00	1657.00	8535.72
4/14/15 17:44	63.83	3.07	9.52	913.80	17.10	1658.00	8527.16
4/14/15 17:44	64.00	3.07	9.52	905.88	17.10	1659.00	8519.23
4/14/15 17:44	64.17	3.07	9.52	897.58	17.00	1660.00	8510.94
4/14/15 17:44	64.33	3.07	9.52	889.24	16.90	1661.00	8502.60
4/14/15 17:45	64.50	3.07	9.52	880.49	16.80	1662.00	8493.85
4/14/15 17:45	64.67	3.07	9.47	872.49	16.90	1663.00	8485.84
4/14/15 17:45	64.83	3.07	9.50	864.23	16.90	1664.00	8477.58
4/14/15 17:45	65.00	3.07	9.52	856.13	16.80	1665.00	8469.48
4/14/15 17:45	65.17	3.07	9.50	847.64	16.60	1666.00	8461.00
4/14/15 17:45	65.33	3.07	9.50	838.23	16.80	1667.00	8451.59
4/14/15 17:46	65.50	3.07	9.47	828.58	16.60	1668.00	8441.94
4/14/15 17:46	65.67	3.07	9.47	819.05	16.50	1669.00	8432.40
4/14/15 17:46	65.83	3.07	9.47	809.91	16.40	1670.00	8423.27
4/14/15 17:46	66.00	3.07	9.47	800.90	16.40	1671.00	8414.26
4/14/15 17:46	66.17	3.07	9.50	791.82	16.40	1672.00	8405.18
4/14/15 17:46	66.33	3.07	9.47	783.12	16.40	1673.00	8396.48
4/14/15 17:47	66.50	3.07	9.47	774.07	16.30	1674.00	8387.43
4/14/15 17:47	66.67	3.07	9.47	765.22	16.20	1675.00	8378.58
4/14/15 17:47	66.83	3.07	9.47	756.45	16.50	1676.00	8369.80
4/14/15 17:47	67.00	3.07	9.50	747.97	16.20	1677.00	8361.33
4/14/15 17:47	67.17	3.07	9.50	739.22	16.20	1678.00	8352.58
4/14/15 17:47	67.33	3.07	9.50	730.77	16.30	1679.00	8344.12
4/14/15 17:48	67.50	3.07	9.47	722.11	16.30	1680.00	8335.47
4/14/15 17:48	67.67	3.07	9.47	713.62	16.00	1681.00	8326.97
4/14/15 17:48	67.83	3.06	9.47	705.58	16.40	1682.00	8318.94

Date/Time	Time (min)	Battery (V)	Int Temp (°C)	Reading (ft)	Sensor Tmp (°C)	Recovery (min)	DTW (vert, ft)
4/14/15 17:48	68.00	3.07	9.47	697.28	16.00	1683.00	8310.63
4/14/15 17:48	68.17	3.07	9.47	689.00	16.10	1684.00	8302.36
4/14/15 17:48	68.33	3.07	9.50	680.96	16.30	1685.00	8294.31
4/14/15 17:49	68.50	3.07	9.47	673.10	16.20	1686.00	8286.45
4/14/15 17:49	68.67	3.06	9.50	664.84	16.20	1687.00	8278.19
4/14/15 17:49	68.83	3.07	9.47	657.37	15.90	1688.00	8270.73
4/14/15 17:49	69.00	3.06	9.50	649.41	16.00	1689.00	8262.76
4/14/15 17:49	69.17	3.07	9.47	641.78	15.80	1690.00	8255.13
4/14/15 17:49	69.33	3.07	9.45	634.29	16.00	1691.00	8247.65
4/14/15 17:50	69.50	3.06	9.47	626.70	15.90	1692.00	8240.05
4/14/15 17:50	69.67	3.07	9.47	619.44	16.10	1693.00	8232.80
4/14/15 17:50	69.83	3.06	9.45	612.43	16.00	1694.00	8225.79
4/14/15 17:50	70.00	3.07	9.50	604.75	15.70	1695.00	8218.10
4/14/15 17:50	70.17	3.07	9.50	598.30	15.70	1696.00	8211.65
4/14/15 17:50	70.33	3.07	9.47	590.90	15.80	1697.00	8204.26
4/14/15 17:51	70.50	3.07	9.47	584.11	15.60	1698.00	8197.47
4/14/15 17:51	70.67	3.07	9.47	577.56	15.60	1699.00	8190.92
4/14/15 17:51	70.83	3.07	9.45	571.01	16.00	1700.00	8184.36
4/14/15 17:51	71.00	3.07	9.47	564.81	15.80	1701.00	8178.17
4/14/15 17:51	71.17	3.07	9.47	558.46	15.50	1702.00	8171.82
4/14/15 17:51	71.33	3.07	9.42	551.97	15.60	1703.00	8165.32
4/14/15 17:52	71.50	3.07	9.42	545.57	15.70	1704.00	8158.93
4/14/15 17:52	71.67	3.07	9.45	539.50	15.80	1705.00	8152.86
4/14/15 17:52	71.83	3.07	9.45	533.76	15.50	1706.00	8147.12
4/14/15 17:52	72.00	3.07	9.47	527.87	15.70	1707.00	8141.22
4/14/15 17:52	72.17	3.07	9.45	521.94	15.40	1708.00	8135.29
4/14/15 17:52	72.33	3.07	9.47	516.57	15.80	1709.00	8129.93
4/14/15 17:53	72.50	3.07	9.47	511.07	15.40	1710.00	8124.43
4/14/15 17:53	72.67	3.07	9.45	505.16	15.40	1711.00	8118.52
4/14/15 17:53	72.83	3.07	9.47	499.77	15.50	1712.00	8113.13
4/14/15 17:53	73.00	3.07	9.47	494.35	15.80	1713.00	8107.70
4/14/15 17:53	73.17	3.07	9.47	489.15	15.70	1714.00	8102.51
4/14/15 17:53	73.33	3.07	9.47	484.28	15.40	1715.00	8097.63
4/14/15 17:54	73.50	3.07	9.50	479.83	15.70	1716.00	8093.18
4/14/15 17:54	73.67	3.07	9.50	474.98	15.30	1717.00	8088.34
4/14/15 17:54	73.83	3.07	9.47	470.39	15.30	1718.00	8083.75
4/14/15 17:54	74.00	3.07	9.50	465.96	15.70	1719.00	8079.32
4/14/15 17:54	74.17	3.07	9.47	461.47	15.60	1720.00	8074.83
4/14/15 17:54	74.33	3.07	9.47	457.56	15.50	1721.00	8070.92
4/14/15 17:55	74.50	3.07	9.45	453.14	15.30	1722.00	8066.49
4/14/15 17:55	74.67	3.07	9.45	449.02	15.30	1723.00	8062.38
4/14/15 17:55	74.83	3.07	9.45	445.06	15.30	1724.00	8058.42
4/14/15 17:55	75.00	3.07	9.45	440.85	15.20	1725.00	8054.21
4/14/15 17:55	75.17	3.07	9.45	437.07	15.30	1726.00	8050.43
4/14/15 17:55	75.33	3.07	9.45	433.27	15.60	1727.00	8046.62
4/14/15 17:56	75.50	3.07	9.45	429.83	15.20	1728.00	8043.19
4/14/15 17:56	75.67	3.07	9.47	426.23	15.20	1729.00	8039.59
4/14/15 17:56	75.83	3.07	9.47	422.63	15.30	1730.00	8035.99
4/14/15 17:56	76.00	3.06	9.47	419.36	15.60	1731.00	8032.72
4/14/15 17:56	76.17	3.07	9.45	415.80	15.20	1732.00	8029.16
4/14/15 17:56	76.33	3.07	9.45	412.49	15.60	1733.00	8025.84
4/14/15 17:57	76.50	3.07	9.47	408.98	15.50	1734.00	8022.34
4/14/15 17:57	76.67	3.07	9.47	406.00	15.20	1735.00	8019.36
4/14/15 17:57	76.83	3.07	9.50	402.73	15.30	1736.00	8016.09
4/14/15 17:57	77.00	3.07	9.50	399.76	15.30	1737.00	8013.11
4/14/15 17:57	77.17	3.07	9.50	396.84	15.20	1738.00	8010.19
4/14/15 17:57	77.33	3.07	9.45	393.94	15.30	1739.00	8007.30
4/14/15 17:58	77.50	3.07	9.47	391.00	15.20	1740.00	8004.36
4/14/15 17:58	77.67	3.07	9.47	388.13	15.50	1741.00	8001.49
4/14/15 17:58	77.83	3.07	9.47	385.59	15.60	1742.00	7998.94
4/14/15 17:58	78.00	3.06	9.47	382.94	15.60	1743.00	7996.29
4/14/15 17:58	78.17	3.07	9.50	380.16	15.20	1744.00	7993.51
4/14/15 17:58	78.33	3.07	9.50	377.54	15.60	1745.00	7990.89
4/14/15 17:59	78.50	3.07	9.47	374.99	15.30	1746.00	7988.34
4/14/15 17:59	78.67	3.07	9.47	372.58	15.50	1747.00	7985.94
4/14/15 17:59	78.83	3.07	9.50	370.19	15.20	1748.00	7983.54
4/14/15 17:59	79.00	3.07	9.50	367.80	15.30	1749.00	7981.16
4/14/15 17:59	79.17	3.07	9.47	365.54	15.60	1750.00	7978.90

Date/Time	Time (min)	Battery (V)	Int Temp (°C)	Reading (ft)	Sensor Tmp (°C)	Recovery (min)	DTW (vert, ft)
4/14/15 17:59	79.33	3.07	9.50	363.09	15.50	1751.00	7976.45
4/14/15 18:00	79.50	3.07	9.50	361.03	15.30	1752.00	7974.38
4/14/15 18:00	79.67	3.07	9.47	358.98	15.10	1753.00	7972.33
4/14/15 18:00	79.83	3.07	9.47	356.74	15.10	1754.00	7970.09
4/14/15 18:00	80.00	3.07	9.47	354.75	15.20	1755.00	7968.11
4/14/15 18:00	80.17	3.07	9.47	352.56	15.10	1756.00	7965.91
4/14/15 18:00	80.33	3.07	9.47	350.57	15.30	1757.00	7963.93
4/14/15 18:01	80.50	3.07	9.42	348.50	15.30	1758.00	7961.86
4/14/15 18:01	80.67	3.07	9.47	346.67	15.50	1759.00	7960.03
4/14/15 18:01	80.83	3.07	9.45	344.63	15.10	1760.00	7957.98
4/14/15 18:01	81.00	3.07	9.45	342.88	15.10	1761.00	7956.24
4/14/15 18:01	81.17	3.07	9.45	341.04	15.10	1762.00	7954.39
4/14/15 18:01	81.33	3.06	9.45	339.05	15.20	1763.00	7952.40
4/14/15 18:02	81.50	3.07	9.45	337.05	15.10	1764.00	7950.41
4/14/15 18:02	81.67	3.07	9.45	335.50	15.50	1765.00	7948.86
4/14/15 18:02	81.83	3.07	9.42	333.49	15.20	1766.00	7946.85
4/14/15 18:02	82.00	3.07	9.42	331.96	15.10	1767.00	7945.32
4/14/15 18:02	82.17	3.06	9.42	330.21	15.20	1768.00	7943.57
4/14/15 18:02	82.33	3.07	9.42	328.16	15.50	1769.00	7941.51
4/14/15 18:03	82.50	3.07	9.40	326.18	15.20	1770.00	7939.53
4/14/15 18:03	82.67	3.07	9.42	324.47	15.40	1771.00	7937.82
4/14/15 18:03	82.83	3.07	9.42	322.93	15.10	1772.00	7936.28
4/14/15 18:03	83.00	3.07	9.45	321.52	15.20	1773.00	7934.88
4/14/15 18:03	83.17	3.07	9.40	319.96	15.10	1774.00	7933.31
4/14/15 18:03	83.33	3.06	9.37	318.18	15.50	1775.00	7931.53
4/14/15 18:04	83.50	3.07	9.37	316.55	15.10	1776.00	7929.91
4/14/15 18:04	83.67	3.06	9.37	315.03	15.40	1777.00	7928.39
4/14/15 18:04	83.83	3.07	9.37	313.41	15.10	1778.00	7926.76
4/14/15 18:04	84.00	3.07	9.37	311.69	15.10	1779.00	7925.05
4/14/15 18:04	84.17	3.07	9.37	310.14	15.10	1780.00	7923.50
4/14/15 18:04	84.33	3.07	9.40	308.45	15.50	1781.00	7921.80
4/14/15 18:05	84.50	3.07	9.40	306.89	15.40	1782.00	7920.24
4/14/15 18:05	84.67	3.07	9.40	305.37	15.30	1783.00	7918.72
4/14/15 18:05	84.83	3.07	9.40	303.62	15.20	1784.00	7916.98
4/14/15 18:05	85.00	3.06	9.40	301.88	15.10	1785.00	7915.23
4/14/15 18:05	85.17	3.06	9.40	300.44	15.30	1786.00	7913.79
4/14/15 18:05	85.33	3.07	9.40	299.01	15.10	1787.00	7912.37
4/14/15 18:06	85.50	3.07	9.40	297.56	15.50	1788.00	7910.92
4/14/15 18:06	85.67	3.06	9.40	296.23	15.40	1789.00	7909.58
4/14/15 18:06	85.83	3.06	9.40	294.91	15.40	1790.00	7908.27
4/14/15 18:06	86.00	3.07	9.40	293.53	15.40	1791.00	7906.88
4/14/15 18:06	86.17	3.07	9.40	292.05	15.20	1792.00	7905.41
4/14/15 18:06	86.33	3.06	9.42	290.45	15.10	1793.00	7903.80
4/14/15 18:07	86.50	3.07	9.42	289.13	15.40	1794.00	7902.49
4/14/15 18:07	86.67	3.07	9.40	287.89	15.20	1795.00	7901.24
4/14/15 18:07	86.83	3.07	9.40	286.56	15.10	1796.00	7899.92
4/14/15 18:07	87.00	3.07	9.42	285.65	15.40	1797.00	7899.01
4/14/15 18:07	87.17	3.07	9.42	284.07	15.00	1798.00	7897.43
4/14/15 18:07	87.33	3.06	9.42	283.01	15.00	1799.00	7896.36
4/14/15 18:08	87.50	3.07	9.40	281.61	15.40	1800.00	7894.97
4/14/15 18:08	87.67	3.06	9.37	280.28	15.40	1801.00	7893.64
4/14/15 18:08	87.83	3.07	9.35	278.83	15.40	1802.00	7892.19
4/14/15 18:08	88.00	3.07	9.37	277.46	15.10	1803.00	7890.82
4/14/15 18:08	88.17	3.07	9.37	276.31	15.10	1804.00	7889.67
4/14/15 18:08	88.33	3.07	9.37	275.02	15.00	1805.00	7888.37
4/14/15 18:09	88.50	3.07	9.32	273.85	15.10	1806.00	7887.21
4/14/15 18:09	88.67	3.06	9.32	272.84	15.40	1807.00	7886.19
4/14/15 18:09	88.83	3.07	9.32	271.47	15.50	1808.00	7884.83
4/14/15 18:09	89.00	3.07	9.35	270.20	15.40	1809.00	7883.55
4/14/15 18:09	89.17	3.06	9.32	269.01	15.50	1810.00	7882.37
4/14/15 18:09	89.33	3.06	9.35	267.89	15.50	1811.00	7881.25
4/14/15 18:10	89.50	3.06	9.35	266.55	15.50	1812.00	7879.91
4/14/15 18:10	89.67	3.07	9.35	265.28	15.10	1813.00	7878.63
4/14/15 18:10	89.83	3.07	9.35	264.29	15.10	1814.00	7877.65
4/14/15 18:10	90.00	3.07	9.35	263.70	15.10	1815.00	7877.05
4/14/15 18:10	90.17	3.07	9.32	262.42	15.20	1816.00	7875.78
4/14/15 18:10	90.33	3.07	9.35	261.42	15.50	1817.00	7874.78
4/14/15 18:11	90.50	3.07	9.35	260.39	15.10	1818.00	7873.75

Date/Time	Time (min)	Battery (V)	Int Temp (°C)	Reading (ft)	Sensor Tmp (°C)	Recovery (min)	DTW (vert, ft)
4/14/15 18:11	90.67	3.06	9.35	259.45	15.20	1819.00	7872.81
4/14/15 18:11	90.83	3.06	9.32	258.43	15.50	1820.00	7871.78
4/14/15 18:11	91.00	3.07	9.32	257.25	15.20	1821.00	7870.61
4/14/15 18:11	91.17	3.06	9.32	256.07	15.40	1822.00	7869.43
4/14/15 18:11	91.33	3.06	9.32	255.12	15.40	1823.00	7868.48
4/14/15 18:12	91.50	3.07	9.32	254.12	15.30	1824.00	7867.48
4/14/15 18:12	91.67	3.07	9.30	252.64	15.10	1825.00	7865.99
4/14/15 18:12	91.83	3.07	9.32	251.72	15.50	1826.00	7865.07
4/14/15 18:12	92.00	3.06	9.32	250.73	15.50	1827.00	7864.08
4/14/15 18:12	92.17	3.07	9.32	249.81	15.10	1828.00	7863.17
4/14/15 18:12	92.33	3.06	9.32	248.99	15.50	1829.00	7862.34
4/14/15 18:13	92.50	3.07	9.35	248.09	15.50	1830.00	7861.44
4/14/15 18:13	92.67	3.06	9.35	246.90	15.40	1831.00	7860.26
4/14/15 18:13	92.83	3.06	9.35	245.96	15.60	1832.00	7859.31
4/14/15 18:13	93.00	3.07	9.37	245.08	15.30	1833.00	7858.44
4/14/15 18:13	93.17	3.06	9.37	244.43	15.10	1834.00	7857.79
4/14/15 18:13	93.33	3.06	9.35	243.23	15.20	1835.00	7856.59
4/14/15 18:14	93.50	3.07	9.35	242.28	15.50	1836.00	7855.64
4/14/15 18:14	93.67	3.06	9.37	241.28	15.30	1837.00	7854.64
4/14/15 18:14	93.83	3.07	9.37	240.54	15.30	1838.00	7853.90
4/14/15 18:14	94.00	3.07	9.37	239.76	15.50	1839.00	7853.12
4/14/15 18:14	94.17	3.06	9.40	238.95	15.40	1840.00	7852.31
4/14/15 18:14	94.33	3.07	9.40	238.02	15.50	1841.00	7851.37
4/14/15 18:15	94.50	3.06	9.40	237.31	15.30	1842.00	7850.66
4/14/15 18:15	94.67	3.07	9.37	236.51	15.40	1843.00	7849.87
4/14/15 18:15	94.83	3.07	9.37	235.75	15.20	1844.00	7849.11
4/14/15 18:15	95.00	3.06	9.40	235.01	15.60	1845.00	7848.36
4/14/15 18:15	95.17	3.07	9.40	234.29	15.60	1846.00	7847.64
4/14/15 18:15	95.33	3.06	9.40	233.62	15.30	1847.00	7846.98
4/14/15 18:16	95.50	3.06	9.40	232.65	15.40	1848.00	7846.01
4/14/15 18:16	95.67	3.07	9.40	232.00	15.50	1849.00	7845.36
4/14/15 18:16	95.83	3.06	9.42	230.98	15.20	1850.00	7844.34
4/14/15 18:16	96.00	3.06	9.40	230.35	15.30	1851.00	7843.71
4/14/15 18:16	96.17	3.06	9.37	229.80	15.30	1852.00	7843.15
4/14/15 18:16	96.33	3.07	9.37	228.99	15.30	1853.00	7842.35
4/14/15 18:17	96.50	3.07	9.37	228.33	15.70	1854.00	7841.68
4/14/15 18:17	96.67	3.06	9.37	227.50	15.30	1855.00	7840.86
4/14/15 18:17	96.83	3.06	9.37	227.02	15.50	1856.00	7840.37
4/14/15 18:17	97.00	3.06	9.40	226.55	15.50	1857.00	7839.91
4/14/15 18:17	97.17	3.07	9.37	225.70	15.40	1858.00	7839.05
4/14/15 18:17	97.33	3.06	9.37	225.29	15.40	1859.00	7838.65
4/14/15 18:18	97.50	3.06	9.40	224.66	15.30	1860.00	7838.02
4/14/15 18:18	97.67	3.07	9.37	223.84	15.50	1861.00	7837.20
4/14/15 18:18	97.83	3.07	9.37	223.39	15.50	1862.00	7836.75
4/14/15 18:18	98.00	3.06	9.37	222.40	15.70	1863.00	7835.76
4/14/15 18:18	98.17	3.06	9.37	222.04	15.30	1864.00	7835.39
4/14/15 18:18	98.33	3.07	9.37	221.26	15.60	1865.00	7834.62
4/14/15 18:19	98.50	3.07	9.37	220.34	15.70	1866.00	7833.70
4/14/15 18:19	98.67	3.06	9.40	219.99	15.40	1867.00	7833.35
4/14/15 18:19	98.83	3.07	9.40	218.86	15.20	1868.00	7832.22
4/14/15 18:19	99.00	3.06	9.40	218.26	15.40	1869.00	7831.62
4/14/15 18:19	99.17	3.06	9.40	217.86	15.50	1870.00	7831.22
4/14/15 18:19	99.33	3.06	9.40	217.09	15.40	1871.00	7830.45
4/14/15 18:20	99.50	3.06	9.40	216.48	15.50	1872.00	7829.83
4/14/15 18:20	99.67	3.06	9.37	216.23	15.50	1873.00	7829.59
4/14/15 18:20	99.83	3.06	9.37	215.50	15.50	1874.00	7828.86
4/14/15 18:20	100.00	3.07	9.35	214.78	15.30	1875.00	7828.14
4/14/15 18:20	100.17	3.06	9.37	214.32	15.70	1876.00	7827.67
4/14/15 18:20	100.33	3.06	9.30	213.67	15.50	1877.00	7827.03
4/14/15 18:21	100.50	3.07	9.32	213.20	15.60	1878.00	7826.55
4/14/15 18:21	100.67	3.06	9.30	212.48	15.50	1879.00	7825.84
4/14/15 18:21	100.83	3.07	9.32	211.76	15.40	1880.00	7825.12
4/14/15 18:21	101.00	3.06	9.30	211.39	15.50	1881.00	7824.75
4/14/15 18:21	101.17	3.06	9.27	211.68	15.80	1882.00	7825.03
4/14/15 18:21	101.33	3.06	9.30	210.21	15.80	1883.00	7823.57
4/14/15 18:22	101.50	3.07	9.27	209.70	15.40	1884.00	7823.05
4/14/15 18:22	101.67	3.06	9.25	208.92	15.50	1885.00	7822.27
4/14/15 18:22	101.83	3.06	9.25	208.28	15.80	1886.00	7821.64

Date/Time	Time (min)	Battery (V)	Int Temp (°C)	Reading (ft)	Sensor Tmp (°C)	Recovery (min)	DTW (vert, ft)
4/14/15 18:22	102.00	3.06	9.25	207.73	15.50	1887.00	7821.09
4/14/15 18:22	102.17	3.06	9.25	206.92	15.50	1888.00	7820.27
4/14/15 18:22	102.33	3.06	9.25	206.35	15.60	1889.00	7819.71
4/14/15 18:23	102.50	3.06	9.22	205.85	15.90	1890.00	7819.21
4/14/15 18:23	102.67	3.07	9.25	205.17	15.60	1891.00	7818.53
4/14/15 18:23	102.83	3.06	9.22	204.65	15.50	1892.00	7818.01
4/14/15 18:23	103.00	3.06	9.22	204.12	15.50	1893.00	7817.48
4/14/15 18:23	103.17	3.06	9.25	203.58	15.60	1894.00	7816.94
4/14/15 18:23	103.33	3.06	9.25	203.07	15.60	1895.00	7816.43
4/14/15 18:24	103.50	3.06	9.25	202.34	15.50	1896.00	7815.70
4/14/15 18:24	103.67	3.07	9.27	201.96	15.90	1897.00	7815.32
4/14/15 18:24	103.83	3.06	9.25	201.34	15.80	1898.00	7814.69
4/14/15 18:24	104.00	3.06	9.25	200.69	15.90	1899.00	7814.05
4/14/15 18:24	104.17	3.06	9.22	199.71	15.60	1900.00	7813.07
4/14/15 18:24	104.33	3.07	9.22	199.21	15.90	1901.00	7812.56
4/14/15 18:25	104.50	3.06	9.22	198.67	15.90	1902.00	7812.02
4/14/15 18:25	104.67	3.06	9.20	197.88	15.60	1903.00	7811.24
4/14/15 18:25	104.83	3.06	9.22	197.52	16.00	1904.00	7810.87
4/14/15 18:25	105.00	3.06	9.17	197.01	15.70	1905.00	7810.36
4/14/15 18:25	105.17	3.06	9.17	196.60	15.60	1906.00	7809.95
4/14/15 18:25	105.33	3.06	9.15	196.21	16.00	1907.00	7809.56
4/14/15 18:26	105.50	3.06	9.15	195.30	15.60	1908.00	7808.66
4/14/15 18:26	105.67	3.06	9.17	195.06	15.60	1909.00	7808.42
4/14/15 18:26	105.83	3.06	9.17	194.28	15.60	1910.00	7807.63
4/14/15 18:26	106.00	3.06	9.15	194.02	15.60	1911.00	7807.38
4/14/15 18:26	106.17	3.06	9.12	193.49	15.60	1912.00	7806.84
4/14/15 18:26	106.33	3.07	9.12	193.03	16.00	1913.00	7806.38
4/14/15 18:27	106.50	3.07	9.12	192.67	15.60	1914.00	7806.03
4/14/15 18:27	106.67	3.07	9.12	192.08	15.60	1915.00	7805.44
4/14/15 18:27	106.83	3.06	9.12	191.91	15.70	1916.00	7805.27
4/14/15 18:27	107.00	3.06	9.10	191.30	15.90	1917.00	7804.66
4/14/15 18:27	107.17	3.06	9.12	190.86	16.00	1918.00	7804.22
4/14/15 18:27	107.33	3.07	9.15	190.47	16.00	1919.00	7803.83
4/14/15 18:28	107.50	3.06	9.15	190.38	15.90	1920.00	7803.73
4/14/15 18:28	107.67	3.06	9.15	189.45	15.60	1921.00	7802.81
4/14/15 18:28	107.83	3.06	9.17	189.03	16.10	1922.00	7802.38
4/14/15 18:28	108.00	3.06	9.17	188.16	16.10	1923.00	7801.52
4/14/15 18:28	108.17	3.06	9.20	187.93	15.70	1924.00	7801.29
4/14/15 18:28	108.33	3.06	9.20	187.36	16.10	1925.00	7800.71
4/14/15 18:29	108.50	3.06	9.20	186.87	15.90	1926.00	7800.23
4/14/15 18:29	108.67	3.06	9.22	186.82	15.80	1927.00	7800.17
4/14/15 18:29	108.83	3.06	9.20	186.00	15.90	1928.00	7799.35
4/14/15 18:29	109.00	3.06	9.22	185.98	15.70	1929.00	7799.34
4/14/15 18:29	109.17	3.06	9.25	185.57	15.80	1930.00	7798.93
4/14/15 18:29	109.33	3.06	9.27	185.07	16.20	1931.00	7798.42
4/14/15 18:30	109.50	3.06	9.27	184.82	16.00	1932.00	7798.18
4/14/15 18:30	109.67	3.06	9.27	184.12	15.90	1933.00	7797.48
4/14/15 18:30	109.83	3.06	9.27	183.84	15.90	1934.00	7797.19
4/14/15 18:30	110.00	3.06	9.30	183.40	16.00	1935.00	7796.75
4/14/15 18:30	110.17	3.06	9.30	183.20	16.00	1936.00	7796.56
4/14/15 18:30	110.33	3.06	9.32	182.27	15.70	1937.00	7795.63
4/14/15 18:31	110.50	3.06	9.32	182.05	16.10	1938.00	7795.41
4/14/15 18:31	110.67	3.06	9.35	181.57	16.20	1939.00	7794.93
4/14/15 18:31	110.83	3.06	9.37	181.77	16.10	1940.00	7795.13
4/14/15 18:31	111.00	3.06	9.40	181.08	15.80	1941.00	7794.44
4/14/15 18:31	111.17	3.06	9.40	180.55	15.80	1942.00	7793.91
4/14/15 18:31	111.33	3.06	9.42	180.22	16.20	1943.00	7793.57
4/14/15 18:32	111.50	3.06	9.42	179.87	15.90	1944.00	7793.23
4/14/15 18:32	111.67	3.06	9.45	179.76	16.20	1945.00	7793.12
4/14/15 18:32	111.83	3.06	9.47	179.18	16.10	1946.00	7792.54
4/14/15 18:32	112.00	3.06	9.50	178.78	16.30	1947.00	7792.13
4/14/15 18:32	112.17	3.06	9.55	178.22	15.90	1948.00	7791.58
4/14/15 18:32	112.33	3.06	9.55	178.26	15.80	1949.00	7791.62
4/14/15 18:33	112.50	3.06	9.57	177.97	16.30	1950.00	7791.32
4/14/15 18:33	112.67	3.06	9.57	177.43	16.10	1951.00	7790.78
4/14/15 18:33	112.83	3.06	9.60	177.19	16.00	1952.00	7790.54
4/14/15 18:33	113.00	3.06	9.62	176.65	16.30	1953.00	7790.00
4/14/15 18:33	113.17	3.06	9.62	176.49	16.20	1954.00	7789.85

Date/Time	Time (min)	Battery (V)	Int Temp (°C)	Reading (ft)	Sensor Tmp (°C)	Recovery (min)	DTW (vert, ft)
4/14/15 18:33	113.33	3.06	9.62	176.24	16.20	1955.00	7789.59
4/14/15 18:34	113.50	3.06	9.65	175.80	16.20	1956.00	7789.16
4/14/15 18:34	113.67	3.06	9.65	175.43	16.30	1957.00	7788.78
4/14/15 18:34	113.83	3.06	9.67	175.09	16.30	1958.00	7788.44
4/14/15 18:34	114.00	3.06	9.69	174.75	16.10	1959.00	7788.11
4/14/15 18:34	114.17	3.06	9.69	174.51	16.10	1960.00	7787.87
4/14/15 18:34	114.33	3.06	9.69	174.26	16.40	1961.00	7787.62
4/14/15 18:35	114.50	3.07	9.72	173.92	16.20	1962.00	7787.28
4/14/15 18:35	114.67	3.06	9.72	173.40	15.90	1963.00	7786.76
4/14/15 18:35	114.83	3.06	9.74	173.20	16.10	1964.00	7786.55
4/14/15 18:35	115.00	3.06	9.72	172.66	16.30	1965.00	7786.02
4/14/15 18:35	115.17	3.06	9.74	172.33	16.30	1966.00	7785.68
4/14/15 18:35	115.33	3.06	9.74	171.92	15.90	1967.00	7785.28
4/14/15 18:36	115.50	3.06	9.77	171.67	16.10	1968.00	7785.03
4/14/15 18:36	115.67	3.06	9.77	171.29	15.80	1969.00	7784.64
4/14/15 18:36	115.83	3.06	9.77	171.08	16.30	1970.00	7784.44
4/14/15 18:36	116.00	3.06	9.74	170.74	16.40	1971.00	7784.10
4/14/15 18:36	116.17	3.06	9.77	170.54	16.40	1972.00	7783.89
4/14/15 18:36	116.33	3.06	9.77	170.31	16.20	1973.00	7783.66
4/14/15 18:37	116.50	3.06	9.79	169.98	16.50	1974.00	7783.33
4/14/15 18:37	116.67	3.06	9.77	169.52	16.50	1975.00	7782.88
4/14/15 18:37	116.83	3.06	9.77	169.37	15.90	1976.00	7782.73
4/14/15 18:37	117.00	3.06	9.77	169.26	16.30	1977.00	7782.62
4/14/15 18:37	117.17	3.06	9.74	168.86	16.10	1978.00	7782.21
4/14/15 18:37	117.33	3.06	9.77	168.67	16.50	1979.00	7782.03
4/14/15 18:38	117.50	3.06	9.77	168.35	16.20	1980.00	7781.71
4/14/15 18:38	117.67	3.06	9.82	168.34	16.40	1981.00	7781.70
4/14/15 18:38	117.83	3.06	9.79	167.87	16.50	1982.00	7781.22
4/14/15 18:38	118.00	3.06	9.79	167.64	16.40	1983.00	7780.99
4/14/15 18:38	118.17	3.06	9.84	167.55	16.20	1984.00	7780.90
4/14/15 18:38	118.33	3.06	9.82	167.52	16.40	1985.00	7780.87
4/14/15 18:39	118.50	3.06	9.84	167.08	16.10	1986.00	7780.44
4/14/15 18:39	118.67	3.06	9.87	166.73	16.10	1987.00	7780.09
4/14/15 18:39	118.83	3.06	9.84	166.60	16.30	1988.00	7779.95
4/14/15 18:39	119.00	3.06	9.89	166.18	16.20	1989.00	7779.53
Sensor install length (top of rods)				Bit length	3043	Injection start:	
Sensor install length (BGL)			2753	Hole Length	3433	Injection End:	
Approx dip of hole			90				Total Volume Injected (gal)
Sensor install vertical depth			2753				

APPENDIX 5.3

GHC15-1 FHT #3 - 3450'-3874' DEPTH

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FALLING HEAD TEST SIMULATION ANALYSIS

TEST

The falling head test comprises the following elements:

1. Water is introduced into the well riser, creating excess head in the well relative to the test formation.
2. The excess head causes flow from the wellbore to the formation, resulting in reduction of the water level in the
3. As the water drains out, the water level in the well follows an exponential decay over time towards the static level.

ANALYSIS

The rate that water drains out of the well is controlled by well geometry, and hydraulic conductivity of the formation material. Consider the conditions at a time t:

E_t = water elevation in the well at time t
 E_{stat} = static water level in well

Head (H) driving flow from the wellbore into the formation is:
 $H = E_t - E_{stat}$ (1)

Radial flow from the well to the formation is (Theim 1870):
 $Q = 2 \pi L K H / \ln(R/r')$ (2)

where:
 Q = volumetric flow rate
 L = test interval formation length
 K = hydraulic conductivity of interval
 H = excess head in well relative to formation
 R = radius of influence of test
 r^* = radius of well bore

Using well completion length L for the radius of influence and applying a form factor for anisotropy (Brown, 2014) gives:

$Q = 2 \alpha \pi L K H / \ln(L/r')$ (3)

where:
 α = form factor = 1.12 for $K_h/K_v = 0.1$
 α = form factor = 0.87 for $K_h/K_v = 1$
 α = form factor = 0.61 for $K_h/K_v = 10$

Flow created by change of water level in the well over time is:
 $Q = - \pi r^2 dH/dt$ (4)

where:
 r = radius of standpipe at the water surface

Equating Q in equation and equation produces:
 $2 \alpha \pi L K H / \ln(L/r') = - \pi r^2 dH$ (5)

Rearranging equation produces:
 $dH = - 2 \alpha L K / [r^2 \ln(L/r^*)] H dt$ (6)

Integrating over time and noting that $H = H_o$ at $t = 0$ gives:
 $H = H_o e^{-\beta t}$ (7)

where:
 $\beta = 2 \alpha L K / [r^2 \ln(L/r^*)]$ (8)

Hydraulic conductivity is determined from equation (8):
 $K = \beta r^2 \ln(L/r^*) / (2 \alpha L)$ (9)

ANALYSIS METHOD

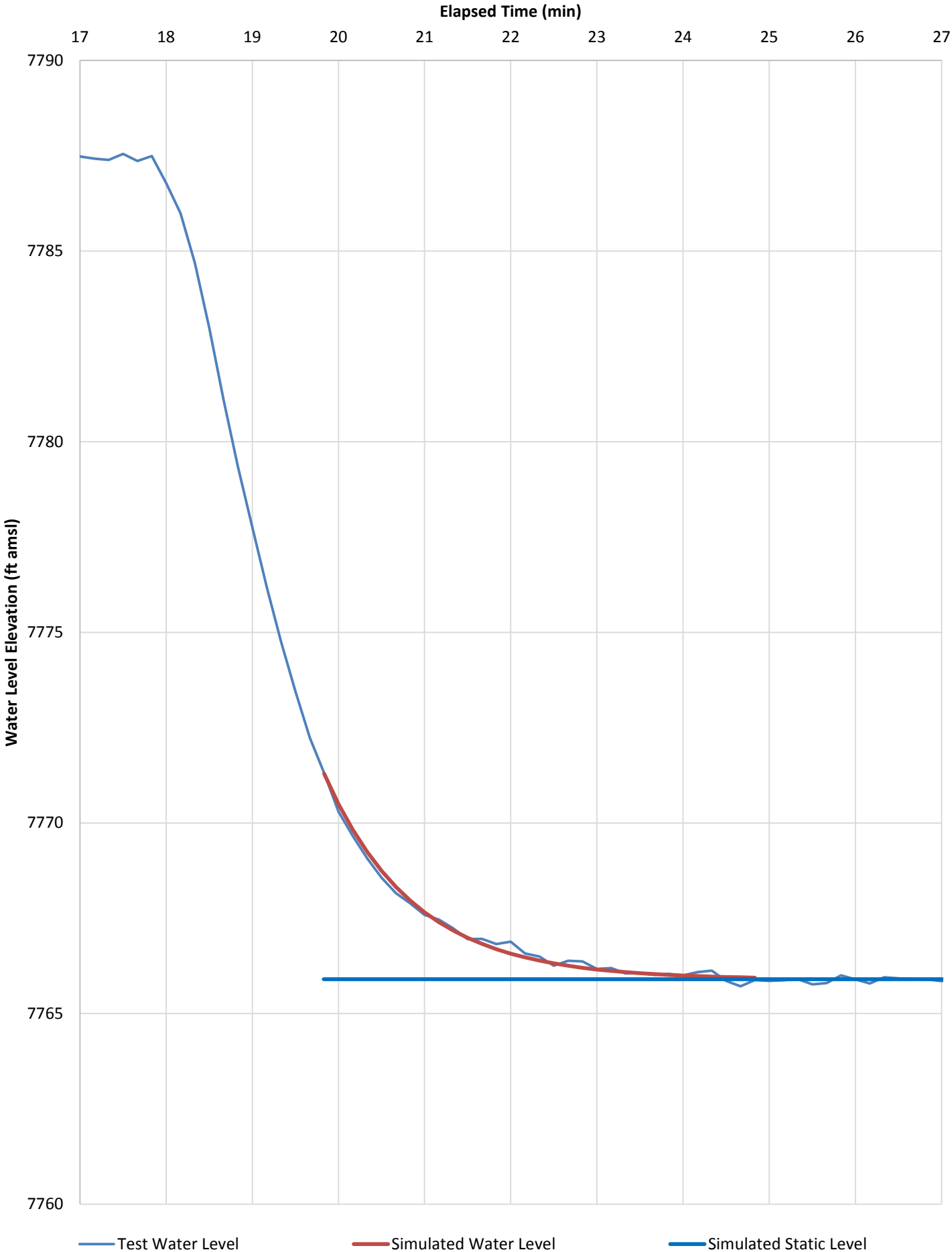
The method of analysis comprises the following:

1. Fit the exponential curve to the falling head test varying:
 E_o = starting water level elevation
 E_{stat} = static water level elevation
 β = exponent
2. Compute formation hydraulic conductivity from eq. (9):
 $K = \beta r^2 \ln(L/r^*) / (2 \alpha L)$

REFERENCES:

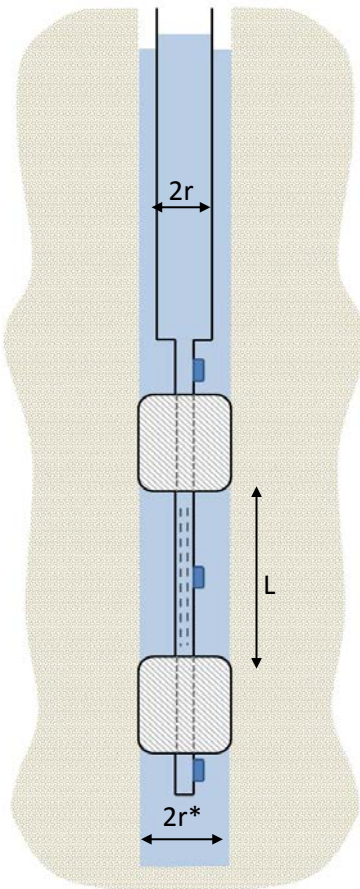
Thiem, A., 1870. *The yield of artesian wells, dug wells and filter galleries*. J. Gas Lighting Water Supply (Munich), vol.14
Brown A, 2014. *Reliable Packer Testing and Analysis*. 12th International Mine Water Association Congress, Xuzhou,

FALLING HEAD TEST RESULTS AND BEST-FIT SIMULATION



ANALYSIS OF HYDRAULIC CONDUCTIVITY

TEST INTERVAL GEOMETRY



Stem Radius (r)
ID of HQ (in) 3.06
 r = (in) 1.53
Inclination (°) -87.24
 r (in) (sloping) 1.53

Well Radius (r*)
OD of NQ^[1] (in) 2.965
 r^* = (in) 1.48

Test Interval (L)
Top depth (ft) 3450
Bottom dep (ft) 3874
 L (ft) 424

Note [1]:
The upper half of the test section is HQ and the balance is NQ. An average bit radius for the two is used.

BEST FIT TO FALLING HEAD TEST DATA

Parameter	Unit	All Time	Late Time
E(start)	ft	7785	7771
E(static)	ft	7765.7	7765.9
β (exponent)	/min	0.7750	0.9600
t(start)	min	18.33	19.83
t(end)	min	30.00	25.00
Sum of Error	ft	0.00	0.00
RMS Error	ft	0.30	0.13

COMPUTATION OF HYDRAULIC CONDUCTIVITY

$K = \beta r^2 \ln(L/r^*) / (2 \alpha L)$

Parameter	Unit	All Time	Late Time
β (exponent)	/min	0.7750	0.9600
r (stem radius)	ft	0.128	0.128
L (test interval)	ft	424	424
r^* (well radius)	ft	0.124	0.124
α (form factor)	--	0.87	0.87
K (hyd.cond.)	ft/min	1.4E-04	1.7E-04
	cm/sec	7.1E-05	8.8E-05



Scale: As shown
Drawn: A.Brown
Date: 2015-12-09

GHC15-1 - Deep Carbonate Borehole Report

APPENDIX 5.3

GHC15-1 FHT #3 - 3450'-3874' DEPTH

Date/Time	Time (min)	Battery (V)	Int Temp (°C)	Reading (ft)	Sensor Tmp (°C)	Recovery (min)	WLE (ft)
4/19/15 13:56	0.00	3.02	4.96	796.92	19.80	0.00	7763.99
4/19/15 13:56	0.17	3.02	5.08	796.69	19.80	0.00	7763.76
4/19/15 13:56	0.33	3.02	5.23	796.85	19.80	0.00	7763.92
4/19/15 13:56	0.50	3.01	5.33	796.87	19.80	0.00	7763.94
4/19/15 13:56	0.67	3.03	5.35	796.84	19.90	0.00	7763.91
4/19/15 13:57	0.83	3.02	5.30	796.78	19.80	0.00	7763.85
4/19/15 13:57	1.00	3.03	5.25	796.76	19.90	0.00	7763.83
4/19/15 13:57	1.17	3.03	5.23	796.81	19.90	0.00	7763.88
4/19/15 13:57	1.33	3.03	5.23	796.85	19.90	0.00	7763.92
4/19/15 13:57	1.50	3.03	5.23	796.98	19.90	0.00	7764.05
4/19/15 13:57	1.67	3.03	5.23	796.75	19.90	0.00	7763.83
4/19/15 13:58	1.83	3.03	5.23	796.83	19.90	0.00	7763.90
4/19/15 13:58	2.00	3.03	5.23	796.96	19.90	0.00	7764.03
4/19/15 13:58	2.17	3.03	5.23	796.87	19.90	0.00	7763.95
4/19/15 13:58	2.33	3.03	5.25	796.94	19.90	0.00	7764.01
4/19/15 13:58	2.50	3.03	5.25	796.86	19.90	0.00	7763.94
4/19/15 13:58	2.67	3.03	5.25	796.90	19.90	0.00	7763.98
4/19/15 13:59	2.83	3.03	5.25	796.83	19.90	0.00	7763.90
4/19/15 13:59	3.00	3.03	5.25	796.92	19.90	0.00	7763.99
4/19/15 13:59	3.17	3.03	5.25	796.87	19.90	0.00	7763.94
4/19/15 13:59	3.33	3.03	5.25	796.91	19.90	0.00	7763.98
4/19/15 13:59	3.50	3.03	5.25	796.80	19.90	0.00	7763.87
4/19/15 13:59	3.67	3.03	5.28	796.92	19.90	0.00	7764.00
4/19/15 14:00	3.83	3.03	5.28	796.89	19.90	0.00	7763.96
4/19/15 14:00	4.00	3.03	5.28	796.83	19.90	0.00	7763.91
4/19/15 14:00	4.17	3.03	5.28	796.93	19.90	0.00	7764.00
4/19/15 14:00	4.33	3.03	5.28	797.00	19.90	0.00	7764.08
4/19/15 14:00	4.50	3.03	5.30	796.88	19.90	0.00	7763.95
4/19/15 14:00	4.67	3.03	5.30	796.96	19.90	0.00	7764.03
4/19/15 14:01	4.83	3.03	5.30	796.94	19.90	0.00	7764.02
4/19/15 14:01	5.00	3.03	5.30	797.06	19.90	0.00	7764.13
4/19/15 14:01	5.17	3.03	5.30	797.02	19.90	0.00	7764.10
4/19/15 14:01	5.33	3.03	5.33	797.00	19.90	0.00	7764.07
4/19/15 14:01	5.50	3.03	5.33	796.94	19.90	0.00	7764.01
4/19/15 14:01	5.67	3.03	5.33	797.06	19.90	0.00	7764.13
4/19/15 14:02	5.83	3.03	5.35	797.11	19.90	0.00	7764.18
4/19/15 14:02	6.00	3.03	5.35	797.10	19.90	0.00	7764.18
4/19/15 14:02	6.17	3.03	5.35	797.07	19.90	0.00	7764.14
4/19/15 14:02	6.33	3.03	5.35	797.30	20.00	0.00	7764.38
4/19/15 14:02	6.50	3.03	5.37	797.28	20.00	0.00	7764.36
4/19/15 14:02	6.67	3.03	5.37	797.51	19.90	0.00	7764.58
4/19/15 14:03	6.83	3.03	5.37	797.41	19.90	0.00	7764.48
4/19/15 14:03	7.00	3.03	5.40	797.42	20.00	0.00	7764.49
4/19/15 14:03	7.17	3.03	5.40	797.37	20.00	0.00	7764.44
4/19/15 14:03	7.33	3.03	5.40	797.39	20.00	0.00	7764.47
4/19/15 14:03	7.50	3.02	5.42	797.45	20.00	0.00	7764.52
4/19/15 14:03	7.70	3.02	5.55	797.60	20.00	0.00	7764.68
4/19/15 14:04	7.83	3.01	5.62	797.72	20.00	0.00	7764.79
4/19/15 14:04	8.00	3.02	5.64	797.82	20.00	0.00	7764.89
4/19/15 14:04	8.17	3.01	5.62	798.04	20.00	0.00	7765.12
4/19/15 14:04	8.33	3.02	5.64	798.19	20.00	0.00	7765.27
4/19/15 14:04	8.50	3.02	5.62	798.23	20.00	0.00	7765.30
4/19/15 14:04	8.67	3.03	5.57	798.42	20.00	0.00	7765.49
4/19/15 14:05	8.83	3.03	5.55	798.62	20.00	0.00	7765.70
4/19/15 14:05	9.00	3.03	5.55	798.78	20.00	0.00	7765.85
4/19/15 14:05	9.17	3.03	5.52	799.09	20.00	0.00	7766.16
4/19/15 14:05	9.33	3.03	5.52	801.32	20.00	0.00	7768.40
4/19/15 14:05	9.50	3.03	5.52	806.26	20.00	0.00	7773.33
4/19/15 14:05	9.67	3.03	5.52	809.30	20.00	0.00	7776.37
4/19/15 14:06	9.83	3.03	5.52	811.61	20.00	0.00	7778.68
4/19/15 14:06	10.00	3.03	5.52	813.46	20.00	0.00	7780.54
4/19/15 14:06	10.17	3.03	5.52	814.39	20.00	0.00	7781.47
4/19/15 14:06	10.33	3.03	5.52	815.41	20.00	0.00	7782.49
4/19/15 14:06	10.50	3.02	5.50	816.19	20.00	0.00	7783.27
4/19/15 14:06	10.67	3.03	5.50	817.04	20.00	0.00	7784.12
4/19/15 14:07	10.83	3.03	5.50	817.58	20.00	0.00	7784.66
4/19/15 14:07	11.00	3.03	5.50	818.09	19.90	0.00	7785.16
4/19/15 14:07	11.17	3.03	5.50	818.03	19.90	0.00	7785.10

Date/Time	Time (min)	Battery (V)	Int Temp (°C)	Reading (ft)	Sensor Tmp (°C)	Recovery (min)	WLE (ft)
4/19/15 14:07	11.33	3.03	5.50	818.62	19.90	0.00	7785.69
4/19/15 14:07	11.50	3.03	5.50	818.66	19.90	0.00	7785.74
4/19/15 14:07	11.67	3.03	5.47	818.76	19.90	0.00	7785.83
4/19/15 14:08	11.83	3.03	5.47	819.00	19.90	0.00	7786.08
4/19/15 14:08	12.00	3.02	5.47	819.14	19.90	0.00	7786.21
4/19/15 14:08	12.17	3.03	5.47	819.29	19.90	0.00	7786.37
4/19/15 14:08	12.33	3.03	5.47	819.31	19.90	0.00	7786.39
4/19/15 14:08	12.50	3.03	5.47	819.34	19.90	0.00	7786.42
4/19/15 14:08	12.67	3.03	5.47	819.47	19.80	0.00	7786.55
4/19/15 14:09	12.83	3.03	5.47	819.63	19.80	0.00	7786.71
4/19/15 14:09	13.00	3.03	5.47	819.61	19.80	0.00	7786.69
4/19/15 14:09	13.17	3.03	5.47	819.54	19.80	0.00	7786.62
4/19/15 14:09	13.33	3.03	5.45	819.76	19.80	0.00	7786.83
4/19/15 14:09	13.50	3.03	5.45	819.67	19.80	0.00	7786.74
4/19/15 14:09	13.67	3.03	5.45	819.91	19.80	0.00	7786.98
4/19/15 14:10	13.83	3.03	5.45	819.81	19.80	0.00	7786.89
4/19/15 14:10	14.00	3.03	5.45	820.16	19.80	0.00	7787.24
4/19/15 14:10	14.17	3.03	5.45	819.93	19.70	0.00	7787.00
4/19/15 14:10	14.33	3.03	5.42	820.05	19.70	0.00	7787.12
4/19/15 14:10	14.50	3.03	5.42	820.03	19.70	0.00	7787.10
4/19/15 14:10	14.67	3.03	5.42	820.19	19.70	0.00	7787.26
4/19/15 14:11	14.83	3.03	5.42	820.45	19.70	0.00	7787.53
4/19/15 14:11	15.00	3.03	5.42	820.49	19.70	0.00	7787.57
4/19/15 14:11	15.17	3.03	5.42	820.37	19.70	0.00	7787.44
4/19/15 14:11	15.33	3.03	5.40	820.72	19.60	0.00	7787.79
4/19/15 14:11	15.50	3.03	5.40	820.90	19.60	0.00	7787.97
4/19/15 14:11	15.67	3.03	5.40	820.15	19.60	0.00	7787.22
4/19/15 14:12	15.83	3.03	5.40	820.12	19.60	0.00	7787.19
4/19/15 14:12	16.00	3.03	5.37	820.24	19.50	0.00	7787.31
4/19/15 14:12	16.17	3.03	5.37	820.04	19.50	0.00	7787.11
4/19/15 14:12	16.33	3.03	5.37	820.51	19.50	0.00	7787.59
4/19/15 14:12	16.50	3.03	5.35	820.47	19.50	0.00	7787.54
4/19/15 14:12	16.67	3.03	5.35	820.38	19.50	0.00	7787.45
4/19/15 14:13	16.83	3.03	5.35	820.39	19.40	0.00	7787.46
4/19/15 14:13	17.00	3.03	5.35	820.41	19.50	0.00	7787.48
4/19/15 14:13	17.17	3.03	5.35	820.35	19.40	0.00	7787.42
4/19/15 14:13	17.33	3.02	5.33	820.32	19.40	0.00	7787.39
4/19/15 14:13	17.50	3.03	5.33	820.48	19.40	0.00	7787.55
4/19/15 14:13	17.67	3.03	5.33	820.29	19.40	0.00	7787.36
4/19/15 14:14	17.83	3.03	5.33	820.42	19.40	0.00	7787.50
4/19/15 14:14	18.00	3.03	5.30	819.71	19.40		7786.78
4/19/15 14:14	18.17	3.03	5.30	818.92	19.30		7785.99
4/19/15 14:14	18.33	3.03	5.30	817.61	19.30		7784.69
4/19/15 14:14	18.50	3.03	5.30	815.91	19.30		7782.99
4/19/15 14:14	18.67	3.03	5.30	814.02	19.30		7781.09
4/19/15 14:15	18.83	3.03	5.28	812.26	19.20	1.00	7779.34
4/19/15 14:15	19.00	3.02	5.28	810.68	19.20		7777.76
4/19/15 14:15	19.17	3.03	5.28	809.12	19.20		7776.19
4/19/15 14:15	19.33	3.03	5.28	807.68	19.20		7774.75
4/19/15 14:15	19.50	3.03	5.25	806.38	19.20		7773.45
4/19/15 14:15	19.67	3.03	5.25	805.16	19.20		7772.24
4/19/15 14:16	19.83	3.03	5.25	804.24	19.20	2.00	7771.31
4/19/15 14:16	20.00	3.03	5.25	803.22	19.20		7770.29
4/19/15 14:16	20.17	3.03	5.25	802.58	19.10		7769.65
4/19/15 14:16	20.33	3.03	5.23	802.00	19.10		7769.07
4/19/15 14:16	20.50	3.03	5.23	801.49	19.10		7768.56
4/19/15 14:16	20.67	3.03	5.23	801.09	19.10		7768.16
4/19/15 14:17	20.83	3.03	5.23	800.82	19.10	3.00	7767.89
4/19/15 14:17	21.00	3.02	5.20	800.52	19.10		7767.59
4/19/15 14:17	21.17	3.03	5.20	800.39	19.10		7767.46
4/19/15 14:17	21.33	3.03	5.20	800.16	19.10		7767.23
4/19/15 14:17	21.50	3.03	5.18	799.88	19.10		7766.96
4/19/15 14:17	21.67	3.03	5.18	799.89	19.10		7766.96
4/19/15 14:18	21.83	3.03	5.15	799.75	19.00	4.00	7766.83
4/19/15 14:18	22.00	3.03	5.15	799.81	19.00		7766.89
4/19/15 14:18	22.17	3.03	5.13	799.50	19.00		7766.58
4/19/15 14:18	22.33	3.03	5.13	799.43	19.00		7766.50
4/19/15 14:18	22.50	3.03	5.11	799.19	19.00		7766.26

Date/Time	Time (min)	Battery (V)	Int Temp (°C)	Reading (ft)	Sensor Tmp (°C)	Recovery (min)	WLE (ft)
4/19/15 14:18	22.67	3.03	5.11	799.31	19.00		7766.39
4/19/15 14:19	22.83	3.03	5.08	799.29	19.00	5.00	7766.37
4/19/15 14:19	23.00	3.03	5.08	799.10	19.00		7766.17
4/19/15 14:19	23.17	3.03	5.08	799.12	19.00		7766.20
4/19/15 14:19	23.33	3.03	5.06	798.98	19.00		7766.05
4/19/15 14:19	23.50	3.03	5.06	798.99	19.00		7766.06
4/19/15 14:19	23.67	3.03	5.03	798.94	19.00		7766.02
4/19/15 14:20	23.83	3.03	5.03	798.97	19.00	6.00	7766.04
4/19/15 14:20	24.00	3.03	5.01	798.93	19.00		7766.01
4/19/15 14:20	24.17	3.03	5.01	799.02	19.00		7766.09
4/19/15 14:20	24.33	3.03	4.98	799.05	19.00		7766.13
4/19/15 14:20	24.50	3.03	4.98	798.78	19.10		7765.86
4/19/15 14:20	24.67	3.03	4.98	798.64	19.10		7765.72
4/19/15 14:21	24.83	3.03	4.96	798.81	19.10	7.00	7765.88
4/19/15 14:21	25.00	3.03	4.96	798.78	19.10		7765.86
4/19/15 14:21	25.17	3.03	4.93	798.80	19.10		7765.87
4/19/15 14:21	25.33	3.03	4.93	798.83	19.10		7765.90
4/19/15 14:21	25.50	3.03	4.93	798.70	19.10		7765.77
4/19/15 14:21	25.67	3.03	4.91	798.72	19.10		7765.80
4/19/15 14:22	25.83	3.03	4.91	798.93	19.10	8.00	7766.01
4/19/15 14:22	26.00	3.03	4.91	798.82	19.10		7765.89
4/19/15 14:22	26.17	3.03	4.89	798.72	19.10		7765.79
4/19/15 14:22	26.33	3.03	4.89	798.88	19.10		7765.96
4/19/15 14:22	26.50	3.03	4.86	798.85	19.10		7765.93
4/19/15 14:22	26.67	3.02	4.86	798.84	19.10		7765.91
4/19/15 14:23	26.83	3.02	4.86	798.82	19.10	9.00	7765.90
4/19/15 14:23	27.00	3.02	4.84	798.78	19.10		7765.85
4/19/15 14:23	27.17	3.03	4.84	798.88	19.10		7765.96
4/19/15 14:23	27.33	3.02	4.84	798.70	19.10		7765.77
4/19/15 14:23	27.50	3.03	4.81	798.78	19.10		7765.85
4/19/15 14:23	27.67	3.03	4.81	798.69	19.10		7765.76
4/19/15 14:24	27.83	3.03	4.81	798.63	19.10	10.00	7765.70
4/19/15 14:24	28.00	3.03	4.79	798.66	19.10		7765.73
4/19/15 14:24	28.17	3.03	4.79	798.77	19.10		7765.84
4/19/15 14:24	28.33	3.03	4.79	798.61	19.10		7765.68
4/19/15 14:24	28.50	3.03	4.79	798.71	19.10		7765.78
4/19/15 14:24	28.67	3.03	4.76	798.59	19.10		7765.66
4/19/15 14:25	28.83	3.03	4.76	798.61	19.10	11.00	7765.69
4/19/15 14:25	29.00	3.03	4.76	798.48	19.10		7765.56
4/19/15 14:25	29.17	3.03	4.74	798.58	19.10		7765.66
4/19/15 14:25	29.33	3.03	4.74	798.49	19.10		7765.56
4/19/15 14:25	29.50	3.03	4.74	798.51	19.10		7765.58
4/19/15 14:25	29.67	3.03	4.74	798.50	19.20		7765.57
4/19/15 14:26	29.83	3.03	4.71	798.53	19.20	12.00	7765.60
4/19/15 14:26	30.00	3.03	4.71	798.60	19.20		7765.67
4/19/15 14:26	30.17	3.03	4.71	798.59	19.20		7765.66
4/19/15 14:26	30.33	3.03	4.71	798.56	19.20		7765.64
4/19/15 14:26	30.50	3.03	4.69	798.61	19.20		7765.69
4/19/15 14:26	30.67	3.03	4.69	798.63	19.20		7765.70
4/19/15 14:27	30.83	3.03	4.69	798.64	19.20	13.00	7765.71
4/19/15 14:27	31.00	3.03	4.69	798.56	19.20		7765.63
4/19/15 14:27	31.17	3.03	4.67	798.55	19.20		7765.63
4/19/15 14:27	31.33	3.03	4.67	798.58	19.20		7765.66
4/19/15 14:27	31.50	3.03	4.67	798.64	19.20		7765.71
4/19/15 14:27	31.67	3.03	4.67	798.46	19.20		7765.54
4/19/15 14:28	31.83	3.02	4.64	798.42	19.20	14.00	7765.49
4/19/15 14:28	32.00	3.03	4.64	798.38	19.20		7765.45
4/19/15 14:28	32.17	3.03	4.64	798.42	19.20		7765.49
4/19/15 14:28	32.33	3.03	4.62	798.37	19.20		7765.44
4/19/15 14:28	32.50	3.02	4.62	798.45	19.20		7765.52
4/19/15 14:28	32.67	3.03	4.62	798.40	19.30		7765.48
4/19/15 14:29	32.83	3.03	4.62	798.39	19.20	15.00	7765.46
4/19/15 14:29	33.00	3.03	4.62	798.31	19.30		7765.38
4/19/15 14:29	33.17	3.03	4.59	798.47	19.30		7765.54
4/19/15 14:29	33.33	3.03	4.59	798.49	19.30		7765.57
4/19/15 14:29	33.50	3.03	4.59	798.51	19.30		7765.58
4/19/15 14:29	33.67	3.03	4.59	798.44	19.30		7765.51
4/19/15 14:30	33.83	3.03	4.59	798.41	19.30	16.00	7765.48

Date/Time	Time (min)	Battery (V)	Int Temp (°C)	Reading (ft)	Sensor Tmp (°C)	Recovery (min)	WLE (ft)
4/19/15 14:30	34.00	3.03	4.57	798.49	19.30		7765.56
4/19/15 14:30	34.17	3.03	4.57	798.46	19.30		7765.53
4/19/15 14:30	34.33	3.03	4.57	798.49	19.30		7765.56
4/19/15 14:30	34.50	3.03	4.57	798.45	19.30		7765.52
4/19/15 14:30	34.67	3.03	4.57	798.41	19.30		7765.48
4/19/15 14:31	34.83	3.02	4.57	798.40	19.30	17.00	7765.48
4/19/15 14:31	35.00	3.03	4.54	798.37	19.30		7765.44
4/19/15 14:31	35.17	3.03	4.54	798.50	19.30		7765.57
4/19/15 14:31	35.33	3.03	4.54	798.49	19.30		7765.57
4/19/15 14:31	35.50	3.03	4.54	798.40	19.30		7765.47
4/19/15 14:31	35.67	3.03	4.54	798.45	19.30		7765.52
4/19/15 14:32	35.83	3.03	4.52	798.51	19.40	18.00	7765.59
4/19/15 14:32	36.00	3.03	4.52	798.46	19.40		7765.53
Sensor install length (top of rods)		3400	Bit length	3450	Injection start:		14:01:00
Sensor install length (BGL)		3400	Hole Length	3874	Injection End:		14:11:00
Approx dip of hole		90			Total Volume Injected (gal)		180
Sensor install vertical depth		3400					

APPENDIX 5.4

GHC15-1 FHT #4 - 3454'-3874' DEPTH

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FALLING HEAD TEST SIMULATION ANALYSIS

TEST

The falling head test comprises the following elements:

1. Water is introduced into the well riser, creating excess head in the well relative to the test formation.
2. The excess head causes flow from the wellbore to the formation, resulting in reduction of the water level in the
3. As the water drains out, the water level in the well follows an exponential decay over time towards the static level.

ANALYSIS

The rate that water drains out of the well is controlled by well geometry, and hydraulic conductivity of the formation material.

Consider the conditions at a time t:

E_t = water elevation in the well at time t

E_{stat} = static water level in well

Head (H) driving flow from the wellbore into the formation is:

$H = E_t - E_{stat}$ (1)

Radial flow from the well to the formation is (Theim 1870):

$Q = 2 \pi L K H / \ln(R/r')$ (2)

where:

Q = volumetric flow rate

L = test interval formation length

K = hydraulic conductivity of interval

H = excess head in well relative to formation

R = radius of influence of test

r^* = radius of well bore

Using well completion length L for the radius of influence and applying a form factor for anisotropy (Brown, 2014) gives:

$Q = 2 \alpha \pi L K H / \ln(L/r')$ (3)

where:

α = form factor = 1.12 for Kh/Kv = 0.1

α = form factor = 0.87 for Kh/Kv = 1

α = form factor = 0.61 for Kh/Kv = 10

Flow created by change of water level in the well over time is:

$Q = - \pi r^2 dH/dt$ (4)

where: r = radius of standpipe at the water surface

Equating Q in equation and equation produces:

$2 \alpha \pi L K H / \ln(L/r') = - \pi r^2 dH$ (5)

Rearranging equation produces:

$dH = - 2 \alpha L K / [r^2 \ln(L/r^*)] H dt$ (6)

Integrating over time and noting that H = Ho at t = 0 gives:

$H = H_o e^{-\beta t}$ (7)

where:

$\beta = 2 \alpha L K / [r^2 \ln(L/r^*)]$ (8)

Hydraulic conductivity is determined from equation (8):

$K = \beta r^2 \ln(L/r^*) / (2 \alpha L)$ (9)

ANALYSIS METHOD

The method of analysis comprises the following:

1. Fit the exponential curve to the falling head test varying:

E_o = starting water level elevation

E_{stat} = static water level elevation

β = exponent
2. Compute formation hydraulic conductivity from eq. (9):

$K = \beta r^2 \ln(L/r^*) / (2 \alpha L)$

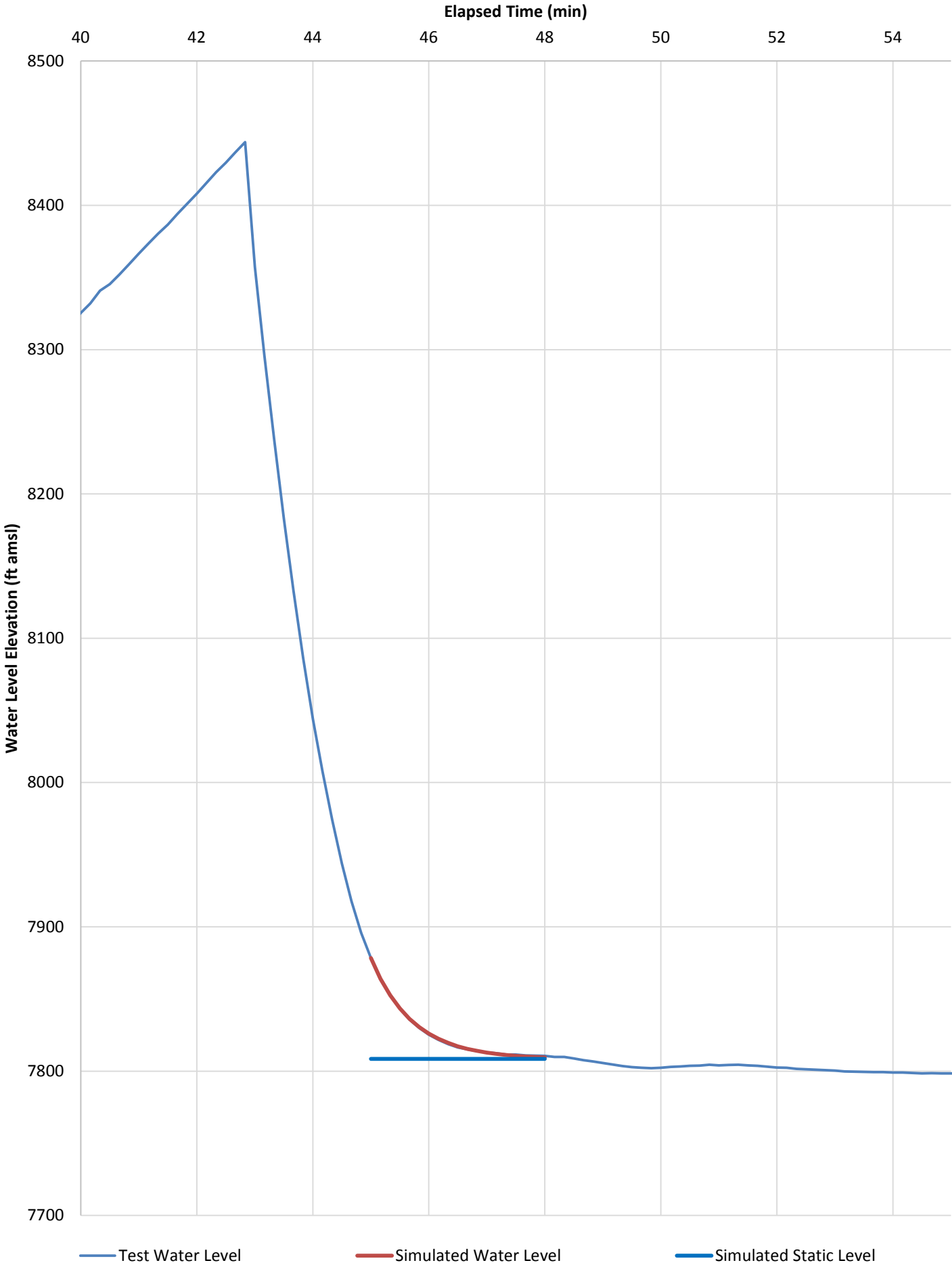
REFERENCES:

Thiem, A., 1870. *The yield of artesian wells, dug wells and filter galleries*. J. Gas Lighting Water Supply (Munich), vol.14

Brown A, 2014. *Reliable Packer Testing and Analysis*. 12th

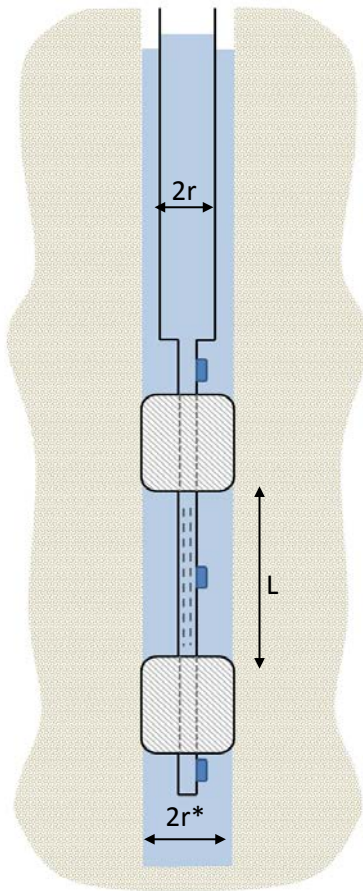
International Mine Water Association Congress, Xuzhou,

FALLING HEAD TEST RESULTS AND BEST-FIT SIMULATION



ANALYSIS OF HYDRAULIC CONDUCTIVITY

TEST INTERVAL GEOMETRY



Stem Radius (r)

ID of HQ (in) 3.06

r = (in) 1.53

Inclination (°) -87.25

r (in) (sloping) 1.53

Well Radius (r*)

OD of NQ^[1] (in) 2.965

r* = (in) 1.48

Test Interval (L)

Top depth (ft) 3454

Bottom dep (ft) 3874

L (ft) 420

Note [1]:

The upper half of the test section is HQ and the balance is NQ. An average bit radius for the two is used.

BEST FIT TO FALLING HEAD TEST DATA

Parameter	Unit	Early Time	Late Time
E(start)	ft	8296	7878
E(static)	ft	7808.45	7808.45
β (exponent)	/min	1.0000	1.3830
t(start)	min	43.17	45.00
t(end)	min	48.00	48.00
Sum of Error	ft	0.00	0.00
RMS Error	ft	13.32	0.60

COMPUTATION OF HYDRAULIC CONDUCTIVITY

$K = \beta r^2 \ln(L/r^*) / (2 \alpha L)$

Parameter	Unit	Early Time	Late Time
β (exponent)	/min	1.0000	1.3830
r (stem radius)	ft	0.128	0.128
L (test interval)	ft	420	420
r* (well radius)	ft	0.124	0.124
α (form factor)	--	0.87	0.87
K (hyd.cond.)	ft/min	1.8E-04	2.5E-04
	cm/sec	9.2E-05	1.3E-04



Scale: As shown

Drawn: A.Brown

Date: 2015-12-09

GHC15-1 - Deep Carbonate Borehole Report

APPENDIX 5.4

GHC15-1 FHT #4 - 3454'-3874' DEPTH

Date/Time	Time (min)	Battery (V)	Int Temp (°C)	Reading (ft)	Sensor Tmp (°C)	Recovery (min)	WLE (ft)
4/22/15 21:57	0.00	2.99	14.11	59.23	19.80	0.00	7750.46
4/22/15 21:57	0.17	3.00	14.21	59.29	19.80	0.00	7750.51
4/22/15 21:57	0.33	3.00	14.21	59.08	19.80	0.00	7750.31
4/22/15 21:57	0.50	3.00	14.13	59.24	19.80	0.00	7750.47
4/22/15 21:57	0.67	3.00	14.05	59.14	19.80	0.00	7750.37
4/22/15 21:57	0.83	3.00	14.00	59.18	19.80	0.00	7750.41
4/22/15 21:58	1.00	3.00	13.98	59.19	19.80	0.00	7750.42
4/22/15 21:58	1.17	3.01	13.95	59.19	19.80	0.00	7750.42
4/22/15 21:58	1.33	3.01	13.90	59.21	19.80	0.00	7750.44
4/22/15 21:58	1.50	3.01	13.88	59.22	19.80	0.00	7750.45
4/22/15 21:58	1.67	3.00	13.83	59.20	19.80	0.00	7750.43
4/22/15 21:58	1.83	3.00	13.80	59.22	19.80	0.00	7750.44
4/22/15 21:59	2.00	3.01	13.75	59.19	19.80	0.00	7750.42
4/22/15 21:59	2.17	3.02	13.72	59.18	19.80	0.00	7750.40
4/22/15 21:59	2.33	3.02	13.70	59.25	19.80	0.00	7750.47
4/22/15 21:59	2.50	3.02	13.67	59.19	19.80	0.00	7750.42
4/22/15 21:59	2.67	3.02	13.65	59.26	19.80	0.00	7750.49
4/22/15 21:59	2.83	3.02	13.60	59.11	19.80	0.00	7750.34
4/22/15 22:00	3.00	3.01	13.65	59.12	19.80	0.00	7750.35
4/22/15 22:00	3.17	3.02	13.67	59.19	19.80	0.00	7750.41
4/22/15 22:00	3.33	3.02	13.62	59.24	19.80	0.00	7750.46
4/22/15 22:00	3.50	3.01	13.54	59.22	19.80	0.00	7750.44
4/22/15 22:00	3.67	3.02	13.52	59.18	19.80	0.00	7750.41
4/22/15 22:00	3.83	3.01	13.47	59.29	19.80	0.00	7750.51
4/22/15 22:01	4.00	3.00	13.44	59.14	19.80	0.00	7750.36
4/22/15 22:01	4.17	3.01	13.39	59.29	19.80	0.00	7750.51
4/22/15 22:01	4.33	3.02	13.37	59.17	19.80	0.00	7750.39
4/22/15 22:01	4.50	3.02	13.34	59.23	19.80	0.00	7750.45
4/22/15 22:01	4.67	3.03	13.32	59.14	19.80	0.00	7750.37
4/22/15 22:01	4.83	3.00	13.29	59.17	19.80	0.00	7750.39
4/22/15 22:02	5.00	3.01	13.27	59.03	19.80	0.00	7750.25
4/22/15 22:02	5.17	3.03	13.24	59.18	19.90	0.00	7750.41
4/22/15 22:02	5.33	3.01	13.21	59.19	19.80	0.00	7750.42
4/22/15 22:02	5.50	3.03	13.19	59.17	19.80	0.00	7750.40
4/22/15 22:02	5.67	3.00	13.14	59.24	19.80	0.00	7750.46
4/22/15 22:02	5.83	3.03	13.14	59.19	19.80	0.00	7750.42
4/22/15 22:03	6.00	3.02	13.09	59.15	19.90	0.00	7750.37
4/22/15 22:03	6.17	3.02	13.06	59.22	19.90	0.00	7750.44
4/22/15 22:03	6.33	3.03	13.04	59.10	19.90	0.00	7750.32
4/22/15 22:03	6.50	3.02	13.01	59.23	19.80	0.00	7750.46
4/22/15 22:03	6.67	2.99	12.99	59.38	19.90	0.00	7750.61
4/22/15 22:03	6.83	2.98	12.96	59.33	19.90	0.00	7750.56
4/22/15 22:04	7.00	3.02	12.94	59.33	19.90	0.00	7750.55
4/22/15 22:04	7.17	3.03	12.91	59.43	19.90	0.00	7750.66
4/22/15 22:04	7.33	3.02	12.88	59.34	19.90	0.00	7750.57
4/22/15 22:04	7.50	3.00	12.86	59.41	19.90	0.00	7750.64
4/22/15 22:04	7.67	3.02	12.83	59.46	19.90	0.00	7750.69
4/22/15 22:04	7.83	3.03	12.81	59.52	19.90	0.00	7750.75
4/22/15 22:05	8.00	3.02	12.78	59.57	19.90	0.00	7750.80
4/22/15 22:05	8.17	3.02	12.78	59.57	19.90	0.00	7750.80
4/22/15 22:05	8.33	3.03	12.76	59.81	19.90	0.00	7751.04
4/22/15 22:05	8.50	3.03	12.73	59.82	19.90	0.00	7751.05
4/22/15 22:05	8.67	3.03	12.71	59.92	19.90	0.00	7751.14
4/22/15 22:05	8.83	3.02	12.68	59.82	19.90	0.00	7751.04
4/22/15 22:06	9.00	3.00	12.66	59.72	19.90	0.00	7750.95
4/22/15 22:06	9.17	3.03	12.63	59.98	19.90	0.00	7751.21
4/22/15 22:06	9.33	3.03	12.61	59.95	19.90	0.00	7751.17
4/22/15 22:06	9.50	3.02	12.61	60.11	19.90	0.00	7751.33
4/22/15 22:06	9.67	3.02	12.58	60.12	19.90	0.00	7751.34
4/22/15 22:06	9.83	3.00	12.56	60.30	19.90	0.00	7751.52
4/22/15 22:07	10.00	3.02	12.53	60.29	19.90	0.00	7751.51
4/22/15 22:07	10.17	2.99	12.50	60.31	19.90	0.00	7751.54
4/22/15 22:07	10.33	3.00	12.48	60.19	19.90	0.00	7751.42
4/22/15 22:07	10.50	3.03	12.48	60.44	19.90	0.00	7751.67
4/22/15 22:07	10.67	3.03	12.45	60.53	19.90	0.00	7751.75
4/22/15 22:07	10.83	3.00	12.43	60.71	19.90	0.00	7751.93
4/22/15 22:08	11.00	2.98	12.40	60.93	19.90	0.00	7752.16
4/22/15 22:08	11.17	3.02	12.38	62.85	19.90	0.00	7754.07

Date/Time	Time (min)	Battery (V)	Int Temp (°C)	Reading (ft)	Sensor Tmp (°C)	Recovery (min)	WLE (ft)
4/22/15 22:08	11.33	3.01	12.35	66.06	19.90	0.00	7757.28
4/22/15 22:08	11.50	3.03	12.35	69.38	19.90	0.00	7760.60
4/22/15 22:08	11.67	3.01	12.33	73.42	19.90	0.00	7764.65
4/22/15 22:08	11.83	3.02	12.30	77.80	19.90	0.00	7769.02
4/22/15 22:09	12.00	3.03	12.28	81.31	19.90	0.00	7772.53
4/22/15 22:09	12.17	3.03	12.25	85.59	19.90	0.00	7776.82
4/22/15 22:09	12.33	3.00	12.25	89.61	19.90	0.00	7780.84
4/22/15 22:09	12.50	3.01	12.23	93.09	19.90	0.00	7784.32
4/22/15 22:09	12.67	3.03	12.18	96.68	19.90	0.00	7787.91
4/22/15 22:09	12.83	3.03	12.18	99.89	19.90	0.00	7791.12
4/22/15 22:10	13.00	3.00	12.18	102.64	19.90	0.00	7793.87
4/22/15 22:10	13.17	3.03	12.13	105.74	19.90	0.00	7796.96
4/22/15 22:10	13.33	3.02	12.10	107.98	19.90	0.00	7799.21
4/22/15 22:10	13.50	2.99	12.10	110.11	19.90	0.00	7801.33
4/22/15 22:10	13.67	3.00	12.08	112.48	19.90	0.00	7803.71
4/22/15 22:10	13.83	3.02	12.05	114.44	19.90	0.00	7805.66
4/22/15 22:11	14.00	3.02	12.05	116.20	19.90	0.00	7807.43
4/22/15 22:11	14.17	3.02	12.03	118.05	19.90	0.00	7809.27
4/22/15 22:11	14.33	3.02	12.00	119.82	19.90	0.00	7811.05
4/22/15 22:11	14.50	3.00	11.97	121.37	19.90	0.00	7812.59
4/22/15 22:11	14.67	3.03	11.97	122.71	19.90	0.00	7813.94
4/22/15 22:11	14.83	3.03	11.95	124.07	19.90	0.00	7815.30
4/22/15 22:12	15.00	3.02	11.92	125.15	19.90	0.00	7816.37
4/22/15 22:12	15.17	3.00	11.90	126.45	19.90	0.00	7817.68
4/22/15 22:12	15.33	3.00	11.90	127.79	19.90	0.00	7819.02
4/22/15 22:12	15.50	3.00	11.85	128.73	19.90	0.00	7819.95
4/22/15 22:12	15.67	3.03	11.85	129.68	19.90	0.00	7820.90
4/22/15 22:12	15.83	3.02	11.82	130.60	19.90	0.00	7821.82
4/22/15 22:13	16.00	3.02	11.82	131.46	19.90	0.00	7822.69
4/22/15 22:13	16.17	3.01	11.80	132.13	19.90	0.00	7823.35
4/22/15 22:13	16.33	3.03	11.77	132.65	19.90	0.00	7823.88
4/22/15 22:13	16.50	3.03	11.77	133.37	19.90	0.00	7824.59
4/22/15 22:13	16.67	3.02	11.75	133.70	19.90	0.00	7824.92
4/22/15 22:13	16.83	3.03	11.72	133.79	19.90	0.00	7825.01
4/22/15 22:14	17.00	3.03	11.70	133.88	19.90	0.00	7825.10
4/22/15 22:14	17.17	3.02	11.70	133.83	19.90	0.00	7825.05
4/22/15 22:14	17.33	3.01	11.67	133.81	19.90	0.00	7825.03
4/22/15 22:14	17.50	3.02	11.67	134.01	19.90	0.00	7825.24
4/22/15 22:14	17.67	3.03	11.65	134.15	19.90	0.00	7825.38
4/22/15 22:14	17.83	3.01	11.65	134.20	19.90	0.00	7825.42
4/22/15 22:15	18.00	3.03	11.62	134.20	19.90	0.00	7825.43
4/22/15 22:15	18.17	3.01	11.60	134.39	19.90	0.00	7825.61
4/22/15 22:15	18.33	3.01	11.57	134.72	19.90	0.00	7825.95
4/22/15 22:15	18.50	3.03	11.57	134.93	19.90	0.00	7826.15
4/22/15 22:15	18.67	3.03	11.55	135.20	19.90	0.00	7826.42
4/22/15 22:15	18.83	3.03	11.55	135.55	19.90	0.00	7826.78
4/22/15 22:16	19.00	3.00	11.52	135.73	19.90	0.00	7826.96
4/22/15 22:16	19.17	3.03	11.50	136.00	19.90	0.00	7827.23
4/22/15 22:16	19.33	3.00	11.50	136.37	19.90	0.00	7827.59
4/22/15 22:16	19.50	3.01	11.47	136.64	19.90	0.00	7827.87
4/22/15 22:16	19.67	3.01	11.45	137.10	19.90	0.00	7828.33
4/22/15 22:16	19.83	3.01	11.45	137.27	19.90	0.00	7828.49
4/22/15 22:17	20.00	3.03	11.42	137.35	19.90	0.00	7828.58
4/22/15 22:17	20.17	3.01	11.40	137.69	19.90	0.00	7828.91
4/22/15 22:17	20.33	3.01	11.40	138.05	19.90	0.00	7829.28
4/22/15 22:17	20.50	3.01	11.37	138.30	19.90	0.00	7829.52
4/22/15 22:17	20.67	3.03	11.35	138.70	19.90	0.00	7829.92
4/22/15 22:17	20.83	3.01	11.35	139.08	19.90	0.00	7830.30
4/22/15 22:18	21.00	3.01	11.32	139.61	19.90	0.00	7830.83
4/22/15 22:18	21.17	3.01	11.30	142.26	19.90	0.00	7833.49
4/22/15 22:18	21.33	3.03	11.27	144.45	19.90	0.00	7835.67
4/22/15 22:18	21.50	3.03	11.27	147.17	19.90	0.00	7838.40
4/22/15 22:18	21.67	3.01	11.25	149.09	19.90	0.00	7840.31
4/22/15 22:18	21.83	3.02	11.25	151.54	19.90	0.00	7842.76
4/22/15 22:19	22.00	3.02	11.22	153.73	19.90	0.00	7844.95
4/22/15 22:19	22.17	3.00	11.22	155.71	19.90	0.00	7846.94
4/22/15 22:19	22.33	3.03	11.17	157.77	19.90	0.00	7849.00
4/22/15 22:19	22.50	3.02	11.17	159.43	19.90	0.00	7850.66

Date/Time	Time (min)	Battery (V)	Int Temp (°C)	Reading (ft)	Sensor Tmp (°C)	Recovery (min)	WLE (ft)
4/22/15 22:19	22.67	3.00	11.14	160.77	19.90	0.00	7851.99
4/22/15 22:19	22.83	3.01	11.14	162.50	19.90	0.00	7853.72
4/22/15 22:20	23.00	3.01	11.12	163.88	19.90	0.00	7855.10
4/22/15 22:20	23.17	3.00	11.12	165.21	19.90	0.00	7856.44
4/22/15 22:20	23.33	3.02	11.09	166.62	19.90	0.00	7857.84
4/22/15 22:20	23.50	3.02	11.07	167.76	19.90	0.00	7858.98
4/22/15 22:20	23.67	3.02	11.04	168.98	19.90	0.00	7860.20
4/22/15 22:20	23.83	3.02	11.07	169.89	19.90	0.00	7861.12
4/22/15 22:21	24.00	3.02	11.02	171.16	19.90	0.00	7862.38
4/22/15 22:21	24.17	3.03	11.02	171.86	19.90	0.00	7863.08
4/22/15 22:21	24.33	3.03	10.99	172.80	19.90	0.00	7864.02
4/22/15 22:21	24.50	3.01	10.97	173.54	19.90	0.00	7864.77
4/22/15 22:21	24.67	3.02	10.94	174.28	19.90	0.00	7865.51
4/22/15 22:21	24.83	3.01	10.94	174.85	19.90	0.00	7866.08
4/22/15 22:22	25.00	3.00	10.94	175.57	19.90	0.00	7866.80
4/22/15 22:22	25.17	3.01	10.92	175.98	19.90	0.00	7867.21
4/22/15 22:22	25.33	3.01	10.89	176.60	19.90	0.00	7867.83
4/22/15 22:22	25.50	3.01	10.89	177.14	19.90	0.00	7868.37
4/22/15 22:22	25.67	3.03	10.87	179.08	19.90	0.00	7870.31
4/22/15 22:22	25.83	3.01	10.82	181.89	19.90	0.00	7873.11
4/22/15 22:23	26.00	3.01	10.84	186.07	19.90	0.00	7877.29
4/22/15 22:23	26.17	3.01	10.79	189.52	19.90	0.00	7880.75
4/22/15 22:23	26.33	3.02	10.79	193.28	19.90	0.00	7884.50
4/22/15 22:23	26.50	3.01	10.77	196.49	19.90	0.00	7887.71
4/22/15 22:23	26.67	3.03	10.77	199.90	19.90	0.00	7891.13
4/22/15 22:23	26.83	3.01	10.74	203.35	19.90	0.00	7894.57
4/22/15 22:24	27.00	3.01	10.72	206.89	19.90	0.00	7898.11
4/22/15 22:24	27.17	3.01	10.72	210.05	19.90	0.00	7901.28
4/22/15 22:24	27.33	3.01	10.69	213.00	19.90	0.00	7904.22
4/22/15 22:24	27.50	3.02	10.67	216.85	19.90	0.00	7908.08
4/22/15 22:24	27.67	3.01	10.67	220.30	19.90	0.00	7911.53
4/22/15 22:24	27.83	3.01	10.64	223.78	19.90	0.00	7915.00
4/22/15 22:25	28.00	3.02	10.64	224.93	19.90	0.00	7916.15
4/22/15 22:25	28.17	3.01	10.64	231.11	19.90	0.00	7922.34
4/22/15 22:25	28.33	3.02	10.64	235.65	19.90	0.00	7926.87
4/22/15 22:25	28.50	3.02	10.59	240.32	19.90	0.00	7931.55
4/22/15 22:25	28.67	3.02	10.59	244.66	19.90	0.00	7935.88
4/22/15 22:25	28.83	3.02	10.57	248.79	19.90	0.00	7940.02
4/22/15 22:26	29.00	3.02	10.57	252.18	19.90	0.00	7943.41
4/22/15 22:26	29.17	3.02	10.54	256.82	19.90	0.00	7948.04
4/22/15 22:26	29.33	3.02	10.52	260.87	19.90	0.00	7952.10
4/22/15 22:26	29.50	3.01	10.52	264.75	19.90	0.00	7955.97
4/22/15 22:26	29.67	3.00	10.52	269.67	19.90	0.00	7960.90
4/22/15 22:26	29.83	3.01	10.49	275.21	19.90	0.00	7966.43
4/22/15 22:27	30.00	3.01	10.49	280.28	19.90	0.00	7971.50
4/22/15 22:27	30.17	3.02	10.47	285.33	19.90	0.00	7976.55
4/22/15 22:27	30.33	3.02	10.47	290.54	19.90	0.00	7981.76
4/22/15 22:27	30.50	3.00	10.47	295.37	19.90	0.00	7986.60
4/22/15 22:27	30.67	3.00	10.44	299.99	19.90	0.00	7991.22
4/22/15 22:27	30.83	3.01	10.44	304.86	19.90	0.00	7996.08
4/22/15 22:28	31.00	3.00	10.44	309.91	19.90	0.00	8001.13
4/22/15 22:28	31.17	3.01	10.44	314.37	19.90	0.00	8005.59
4/22/15 22:28	31.33	3.01	10.42	318.57	19.90	0.00	8009.79
4/22/15 22:28	31.50	3.00	10.39	321.22	19.90	0.00	8012.45
4/22/15 22:28	31.67	3.02	10.39	325.03	19.90	0.00	8016.26
4/22/15 22:28	31.83	3.01	10.39	328.06	19.90	0.00	8019.28
4/22/15 22:29	32.00	3.02	10.37	330.98	19.90	0.00	8022.21
4/22/15 22:29	32.17	3.02	10.37	335.02	19.90	0.00	8026.25
4/22/15 22:29	32.33	3.01	10.37	341.27	19.90	0.00	8032.50
4/22/15 22:29	32.50	3.02	10.37	347.94	19.90	0.00	8039.16
4/22/15 22:29	32.67	3.03	10.34	353.37	19.90	0.00	8044.59
4/22/15 22:29	32.83	3.02	10.34	358.59	19.90	0.00	8049.82
4/22/15 22:30	33.00	3.01	10.32	363.01	19.90	0.00	8054.23
4/22/15 22:30	33.17	3.02	10.34	367.32	19.90	0.00	8058.54
4/22/15 22:30	33.33	3.01	10.34	371.96	19.90	0.00	8063.18
4/22/15 22:30	33.50	3.01	10.32	378.85	19.90	0.00	8070.07
4/22/15 22:30	33.67	3.01	10.32	385.89	19.90	0.00	8077.12
4/22/15 22:30	33.83	3.02	10.32	390.47	19.90	0.00	8081.70

Date/Time	Time (min)	Battery (V)	Int Temp (°C)	Reading (ft)	Sensor Tmp (°C)	Recovery (min)	WLE (ft)
4/22/15 22:31	34.00	3.01	10.29	397.58	19.90	0.00	8088.81
4/22/15 22:31	34.17	3.01	10.29	403.36	19.90	0.00	8094.58
4/22/15 22:31	34.33	3.02	10.29	408.71	19.90	0.00	8099.94
4/22/15 22:31	34.50	3.01	10.27	414.02	19.90	0.00	8105.25
4/22/15 22:31	34.67	3.02	10.27	418.79	19.90	0.00	8110.01
4/22/15 22:31	34.83	3.02	10.27	422.70	19.90	0.00	8113.93
4/22/15 22:32	35.00	3.01	10.24	427.91	19.90	0.00	8119.13
4/22/15 22:32	35.17	3.01	10.27	434.57	19.90	0.00	8125.80
4/22/15 22:32	35.33	3.01	10.24	441.89	19.90	0.00	8133.11
4/22/15 22:32	35.50	3.01	10.24	448.20	19.90	0.00	8139.43
4/22/15 22:32	35.67	3.01	10.24	455.26	19.90	0.00	8146.49
4/22/15 22:32	35.83	3.01	10.22	462.21	19.90	0.00	8153.43
4/22/15 22:33	36.00	3.02	10.22	469.38	19.90	0.00	8160.61
4/22/15 22:33	36.17	3.02	10.22	476.02	19.90	0.00	8167.24
4/22/15 22:33	36.33	3.02	10.22	482.59	19.90	0.00	8173.81
4/22/15 22:33	36.50	3.02	10.19	489.43	19.90	0.00	8180.66
4/22/15 22:33	36.67	3.02	10.19	495.97	19.90	0.00	8187.20
4/22/15 22:33	36.83	3.01	10.19	503.20	19.90	0.00	8194.43
4/22/15 22:34	37.00	3.02	10.22	509.92	19.90	0.00	8201.14
4/22/15 22:34	37.17	3.01	10.22	516.82	19.90	0.00	8208.04
4/22/15 22:34	37.33	3.02	10.22	523.51	19.90	0.00	8214.74
4/22/15 22:34	37.50	3.02	10.22	529.65	19.90	0.00	8220.87
4/22/15 22:34	37.67	3.01	10.22	537.62	19.90	0.00	8228.84
4/22/15 22:34	37.83	3.01	10.22	543.86	19.90	0.00	8235.09
4/22/15 22:35	38.00	3.02	10.22	550.69	19.90	0.00	8241.91
4/22/15 22:35	38.17	3.01	10.22	557.41	19.90	0.00	8248.63
4/22/15 22:35	38.33	3.01	10.22	564.13	19.90	0.00	8255.35
4/22/15 22:35	38.50	3.02	10.22	572.17	19.90	0.00	8263.39
4/22/15 22:35	38.67	3.02	10.24	578.45	19.90	0.00	8269.68
4/22/15 22:35	38.83	3.02	10.24	592.33	19.90	0.00	8283.56
4/22/15 22:36	39.00	3.01	10.24	593.48	19.90	0.00	8284.70
4/22/15 22:36	39.17	3.01	10.24	599.33	19.90	0.00	8290.56
4/22/15 22:36	39.33	3.02	10.24	605.93	19.90	0.00	8297.15
4/22/15 22:36	39.50	3.02	10.24	613.22	19.90	0.00	8304.45
4/22/15 22:36	39.67	3.01	10.27	619.55	19.90	0.00	8310.78
4/22/15 22:36	39.83	3.02	10.27	626.72	19.90	0.00	8317.94
4/22/15 22:37	40.00	3.01	10.27	634.15	19.90	0.00	8325.37
4/22/15 22:37	40.17	3.02	10.27	640.76	19.90	0.00	8331.98
4/22/15 22:37	40.33	3.02	10.29	649.59	19.90	0.00	8340.81
4/22/15 22:37	40.50	3.01	10.29	654.14	19.90	0.00	8345.36
4/22/15 22:37	40.67	3.01	10.29	660.74	19.90	0.00	8351.96
4/22/15 22:37	40.83	3.01	10.29	667.95	19.90	0.00	8359.18
4/22/15 22:38	41.00	3.02	10.29	675.30	19.90	0.00	8366.53
4/22/15 22:38	41.17	3.02	10.32	682.23	19.90	0.00	8373.46
4/22/15 22:38	41.33	3.02	10.32	689.09	19.90	0.00	8380.31
4/22/15 22:38	41.50	3.01	10.32	695.46	19.90	0.00	8386.69
4/22/15 22:38	41.67	3.02	10.32	702.76	19.90	0.00	8393.99
4/22/15 22:38	41.83	3.02	10.34	709.76	19.90	0.00	8400.99
4/22/15 22:39	42.00	3.01	10.34	716.84	19.90	0.00	8408.07
4/22/15 22:39	42.17	3.02	10.34	724.15	19.90	0.00	8415.37
4/22/15 22:39	42.33	3.01	10.34	731.70	19.90	0.00	8422.92
4/22/15 22:39	42.50	3.01	10.37	738.30	19.90	0.00	8429.53
4/22/15 22:39	42.67	3.03	10.37	745.53	19.90	0.00	8436.75
4/22/15 22:39	42.83	3.01	10.37	752.56	19.90	0.00	8443.79
4/22/15 22:40	43.00	3.02	10.37	666.10	19.90		8357.33
4/22/15 22:40	43.17	3.02	10.37	604.64	19.90		8295.86
4/22/15 22:40	43.33	3.01	10.39	546.79	19.70		8238.02
4/22/15 22:40	43.50	3.03	10.39	491.47	19.50		8182.70
4/22/15 22:40	43.67	3.01	10.39	442.03	19.20		8133.26
4/22/15 22:40	43.83	3.02	10.39	395.07	18.90	1.00	8086.30
4/22/15 22:41	44.00	3.01	10.42	352.76	18.60		8043.98
4/22/15 22:41	44.17	3.01	10.42	316.75	18.30		8007.97
4/22/15 22:41	44.33	3.02	10.42	283.07	17.90		7974.29
4/22/15 22:41	44.50	3.02	10.42	252.64	17.60		7943.86
4/22/15 22:41	44.67	3.02	10.42	226.64	17.30		7917.86
4/22/15 22:41	44.83	3.02	10.44	204.59	16.90	2.00	7895.82
4/22/15 22:42	45.00	3.01	10.44	187.19	16.60		7878.41
4/22/15 22:42	45.17	3.02	10.44	173.26	16.20		7864.49

Date/Time	Time (min)	Battery (V)	Int Temp (°C)	Reading (ft)	Sensor Tmp (°C)	Recovery (min)	WLE (ft)
4/22/15 22:42	45.33	3.02	10.44	161.22	15.90		7852.44
4/22/15 22:42	45.50	3.01	10.47	152.15	15.60		7843.38
4/22/15 22:42	45.67	3.01	10.47	144.62	15.30		7835.85
4/22/15 22:42	45.83	3.01	10.47	138.71	15.00	3.00	7829.94
4/22/15 22:43	46.00	3.02	10.47	134.04	14.80		7825.27
4/22/15 22:43	46.17	3.01	10.47	130.42	14.50		7821.65
4/22/15 22:43	46.33	3.02	10.47	127.50	14.30		7818.73
4/22/15 22:43	46.50	3.02	10.49	125.25	14.10		7816.47
4/22/15 22:43	46.67	3.02	10.49	123.80	13.80		7815.03
4/22/15 22:43	46.83	3.02	10.49	122.67	13.60	4.00	7813.89
4/22/15 22:44	47.00	3.02	10.49	121.75	13.40		7812.97
4/22/15 22:44	47.17	3.01	10.49	121.14	13.30		7812.36
4/22/15 22:44	47.33	3.01	10.52	120.30	13.10		7811.52
4/22/15 22:44	47.50	3.02	10.52	120.31	13.00		7811.53
4/22/15 22:44	47.67	3.02	10.52	119.64	12.80		7810.87
4/22/15 22:44	47.83	3.02	10.52	119.48	12.70	5.00	7810.70
4/22/15 22:45	48.00	3.02	10.54	119.36	12.60		7810.59
4/22/15 22:45	48.17	3.02	10.54	118.66	12.50		7809.88
4/22/15 22:45	48.33	3.01	10.54	118.59	12.40		7809.82
4/22/15 22:45	48.50	3.01	10.54	117.50	12.30		7808.72
4/22/15 22:45	48.67	3.02	10.54	116.44	12.20		7807.66
4/22/15 22:45	48.83	3.01	10.54	115.46	12.20	6.00	7806.68
4/22/15 22:46	49.00	3.02	10.54	114.38	12.10		7805.60
4/22/15 22:46	49.17	3.01	10.57	113.40	12.10		7804.63
4/22/15 22:46	49.33	3.01	10.57	112.34	12.00		7803.57
4/22/15 22:46	49.50	3.01	10.57	111.51	12.00		7802.73
4/22/15 22:46	49.67	3.02	10.59	111.16	11.90		7802.38
4/22/15 22:46	49.83	3.02	10.59	110.82	11.90	7.00	7802.05
4/22/15 22:47	50.00	3.00	10.59	111.12	11.90		7802.35
4/22/15 22:47	50.17	3.01	10.59	111.72	11.90		7802.94
4/22/15 22:47	50.33	3.02	10.59	112.01	11.90		7803.23
4/22/15 22:47	50.50	3.00	10.62	112.49	11.90		7803.71
4/22/15 22:47	50.67	3.00	10.62	112.67	11.90		7803.89
4/22/15 22:47	50.83	3.01	10.62	113.22	11.90	8.00	7804.44
4/22/15 22:48	51.00	3.00	10.64	112.77	11.90		7804.00
4/22/15 22:48	51.17	3.00	10.64	113.05	11.90		7804.28
4/22/15 22:48	51.33	3.02	10.64	113.15	11.90		7804.38
4/22/15 22:48	51.50	3.01	10.64	112.83	11.90		7804.06
4/22/15 22:48	51.67	3.01	10.67	112.48	11.90		7803.70
4/22/15 22:48	51.83	3.02	10.67	111.89	11.90	9.00	7803.11
4/22/15 22:49	52.00	3.01	10.67	111.27	11.90		7802.49
4/22/15 22:49	52.17	3.01	10.67	111.14	11.90		7802.36
4/22/15 22:49	52.33	3.00	10.67	110.39	11.90		7801.62
4/22/15 22:49	52.50	3.02	10.67	110.01	12.00		7801.23
4/22/15 22:49	52.67	3.03	10.67	109.78	12.00		7801.00
4/22/15 22:49	52.83	3.02	10.67	109.48	12.00	10.00	7800.70
4/22/15 22:50	53.00	3.01	10.69	109.20	12.00		7800.43
4/22/15 22:50	53.17	3.01	10.69	108.60	12.00		7799.82
4/22/15 22:50	53.33	3.02	10.69	108.45	12.10		7799.68
4/22/15 22:50	53.50	3.02	10.69	108.31	12.10		7799.54
4/22/15 22:50	53.67	3.00	10.69	108.06	12.10		7799.28
4/22/15 22:50	53.83	3.00	10.69	108.06	12.10	11.00	7799.28
4/22/15 22:51	54.00	3.00	10.69	107.83	12.10		7799.05
4/22/15 22:51	54.17	3.00	10.69	107.87	12.10		7799.10
4/22/15 22:51	54.33	3.03	10.69	107.54	12.20		7798.76
4/22/15 22:51	54.50	3.03	10.72	107.21	12.20		7798.44
4/22/15 22:51	54.67	3.01	10.72	107.37	12.20		7798.60
4/22/15 22:51	54.83	3.01	10.72	107.18	12.20	12.00	7798.40
4/22/15 22:52	55.00	3.00	10.72	107.23	12.20		7798.46
4/22/15 22:52	55.17	3.03	10.72	107.10	12.30		7798.32
4/22/15 22:52	55.33	3.01	10.72	107.06	12.30		7798.29
4/22/15 22:52	55.50	3.00	10.72	107.19	12.30		7798.42
4/22/15 22:52	55.67	3.02	10.72	107.08	12.30		7798.30
4/22/15 22:52	55.83	3.00	10.72	106.93	12.40	13.00	7798.16
4/22/15 22:53	56.00	3.00	10.72	106.86	12.40		7798.08
4/22/15 22:53	56.17	3.02	10.72	106.86	12.40		7798.08
4/22/15 22:53	56.33	3.02	10.72	106.84	12.40		7798.06
4/22/15 22:53	56.50	3.02	10.72	107.09	12.40		7798.31

Date/Time	Time (min)	Battery (V)	Int Temp (°C)	Reading (ft)	Sensor Tmp (°C)	Recovery (min)	WLE (ft)
4/22/15 22:53	56.67	3.01	10.72	107.17	12.50		7798.40
4/22/15 22:53	56.83	3.02	10.72	106.53	12.50	14.00	7797.76
4/22/15 22:54	57.00	3.02	10.72	106.58	12.50		7797.80
4/22/15 22:54	57.17	3.01	10.72	106.49	12.50		7797.72
4/22/15 22:54	57.33	3.01	10.72	106.66	12.50		7797.89
4/22/15 22:54	57.50	3.01	10.72	106.69	12.60		7797.91
4/22/15 22:54	57.67	3.02	10.72	106.54	12.60		7797.76
4/22/15 22:54	57.83	3.01	10.72	106.41	12.60	15.00	7797.63
4/22/15 22:55	58.00	3.03	10.72	106.45	12.60		7797.67
4/22/15 22:55	58.17	3.02	10.72	106.49	12.70		7797.71
4/22/15 22:55	58.33	3.02	10.72	106.57	12.70		7797.80
Sensor install length (top of rods)		2683.04	Bit length	3454	Injection start:		14:01:00
Sensor install length (BGL)		2675	Hole Length	3874	Injection End:		14:11:00
Approx dip of hole		90			Total Volume Injected (gal)		180
Sensor install vertical depth		2675					

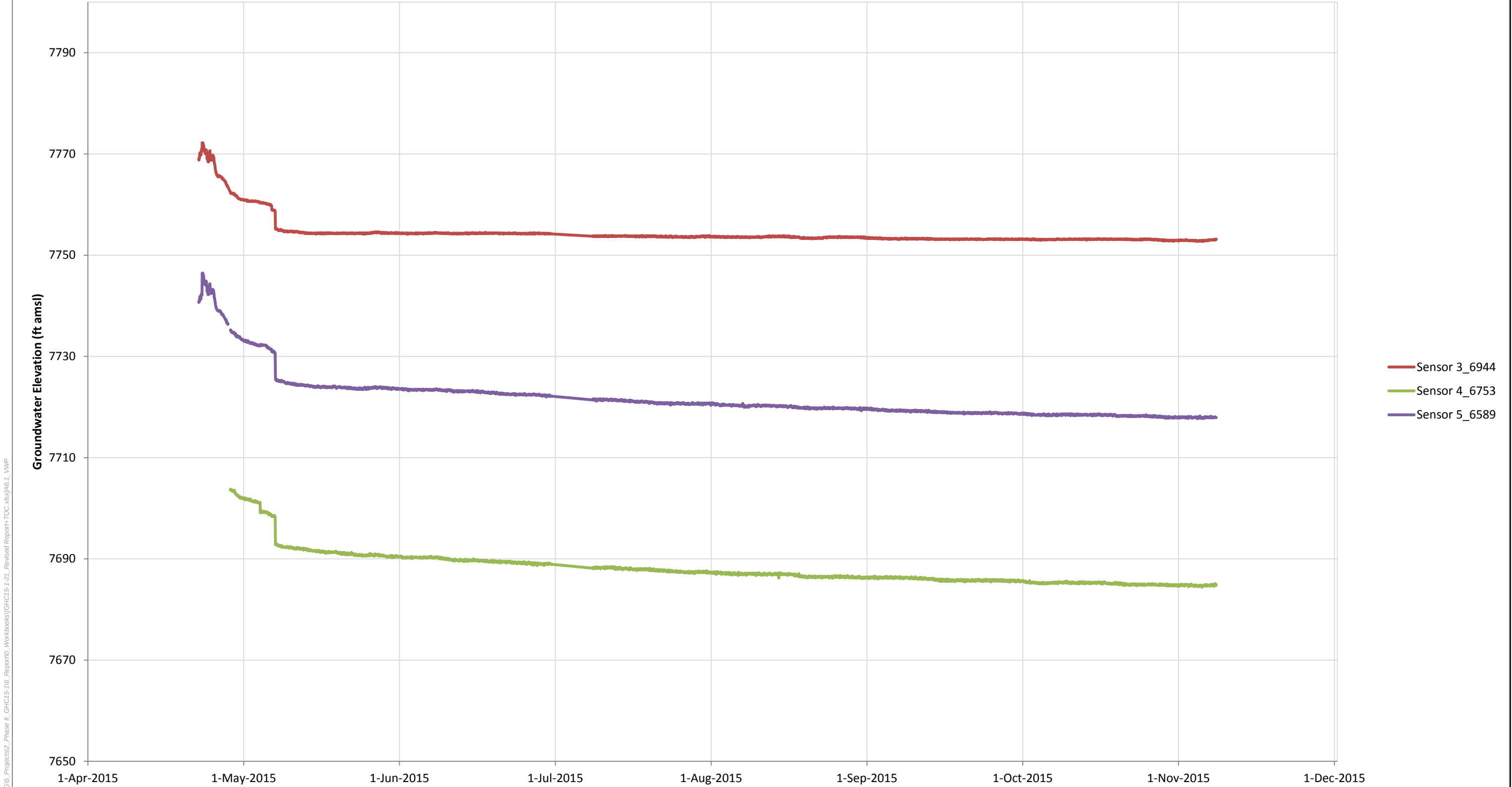
APPENDIX 6

GHC15-1 - VIBRATING WIRE PIEZOMETERS

APPENDIX 6.1

GHC15-1 - VIBRATING WIRE PIEZOMETERS PLOT

GHC15-1 Pressure Transducer Data



G:\Dropbox (ABC)\AB PROJECTS\1385_CCA\UG15_Report\0_Workbooks\GHC15-1-21_Revised Report+TOC.xlsx\A6.1_VWP

SUMMARY OF VIBRATING WIRE PIEZOMETER RESULTS						
Sensor	Boring Collar	Sensor 1_9058	Sensor 2_8068	Sensor 3_6944	Sensor 4_6753	Sensor 5_6589
Installed Depth (ft)	0	1341	2363	3369	3598	3779
Installed Elevation (ft)	10365	9023	8001	6996	6767	6585
Static Pressure (ft)	---	-3	-2	757	918	1133
Temperature (°C)	---	15.50	21.00	23.20	23.50	23.85
Groundwater Elevation (ft amsl)	---	Dry	Dry	7753	7685	7718



Scale:

Drawn: A.Brown

Date: 09-Dec-2015

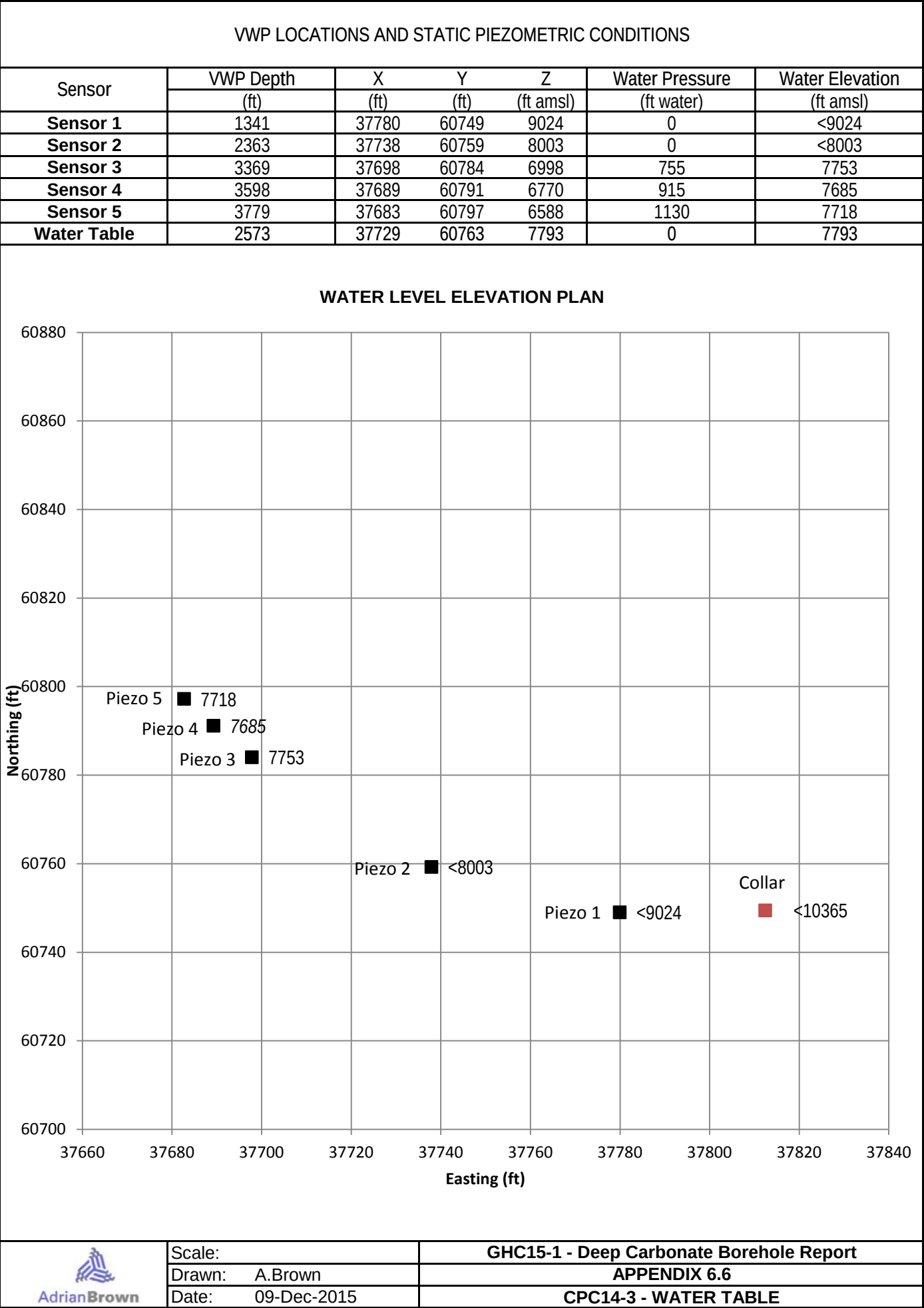
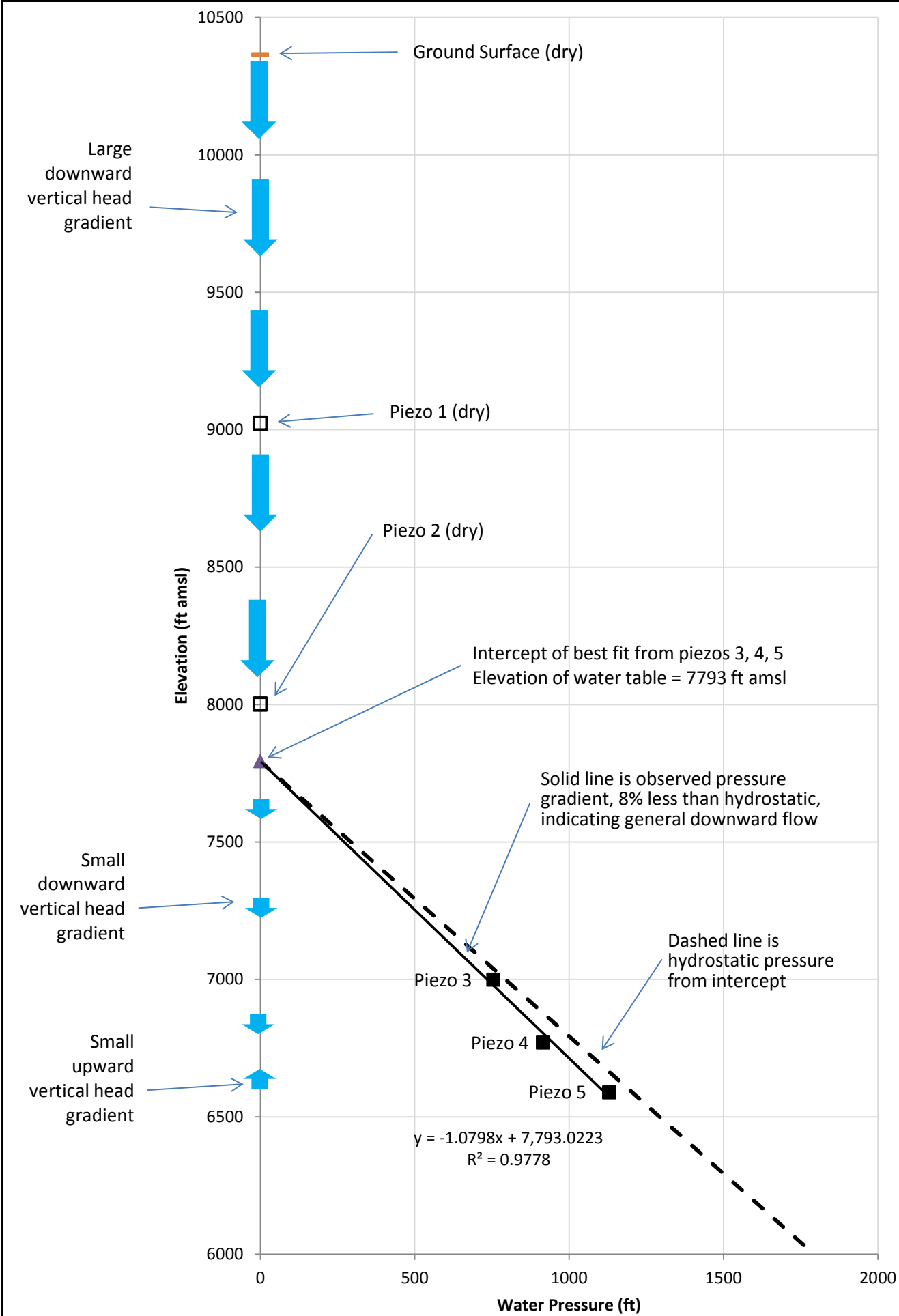
GHC15-1 - Deep Carbonate Borehole Report

APPENDIX 6.1

GHC15-1 VWP PIEZOMETRIC ELEVATIONS

APPENDIX 6.2

GHC15-1 - WATER TABLE EVALUATION



APPENDIX 6.7

GHC15-1 - VWP DATA

Bore Hole	LOGGER DATA			SENSOR READINGS (hertz)					SENSOR TEMPERATURES (°C)					GROUNDWATER ELEVATION CALCULATIONS				
	Day 2015	Batt V	Temp C	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5
GHC15-1	04-24 15:20	3.22	4.32	-1000009.5	-1000005.8	-1000005.9	-1000018.5	-1000014.9	-99	-99	-99	-99	-99					
GHC15-1	04-24 16:00	3.05	6.85	-1000009.5	-1000005.8	773.071	-999996.09	-1000014.9	-99	-99	22.6	17.3	-99			7768.77		
GHC15-1	04-24 16:24	3.22	5.69	17	-999999.17	773.177	-999998.69	1155.357	11.9	-0.22	22.5	3.79	23.1	DRY		7768.88		7740.66
GHC15-1	04-24 16:28	3.22	5.35	16.416	-999999.2	773.22	-999998.78	1155.6	12	-0.68	22.6	3.35	23.7	DRY		7768.92		7740.90
GHC15-1	04-24 16:36	3.22	4.64	15.996	-999997.65	773.338	3966.779	1155.465	12.1	22.4	22.8	28.1	23.7	DRY		7769.04		7740.77
GHC15-1	04-24 16:41	3.22	3.62	15.589	-999997.55	773.276	3978.415	1155.53	12.1	23.9	22.8	21.4	23.7	DRY		7768.98		7740.83
GHC15-1	04-24 17:00	3.03	2.35	13.665	-999996.47	773.354	3785.239	1155.555	12.3	40	22.8	10.6	23.7	DRY		7769.05		7740.86
GHC15-1	04-24 18:00	3.05	5.99	8.169	-999996.67	773.559	3954.536	1155.721	12.6	37	22.8	4.71	23.7	DRY		7769.26		7741.02
GHC15-1	04-24 19:00	3.05	0.46	5.072	-999996.95	773.504	3944.404	1155.6	12.8	32.8	22.8	4.86	23.7	DRY		7769.20		7740.90
GHC15-1	04-24 20:00	3.05	-0.59	3.189	-999996.84	774.079	3898.328	1156.208	12.9	34.5	22.8	4.62	23.7	DRY		7769.78		7741.51
GHC15-1	04-24 21:00	3.05	-2.1	2.042	-999996.81	774.56	3795.973	1156.456	13	34.9	22.8	4.35	23.8	DRY		7770.26		7741.76
GHC15-1	04-24 22:00	3.05	-2.54	1.5	-999996.79	774.248	3948.778	1156.333	13.1	35.3	22.8	4.3	23.7	DRY		7769.95		7741.63
GHC15-1	04-24 23:00	3.04	-2.83	0.831	-999997.12	774.449	3732.848	1156.625	13.2	30.4	22.8	4.25	23.7	DRY		7770.15		7741.93
GHC15-1	04-25 00:00	3.04	-3.02	0.403	-999997.08	774.174	3715.671	1156.343	13.3	31	22.8	4.2	23.7	DRY		7769.87		7741.64
GHC15-1	04-25 01:00	3.04	-3.52	-0.373	-999997.63	774.348	-999998.64	1156.329	13.3	22.7	22.9	4.08	23.7	DRY		7770.05		7741.63
GHC15-1	04-25 02:00	3.04	-3.96	-0.123	-999998.07	774.049	-999998.62	1156.003	13.3	16.2	22.9	4.2	23.8	DRY		7769.75		7741.30
GHC15-1	04-25 03:00	3.05	-4.35	-0.08	-999998.26	774.605	3970.425	1156.87	13.4	13.3	22.9	4.15	23.7	DRY		7770.31		7742.17
GHC15-1	04-25 04:00	3.04	-4.92	-0.214	-999998.42	774.904	-999998.66	1156.967	13.4	11	22.9	3.98	23.8	DRY		7770.60		7742.27
GHC15-1	04-25 05:00	3.04	-4.53	-0.804	-999998.34	775.193	-999998.65	1157.116	13.5	12.2	22.9	4.03	23.7	DRY		7770.89		7742.42
GHC15-1	04-25 06:00	3.04	-4.3	-0.883	-999998.36	775.196	-999998.62	1157.212	13.5	11.9	22.9	4.18	23.7	DRY		7770.90		7742.51
GHC15-1	04-25 07:00	3.04	-4.25	-0.92	-999998.32	774.819	-999998.62	1156.792	13.5	12.4	22.9	4.2	23.8	DRY		7770.52		7742.09
GHC15-1	04-25 08:00	3.04	-3.15	0.385	-999997.28	776.51	-999998.13	1161.147	13.5	13.4	22.9	4.15	23.7	DRY		7772.21		7746.45
GHC15-1	04-25 09:00	2.95	4.71	0.579	-999997.06	776.071	-999998.12	1160.565	13.6	14.8	22.9	4.18	23.8	DRY		7771.77		7745.87
GHC15-1	04-25 10:00	3.07	9.37	0.301	-999997.03	776.497	-999998.04	1161.107	13.6	15	22.9	4.37	23.8	DRY		7772.20		7746.41
GHC15-1	04-25 11:00	3.08	12.1	0.269	-999997	776.445	-999997.89	1161.132	13.6	15.2	22.9	4.69	23.8	DRY		7772.15		7746.43
GHC15-1	04-25 12:00	3.08	11.7	0.329	-999996.97	776.393	-999997.63	1160.656	13.6	15.4	22.9	5.28	23.8	DRY		7772.09		7745.96
GHC15-1	04-25 13:00	3.09	11.37	0.361	-999996.85	775.997	-999997.25	1160.706	13.6	16.2	22.9	6.13	23.8	DRY		7771.70		7746.01
GHC15-1	04-25 14:00	3.09	10.99	0.163	-999996.41	775.942	-999996.93	1160.65	13.6	19	22.9	6.85	23.8	DRY		7771.64		7745.95
GHC15-1	04-25 15:00	3.09	9.79	0.469	-999996.54	775.928	-999996.78	1160.263	13.7	18.2	22.9	7.19	23.8	DRY		7771.63		7745.56
GHC15-1	04-25 16:00	3.08	9.05	0.131	-999996.54	775.525	-999996.75	1159.912	13.7	18.2	22.9	7.27	23.8	DRY		7771.23		7745.21
GHC15-1	04-25 17:00	3.09	11.67	0.371	-999996.54	775.214	-999996.35	1159.641	13.7	18.2	22.9	8.16	23.8	DRY		7770.91		7744.94
GHC15-1	04-25 18:00	3.08	9.55	0.238	-999996.61	774.872	-999996.35	1159.023	13.7	17.7	22.9	8.16	23.8	DRY		7770.57		7744.32
GHC15-1	04-25 19:00	3.08	7.54	0.325	-999996.66	774.937	-999996.47	1159.385	13.7	17.4	22.9	7.88	23.8	DRY		7770.64		7744.69
GHC15-1	04-25 20:00	3.07	4.37	0.311	-999996.77	774.755	-999996.66	1159.068	13.7	16.7	22.9	7.46	23.8	DRY		7770.46		7744.37
GHC15-1	04-25 21:00	3.06	2.28	0.399	-999996.83	774.488	-999996.89	1158.868	13.7	16.3	22.9	6.95	23.8	DRY		7770.19		7744.17
GHC15-1	04-25 22:00	3.06	1.28	0.247	-999997.02	774.368	-999997.04	1158.999	13.7	15.1	22.9	6.6	23.8	DRY		7770.07		7744.30
GHC15-1	04-25 23:00	3.06	1.09	0.362	-999997.08	774.638	-999997.17	1158.988	13.7	14.7	22.9	6.31	23.8	DRY		7770.34		7744.29
GHC15-1	04-26 00:00	3.06	0.46	0.279	-999997.28	774.875	-999997.25	1159.004	13.7	13.4	22.9	6.13	23.8	DRY		7770.58		7744.30
GHC15-1	04-26 01:00	3.05	-0.3	0.349	-999997.22	774.374	-999997.31											

Bore Hole	LOGGER DATA			SENSOR READINGS (hertz)					SENSOR TEMPERATURES (°C)					GROUNDWATER ELEVATION CALCULATIONS				
	Day 2015	Batt V	Temp C	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5
GHC15-1	04-28 18:00	2.98	10.97	0.389	2500.73	769.895	-999998.87	1153.71	14.1	7.49	23	2.5	23.8	DRY	DRY	7765.60		7739.01
GHC15-1	04-28 19:00	2.98	9.62	0.297	2508.831	769.957	3220.377	1153.544	14.1	7.34	23	2.25	23.8	DRY	DRY	7765.66		7738.84
GHC15-1	04-28 20:00	3.05	5.3	0.472	-999998.21	769.84	-999999.32	1153.71	14.1	7.39	23	1.48	23.8	DRY		7765.54		7739.01
GHC15-1	04-28 21:00	2.95	1.43	0.44	2483.404	769.846	3952.086	1153.488	14.1	7.14	23	0.29	23.8	DRY	DRY	7765.55		7738.79
GHC15-1	04-28 22:00	2.95	-1.05	0.62	2484.117	769.738	3939.94	1153.403	14.1	7.04	23	-0.47	23.8	DRY	DRY	7765.44		7738.70
GHC15-1	04-28 23:00	2.91	-1.51	0.403	2046.109	769.84	-1000000.6	1153.408	14.1	5.62	23	-1.32	23.8	DRY	DRY	7765.54		7738.71
GHC15-1	04-29 00:00	3.02	-2.98	0.454	-999998.34	769.764	-1000000.7	1153.257	14.1	6.55	23	-1.71	23.8	DRY		7765.46		7738.56
GHC15-1	04-29 01:00	3.02	-2.95	0.301	2494.355	769.689	3163.469	1153.398	14.1	6.97	23	-2.14	23.8	DRY	DRY	7765.39		7738.70
GHC15-1	04-29 02:00	3.01	-3.05	0.445	-999998.29	769.676	-1000001.1	1153.231	14.1	6.87	23	-2.61	23.8	DRY		7765.38		7738.53
GHC15-1	04-29 03:00	3.01	-2.1	0.375	-999998.24	769.758	3684.308	1153.06	14.1	7.19	23	-3.02	23.8	DRY		7765.46		7738.36
GHC15-1	04-29 04:00	3.02	-1.51	0.51	-999998.27	769.614	-1000001.4	1152.969	14.2	7.04	23	-3.29	23.8	DRY		7765.31		7738.27
GHC15-1	04-29 05:00	3.02	-1.37	0.435	-999998.28	769.382	-1000001.6	1152.975	14.2	6.95	23	-3.56	23.8	DRY		7765.08		7738.28
GHC15-1	04-29 06:00	3.02	-0.76	0.441	-999998.28	769.509	-1000001.7	1153.015	14.2	6.92	23	-3.81	23.8	DRY		7765.21		7738.32
GHC15-1	04-29 07:00	3.02	-0.27	0.537	-999998.23	769.362	-1000001.8	1152.849	14.2	7.27	23	-4.06	23.8	DRY		7765.06		7738.15
GHC15-1	04-29 08:00	3.02	0.58	0.501	-999998.32	769.395	-1000001.8	1153.03	14.2	6.68	23	-4.18	23.8	DRY		7765.10		7738.33
GHC15-1	04-29 09:00	3.02	7.37	0.524	-999998.29	769.457	-1000001.9	1153.01	14.2	6.87	23	-4.3	23.8	DRY		7765.16		7738.31
GHC15-1	04-29 10:00	3.03	12.81	0.431	-999998.32	769.3	-1000001.9	1152.734	14.2	6.72	23	-4.25	23.9	DRY		7765.00		7738.03
GHC15-1	04-29 11:00	2.96	15.57	0.237	-3.11E+09	769.244	-1000001.7	1152.723	14.2	6.65	23.1	-3.91	23.8	DRY		7764.94		7738.02
GHC15-1	04-29 12:00	2.99	15.03	0.519	-999998.33	769.198	-1000001.3	1152.637	14.2	6.63	23.1	-3.02	23.8	DRY		7764.90		7737.94
GHC15-1	04-29 13:00	2.98	14.67	0.552	-999998.37	769.215	-1000000.9	1152.627	14.2	6.38	23	-1.97	23.8	DRY		7764.92		7737.93
GHC15-1	04-29 14:00	2.99	15.11	0.399	-3.11E+09	769.173	-1000000.5	1152.495	14.2	6.28	23	-1.12	23.8	DRY		7764.87		7737.80
GHC15-1	04-29 15:00	3.05	15.11	0.367	-999998.36	769.123	-1000000.3	1152.415	14.2	6.4	23.1	-0.76	23.8	DRY		7764.82		7737.72
GHC15-1	04-29 16:00	3.05	15.05	0.422	2517.37	768.947	-1000000.2	1152.334	14.2	6.36	23.1	-0.59	23.8	DRY	DRY	7764.65		7737.63
GHC15-1	04-29 17:00	2.98	15.65	0.459	-3.11E+09	768.944	-1000000.1	1152.244	14.2	6.38	23.1	-0.27	23.8	DRY		7764.64		7737.54
GHC15-1	04-29 18:00	3.04	12.63	0.478	-999998.39	768.963	-1000000.2	1152.223	14.2	6.23	23.1	-0.56	23.8	DRY		7764.66		7737.52
GHC15-1	04-29 19:00	3.04	9.89	0.431	-999998.39	768.937	-1000000.5	1152.162	14.2	6.26	23.1	-1.07	23.8	DRY		7764.64		7737.46
GHC15-1	04-29 20:00	2.97	7.69	0.542	-999998.66	768.829	3928.249	1152.022	14.2	4.52	23.1	-1.83	23.8	DRY		7764.53		7737.32
GHC15-1	04-29 21:00	3.02	4.98	0.349	-999998.47	768.715	-1000001.1	1152.012	14.2	5.72	23.1	-2.63	23.8	DRY		7764.42		7737.31
GHC15-1	04-29 22:00	2.95	3.62	0.381	2413.456	768.699	-1000001.4	1151.8	14.2	5.99	23	-3.25	23.8	DRY	DRY	7764.40		7737.10
GHC15-1	04-29 23:00	3.02	2.18	0.524	-999998.38	768.577	-1000001.6	1151.997	14.2	6.33	23.1	-3.74	23.9	DRY		7764.28		7737.30
GHC15-1	04-30 00:00	2.94	1.74	0.417	2504.187	768.417	-1000001.9	1151.885	14.2	6.13	23.1	-4.23	23.8	DRY	DRY	7764.12		7737.19
GHC15-1	04-30 01:00	2.94	0.94	0.473	2433.071	768.211	-1000002	1151.795	14.2	6.09	23.1	-4.58	23.8	DRY	DRY	7763.91		7737.10
GHC15-1	04-30 02:00	3.01	0.48	0.469	2489.461	768.257	-1000002.2	1151.352	14.2	6.23	23.1	-4.97	23.9	DRY	DRY	7763.96		7736.65
GHC15-1	04-30 03:00	2.93	2.11	0.579	2513.418	768.189	3890.005	1151.497	14.2	6.01	23.1	-5.3	23.8	DRY	DRY	7763.89		7736.80
GHC15-1	04-30 04:00	2.92	3.54	0.575	2513.872	768.132	-1000002.4	1151.411	14.2	6.26	23.1	-5.52	23.8	DRY	DRY	7763.83		7736.71
GHC15-1	04-30 05:00	3.01	3.18	0.464	-999998.39	768.083	-1000002.5	1151.427	14.2	6.23	23.1	-5.62	23.9	DRY		7763.78		7736.73
GHC15-1	04-30 06:00	3.02	2.69	0.422	-999998.4	767.819	-1000002.6	1151.326	14.2	6.16	23.1	-5.87	23.8	DRY		7763.52		7736.63
GHC15-1	04-30 07:00	3.02	2.23	0.431	-999998.47	767.953	-1000002.7	1151.069	14.2	5.74	23.1	-6.02	23.9	DRY		7763.65		7736.37
GHC15-1	04-30 08:00	3.01	2.62	0.399	-999998.43	767.782	-1000002.7	1151.034	14.3	5.99	23							

Bore Hole	LOGGER DATA			SENSOR READINGS (hertz)					SENSOR TEMPERATURES (°C)					GROUNDWATER ELEVATION CALCULATIONS				
	Day 2015	Batt V	Temp C	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5
GHC15-1	05-03 10:00	3	11.32	0.482	1.977	765.188	935.157	1147.801	14.4	20.1	23.1	23.5	23.9	DRY	DRY	7760.89	7701.86	7733.10
GHC15-1	05-03 11:00	3.01	15.41	0.52	1.972	765.142	935.337	1147.877	14.5	20.1	23.1	23.5	23.9	DRY	DRY	7760.84	7702.04	7733.18
GHC15-1	05-03 12:00	3.01	17.29	0.281	1.676	765.225	935.253	1147.639	14.5	20.1	23.1	23.5	23.9	DRY	DRY	7760.93	7701.95	7732.94
GHC15-1	05-03 13:00	3.01	14.54	0.608	1.977	765.274	935.135	1147.7	14.5	20.1	23.1	23.5	23.9	DRY	DRY	7760.97	7701.84	7733.00
GHC15-1	05-03 14:00	3.01	12.5	0.47	1.847	765.198	935.034	1147.862	14.5	20.1	23.1	23.5	23.9	DRY	DRY	7760.90	7701.73	7733.16
GHC15-1	05-03 15:00	3.01	9.32	0.655	1.746	765.09	935.371	1147.776	14.5	20.1	23.1	23.5	23.9	DRY	DRY	7760.79	7702.07	7733.08
GHC15-1	05-03 16:00	3	9.35	0.433	1.949	765.165	935.045	1147.852	14.5	20.1	23.1	23.5	23.9	DRY	DRY	7760.87	7701.75	7733.15
GHC15-1	05-03 17:00	3	12.4	0.359	1.898	765.149	935.118	1147.74	14.5	20.1	23.1	23.5	23.9	DRY	DRY	7760.85	7701.82	7733.04
GHC15-1	05-03 18:00	3	9.25	0.623	1.857	765.153	935.051	1147.725	14.5	20.1	23.1	23.5	23.9	DRY	DRY	7760.85	7701.75	7733.03
GHC15-1	05-03 19:00	3	8.48	0.627	1.843	765.162	935.152	1147.912	14.5	20.1	23.1	23.5	23.9	DRY	DRY	7760.86	7701.85	7733.21
GHC15-1	05-03 20:00	2.99	6.8	0.502	1.709	765.142	934.938	1147.751	14.5	20.1	23.1	23.5	23.9	DRY	DRY	7760.84	7701.64	7733.05
GHC15-1	05-03 21:00	2.99	5.06	0.54	1.727	765.238	935.242	1147.629	14.5	20.1	23.1	23.5	23.9	DRY	DRY	7760.94	7701.94	7732.93
GHC15-1	05-03 22:00	2.99	4.15	0.576	1.746	765.165	935.045	1147.559	14.5	20.1	23.1	23.5	23.9	DRY	DRY	7760.87	7701.75	7732.86
GHC15-1	05-03 23:00	2.98	3.18	0.53	1.782	765.182	935.141	1147.614	14.5	20.1	23.1	23.5	23.9	DRY	DRY	7760.88	7701.84	7732.91
GHC15-1	05-04 00:00	2.98	2.42	0.678	1.88	765.139	935.107	1147.563	14.5	20.1	23.1	23.5	23.9	DRY	DRY	7760.84	7701.81	7732.86
GHC15-1	05-04 01:00	2.98	1.89	0.502	1.838	764.952	935.157	1147.488	14.5	20.1	23.1	23.5	23.9	DRY	DRY	7760.65	7701.86	7732.79
GHC15-1	05-04 02:00	2.98	1.11	0.466	1.782	765.172	935.152	1147.639	14.5	20.1	23.1	23.5	23.9	DRY	DRY	7760.87	7701.85	7732.99
GHC15-1	05-04 03:00	2.98	0.48	0.604	1.75	765.176	935.016	1147.675	14.5	20.1	23.1	23.5	23.9	DRY	DRY	7760.88	7701.72	7732.98
GHC15-1	05-04 04:00	2.98	0.48	0.618	1.787	765.028	935.011	1147.503	14.5	20.1	23.1	23.5	23.9	DRY	DRY	7760.73	7701.71	7732.80
GHC15-1	05-04 05:00	2.98	0.68	0.627	1.704	765.1	935.101	1147.69	14.5	20.1	23.1	23.5	23.9	DRY	DRY	7760.80	7701.80	7732.99
GHC15-1	05-04 06:00	2.98	0.51	0.576	1.75	764.93	935.124	1147.842	14.5	20.1	23.1	23.5	23.9	DRY	DRY	7760.63	7701.82	7733.14
GHC15-1	05-04 07:00	2.98	0.65	0.636	1.838	765.064	935.061	1147.589	14.5	20.1	23.1	23.5	23.9	DRY	DRY	7760.76	7701.76	7732.89
GHC15-1	05-04 08:00	2.98	2.08	0.392	1.787	764.926	934.949	1147.488	14.5	20.1	23.1	23.5	23.9	DRY	DRY	7760.63	7701.65	7732.79
GHC15-1	05-04 09:00	2.98	2.89	0.604	1.815	764.979	934.966	1147.594	14.5	20.1	23.1	23.5	23.9	DRY	DRY	7760.68	7701.67	7732.89
GHC15-1	05-04 10:00	2.98	4.67	0.674	1.759	764.982	934.989	1147.477	14.5	20.1	23.1	23.5	23.9	DRY	DRY	7760.68	7701.69	7732.78
GHC15-1	05-04 11:00	2.99	7.46	0.66	1.713	764.913	935.095	1147.467	14.5	20.1	23.1	23.5	23.9	DRY	DRY	7760.61	7701.80	7732.77
GHC15-1	05-04 12:00	2.99	8.75	0.655	1.787	764.969	935.146	1147.437	14.5	20.1	23.1	23.5	23.9	DRY	DRY	7760.67	7701.85	7732.74
GHC15-1	05-04 13:00	2.99	10.57	0.493	1.759	765.001	934.865	1147.427	14.5	20.1	23.1	23.5	23.9	DRY	DRY	7760.70	7701.57	7732.73
GHC15-1	05-04 14:00	3	14.39	0.354	1.695	764.949	934.797	1147.291	14.5	20.1	23.1	23.5	23.9	DRY	DRY	7760.65	7701.50	7732.59
GHC15-1	05-04 15:00	3	12.23	0.585	1.736	764.926	934.977	1147.427	14.5	20.1	23.1	23.5	23.9	DRY	DRY	7760.63	7701.68	7732.73
GHC15-1	05-04 16:00	3	12.73	0.674	1.704	764.936	935.078	1147.528	14.5	20.1	23.1	23.5	23.9	DRY	DRY	7760.64	7701.78	7732.83
GHC15-1	05-04 17:00	3	11.35	0.682	1.764	764.926	935.085	1147.235	14.5	20.1	23.1	23.5	23.9	DRY	DRY	7760.63	7701.79	7732.54
GHC15-1	05-04 18:00	3	14.34	0.613	1.778	764.89	935.141	1147.265	14.5	20.1	23.1	23.5	23.9	DRY	DRY	7760.59	7701.84	7732.57
GHC15-1	05-04 19:00	3	9.15	0.608	1.801	764.939	934.966	1147.265	14.5	20.1	23.1	23.5	23.9	DRY	DRY	7760.64	7701.67	7732.57
GHC15-1	05-04 20:00	2.99	3.91	0.48	1.639	764.907	934.977	1147.296	14.5	20.1	23.1	23.5	23.9	DRY	DRY	7760.61	7701.68	7732.60
GHC15-1	05-04 21:00	2.98	2.72	0.558	1.778	765.051	934.854	1147.336	14.5	20.1	23.1	23.5	23.9	DRY	DRY	7760.75	7701.55	7732.64
GHC15-1	05-04 22:00	2.98	2.42	0.646	1.63	764.995	934.747	1147.387	14.5	20.1	23.1	23.5	23.9	DRY	DRY	7760.70	7701.45	7732.69
GHC15-1	05-04 23:00	2.98	2.25	0.623	1.787	764.946	934.724	1147.225	14.5	20.1	23.1	23.5	23.9					

Bore Hole	LOGGER DATA			SENSOR READINGS (hertz)					SENSOR TEMPERATURES (°C)					GROUNDWATER ELEVATION CALCULATIONS				
	Day 2015	Batt V	Temp C	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5
GHC15-1	05-07 17:00	2.97	7.34	-0.467	-1.319	764.568	932.437	1146.906	14.6	20.2	23.2	23.5	23.9	DRY	DRY	7760.27	7699.14	7732.21
GHC15-1	05-07 18:00	2.98	11.97	-0.842	-1.43	764.558	932.364	1146.82	14.6	20.2	23.2	23.5	23.9	DRY	DRY	7760.26	7699.06	7732.12
GHC15-1	05-07 19:00	2.98	8.87	-0.684	-1.593	764.496	932.527	1146.886	14.6	20.2	23.2	23.5	23.9	DRY	DRY	7760.20	7699.23	7732.19
GHC15-1	05-07 20:00	2.97	5.35	-0.624	-1.495	764.552	932.505	1146.876	14.6	20.2	23.2	23.5	23.9	DRY	DRY	7760.25	7699.21	7732.18
GHC15-1	05-07 21:00	2.96	2.28	-0.606	-1.463	764.483	932.516	1146.699	14.6	20.2	23.2	23.5	23.9	DRY	DRY	7760.18	7699.22	7732.00
GHC15-1	05-07 22:00	2.96	1.31	-0.754	-1.486	764.47	932.628	1146.603	14.6	20.2	23.2	23.5	23.9	DRY	DRY	7760.17	7699.33	7731.90
GHC15-1	05-07 23:00	2.96	0.48	-0.699	-1.287	764.358	932.533	1146.501	14.6	20.2	23.2	23.5	23.9	DRY	DRY	7760.06	7699.23	7731.80
GHC15-1	05-08 00:00	2.95	0.09	-0.717	-1.407	764.322	932.539	1146.512	14.6	20.2	23.2	23.5	23.9	DRY	DRY	7760.02	7699.24	7731.81
GHC15-1	05-08 01:00	2.95	0.17	-0.823	-1.528	764.381	932.432	1146.4	14.6	20.2	23.2	23.5	23.9	DRY	DRY	7760.08	7699.13	7731.70
GHC15-1	05-08 02:00	2.95	0.07	-0.735	-1.56	764.384	932.505	1146.628	14.6	20.2	23.2	23.5	23.9	DRY	DRY	7760.08	7699.21	7731.93
GHC15-1	05-08 03:00	2.95	-0.25	-0.638	-1.459	764.315	932.471	1146.425	14.6	20.2	23.2	23.5	23.9	DRY	DRY	7760.02	7699.17	7731.73
GHC15-1	05-08 04:00	2.95	-0.08	-0.717	-1.426	764.325	932.459	1146.512	14.6	20.2	23.2	23.5	23.9	DRY	DRY	7760.03	7699.16	7731.81
GHC15-1	05-08 05:00	2.95	0	-0.819	-1.546	764.351	932.211	1146.527	14.6	20.2	23.2	23.5	23.9	DRY	DRY	7760.05	7698.91	7731.83
GHC15-1	05-08 06:00	2.95	0.12	-0.819	-1.546	764.417	932.252	1146.329	14.6	20.2	23.2	23.5	23.9	DRY	DRY	7760.12	7698.95	7731.63
GHC15-1	05-08 07:00	2.95	0.14	-0.6	-1.459	764.44	932.122	1146.471	14.7	20.2	23.2	23.5	23.9	DRY	DRY	7760.14	7698.82	7731.77
GHC15-1	05-08 08:00	2.95	0	-0.753	-1.403	764.348	931.958	1146.319	14.7	20.2	23.2	23.5	23.9	DRY	DRY	7760.05	7698.66	7731.62
GHC15-1	05-08 09:00	2.95	0.26	-0.443	-1.407	764.362	932.093	1146.375	14.7	20.2	23.2	23.5	23.9	DRY	DRY	7760.06	7698.79	7731.68
GHC15-1	05-08 10:00	2.95	0.07	-0.716	-1.333	764.191	932.313	1146.183	14.7	20.2	23.2	23.5	23.9	DRY	DRY	7759.89	7699.01	7731.48
GHC15-1	05-08 11:00	2.95	0.99	-0.573	-1.489	764.276	932.223	1146.175	14.7	20.3	23.2	23.5	23.9	DRY	DRY	7759.98	7698.92	7731.48
GHC15-1	05-08 12:00	2.95	1.86	-0.596	-1.582	764.266	932.189	1146.213	14.7	20.3	23.2	23.5	23.9	DRY	DRY	7759.97	7698.89	7731.51
GHC15-1	05-08 13:00	2.95	1.4	-0.564	-1.396	764.348	932.15	1146.183	14.7	20.3	23.2	23.5	23.9	DRY	DRY	7760.05	7698.85	7731.48
GHC15-1	05-08 14:00	2.96	6.09	-0.689	-1.456	764.237	932.206	1146.147	14.7	20.3	23.2	23.5	23.9	DRY	DRY	7759.94	7698.91	7731.45
GHC15-1	05-08 15:00	2.96	8.06	-0.772	-1.452	764.247	932.031	1146.132	14.7	20.3	23.2	23.5	23.9	DRY	DRY	7759.95	7698.73	7731.43
GHC15-1	05-08 16:00	2.99	11.47	-0.744	-1.419	764.135	932.099	1146.072	14.7	20.3	23.2	23.5	23.9	DRY	DRY	7759.84	7698.80	7731.37
GHC15-1	05-08 17:00	2.98	10.49	-0.85	-1.405	764.27	932.037	1146.026	14.7	20.3	23.2	23.5	23.9	DRY	DRY	7759.97	7698.74	7731.33
GHC15-1	05-08 18:00	2.97	9.25	-0.837	-1.289	764.23	931.952	1146.097	14.7	20.3	23.2	23.5	23.9	DRY	DRY	7759.93	7698.65	7731.40
GHC15-1	05-08 19:00	2.97	5.52	-0.67	-1.53	764.243	932.065	1145.995	14.7	20.3	23.2	23.5	23.9	DRY	DRY	7759.94	7698.77	7731.30
GHC15-1	05-08 20:00	2.96	3.06	-0.702	-1.526	764.174	931.907	1146.163	14.7	20.3	23.2	23.5	23.9	DRY	DRY	7759.87	7698.61	7731.46
GHC15-1	05-08 21:00	2.95	1.5	-0.698	-1.364	764.132	931.857	1146.122	14.7	20.3	23.2	23.5	23.9	DRY	DRY	7759.83	7698.56	7731.42
GHC15-1	05-08 22:00	2.96	0.89	-0.624	-1.313	763.242	931.643	1145.65	14.7	20.3	23.2	23.5	23.8	DRY	DRY	7758.94	7698.34	7730.95
GHC15-1	05-08 23:00	2.94	0.89	-0.675	-1.521	763.288	931.721	1145.57	14.7	20.3	23.2	23.5	23.9	DRY	DRY	7758.99	7698.42	7730.87
GHC15-1	05-09 00:00	2.94	0.77	-0.61	-1.489	763.192	931.648	1145.57	14.7	20.3	23.2	23.5	23.9	DRY	DRY	7758.89	7698.35	7730.87
GHC15-1	05-09 01:00	2.94	0.87	-0.744	-1.609	763.216	931.829	1145.566	14.7	20.3	23.2	23.5	23.9	DRY	DRY	7758.92	7698.53	7730.87
GHC15-1	05-09 02:00	2.94	0.21	-0.698	-1.414	763.173	931.823	1145.575	14.7	20.3	23.2	23.5	23.9	DRY	DRY	7758.87	7698.52	7730.88
GHC15-1	05-09 03:00	2.95	-0.22	-0.675	-1.493	763.258	931.693	1145.631	14.7	20.3	23.2	23.5	23.9	DRY	DRY	7758.96	7698.39	7730.93
GHC15-1	05-09 04:00	2.94	0.02	-0.637	-1.516	763.258	931.732	1145.753	14.7	20.3	23.2	23.5	23.9	DRY	DRY	7758.96	7698.43	7731.05
GHC15-1	05-09 05:00	2.95	0.02	-0.489	-1.35	763.12	931.688	1145.545	14.7	20.3	23.2	23.5	23.9	DRY	DRY	7758.82	7698.39	7730.85
GHC15-1	05-09 06:00	2.95	-0.13	-0.633	-1.41	763.091	931.749	1145.682	14.7	20.3	23.2	23.5	23.9	DRY	DRY	7758.79	7698.45	7730.98
GHC15-1	05-09 07:00	2.94	-0.44	-0.642	-1.456	763.14	931.626	1145.767	14.7	20.3	23.2	23.5	23.8	DRY	DRY	7758.84	7698.33	7731.07
GHC15-1	05-09 08:00	2.94	-1.1	-0.637	-1.424	763.134	931.721	1145.651	14.7	20.3	23.2	23.5	23.9	DRY	DRY	7758.83	7698.42	7730.95
GHC15-1	05-09 09:00	2.94	-1.17	-0.657	-1.461	763.219	931.749	1145.49	14.7	20.3	23.2	23.5	23.9	DRY	DRY	7758.92	7698.45	7730.79
GHC15-1	05-09 10:00	2.94	5.18	-0.624	-1.382	763.078	931.891	1145.348	14.7	20.3	23.2	23.5	23.9	DRY	DRY	7758.78	7698.59	7730.65
GHC15-1	05-09 11:00	2.96	13.85	-0.503	-1.373	763.156	931.626	1145.353	14.7	20.3	23.2	23.5	23.9	DRY	DRY	7758.86	7698.33	7730.65
GHC15-1	05-09 12:00	2.96	15.08	-0.633	-1.377	763.107	931.58	1145.469	14.7	20.3	23.2	23.5	23.9	DRY	DRY	7758.81	7698.28	7730.77
GHC15-1	05-09 13:00	2.97	6.28	-0.665	-1.355	763.104	931.603	1145.449	14.7	20.3	23.2	23.5	23.9	DRY	DRY	7758.80	7698.30	7730.75
GHC15-1	05-09 14:00	2.95	1.67	-0.855	-1.53	763.018	931.62	1145.424	14.7	20.3	23.2	23.5	23.9	DRY	DRY	7758.72	7698.32	7730.72
GHC15-1	05-09 15:00	2.94	-0.44	-0.73	-1.33	759.459	926.098	1140.221	14.7	20.4	23.2	23.5	23.8	DRY	DRY	7755.16	7692.80	7725.52
GHC15-1	05-09 16:00	2.94	-1.27	-0.61	-1.377	759.528	926.122	1140.113	14.7	20.3	23.2	23.5	23.9	DRY	DRY	7755.23	7692.82	7725.41
GHC15-1	05-09 17:00	2.94	-2.07	-0.749	-1.604	759.521	926.155	1140.048	14.7	20.3	23.2	23.5	23.9	DRY	DRY	7755.22	7692.86	7725.35
GHC15-1	05-09 18:00	2.94	-1.97	-0.698	-1.377	759.551	926.177	1140.014	14.7	20.3	23.2	23.5	23.9	DRY	DRY	7755.25	7692.88	7725.31
GHC15-1	05-09 19:00	2.94	-1.93	-0.878	-1.34	759.581	926.245	1140.198	14.7	20.3	23.2	23.5	23.9	DRY	DRY	7755.28	7692.95	7725.50
GHC15-1	05-09 20:00	2.93	-3.32	-0.758	-1.396	759.409	926.058	1139.974	14.7	20.3	23.2	23.5	23.9	DRY	DRY	7755.11	7692.76	7725.27
GHC15-1	05-09 21:00	2.93	-4.18	-0.767	-1.567	759.459	926.053	1139.845	14.7	20.3	23.2	23.5	23.9	DRY	DRY	7755.16	7692.75	7725.15
GHC15-1	05-09 22:00	2.92	-5.37	-0.683	-1.28	759.419	926.161	1139.994	14.7	20.3	23.2	23.5	23.9	DRY	DRY	7755.12	7692.86	7725.29
GHC15-1	05-09 23:00	2.92	-6.8	-0.896	-1.252	759.409	926.206	1140.014	14.7	20.3	23.2	23.5	23.9	DRY	DRY	7755.11	7692.91	7725.31
GHC15-1	05-10 00:00	2.91	-7.85	-0.892	-1.239	759.482	926.149	1139.884	14.7	20.3	23.2	23.5	23.9	DRY	DRY	7755.18	7692.85	7725.18
GHC15-1	05-10 01:00	2.9	-7.96	-0.744	-1.355	759.472	925.935	1140.109	14.7	20.3	23.2	23.5	23.9	DRY	DRY	7755.17	7692.64	7725.41
GHC15-1	05-10 02:00	2.92	-7.47	-0.832	-1.53	759.31	926.047	1140.054	14.7	20.3	23.2	23.5	23.9	DRY	DRY	7755.01	7692.75	7725.35
GHC15-1	05-10 03:00	2.92	-7.19	-0.753	-1.419	759.248	925.963	1139.934	14.7	20.3	23.2	23.5	23.9	DRY	DRY	7754.95	7692.66	7725.23
GHC15-1	05-10 04:00	2.92	-7.13	-0.716	-1.553	759.294	926.014	1139.994	14.7	20.3	23.2	23.5	23.9					

Bore Hole	LOGGER DATA			SENSOR READINGS (hertz)					SENSOR TEMPERATURES (°C)					GROUNDWATER ELEVATION CALCULATIONS				
	Day 2015	Batt V	Temp C	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5
GHC15-1	05-12 00:00	2.92	-0.34	-0.734	-1.385	758.882	925.753	1139.542	14.8	20.4	23.2	23.5	23.9	DRY	DRY	7754.58	7692.45	7724.84
GHC15-1	05-12 01:00	2.93	-0.42	-0.683	-1.46	758.971	925.556	1139.437	14.8	20.4	23.2	23.5	23.9	DRY	DRY	7754.67	7692.26	7724.74
GHC15-1	05-12 02:00	2.92	-1.27	-0.706	-1.413	759.054	925.657	1139.417	14.8	20.4	23.2	23.5	23.9	DRY	DRY	7754.75	7692.36	7724.72
GHC15-1	05-12 03:00	2.92	-2.1	-0.659	-1.428	759.02	925.629	1139.298	14.8	20.4	23.2	23.5	23.9	DRY	DRY	7754.72	7692.33	7724.60
GHC15-1	05-12 04:00	2.91	-1.97	-0.618	-1.464	758.938	925.691	1139.457	14.8	20.4	23.2	23.5	23.9	DRY	DRY	7754.64	7692.39	7724.76
GHC15-1	05-12 05:00	2.9	-1.56	-0.757	-1.432	758.984	925.476	1139.467	14.8	20.4	23.2	23.5	23.9	DRY	DRY	7754.68	7692.18	7724.77
GHC15-1	05-12 06:00	2.92	-1.17	-0.59	-1.186	758.882	925.538	1139.348	14.8	20.4	23.2	23.5	23.9	DRY	DRY	7754.58	7692.24	7724.65
GHC15-1	05-12 07:00	2.93	-0.71	-0.706	-1.26	758.925	925.584	1139.378	14.8	20.4	23.2	23.5	23.9	DRY	DRY	7754.63	7692.28	7724.68
GHC15-1	05-12 08:00	2.91	0.19	-0.711	-1.385	758.902	925.448	1139.338	14.8	20.4	23.2	23.5	23.9	DRY	DRY	7754.60	7692.15	7724.64
GHC15-1	05-12 09:00	2.9	3.62	-0.613	-1.395	758.905	925.465	1139.452	14.8	20.4	23.2	23.5	23.9	DRY	DRY	7754.61	7692.17	7724.75
GHC15-1	05-12 10:00	2.94	10.14	-0.669	-1.519	759.063	925.641	1139.313	14.8	20.4	23.2	23.5	23.9	DRY	DRY	7754.76	7692.34	7724.61
GHC15-1	05-12 11:00	2.95	13.09	-0.734	-1.469	759.06	925.488	1139.348	14.8	20.4	23.2	23.5	23.9	DRY	DRY	7754.76	7692.19	7724.65
GHC15-1	05-12 12:00	2.95	12.68	-0.595	-1.34	759.014	925.669	1139.308	14.8	20.4	23.2	23.5	23.9	DRY	DRY	7754.71	7692.37	7724.61
GHC15-1	05-12 13:00	2.95	12.66	-0.646	-1.428	758.964	925.742	1139.333	14.8	20.4	23.2	23.5	23.9	DRY	DRY	7754.66	7692.44	7724.63
GHC15-1	05-12 14:00	2.95	13.21	-0.609	-1.385	758.988	925.635	1139.417	14.8	20.4	23.2	23.5	23.9	DRY	DRY	7754.69	7692.34	7724.72
GHC15-1	05-12 15:00	2.96	14.72	-0.627	-1.437	758.981	925.691	1139.412	14.8	20.4	23.2	23.5	23.9	DRY	DRY	7754.68	7692.39	7724.71
GHC15-1	05-12 16:00	2.96	14.72	-0.905	-1.26	759.076	925.522	1139.283	14.8	20.4	23.2	23.5	23.9	DRY	DRY	7754.78	7692.22	7724.58
GHC15-1	05-12 17:00	2.96	15.93	-0.692	-1.418	759.037	925.459	1139.159	14.8	20.4	23.2	23.5	23.9	DRY	DRY	7754.74	7692.16	7724.46
GHC15-1	05-12 18:00	2.96	13.14	-0.711	-1.418	758.994	925.431	1139.179	14.8	20.4	23.2	23.5	23.9	DRY	DRY	7754.69	7692.13	7724.48
GHC15-1	05-12 19:00	2.96	11.67	-0.858	-1.349	759.033	925.392	1139.179	14.8	20.4	23.2	23.5	23.9	DRY	DRY	7754.73	7692.09	7724.48
GHC15-1	05-12 20:00	2.93	7.09	-0.6	-1.455	759	925.499	1139.134	14.8	20.4	23.2	23.5	23.9	DRY	DRY	7754.70	7692.20	7724.43
GHC15-1	05-12 21:00	2.95	3.84	-1.011	-1.483	758.938	925.426	1139.342	14.8	20.4	23.2	23.5	23.9	DRY	DRY	7754.64	7692.13	7724.64
GHC15-1	05-12 22:00	2.94	3.45	-0.748	-1.492	758.885	925.437	1139.199	14.8	20.4	23.2	23.5	23.9	DRY	DRY	7754.59	7692.14	7724.50
GHC15-1	05-12 23:00	2.94	3.54	-0.581	-1.525	758.964	925.454	1139.249	14.8	20.4	23.2	23.5	23.9	DRY	DRY	7754.66	7692.15	7724.55
GHC15-1	05-13 00:00	2.94	2.89	-0.794	-1.413	759.063	925.595	1139.308	14.8	20.4	23.2	23.5	23.9	DRY	DRY	7754.76	7692.30	7724.61
GHC15-1	05-13 01:00	2.94	2.52	-0.415	-1.478	758.968	925.454	1139.219	14.8	20.4	23.2	23.5	23.9	DRY	DRY	7754.67	7692.15	7724.52
GHC15-1	05-13 02:00	2.93	1.84	-0.586	-1.562	759.014	925.341	1139.387	14.8	20.4	23.2	23.5	23.9	DRY	DRY	7754.71	7692.04	7724.69
GHC15-1	05-13 03:00	2.94	1.04	-0.498	-1.376	758.829	925.414	1139.298	14.8	20.4	23.2	23.5	23.9	DRY	DRY	7754.53	7692.11	7724.60
GHC15-1	05-13 04:00	2.91	0.48	-0.761	-1.543	759.01	925.561	1139.259	14.8	20.4	23.2	23.5	23.9	DRY	DRY	7754.71	7692.26	7724.56
GHC15-1	05-13 05:00	2.93	0.04	-0.711	-1.196	758.968	925.284	1139.432	14.8	20.4	23.2	23.5	23.9	DRY	DRY	7754.67	7691.98	7724.73
GHC15-1	05-13 06:00	2.88	0.07	-0.771	-1.343	758.944	925.437	1139.174	14.8	20.4	23.2	23.5	23.9	DRY	DRY	7754.64	7692.14	7724.47
GHC15-1	05-13 07:00	2.9	-0.1	-0.84	-1.201	758.964	925.38	1139.204	14.8	20.4	23.2	23.5	23.9	DRY	DRY	7754.66	7692.08	7724.50
GHC15-1	05-13 08:00	2.94	1.4	-0.471	-1.362	758.977	925.256	1139.144	14.8	20.4	23.2	23.5	23.9	DRY	DRY	7754.68	7691.96	7724.44
GHC15-1	05-13 09:00	2.92	4.01	-0.909	-1.589	758.991	925.358	1139.183	14.8	20.4	23.2	23.5	23.9	DRY	DRY	7754.69	7692.06	7724.48
GHC15-1	05-13 10:00	2.95	5.57	-0.858	-1.594	758.951	925.375	1139.015	14.8	20.4	23.2	23.5	23.9	DRY	DRY	7754.65	7692.08	7724.32
GHC15-1	05-13 11:00	2.93	7.93	-0.618	-1.501	759	925.358	1139.144	14.8	20.4	23.2	23.5	23.9	DRY	DRY	7754.70	7692.06	7724.44
GHC15-1	05-13 12:00	2.94	10.27	-0.891	-1.404	758.846	925.273	1139.129	14.8	20.4	23.2	23.5	23.9	DRY	DRY	7754.55	7691.97	7724.43
GHC15-1	05-13 13:00	2.94	9.97	-0.752	-1.589	758.921	925.386	1139.05	14.8	20.4</								

Bore Hole	LOGGER DATA			SENSOR READINGS (hertz)					SENSOR TEMPERATURES (°C)					GROUNDWATER ELEVATION CALCULATIONS				
	Day 2015	Batt V	Temp C	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5
GHC15-1	05-16 07:00	2.89	-4.5	-0.654	-1.416	758.559	924.996	1138.811	14.9	20.5	23.2	23.5	23.9	DRY	DRY	7754.26	7691.70	7724.11
GHC15-1	05-16 08:00	2.88	-4.77	-0.747	-1.36	758.612	924.962	1138.711	14.9	20.5	23.2	23.5	23.9	DRY	DRY	7754.31	7691.66	7724.01
GHC15-1	05-16 09:00	2.89	-1.9	-0.659	-1.439	758.644	925.006	1138.796	14.9	20.5	23.2	23.5	23.9	DRY	DRY	7754.34	7691.71	7724.10
GHC15-1	05-16 10:00	2.91	3.35	-0.562	-1.485	758.621	924.922	1138.826	14.9	20.5	23.2	23.5	23.9	DRY	DRY	7754.32	7691.62	7724.13
GHC15-1	05-16 11:00	2.92	6.43	-0.853	-1.531	758.592	925.091	1138.816	14.9	20.5	23.2	23.5	23.9	DRY	DRY	7754.29	7691.79	7724.12
GHC15-1	05-16 12:00	2.92	8.18	-0.599	-1.333	758.674	925.104	1138.746	14.9	20.5	23.2	23.5	23.9	DRY	DRY	7754.37	7691.80	7724.05
GHC15-1	05-16 13:00	2.92	9.35	-0.719	-1.495	758.635	924.91	1138.776	14.9	20.5	23.2	23.5	23.9	DRY	DRY	7754.34	7691.61	7724.08
GHC15-1	05-16 14:00	2.93	10.57	-0.724	-1.518	758.612	924.933	1138.875	14.9	20.5	23.2	23.5	23.9	DRY	DRY	7754.31	7691.63	7724.18
GHC15-1	05-16 15:00	2.94	13.93	-0.663	-1.393	758.582	924.984	1138.781	14.9	20.5	23.2	23.5	23.9	DRY	DRY	7754.28	7691.68	7724.08
GHC15-1	05-16 16:00	2.93	8.97	-0.687	-1.439	758.72	924.91	1138.756	14.9	20.5	23.2	23.5	23.9	DRY	DRY	7754.42	7691.61	7724.06
GHC15-1	05-16 17:00	2.91	3.69	-0.682	-1.407	758.549	924.939	1138.851	14.9	20.5	23.2	23.5	23.9	DRY	DRY	7754.25	7691.64	7724.15
GHC15-1	05-16 18:00	2.92	1.16	-0.737	-1.596	758.601	924.939	1138.89	14.9	20.5	23.2	23.5	23.9	DRY	DRY	7754.30	7691.64	7724.19
GHC15-1	05-16 19:00	2.92	0.17	-0.807	-1.453	758.661	924.888	1138.786	14.9	20.5	23.2	23.5	23.9	DRY	DRY	7754.36	7691.59	7724.09
GHC15-1	05-16 20:00	2.92	-1.05	-0.701	-1.272	758.621	924.82	1138.796	14.9	20.5	23.2	23.5	23.9	DRY	DRY	7754.32	7691.52	7724.10
GHC15-1	05-16 21:00	2.89	-1.41	-0.673	-1.444	758.605	924.922	1138.746	14.9	20.5	23.2	23.5	23.9	DRY	DRY	7754.31	7691.62	7724.05
GHC15-1	05-16 22:00	2.89	-1.88	-0.594	-1.568	758.598	924.798	1138.731	14.9	20.5	23.2	23.5	23.9	DRY	DRY	7754.30	7691.50	7724.03
GHC15-1	05-16 23:00	2.89	-2.54	-0.751	-1.346	758.589	924.871	1138.781	14.9	20.5	23.2	23.5	23.9	DRY	DRY	7754.29	7691.57	7724.08
GHC15-1	05-17 00:00	2.89	-3.07	-0.747	-1.369	758.641	924.996	1138.676	14.9	20.5	23.2	23.5	23.9	DRY	DRY	7754.34	7691.70	7723.98
GHC15-1	05-17 01:00	2.89	-3.47	-0.715	-1.304	758.579	924.894	1138.597	14.9	20.5	23.2	23.5	23.9	DRY	DRY	7754.28	7691.59	7723.90
GHC15-1	05-17 02:00	2.89	-3.83	-0.668	-1.369	758.608	924.939	1138.766	14.9	20.5	23.2	23.5	23.9	DRY	DRY	7754.31	7691.64	7724.07
GHC15-1	05-17 03:00	2.89	-4.16	-0.793	-1.296	758.618	924.905	1138.831	14.9	20.5	23.2	23.5	23.9	DRY	DRY	7754.32	7691.61	7724.13
GHC15-1	05-17 04:00	2.89	-4.92	-0.724	-1.18	758.612	924.888	1138.786	14.9	20.5	23.2	23.5	23.9	DRY	DRY	7754.31	7691.59	7724.09
GHC15-1	05-17 05:00	2.88	-5.22	-0.659	-1.481	758.595	924.854	1138.657	14.9	20.5	23.2	23.5	23.9	DRY	DRY	7754.30	7691.55	7723.96
GHC15-1	05-17 06:00	2.88	-5.07	-0.65	-1.393	758.648	924.984	1138.821	14.9	20.5	23.2	23.5	23.9	DRY	DRY	7754.35	7691.68	7724.12
GHC15-1	05-17 07:00	2.89	-4.48	-0.77	-1.559	758.582	924.837	1138.752	14.9	20.5	23.2	23.5	23.9	DRY	DRY	7754.28	7691.54	7724.05
GHC15-1	05-17 08:00	2.88	-3.61	-0.612	-1.309	758.651	924.849	1138.597	14.9	20.5	23.2	23.5	23.9	DRY	DRY	7754.35	7691.55	7723.90
GHC15-1	05-17 09:00	2.89	1.55	-0.566	-1.476	758.644	924.803	1138.686	14.9	20.5	23.2	23.5	23.9	DRY	DRY	7754.34	7691.50	7723.99
GHC15-1	05-17 10:00	2.9	5.79	-0.687	-1.393	758.608	924.798	1138.543	14.9	20.5	23.2	23.5	23.9	DRY	DRY	7754.31	7691.50	7723.84
GHC15-1	05-17 11:00	2.91	8.13	-0.751	-1.379	758.641	924.842	1138.597	14.9	20.5	23.2	23.5	23.9	DRY	DRY	7754.34	7691.54	7723.90
GHC15-1	05-17 12:00	2.92	9.17	-0.793	-1.304	758.605	924.775	1138.582	14.9	20.5	23.2	23.5	23.9	DRY	DRY	7754.31	7691.48	7723.88
GHC15-1	05-17 13:00	2.92	10.27	-0.863	-1.471	758.549	924.713	1138.612	14.9	20.5	23.2	23.5	23.9	DRY	DRY	7754.25	7691.41	7723.91
GHC15-1	05-17 14:00	2.93	11.2	-0.571	-1.198	758.43	924.798	1138.716	14.9	20.5	23.2	23.5	23.9	DRY	DRY	7754.13	7691.50	7724.02
GHC15-1	05-17 15:00	2.93	12.5	-0.784	-1.503	758.555	924.752	1138.716	14.9	20.5	23.2	23.5	23.9	DRY	DRY	7754.26	7691.45	7724.02
GHC15-1	05-17 16:00	2.92	10.14	-0.775	-1.36	758.668	924.826	1138.597	14.9	20.5	23.2	23.5	23.9	DRY	DRY	7754.37	7691.53	7723.90
GHC15-1	05-17 17:00	2.92	6.95	-0.682	-1.314	758.668	924.769	1138.776	14.9	20.5	23.2	23.5	23.9	DRY	DRY	7754.37	7691.47	7724.08
GHC15-1	05-17 18:00	2.91	4.98	-0.881	-1.374	758.579	924.979	1138.676	14.9	20.5	23.2	23.5	23.9	DRY	DRY	7754.28	7691.68	7723.98
GHC15-1	05-17 19:00	2.91	3.25	-0.761	-1.439	758.648	924.725	1138.731	14.9	20.5	23.2	23.5	23.9	DRY	DRY	7754.35	7691.43	7724.03
GHC15-1	05-17 20:00	2.9	2.2	-0.645	-1.509	758.589	924.718	1138.707	14.9	20.								

Bore Hole	LOGGER DATA			SENSOR READINGS (hertz)					SENSOR TEMPERATURES (°C)					GROUNDWATER ELEVATION CALCULATIONS				
	Day 2015	Batt V	Temp C	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5
GHC15-1	05-20 14:00	2.91	11.47	-0.585	-1.837	758.612	924.549	1138.567	15	20.5	23.2	23.5	23.9	DRY	DRY	7754.31	7691.25	7723.87
GHC15-1	05-20 15:00	2.91	13.27	-0.765	-1.892	758.575	924.617	1138.617	15	20.6	23.2	23.5	23.9	DRY	DRY	7754.28	7691.32	7723.92
GHC15-1	05-20 16:00	2.92	14.75	-0.607	-1.819	758.723	924.577	1138.617	15	20.5	23.2	23.5	23.9	DRY	DRY	7754.42	7691.28	7723.92
GHC15-1	05-20 17:00	2.92	15.72	-0.626	-1.61	758.694	924.718	1138.657	15	20.5	23.2	23.5	23.9	DRY	DRY	7754.39	7691.42	7723.96
GHC15-1	05-20 18:00	2.92	12.94	-0.737	-1.697	758.641	924.707	1138.702	15	20.6	23.2	23.5	23.9	DRY	DRY	7754.34	7691.41	7724.00
GHC15-1	05-20 19:00	2.91	8.85	-0.626	-1.892	758.638	924.656	1138.537	15	20.5	23.2	23.5	23.9	DRY	DRY	7754.34	7691.36	7723.84
GHC15-1	05-20 20:00	2.91	4.15	-0.649	-1.911	758.608	924.656	1138.736	15	20.5	23.2	23.5	23.9	DRY	DRY	7754.31	7691.36	7724.04
GHC15-1	05-20 21:00	2.89	1.4	-0.816	-1.263	758.585	924.537	1138.851	15	20.5	23.2	23.5	23.9	DRY	DRY	7754.29	7691.24	7724.15
GHC15-1	05-20 22:00	2.88	-0.1	-0.681	-1.509	758.545	924.696	1138.686	15	20.5	23.2	23.5	23.9	DRY	DRY	7754.25	7691.40	7723.99
GHC15-1	05-20 23:00	2.88	-0.68	-0.524	-1.712	758.545	924.588	1138.756	15	20.5	23.2	23.5	23.9	DRY	DRY	7754.25	7691.29	7724.06
GHC15-1	05-21 00:00	2.87	-0.64	-0.709	-1.892	758.595	924.662	1138.841	15	20.5	23.2	23.5	23.9	DRY	DRY	7754.30	7691.36	7724.14
GHC15-1	05-21 01:00	2.88	-0.68	-0.7	-1.87	758.569	924.583	1138.686	15	20.5	23.2	23.5	23.9	DRY	DRY	7754.27	7691.28	7723.99
GHC15-1	05-21 02:00	2.87	-0.9	-0.658	-1.745	758.618	924.611	1138.702	15	20.5	23.2	23.5	23.9	DRY	DRY	7754.32	7691.31	7724.00
GHC15-1	05-21 03:00	2.87	-1.2	-0.654	-1.868	758.638	924.662	1138.746	15	20.6	23.2	23.5	23.9	DRY	DRY	7754.34	7691.36	7724.05
GHC15-1	05-21 04:00	2.87	-1.41	-0.723	-1.8	758.559	924.599	1138.771	15	20.5	23.2	23.5	23.9	DRY	DRY	7754.26	7691.30	7724.07
GHC15-1	05-21 05:00	2.87	-1.56	-0.774	-1.962	758.638	924.594	1138.682	15	20.5	23.2	23.5	23.9	DRY	DRY	7754.34	7691.29	7723.98
GHC15-1	05-21 06:00	2.87	-1.85	-0.792	-1.74	758.628	924.633	1138.845	15	20.5	23.2	23.5	23.9	DRY	DRY	7754.33	7691.33	7724.15
GHC15-1	05-21 07:00	2.87	-1.85	-0.654	-1.805	758.555	924.588	1138.716	15	20.5	23.2	23.5	23.9	DRY	DRY	7754.26	7691.29	7724.02
GHC15-1	05-21 08:00	2.87	-1.32	-0.723	-1.749	758.635	924.606	1138.702	15	20.5	23.2	23.5	23.9	DRY	DRY	7754.34	7691.31	7724.00
GHC15-1	05-21 09:00	2.87	2.52	-0.681	-1.716	758.516	924.626	1138.632	15	20.6	23.2	23.5	23.9	DRY	DRY	7754.22	7691.53	7723.93
GHC15-1	05-21 10:00	2.89	7.32	-0.686	-1.734	758.585	924.611	1138.632	15	20.6	23.2	23.5	23.9	DRY	DRY	7754.29	7691.31	7723.93
GHC15-1	05-21 11:00	2.89	10.32	-0.621	-1.767	758.612	924.52	1138.562	15	20.6	23.2	23.5	23.9	DRY	DRY	7754.31	7691.22	7723.86
GHC15-1	05-21 12:00	2.9	10.44	-0.713	-1.822	758.562	924.543	1138.428	15	20.6	23.2	23.5	23.9	DRY	DRY	7754.26	7691.24	7723.73
GHC15-1	05-21 13:00	2.9	10.09	-0.7	-1.818	758.678	924.554	1138.532	15	20.6	23.2	23.5	23.9	DRY	DRY	7754.38	7691.25	7723.83
GHC15-1	05-21 14:00	2.91	13.44	-0.713	-1.725	758.579	924.645	1138.398	15	20.6	23.2	23.5	23.9	DRY	DRY	7754.28	7691.35	7723.70
GHC15-1	05-21 15:00	2.92	16.48	-0.672	-1.762	758.684	924.52	1138.468	15	20.6	23.2	23.5	23.9	DRY	DRY	7754.38	7691.22	7723.77
GHC15-1	05-21 16:00	2.92	15.13	-0.718	-1.836	758.565	924.418	1138.532	15	20.6	23.2	23.5	23.9	DRY	DRY	7754.27	7691.12	7723.83
GHC15-1	05-21 17:00	2.91	12.33	-0.658	-1.78	758.579	924.588	1138.537	15	20.6	23.2	23.5	23.9	DRY	DRY	7754.28	7691.29	7723.84
GHC15-1	05-21 18:00	2.91	9.52	-0.57	-1.818	758.555	924.543	1138.572	15	20.6	23.2	23.5	23.9	DRY	DRY	7754.26	7691.24	7723.87
GHC15-1	05-21 19:00	2.9	3.88	-0.603	-1.748	758.572	924.588	1138.617	15	20.6	23.2	23.5	23.9	DRY	DRY	7754.27	7691.29	7723.92
GHC15-1	05-21 20:00	2.88	1.99	-0.737	-1.688	758.621	924.623	1138.617	15	20.6	23.2	23.5	23.9	DRY	DRY	7754.32	7691.32	7723.92
GHC15-1	05-21 21:00	2.88	1.16	-0.709	-1.818	758.519	924.498	1138.686	15	20.6	23.2	23.5	23.9	DRY	DRY	7754.22	7691.20	7723.99
GHC15-1	05-21 22:00	2.88	0.24	-0.7	-1.804	758.704	924.362	1138.676	15	20.6	23.2	23.5	23.9	DRY	DRY	7754.40	7691.06	7723.98
GHC15-1	05-21 23:00	2.87	-0.08	-0.907	-1.794	758.641	924.588	1138.657	15	20.6	23.2	23.5	23.9	DRY	DRY	7754.34	7691.29	7723.96
GHC15-1	05-22 00:00	2.87	-0.2	-0.843	-1.901	758.569	924.362	1138.657	15	20.6	23.2	23.5	23.9	DRY	DRY	7754.27	7691.06	7723.96
GHC15-1	05-22 01:00	2.87	-0.25	-0.626	-1.836	758.615	924.532	1138.726	15	20.6	23.2	23.5	23.9	DRY	DRY	7754.32	7691.23	7724.03
GHC15-1	05-22 02:00	2.87	-0.25	-0.741	-1.836	758.615	924.345	1138.642	15	20.6	23.2	23.5	23.9	DRY	DRY	7754.32	7691.05	7723.94
GHC15-1	05-22 03:00	2.87	-0.34	-0.853	-1.757	758.608	924.503	1138.662	15	20.6	23.2	23.5	23.9	DRY	DRY	7754.31	7691.20	7723.96
GHC15-1	05-22 04:00	2.87	-0.51	-0.857	-1.905	758.668	924.385	1138.696	15	20.6	23.2	23.5	23.9	DRY	DRY	7754.37	7691.09	7724.00
GHC15-1	05-22 05:00	2.87	-0.68	-0.649	-1.753	758.615	924.583	1138.746	15	20.6	23.2	23.5	23.9	DRY	DRY	7754.32	7691.28	7724.05
GHC15-1	05-22 06:00	2.87	-0.93	-0.658	-1.818	758.595	924.515	1138.707	15	20.6	23.2	23.5	23.9	DRY	DRY	7754.30	7691.22	7724.01
GHC15-1	05-22 07:00	2.87	-0.83	-0.588	-1.799	758.631	924.571	1138.592	15	20.6	23.2	23.5	23.9	DRY	DRY	7754.33	7691.27	7723.89
GHC15-1	05-22 08:00	2.87	0	-0.617	-1.827	758.582	924.549	1138.527	15	20.6	23.2	23.5	23.9	DRY	DRY	7754.28	7691.25	7723.83
GHC15-1	05-22 09:00	2.87	2.13	-0.686	-1.84	758.552	924.408	1138.453	15	20.6	23.2	23.5	23.9	DRY	DRY	7754.25	7691.11	7723.75
GHC15-1	05-22 10:00	2.88	7.59	-0.76	-1.812	758.615	924.425	1138.582	15	20.6	23.2	23.5	23.9	DRY	DRY	7754.32	7691.13	7723.88
GHC15-1	05-22 11:00	2.89	11.67	-0.875	-1.804	758.671	924.345	1138.607	15	20.6	23.2	23.5	23.9	DRY	DRY	7754.37	7691.05	7723.91
GHC15-1	05-22 12:00	2.9	12.08	-0.94	-1.637	758.625	924.153	1138.493	15	20.6	23.2	23.5	23.9	DRY	DRY	7754.33	7690.85	7723.79
GHC15-1	05-22 13:00	2.9	12.86	-0.607	-1.79	758.625	924.459	1138.547	15	20.6	23.2	23.5	23.9	DRY	DRY	7754.33	7691.16	7723.85
GHC15-1	05-22 14:00	2.91	13.21	-0.741	-1.688	758.579	924.549	1138.517	15	20.6	23.2	23.5	23.9	DRY	DRY	7754.28	7691.25	7723.82
GHC15-1	05-22 15:00	2.9	12.15	-0.709	-1.669	758.605	924.429	1138.478	15	20.6	23.2	23.5	23.9	DRY	DRY	7754.31	7691.13	7723.78
GHC15-1	05-22 16:00	2.9	13.98	-0.801	-1.72	758.68	924.198	1138.517	15	20.6	23.2	23.5	23.9	DRY	DRY	7754.38	7690.90	7723.82
GHC15-1	05-22 17:00	2.91	13.49	-0.644	-1.679	758.569	924.486	1138.557	15	20.6	23.2	23.5	23.9	DRY	DRY	7754.27	7691.19	7723.86
GHC15-1	05-22 18:00	2.9	10.59	-0.672	-1.65	758.694	924.469	1138.517	15	20.6	23.2	23.5	23.9	DRY	DRY	7754.39	7691.17	7723.82
GHC15-1	05-22 19:00	2.9	7.91	-0.667	-1.799	758.598	924.429	1138.513	15	20.6	23.2	23.5	23.9	DRY	DRY	7754.30	7691.13	7723.81
GHC15-1	05-22 20:00	2.89	4.49	-0.765	-1.669	758.618	924.452	1138.557	15	20.6	23.2	23.5	23.9	DRY	DRY	7754.32	7691.15	7723.86
GHC15-1	05-22 21:00	2.88	3.47	-0.672	-1.804	758.552	924.391	1138.617	15	20.6	23.2	23.5	23.9	DRY	DRY	7754.25	7691.09	7723.92
GHC15-1	05-22 22:00	2.88	1.91	-0.787	-1.65	758.717	924.481	1138.513	15	20.6	23.2	23.5	23.9	DRY	DRY	7754.42	7691.18	7723.81
GHC15-1	05-22 23:00	2.88	1.65	-0.686	-1.771	758.589	924.543	1138.612	15	20.6	23.2	23.5	23.9	DRY	DRY	7754.29	7691.24	7723.91
GHC15-1	05-23 00:00	2.87	1.69	-0.63	-1.785	758.7	924.187	1138.483	15	20.6	23.2	23.5	23.9	DRY	DRY	7754.40	7690.89	7723.78
GHC15-1	05-23 01:00	2.88	1.48	-0.644	-1.91	758.572	924.554	1138.473	15	20.6	23.2	23.5	23.9	DRY	DRY	7754.27	7691.25	7723.

Bore Hole	LOGGER DATA			SENSOR READINGS (hertz)					SENSOR TEMPERATURES (°C)					GROUNDWATER ELEVATION CALCULATIONS				
	Day 2015	Batt V	Temp C	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5
GHC15-1	05-24 21:00	2.87	0.43	-0.834	-1.54	758.661	924.147	1138.244	15	20.6	23.2	23.5	23.9	DRY	DRY	7754.36	7690.85	7723.54
GHC15-1	05-24 22:00	2.86	-0.37	-0.847	-1.623	758.539	924.096	1138.319	15	20.6	23.2	23.5	23.9	DRY	DRY	7754.24	7690.80	7723.62
GHC15-1	05-24 23:00	2.86	-0.3	-0.778	-1.892	758.466	924.079	1138.488	15	20.6	23.2	23.5	23.9	DRY	DRY	7754.17	7690.78	7723.79
GHC15-1	05-25 00:00	2.85	-0.61	-0.861	-1.84	758.585	924.136	1138.379	15	20.6	23.2	23.5	23.9	DRY	DRY	7754.29	7690.84	7723.68
GHC15-1	05-25 01:00	2.85	-1.66	-0.737	-1.868	758.529	924.198	1138.374	15	20.6	23.2	23.5	23.9	DRY	DRY	7754.23	7690.90	7723.67
GHC15-1	05-25 02:00	2.85	-2.19	-0.713	-1.892	758.569	923.937	1138.438	15	20.6	23.2	23.5	23.9	DRY	DRY	7754.27	7690.64	7723.74
GHC15-1	05-25 03:00	2.85	-1.73	-0.806	-1.994	758.575	923.966	1138.418	15	20.6	23.2	23.5	23.9	DRY	DRY	7754.28	7690.67	7723.72
GHC15-1	05-25 04:00	2.85	-1.41	-0.839	-2.026	758.589	924.164	1138.393	15	20.6	23.2	23.5	23.9	DRY	DRY	7754.29	7690.86	7723.69
GHC15-1	05-25 05:00	2.85	-1.44	-0.857	-1.901	758.635	923.943	1138.264	15	20.6	23.2	23.5	23.9	DRY	DRY	7754.34	7690.64	7723.56
GHC15-1	05-25 06:00	2.85	-1.85	-0.778	-2.017	758.678	924.136	1138.364	15	20.6	23.2	23.5	23.9	DRY	DRY	7754.38	7690.84	7723.66
GHC15-1	05-25 07:00	2.85	-1.78	-0.783	-1.91	758.569	924.272	1138.364	15.1	20.6	23.2	23.5	23.9	DRY	DRY	7754.27	7690.97	7723.66
GHC15-1	05-25 08:00	2.85	0.26	-0.893	-1.947	758.608	924.249	1138.468	15	20.6	23.2	23.5	23.9	DRY	DRY	7754.31	7690.95	7723.77
GHC15-1	05-25 09:00	2.86	2.69	-0.857	-1.994	758.638	924.153	1138.189	15	20.6	23.2	23.5	23.9	DRY	DRY	7754.34	7690.85	7723.49
GHC15-1	05-25 10:00	2.86	5.42	-0.783	-1.933	758.684	924.119	1138.259	15.1	20.6	23.2	23.5	23.9	DRY	DRY	7754.38	7690.82	7723.56
GHC15-1	05-25 11:00	2.87	8.38	-0.718	-1.915	758.644	924.039	1138.214	15.1	20.6	23.2	23.5	23.9	DRY	DRY	7754.34	7690.74	7723.51
GHC15-1	05-25 12:00	2.87	10.64	-0.876	-1.877	758.545	924.062	1138.209	15.1	20.6	23.2	23.5	23.9	DRY	DRY	7754.25	7690.76	7723.51
GHC15-1	05-25 13:00	2.89	11.52	-0.898	-1.812	758.572	924.062	1138.284	15.1	20.6	23.2	23.5	23.9	DRY	DRY	7754.27	7690.76	7723.58
GHC15-1	05-25 14:00	2.88	12.23	-1.06	-1.827	758.569	923.966	1138.259	15.1	20.6	23.2	23.5	23.9	DRY	DRY	7754.27	7690.67	7723.56
GHC15-1	05-25 15:00	2.89	11.47	-0.631	-1.877	758.562	924.005	1138.314	15.1	20.6	23.2	23.5	23.9	DRY	DRY	7754.26	7690.71	7723.61
GHC15-1	05-25 16:00	2.88	8.3	-0.82	-2.031	758.628	923.971	1138.324	15.1	20.6	23.2	23.5	23.9	DRY	DRY	7754.33	7690.67	7723.62
GHC15-1	05-25 17:00	2.88	10.14	-0.714	-1.864	758.671	923.994	1138.279	15.1	20.6	23.2	23.5	23.9	DRY	DRY	7754.37	7690.69	7723.58
GHC15-1	05-25 18:00	2.89	8.5	-0.746	-1.924	758.612	923.903	1138.358	15.1	20.6	23.2	23.5	23.9	DRY	DRY	7754.31	7690.60	7723.66
GHC15-1	05-25 19:00	2.88	5.42	-0.824	-1.864	758.582	923.949	1138.358	15.1	20.6	23.2	23.5	23.9	DRY	DRY	7754.28	7690.65	7723.66
GHC15-1	05-25 20:00	2.87	3.64	-0.751	-1.91	758.621	924.119	1138.155	15.1	20.6	23.2	23.5	23.9	DRY	DRY	7754.32	7690.82	7723.46
GHC15-1	05-25 21:00	2.86	2.08	-0.728	-2.003	758.615	924.17	1138.264	15.1	20.6	23.2	23.5	23.9	DRY	DRY	7754.32	7690.87	7723.56
GHC15-1	05-25 22:00	2.86	1.6	-0.76	-1.771	758.684	924.175	1138.483	15.1	20.6	23.2	23.5	23.9	DRY	DRY	7754.38	7690.88	7723.78
GHC15-1	05-25 23:00	2.86	0.55	-0.857	-1.924	758.7	924.011	1138.468	15.1	20.6	23.2	23.5	23.9	DRY	DRY	7754.40	7690.71	7723.77
GHC15-1	05-26 00:00	2.86	0.02	-0.801	-1.836	758.664	924.141	1138.234	15.1	20.6	23.2	23.5	23.9	DRY	DRY	7754.36	7690.84	7723.53
GHC15-1	05-26 01:00	2.85	-0.2	-0.87	-2.049	758.575	924.011	1138.468	15.1	20.6	23.2	23.5	23.9	DRY	DRY	7754.28	7690.71	7723.77
GHC15-1	05-26 02:00	2.85	-0.44	-0.64	-1.901	758.678	923.892	1138.383	15.1	20.6	23.2	23.5	23.9	DRY	DRY	7754.38	7690.59	7723.68
GHC15-1	05-26 03:00	2.85	-0.68	-0.801	-1.882	758.628	924.039	1138.185	15.1	20.6	23.2	23.5	23.9	DRY	DRY	7754.33	7690.74	7723.49
GHC15-1	05-26 04:00	2.85	-1.12	-0.778	-1.97	758.628	924.164	1138.244	15.1	20.6	23.2	23.5	23.9	DRY	DRY	7754.33	7690.86	7723.54
GHC15-1	05-26 05:00	2.85	-1.17	-0.862	-1.892	758.598	924.005	1138.354	15.1	20.6	23.2	23.5	23.9	DRY	DRY	7754.30	7690.71	7723.65
GHC15-1	05-26 06:00	2.85	-1.15	-0.806	-1.98	758.533	923.926	1138.328	15.1	20.6	23.2	23.5	23.9	DRY	DRY	7754.23	7690.63	7723.63
GHC15-1	05-26 07:00	2.85	-1.1	-0.778	-1.836	758.654	923.921	1138.219	15.1	20.6	23.2	23.5	23.9	DRY	DRY	7754.35	7690.62	7723.52
GHC15-1	05-26 08:00	2.85	-0.78	-0.621	-2.035	758.668	924.045	1138.204	15.1	20.6	23.2	23.5	23.9	DRY	DRY	7754.37	7690.75	7723.50
GHC15-1	05-26 09:00	2.86	4.23	-0.774	-2.003	758.555	924.011	1138.473	15.1	20.6	23.2	23.5	23.9	DRY	DRY	7754.26	7690.71	7723.77
GHC15-1	05-26 10:00	2.86	9.12	-0.732	-2.017	758.595	924.051	1138.254	15.1	20.6	23.2	23.5	23.9					

Bore Hole	LOGGER DATA			SENSOR READINGS (hertz)					SENSOR TEMPERATURES (°C)					GROUNDWATER ELEVATION CALCULATIONS				
	Day 2015	Batt V	Temp C	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5
GHC15-1	05-29 04:00	2.84	-1.73	-0.746	-1.783	758.76	924.017	1138.752	15.1	20.7	23.2	23.5	23.9	DRY	DRY	7754.46	7690.72	7724.05
GHC15-1	05-29 05:00	2.83	-2.39	-0.778	-1.741	758.898	924.159	1138.602	15.1	20.7	23.2	23.5	23.9	DRY	DRY	7754.60	7690.86	7723.90
GHC15-1	05-29 06:00	2.83	-2.51	-0.824	-1.7	758.799	924.187	1138.642	15.1	20.7	23.2	23.5	23.9	DRY	DRY	7754.50	7690.89	7723.94
GHC15-1	05-29 07:00	2.83	-2.46	-0.806	-1.778	758.786	924.09	1138.543	15.1	20.7	23.2	23.5	23.9	DRY	DRY	7754.49	7690.79	7723.84
GHC15-1	05-29 08:00	2.83	-2.05	-0.723	-1.857	758.846	924.136	1138.642	15.1	20.7	23.2	23.5	23.9	DRY	DRY	7754.55	7690.84	7723.94
GHC15-1	05-29 09:00	2.83	3.98	-0.76	-1.575	758.664	924.096	1138.507	15.1	20.7	23.2	23.5	23.9	DRY	DRY	7754.36	7690.80	7723.81
GHC15-1	05-29 10:00	2.86	11.7	-0.598	-1.645	758.737	924.039	1138.314	15.1	20.7	23.2	23.5	23.9	DRY	DRY	7754.44	7690.74	7723.61
GHC15-1	05-29 11:00	2.87	14.46	-0.811	-1.834	758.786	924.153	1138.513	15.1	20.7	23.2	23.5	23.9	DRY	DRY	7754.49	7690.85	7723.81
GHC15-1	05-29 12:00	2.88	15.49	-0.718	-1.866	758.836	924.011	1138.473	15.1	20.7	23.2	23.5	23.9	DRY	DRY	7754.54	7690.71	7723.77
GHC15-1	05-29 13:00	2.88	14.72	-0.83	-1.76	758.836	924.13	1138.597	15.1	20.7	23.2	23.5	23.9	DRY	DRY	7754.54	7690.83	7723.90
GHC15-1	05-29 14:00	2.87	14.11	-0.64	-1.769	758.905	924.164	1138.423	15.1	20.7	23.2	23.5	23.9	DRY	DRY	7754.61	7690.86	7723.72
GHC15-1	05-29 15:00	2.88	13.52	-0.714	-1.732	758.849	924.039	1138.552	15.1	20.7	23.2	23.5	23.9	DRY	DRY	7754.55	7690.74	7723.85
GHC15-1	05-29 16:00	2.87	13.57	-0.838	-1.815	758.855	924.039	1138.527	15.1	20.7	23.2	23.5	23.9	DRY	DRY	7754.56	7690.74	7723.83
GHC15-1	05-29 17:00	2.87	13.06	-0.769	-1.811	758.859	924.039	1138.507	15.1	20.7	23.2	23.5	23.9	DRY	DRY	7754.56	7690.74	7723.81
GHC15-1	05-29 18:00	2.87	10.29	-0.959	-1.588	758.833	924.204	1138.473	15.1	20.7	23.2	23.5	23.9	DRY	DRY	7754.53	7690.90	7723.77
GHC15-1	05-29 19:00	2.86	8.13	-0.76	-1.824	758.882	923.841	1138.517	15.1	20.7	23.2	23.5	23.9	DRY	DRY	7754.58	7690.54	7723.82
GHC15-1	05-29 20:00	2.86	5.77	-0.704	-1.663	758.796	923.926	1138.447	15.1	20.7	23.2	23.5	23.9	DRY	DRY	7754.50	7690.63	7723.75
GHC15-1	05-29 21:00	2.85	2.64	-0.774	-1.792	758.763	924.124	1138.612	15.1	20.7	23.2	23.5	23.9	DRY	DRY	7754.46	7690.82	7723.91
GHC15-1	05-29 22:00	2.85	1.57	-0.635	-1.634	758.793	924.215	1138.652	15.1	20.7	23.2	23.5	23.9	DRY	DRY	7754.49	7690.92	7723.95
GHC15-1	05-29 23:00	2.84	1.18	-0.686	-1.612	758.668	924.045	1138.547	15.1	20.7	23.2	23.5	23.9	DRY	DRY	7754.37	7690.75	7723.85
GHC15-1	05-30 00:00	2.84	1.01	-0.534	-1.52	758.727	923.971	1138.642	15.1	20.7	23.2	23.5	23.9	DRY	DRY	7754.43	7690.67	7723.94
GHC15-1	05-30 01:00	2.84	0.92	-0.542	-1.714	758.836	923.926	1138.597	15.1	20.7	23.2	23.5	23.9	DRY	DRY	7754.54	7690.63	7723.90
GHC15-1	05-30 02:00	2.84	0.99	-0.663	-1.607	758.842	924.096	1138.671	15.1	20.7	23.2	23.5	23.9	DRY	DRY	7754.54	7690.80	7723.97
GHC15-1	05-30 03:00	2.84	1.06	-0.575	-1.57	758.806	923.903	1138.543	15.1	20.7	23.2	23.5	23.9	DRY	DRY	7754.51	7690.60	7723.84
GHC15-1	05-30 04:00	2.84	1.01	-0.681	-1.588	758.704	924.073	1138.587	15.1	20.7	23.2	23.5	23.9	DRY	DRY	7754.40	7690.77	7723.89
GHC15-1	05-30 05:00	2.84	0.87	-0.654	-1.472	758.793	924.09	1138.513	15.1	20.7	23.2	23.5	23.9	DRY	DRY	7754.49	7690.79	7723.81
GHC15-1	05-30 06:00	2.84	0.8	-0.677	-1.672	758.766	924.09	1138.671	15.1	20.7	23.2	23.5	23.9	DRY	DRY	7754.47	7690.79	7723.97
GHC15-1	05-30 07:00	2.84	0.75	-0.515	-1.537	758.75	923.971	1138.502	15.1	20.7	23.2	23.5	23.9	DRY	DRY	7754.45	7690.67	7723.80
GHC15-1	05-30 08:00	2.84	0.94	-0.755	-1.714	758.747	923.875	1138.567	15.1	20.7	23.2	23.5	23.9	DRY	DRY	7754.45	7690.58	7723.87
GHC15-1	05-30 09:00	2.84	5.01	-0.793	-1.565	758.615	923.898	1138.463	15.1	20.7	23.2	23.5	23.9	DRY	DRY	7754.32	7690.60	7723.76
GHC15-1	05-30 10:00	2.85	12.03	-0.57	-1.597	758.545	923.847	1138.328	15.1	20.7	23.2	23.5	23.9	DRY	DRY	7754.25	7690.55	7723.63
GHC15-1	05-30 11:00	2.86	15.26	-0.515	-1.464	758.727	923.847	1138.354	15.1	20.7	23.2	23.5	23.9	DRY	DRY	7754.43	7690.55	7723.65
GHC15-1	05-30 12:00	2.87	16.09	-0.635	-1.445	758.648	923.909	1138.408	15.1	20.7	23.2	23.5	23.9	DRY	DRY	7754.35	7690.61	7723.71
GHC15-1	05-30 13:00	2.87	15.85	-0.631	-1.343	758.773	923.921	1138.379	15.1	20.7	23.2	23.5	23.9	DRY	DRY	7754.47	7690.62	7723.68
GHC15-1	05-30 14:00	2.87	16.66	-0.594	-1.431	758.747	924.068	1138.453	15.1	20.7	23.2	23.5	23.9	DRY	DRY	7754.45	7690.77	7723.75
GHC15-1	05-30 15:00	2.88	18.45	-0.492	-1.422	758.806	923.994	1138.632	15.1	20.7	23.2	23.5	23.9	DRY	DRY	7754.51	7690.69	7723.93
GHC15-1	05-30 16:00	2.88	19.89	-0.584	-1.575	758.789	923.797	1138.478	15.1	20.7	23.2	23.5	23.9	DRY	DRY	7754.49	7690.50	7723.78
GHC15-1	05-30 17:00	2.88	18.98	-0.681	-1.524	758.786	923.932	1138.622										

Bore Hole	LOGGER DATA			SENSOR READINGS (hertz)					SENSOR TEMPERATURES (°C)					GROUNDWATER ELEVATION CALCULATIONS				
	Day 2015	Batt V	Temp C	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5
GHC15-1	06-02 11:00	2.86	18.5	-0.51	-1.241	758.68	923.797	1138.413	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.38	7690.50	7723.71
GHC15-1	06-02 12:00	2.87	19.14	-0.514	-1.255	758.589	923.649	1138.195	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.29	7690.35	7723.50
GHC15-1	06-02 13:00	2.87	19.38	-0.662	-1.32	758.72	923.746	1138.398	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.42	7690.45	7723.70
GHC15-1	06-02 14:00	2.87	20.87	-0.63	-1.293	758.536	923.666	1138.269	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.24	7690.37	7723.57
GHC15-1	06-02 15:00	2.87	23.13	-0.607	-1.357	758.707	923.694	1138.369	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.41	7690.39	7723.67
GHC15-1	06-02 16:00	2.89	24.95	-0.551	-1.362	758.766	923.728	1138.179	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.47	7690.43	7723.48
GHC15-1	06-02 17:00	2.87	26.2	-0.731	-1.209	758.631	923.7	1138.289	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.33	7690.40	7723.59
GHC15-1	06-02 18:00	2.89	24.98	-0.666	-1.19	758.598	923.649	1138.239	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.30	7690.35	7723.54
GHC15-1	06-02 19:00	2.87	24.69	-0.75	-1.39	758.589	923.801	1138.229	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.29	7690.50	7723.53
GHC15-1	06-02 20:00	2.87	19.95	-0.551	-1.293	758.668	923.756	1138.319	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.37	7690.46	7723.62
GHC15-1	06-02 21:00	2.87	15.39	-0.649	-1.371	758.565	923.728	1138.304	15.1	20.7	23.2	23.5	23.9	DRY	DRY	7754.27	7690.43	7723.60
GHC15-1	06-02 22:00	2.86	12.4	-0.677	-1.273	758.615	923.711	1138.354	15.1	20.7	23.2	23.5	23.9	DRY	DRY	7754.32	7690.41	7723.65
GHC15-1	06-02 23:00	2.85	10.17	-0.621	-1.376	758.638	923.728	1138.299	15.1	20.7	23.2	23.5	23.9	DRY	DRY	7754.34	7690.43	7723.60
GHC15-1	06-03 00:00	2.85	9.55	-0.792	-1.255	758.625	923.836	1138.328	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.33	7690.54	7723.63
GHC15-1	06-03 01:00	2.84	8.97	-0.532	-1.296	758.635	923.785	1138.294	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.34	7690.49	7723.59
GHC15-1	06-03 02:00	2.84	8.11	-0.787	-1.343	758.601	923.779	1138.224	15.1	20.7	23.2	23.5	23.9	DRY	DRY	7754.30	7690.48	7723.52
GHC15-1	06-03 03:00	2.84	7.32	-0.727	-1.505	758.502	923.644	1138.289	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.20	7690.34	7723.59
GHC15-1	06-03 04:00	2.84	6.38	-0.58	-1.245	758.585	923.858	1138.314	15.1	20.7	23.2	23.5	23.9	DRY	DRY	7754.29	7690.56	7723.61
GHC15-1	06-03 05:00	2.84	5.94	-0.68	-1.325	758.697	923.722	1138.314	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.40	7690.42	7723.61
GHC15-1	06-03 06:00	2.83	6.33	-0.644	-1.186	758.704	923.694	1138.244	15.1	20.7	23.2	23.5	23.9	DRY	DRY	7754.40	7690.39	7723.54
GHC15-1	06-03 07:00	2.83	6.97	-0.811	-1.255	758.582	923.756	1138.254	15.1	20.7	23.2	23.5	23.9	DRY	DRY	7754.28	7690.46	7723.55
GHC15-1	06-03 08:00	2.84	7.44	-0.662	-1.329	758.615	923.767	1138.358	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.32	7690.47	7723.66
GHC15-1	06-03 09:00	2.84	13.85	-0.583	-1.408	758.684	923.525	1138.105	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.38	7690.23	7723.41
GHC15-1	06-03 10:00	2.86	20.35	-0.657	-1.39	758.565	923.575	1138.214	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.27	7690.28	7723.51
GHC15-1	06-03 11:00	2.86	20.49	-0.685	-1.296	758.657	923.644	1138.379	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.36	7690.34	7723.68
GHC15-1	06-03 12:00	2.87	20.68	-0.532	-1.381	758.714	923.406	1138.299	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.41	7690.11	7723.60
GHC15-1	06-03 13:00	2.87	20.54	-0.889	-1.255	758.552	923.552	1138.234	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.25	7690.25	7723.53
GHC15-1	06-03 14:00	2.87	21.62	-0.828	-1.366	758.641	923.508	1138.125	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.34	7690.21	7723.43
GHC15-1	06-03 15:00	2.87	22.06	-0.874	-1.26	758.648	923.525	1138.279	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.35	7690.23	7723.58
GHC15-1	06-03 16:00	2.87	20.87	-0.653	-1.482	758.628	923.586	1138.055	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.33	7690.29	7723.36
GHC15-1	06-03 17:00	2.87	21.12	-0.676	-1.381	758.621	923.575	1138.324	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.32	7690.28	7723.62
GHC15-1	06-03 18:00	2.87	20.25	-0.704	-1.302	758.638	923.593	1138.169	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.34	7690.29	7723.47
GHC15-1	06-03 19:00	2.87	18.13	-0.541	-1.376	758.631	923.496	1138.105	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.33	7690.20	7723.41
GHC15-1	06-03 20:00	2.86	14.11	-0.736	-1.376	758.592	923.462	1138.239	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.29	7690.16	7723.54
GHC15-1	06-03 21:00	2.85	10.44	-0.916	-1.413	758.598	923.536	1138.224	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.30	7690.24	7723.52
GHC15-1	06-03 22:00	2.85	8.85	-0.81	-1.306	758.638	923.508	1138.294	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.34	7690.21	7723.59
GHC15-1	06-03 23:00	2.84	7.91	-0.814	-1.288	758.612	923.468	1138.224	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.31	7690.17	7723.52
GHC15-1	06-04 00:00	2.84	7.51	-0.718	-1.537	758.545	923.439	1138.189	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.25	7690.14	7723.49
GHC15-1	06-04 01:00	2.84	7.74	-0.833	-1.311	758.549	923.581	1138.169	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.25	7690.28	7723.47
GHC15-1	06-04 02:00	2.84	7.37	-0.874	-1.478	758.589	923.575	1138.294	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.29	7690.28	7723.59
GHC15-1	06-04 03:00	2.84	6.9	-0.625	-1.283	758.529	923.593	1138.204	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.23	7690.29	7723.50
GHC15-1	06-04 04:00	2.83	6.4	-0.704	-1.32	758.711	923.417	1138.299	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.41	7690.12	7723.60
GHC15-1	06-04 05:00	2.83	5.94	-0.731	-1.376	758.595	923.7	1138.109	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.30	7690.40	7723.41
GHC15-1	06-04 06:00	2.84	6.06	-0.963	-1.357	758.575	923.547	1138.119	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.28	7690.25	7723.42
GHC15-1	06-04 07:00	2.83	5.82	-0.708	-1.454	758.545	923.581	1138.179	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.25	7690.28	7723.48
GHC15-1	06-04 08:00	2.83	6.06	-0.722	-1.325	758.615	923.564	1138.109	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.32	7690.26	7723.41
GHC15-1	06-04 09:00	2.84	12.4	-0.986	-1.394	758.48	923.717	1138.239	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.18	7690.42	7723.54
GHC15-1	06-04 10:00	2.85	18.66	-0.824	-1.496	758.414	923.649	1138.224	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.11	7690.35	7723.52
GHC15-1	06-04 11:00	2.86	20.3	-0.824	-1.44	758.552	923.541	1137.961	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.25	7690.24	7723.26
GHC15-1	06-04 12:00	2.86	21.26	-0.856	-1.306	758.598	923.586	1138.109	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.30	7690.29	7723.41
GHC15-1	06-04 13:00	2.87	21.34	-0.828	-1.329	758.559	923.479	1138.025	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.26	7690.18	7723.33
GHC15-1	06-04 14:00	2.86	22.54	-0.833	-1.325	758.697	923.57	1138.224	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.40	7690.27	7723.52
GHC15-1	06-04 15:00	2.87	24.54	-0.903	-1.5	758.565	923.479	1137.871	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.27	7690.18	7723.17
GHC15-1	06-04 16:00	2.88	25.6	-0.944	-1.427	758.519	923.581	1138.204	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.22	7690.28	7723.50
GHC15-1	06-04 17:00	2.87	25.39	-0.828	-1.39	758.533	923.609	1138.119	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.23	7690.31	7723.42
GHC15-1	06-04 18:00	2.87	25.57	-0.879	-1.454	758.542	923.586	1137.98	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.24	7690.29	7723.28
GHC15-1	06-04 19:00	2.88	23.41	-0.926	-1.366	758.549	923.575	1138.065	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.25	7690.28	7723.37
GHC15-1	06-04 20:00	2.87	17.65	-0.86	-1.181	758.612	923.559	1138.16	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.31	7690.26	7723.46
GHC15-1	06-04 21:00	2.85	13.67	-0.718	-1.186	758.612	923.536	1138.15	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.31	7690.24	7723.45
GHC15-1	06-04 22:00	2.85	10.99	-0.874	-1.454	758.605	923.711	1138.085</										

Bore Hole	LOGGER DATA			SENSOR READINGS (hertz)					SENSOR TEMPERATURES (°C)					GROUNDWATER ELEVATION CALCULATIONS				
	Day 2015	Batt V	Temp C	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5
GHC15-1	06-06 18:00	2.85	13.57	-0.685	-1.357	758.704	923.496	1138.125	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.40	7690.20	7723.43
GHC15-1	06-06 19:00	2.84	11.9	-0.74	-1.245	758.621	923.434	1138.115	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.32	7690.13	7723.42
GHC15-1	06-06 20:00	2.83	7.71	-0.842	-1.237	758.615	923.468	1138.204	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.32	7690.17	7723.50
GHC15-1	06-06 21:00	2.82	6.23	-0.708	-1.39	758.644	923.536	1138.125	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.34	7690.24	7723.43
GHC15-1	06-06 22:00	2.82	5.64	-0.731	-1.454	758.605	923.683	1138.109	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.31	7690.38	7723.41
GHC15-1	06-06 23:00	2.82	5.23	-0.708	-1.329	758.707	923.722	1138.229	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.41	7690.42	7723.53
GHC15-1	06-07 00:00	2.82	4.47	-0.713	-1.427	758.542	923.502	1138.15	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.24	7690.20	7723.45
GHC15-1	06-07 01:00	2.81	3.91	-0.777	-1.399	758.631	923.57	1138.1	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.33	7690.27	7723.40
GHC15-1	06-07 02:00	2.81	3.3	-0.916	-1.209	758.657	923.598	1137.98	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.36	7690.30	7723.28
GHC15-1	06-07 03:00	2.81	2.69	-0.87	-1.44	758.595	923.417	1138.01	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.30	7690.12	7723.31
GHC15-1	06-07 04:00	2.81	1.91	-0.763	-1.348	758.589	923.57	1138.145	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.29	7690.27	7723.45
GHC15-1	06-07 05:00	2.81	1.4	-0.824	-1.385	758.592	923.423	1137.976	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.29	7690.12	7723.28
GHC15-1	06-07 06:00	2.8	0.92	-0.856	-1.39	758.625	923.468	1138.105	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.33	7690.17	7723.41
GHC15-1	06-07 07:00	2.8	1.48	-0.787	-1.325	758.552	923.508	1138.036	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.25	7690.21	7723.34
GHC15-1	06-07 08:00	2.81	3.18	-0.828	-1.311	758.582	923.502	1138.07	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.28	7690.20	7723.37
GHC15-1	06-07 09:00	2.82	9.05	-0.824	-1.376	758.635	923.609	1138.015	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.34	7690.31	7723.32
GHC15-1	06-07 10:00	2.83	14.18	-0.773	-1.5	758.539	923.406	1138.259	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.24	7690.11	7723.56
GHC15-1	06-07 11:00	2.84	15.96	-0.69	-1.283	758.598	923.586	1138.109	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.30	7690.29	7723.41
GHC15-1	06-07 12:00	2.85	17.21	-0.898	-1.491	758.678	923.694	1137.926	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.38	7690.39	7723.23
GHC15-1	06-07 13:00	2.85	18.02	-0.916	-1.476	758.674	923.649	1138.03	15.2	20.8	23.2	23.5	23.9	DRY	DRY	7754.37	7690.35	7723.33
GHC15-1	06-07 14:00	2.85	17.63	-0.736	-1.495	758.473	923.586	1138.05	15.2	20.8	23.2	23.5	23.9	DRY	DRY	7754.17	7690.29	7723.35
GHC15-1	06-07 15:00	2.84	11.45	-0.792	-1.376	758.68	923.649	1138.07	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.38	7690.35	7723.37
GHC15-1	06-07 16:00	2.84	11.37	-0.75	-1.334	758.592	923.564	1138.179	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.29	7690.26	7723.48
GHC15-1	06-07 17:00	2.84	12.63	-0.838	-1.348	758.536	923.525	1137.985	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.24	7690.23	7723.29
GHC15-1	06-07 18:00	2.85	16.97	-0.866	-1.413	758.654	923.746	1138.055	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.35	7690.45	7723.36
GHC15-1	06-07 19:00	2.85	17.5	-0.93	-1.55	758.559	923.564	1138.164	15.2	20.8	23.2	23.5	23.9	DRY	DRY	7754.26	7690.26	7723.46
GHC15-1	06-07 20:00	2.84	12.94	-0.81	-1.505	758.651	923.666	1138.115	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.35	7690.37	7723.42
GHC15-1	06-07 21:00	2.84	10.07	-0.8	-1.366	758.635	923.513	1138.119	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.34	7690.21	7723.42
GHC15-1	06-07 22:00	2.82	6.92	-0.819	-1.371	758.704	923.655	1138.075	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.40	7690.36	7723.38
GHC15-1	06-07 23:00	2.82	6.01	-0.68	-1.366	758.582	923.575	1138.125	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.28	7690.28	7723.43
GHC15-1	06-08 00:00	2.81	4.76	-0.694	-1.296	758.625	923.581	1138.065	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.33	7690.28	7723.37
GHC15-1	06-08 01:00	2.81	3.74	-0.759	-1.283	758.572	923.462	1138.145	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.27	7690.16	7723.45
GHC15-1	06-08 02:00	2.81	3.49	-0.806	-1.315	758.684	923.519	1138.189	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.38	7690.22	7723.49
GHC15-1	06-08 03:00	2.81	3.18	-0.903	-1.39	758.612	923.536	1138.16	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.31	7690.24	7723.46
GHC15-1	06-08 04:00	2.81	2.74	-0.616	-1.278	758.585	923.513	1138.169	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.29	7690.21	7723.47
GHC15-1	06-08 05:00	2.81	2.28	-0.787	-1.366	758.608	923.479	1138.214	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.31	7690.18	7723.51
GHC15-1	06-08 06:00	2.8	2.13	-0.75	-1.32	758.635	923.564	1138.145	15.2	20.7	23.2	23.5	23.9	DRY	DRY	7754.34	7690.26	7723.45
GHC15-1	06-08 07:00	2.81	1.91	-0.754	-1.403	758.579	923.491	1138.041	15.2	20.7	23.2							

Bore Hole	LOGGER DATA			SENSOR READINGS (hertz)					SENSOR TEMPERATURES (°C)					GROUNDWATER ELEVATION CALCULATIONS				
	Day 2015	Batt V	Temp C	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5
GHC15-1	06-11 01:00	2.81	7.29	-0.921	-1.518	758.575	923.4	1138.03	15.2	20.8	23.2	23.5	23.9	DRY	DRY	7754.28	7690.10	7723.33
GHC15-1	06-11 02:00	2.81	6.26	-0.704	-1.319	758.644	923.406	1138.06	15.2	20.8	23.2	23.5	23.9	DRY	DRY	7754.34	7690.11	7723.36
GHC15-1	06-11 03:00	2.81	5.74	-0.777	-1.425	758.664	923.241	1137.931	15.2	20.8	23.2	23.5	23.9	DRY	DRY	7754.36	7689.94	7723.23
GHC15-1	06-11 04:00	2.8	5.08	-0.74	-1.314	758.691	923.502	1138.006	15.2	20.8	23.2	23.5	23.9	DRY	DRY	7754.39	7690.20	7723.31
GHC15-1	06-11 05:00	2.8	5.23	-0.852	-1.314	758.608	923.377	1138.075	15.2	20.8	23.2	23.5	23.9	DRY	DRY	7754.31	7690.08	7723.38
GHC15-1	06-11 06:00	2.8	4.64	-0.866	-1.198	758.694	923.389	1137.966	15.2	20.8	23.2	23.5	23.9	DRY	DRY	7754.39	7690.09	7723.27
GHC15-1	06-11 07:00	2.8	4.89	-0.93	-1.393	758.621	923.439	1137.951	15.2	20.8	23.2	23.5	23.9	DRY	DRY	7754.32	7690.14	7723.25
GHC15-1	06-11 08:00	2.8	5.23	-0.74	-1.425	758.608	923.343	1137.961	15.2	20.8	23.2	23.5	23.9	DRY	DRY	7754.31	7690.04	7723.26
GHC15-1	06-11 09:00	2.81	11.22	-0.773	-1.578	758.595	923.343	1138.07	15.2	20.8	23.2	23.5	23.9	DRY	DRY	7754.30	7690.04	7723.37
GHC15-1	06-11 10:00	2.82	16.45	-0.852	-1.388	758.582	923.281	1137.961	15.2	20.8	23.2	23.5	23.9	DRY	DRY	7754.28	7689.98	7723.26
GHC15-1	06-11 11:00	2.83	15.47	-0.787	-1.23	758.638	923.383	1137.976	15.2	20.8	23.2	23.5	23.9	DRY	DRY	7754.34	7690.08	7723.28
GHC15-1	06-11 12:00	2.83	15.83	-0.63	-1.384	758.569	923.525	1137.891	15.2	20.8	23.2	23.5	23.9	DRY	DRY	7754.27	7690.23	7723.19
GHC15-1	06-11 13:00	2.83	18.77	-0.806	-1.258	758.674	923.332	1137.961	15.2	20.8	23.2	23.5	23.9	DRY	DRY	7754.37	7690.03	7723.26
GHC15-1	06-11 14:00	2.84	21.12	-0.926	-1.412	758.7	923.281	1138.045	15.2	20.8	23.2	23.5	23.9	DRY	DRY	7754.40	7689.98	7723.35
GHC15-1	06-11 15:00	2.84	19.89	-0.685	-1.37	758.542	923.394	1137.966	15.2	20.8	23.2	23.5	23.9	DRY	DRY	7754.24	7690.09	7723.27
GHC15-1	06-11 16:00	2.84	19.33	-0.782	-1.421	758.697	923.281	1137.985	15.2	20.8	23.2	23.5	23.9	DRY	DRY	7754.40	7689.98	7723.29
GHC15-1	06-11 17:00	2.84	19.68	-0.81	-1.337	758.65	923.383	1137.98	15.2	20.8	23.3	23.5	23.9	DRY	DRY	7754.35	7690.08	7723.28
GHC15-1	06-11 18:00	2.83	16.69	-0.874	-1.393	758.575	923.196	1138.08	15.2	20.8	23.2	23.5	23.9	DRY	DRY	7754.28	7689.90	7723.38
GHC15-1	06-11 19:00	2.83	11.42	-0.722	-1.412	758.625	923.151	1138.025	15.2	20.8	23.2	23.5	23.9	DRY	DRY	7754.33	7689.85	7723.33
GHC15-1	06-11 20:00	2.81	7.64	-1.05	-1.263	758.661	923.304	1138.03	15.2	20.8	23.2	23.5	23.9	DRY	DRY	7754.36	7690.00	7723.33
GHC15-1	06-11 21:00	2.8	7.37	-0.944	-1.537	758.618	923.202	1137.811	15.2	20.8	23.2	23.5	23.9	DRY	DRY	7754.32	7689.90	7723.11
GHC15-1	06-11 22:00	2.81	7	-0.846	-1.398	758.592	923.298	1137.881	15.2	20.8	23.2	23.5	23.9	DRY	DRY	7754.29	7690.00	7723.18
GHC15-1	06-11 23:00	2.81	6.38	-0.986	-1.375	758.536	923.309	1137.985	15.2	20.8	23.2	23.5	23.9	DRY	DRY	7754.24	7690.01	7723.29
GHC15-1	06-12 00:00	2.8	6.04	-0.856	-1.444	758.598	923.457	1137.98	15.2	20.8	23.2	23.5	23.9	DRY	DRY	7754.30	7690.16	7723.28
GHC15-1	06-12 01:00	2.8	5.47	-0.731	-1.278	758.631	923.36	1138.145	15.2	20.8	23.2	23.5	23.9	DRY	DRY	7754.33	7690.06	7723.45
GHC15-1	06-12 02:00	2.8	5.03	-0.949	-1.435	758.608	923.287	1137.747	15.2	20.8	23.2	23.5	23.9	DRY	DRY	7754.31	7689.99	7723.05
GHC15-1	06-12 03:00	2.8	4.62	-0.846	-1.485	758.68	923.383	1137.787	15.2	20.8	23.2	23.5	23.9	DRY	DRY	7754.38	7690.08	7723.09
GHC15-1	06-12 04:00	2.79	4.54	-0.99	-1.393	758.612	923.207	1137.901	15.2	20.8	23.2	23.5	23.9	DRY	DRY	7754.31	7689.91	7723.20
GHC15-1	06-12 05:00	2.79	4.67	-0.889	-1.31	758.618	923.207	1138.02	15.2	20.8	23.2	23.5	23.9	DRY	DRY	7754.32	7689.91	7723.32
GHC15-1	06-12 06:00	2.8	4.64	-0.981	-1.328	758.631	923.19	1137.921	15.2	20.8	23.2	23.5	23.9	DRY	DRY	7754.33	7689.89	7723.22
GHC15-1	06-12 07:00	2.79	4.15	-0.912	-1.323	758.668	923.241	1138.09	15.2	20.8	23.2	23.5	23.9	DRY	DRY	7754.37	7689.94	7723.39
GHC15-1	06-12 08:00	2.79	3.66	-0.846	-1.379	758.589	923.259	1137.97	15.2	20.8	23.2	23.5	23.9	DRY	DRY	7754.29	7689.96	7723.27
GHC15-1	06-12 09:00	2.79	4.27	-0.99	-1.25	758.743	923.259	1138.055	15.2	20.8	23.2	23.5	23.9	DRY	DRY	7754.44	7689.96	7723.36
GHC15-1	06-12 10:00	2.8	7.59	-1.027	-1.379	758.601	923.088	1138.036	15.2	20.8	23.2	23.5	23.9	DRY	DRY	7754.30	7689.79	7723.34
GHC15-1	06-12 11:00	2.81	10.52	-1.009	-1.351	758.565	923.071	1138.1	15.2	20.8	23.2	23.5	23.9	DRY	DRY	7754.27	7689.77	7723.40
GHC15-1	06-12 12:00	2.81	10.94	-1.032	-1.189	758.598	923.185	1138.041	15.2	20.8	23.2	23.5	23.9	DRY	DRY	7754.30	7689.89	7723.34
GHC15-1	06-12 13:00	2.82	14.41	-0.939	-1.37	758.612	923.4	1138.055	15.2	20.8	23.2	23.5	23.9	DRY	DRY	7754.31	7690.10	7723.36
GHC15-1	06-12 14:00	2.83	14.28	-0.944	-1.263	758.502	923.219	1137.996	15.2	20.8	23.2	23.5						

Bore Hole	LOGGER DATA			SENSOR READINGS (hertz)					SENSOR TEMPERATURES (°C)					GROUNDWATER ELEVATION CALCULATIONS				
	Day 2015	Batt V	Temp C	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5
GHC15-1	06-15 08:00	2.78	4.54	-0.93	-1.351	758.569	922.783	1137.801	15.2	20.8	23.2	23.5	23.9	DRY	DRY	7754.27	7689.48	7723.10
GHC15-1	06-15 09:00	2.79	11.12	-0.958	-1.328	758.499	923.077	1137.851	15.2	20.8	23.2	23.5	23.9	DRY	DRY	7754.20	7689.78	7723.15
GHC15-1	06-15 10:00	2.81	17.63	-0.903	-1.25	758.615	923.004	1137.702	15.2	20.8	23.2	23.5	23.9	DRY	DRY	7754.32	7689.70	7723.00
GHC15-1	06-15 11:00	2.82	19.03	-0.795	-1.143	758.533	923.043	1137.702	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.23	7689.74	7723.00
GHC15-1	06-15 12:00	2.82	19.44	-0.911	-1.323	758.569	922.772	1137.836	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.27	7689.47	7723.14
GHC15-1	06-15 13:00	2.82	19.25	-0.828	-1.148	758.631	922.857	1137.742	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.33	7689.56	7723.04
GHC15-1	06-15 14:00	2.82	18.34	-0.888	-1.342	758.577	922.862	1137.817	15.3	20.8	23.3	23.5	23.9	DRY	DRY	7754.28	7689.56	7723.12
GHC15-1	06-15 15:00	2.82	19.57	-1.036	-1.296	758.533	923.23	1137.772	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.23	7689.93	7723.07
GHC15-1	06-15 16:00	2.82	15.31	-0.912	-1.393	758.579	922.958	1137.916	15.2	20.8	23.2	23.5	23.9	DRY	DRY	7754.28	7689.66	7723.22
GHC15-1	06-15 17:00	2.81	11.6	-0.842	-1.356	758.707	922.975	1137.881	15.2	20.8	23.2	23.5	23.9	DRY	DRY	7754.41	7689.68	7723.18
GHC15-1	06-15 18:00	2.8	10.57	-1.027	-1.463	758.575	923.134	1137.791	15.2	20.8	23.2	23.5	23.9	DRY	DRY	7754.28	7689.83	7723.09
GHC15-1	06-15 19:00	2.81	13.32	-1.111	-1.509	758.648	923.043	1137.797	15.2	20.8	23.2	23.5	23.9	DRY	DRY	7754.35	7689.74	7723.10
GHC15-1	06-15 20:00	2.8	10.64	-0.985	-1.337	758.585	923.049	1137.806	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.29	7689.75	7723.11
GHC15-1	06-15 21:00	2.79	9.42	-1.022	-1.375	758.598	923.128	1137.781	15.2	20.8	23.2	23.5	23.9	DRY	DRY	7754.30	7689.83	7723.08
GHC15-1	06-15 22:00	2.79	8.73	-0.912	-1.467	758.509	923.077	1137.772	15.2	20.8	23.2	23.5	23.9	DRY	DRY	7754.21	7689.78	7723.07
GHC15-1	06-15 23:00	2.79	7.27	-1.004	-1.505	758.668	923.043	1137.836	15.2	20.8	23.2	23.5	23.9	DRY	DRY	7754.37	7689.74	7723.14
GHC15-1	06-16 00:00	2.79	6.6	-0.939	-1.43	758.572	923.156	1137.861	15.2	20.8	23.2	23.5	23.9	DRY	DRY	7754.27	7689.86	7723.16
GHC15-1	06-16 01:00	2.79	6.9	-0.866	-1.384	758.463	923.015	1137.891	15.2	20.8	23.2	23.5	23.9	DRY	DRY	7754.16	7689.72	7723.19
GHC15-1	06-16 02:00	2.79	6.45	-0.953	-1.481	758.68	922.783	1137.861	15.2	20.8	23.2	23.5	23.9	DRY	DRY	7754.38	7689.48	7723.16
GHC15-1	06-16 03:00	2.78	6.23	-0.897	-1.356	758.555	923.151	1137.861	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.26	7689.85	7723.16
GHC15-1	06-16 04:00	2.78	6.45	-0.87	-1.18	758.631	922.965	1137.876	15.2	20.8	23.2	23.5	23.9	DRY	DRY	7754.33	7689.67	7723.18
GHC15-1	06-16 05:00	2.78	6.31	-1.055	-1.393	758.589	923.117	1137.851	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.29	7689.82	7723.15
GHC15-1	06-16 06:00	2.79	6.21	-0.916	-1.366	758.608	923.139	1137.926	15.2	20.8	23.2	23.5	23.9	DRY	DRY	7754.31	7689.84	7723.23
GHC15-1	06-16 07:00	2.78	6.28	-1.106	-1.323	758.601	923.055	1137.817	15.2	20.8	23.2	23.5	23.9	DRY	DRY	7754.30	7689.76	7723.12
GHC15-1	06-16 08:00	2.79	6.31	-0.828	-1.351	758.579	923.049	1137.951	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.28	7689.75	7723.25
GHC15-1	06-16 09:00	2.79	12.18	-1.133	-1.278	758.687	922.942	1137.732	15.2	20.8	23.2	23.5	23.9	DRY	DRY	7754.39	7689.64	7723.03
GHC15-1	06-16 10:00	2.8	14.08	-1.022	-1.236	758.552	923.049	1137.841	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.25	7689.75	7723.14
GHC15-1	06-16 11:00	2.8	13.32	-0.98	-1.305	758.453	922.986	1137.871	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.15	7689.69	7723.17
GHC15-1	06-16 12:00	2.8	12.1	-0.934	-1.351	758.48	923.139	1137.767	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.18	7689.84	7723.07
GHC15-1	06-16 13:00	2.81	14.44	-0.906	-1.281	758.57	923.06	1137.623	15.3	20.8	23.3	23.5	23.9	DRY	DRY	7754.27	7689.76	7722.92
GHC15-1	06-16 14:00	2.81	16.82	-0.948	-1.258	758.644	922.868	1137.801	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.34	7689.57	7723.10
GHC15-1	06-16 15:00	2.82	20	-0.906	-1.361	758.595	922.975	1137.801	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.30	7689.68	7723.10
GHC15-1	06-16 16:00	2.82	22.9	-0.939	-1.393	758.618	923.083	1137.692	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.32	7689.78	7722.99
GHC15-1	06-16 17:00	2.83	23.36	-0.809	-1.361	758.631	923.066	1137.702	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.33	7689.77	7723.00
GHC15-1	06-16 18:00	2.83	21.09	-0.776	-1.388	758.672	923.06	1137.752	15.3	20.8	23.3	23.5	23.9	DRY	DRY	7754.37	7689.76	7723.05
GHC15-1	06-16 19:00	2.83	21.89	-0.989	-1.37	758.612	923.004	1137.772	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.31	7689.70	7723.07
GHC15-1	06-16 20:00	2.83	21.2	-0.865	-1.351	758.68	923.06	1137.772	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.38	7689.76	7723.07
GHC15-1	06-16 21:00	2.82	14.69	-0.804	-1.463	758.625	922.969	1137.841	15									

Bore Hole	LOGGER DATA			SENSOR READINGS (hertz)					SENSOR TEMPERATURES (°C)					GROUNDWATER ELEVATION CALCULATIONS				
	Day 2015	Batt V	Temp C	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5
GHC15-1	06-19 15:00	2.83	28.31	-0.929	-1.273	758.644	922.737	1137.573	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.34	7689.44	7722.87
GHC15-1	06-19 16:00	2.83	30.2	-0.888	-1.421	758.804	922.868	1137.508	15.3	20.8	23.3	23.5	23.9	DRY	DRY	7754.50	7689.57	7722.81
GHC15-1	06-19 17:00	2.83	28.69	-0.92	-1.509	758.531	922.845	1137.588	15.3	20.8	23.3	23.5	23.9	DRY	DRY	7754.23	7689.55	7722.89
GHC15-1	06-19 18:00	2.83	26.44	-1.063	-1.3	758.706	922.935	1137.642	15.3	20.8	23.3	23.5	23.9	DRY	DRY	7754.41	7689.64	7722.94
GHC15-1	06-19 19:00	2.82	25.54	-0.915	-1.337	758.555	923.009	1137.568	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.26	7689.71	7722.87
GHC15-1	06-19 20:00	2.82	21.53	-0.985	-1.421	758.635	923.032	1137.558	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.34	7689.73	7722.86
GHC15-1	06-19 21:00	2.81	18.77	-1.031	-1.606	758.697	922.868	1137.607	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.40	7689.57	7722.91
GHC15-1	06-19 22:00	2.8	15.67	-0.985	-1.356	758.575	922.908	1137.518	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.28	7689.61	7722.82
GHC15-1	06-19 23:00	2.8	13.49	-0.911	-1.351	758.615	922.93	1137.488	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.32	7689.63	7722.79
GHC15-1	06-20 00:00	2.79	13.24	-0.675	-1.222	758.601	922.727	1137.528	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.30	7689.43	7722.83
GHC15-1	06-20 01:00	2.79	13.06	-0.874	-1.375	758.592	922.935	1137.592	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.29	7689.64	7722.89
GHC15-1	06-20 02:00	2.79	12.61	-0.911	-1.366	758.559	922.749	1137.443	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.26	7689.45	7722.74
GHC15-1	06-20 03:00	2.79	12.48	-0.976	-1.25	758.635	922.788	1137.488	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.34	7689.49	7722.79
GHC15-1	06-20 04:00	2.79	12.13	-0.915	-1.5	758.579	922.805	1137.543	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.28	7689.51	7722.84
GHC15-1	06-20 05:00	2.78	11.37	-0.92	-1.333	758.582	922.658	1137.687	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.28	7689.36	7722.99
GHC15-1	06-20 06:00	2.78	10.79	-1.082	-1.328	758.668	922.811	1137.662	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.37	7689.51	7722.96
GHC15-1	06-20 07:00	2.78	10.69	-0.874	-1.25	758.618	922.816	1137.602	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.32	7689.52	7722.90
GHC15-1	06-20 08:00	2.78	10.49	-0.906	-1.55	758.601	922.85	1137.443	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.30	7689.55	7722.74
GHC15-1	06-20 09:00	2.78	17.05	-0.897	-1.366	758.582	922.687	1137.568	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.28	7689.39	7722.87
GHC15-1	06-20 10:00	2.8	24.02	-0.795	-1.569	758.711	922.85	1137.493	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.41	7689.55	7722.79
GHC15-1	06-20 11:00	2.82	27.77	-0.888	-1.393	758.589	922.828	1137.533	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.29	7689.53	7722.83
GHC15-1	06-20 12:00	2.82	28.12	-1.031	-1.412	758.636	922.732	1137.508	15.3	20.8	23.3	23.5	23.9	DRY	DRY	7754.34	7689.43	7722.81
GHC15-1	06-20 13:00	2.82	27.58	-0.879	-1.564	758.671	922.879	1137.538	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.37	7689.58	7722.84
GHC15-1	06-20 14:00	2.82	27.71	-0.906	-1.217	758.715	922.777	1137.483	15.3	20.8	23.3	23.5	23.9	DRY	DRY	7754.42	7689.48	7722.78
GHC15-1	06-20 15:00	2.82	28.53	-0.985	-1.662	758.735	922.72	1137.318	15.3	20.8	23.3	23.5	23.9	DRY	DRY	7754.44	7689.42	7722.62
GHC15-1	06-20 16:00	2.83	28.76	-0.768	-1.425	758.669	922.845	1137.473	15.3	20.8	23.3	23.5	23.9	DRY	DRY	7754.37	7689.55	7722.77
GHC15-1	06-20 17:00	2.82	27.58	-0.92	-1.476	758.689	922.772	1137.547	15.3	20.8	23.3	23.5	23.9	DRY	DRY	7754.39	7689.47	7722.85
GHC15-1	06-20 18:00	2.82	26.78	-0.897	-1.56	758.676	922.709	1137.453	15.3	20.8	23.3	23.5	23.9	DRY	DRY	7754.38	7689.41	7722.75
GHC15-1	06-20 19:00	2.81	24.66	-0.925	-1.43	758.676	922.981	1137.573	15.3	20.8	23.3	23.5	23.9	DRY	DRY	7754.38	7689.68	7722.87
GHC15-1	06-20 20:00	2.81	20.6	-0.966	-1.439	758.608	922.947	1137.692	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.31	7689.65	7722.99
GHC15-1	06-20 21:00	2.79	16.87	-0.822	-1.217	758.648	922.885	1137.418	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.35	7689.59	7722.72
GHC15-1	06-20 22:00	2.79	14.54	-0.939	-1.472	758.552	922.822	1137.508	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.25	7689.52	7722.81
GHC15-1	06-20 23:00	2.78	13.42	-0.869	-1.582	758.595	922.885	1137.558	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.30	7689.59	7722.86
GHC15-1	06-21 00:00	2.78	12.86	-0.985	-1.546	758.697	922.8	1137.478	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.40	7689.50	7722.78
GHC15-1	06-21 01:00	2.77	12.38	-0.966	-1.129	758.549	922.795	1137.533	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.25	7689.50	7722.83
GHC15-1	06-21 02:00	2.79	11.62	-1.012	-1.254	758.598	922.596	1137.543	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.30	7689.30	7722.84
GHC15-1	06-21 03:00	2.78	10.82	-0.911	-1.212	758.592	922.76	1137.633	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.29	7689.46	7722.93
GHC15-1	06-21 04:00	2.75	10.27	-0.86	-1.222	758.674	922.68											

Bore Hole	LOGGER DATA			SENSOR READINGS (hertz)					SENSOR TEMPERATURES (°C)					GROUNDWATER ELEVATION CALCULATIONS				
	Day 2015	Batt V	Temp C	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5
GHC15-1	06-23 22:00	2.7	14.59	-0.929	-1.323	758.552	922.822	1137.399	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.25	7689.52	7722.70
GHC15-1	06-23 23:00	2.69	13.57	-1.031	-1.416	758.595	922.658	1137.254	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.30	7689.36	7722.55
GHC15-1	06-24 00:00	2.69	12.53	-0.804	-1.296	758.601	922.641	1137.339	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.30	7689.34	7722.64
GHC15-1	06-24 01:00	2.68	11.5	-0.906	-1.476	758.499	922.822	1137.219	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.20	7689.52	7722.52
GHC15-1	06-24 02:00	2.68	11.2	-1.049	-1.379	758.552	922.607	1137.25	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.25	7689.31	7722.55
GHC15-1	06-24 03:00	2.67	11.62	-0.939	-1.305	758.704	922.602	1137.254	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.40	7689.30	7722.55
GHC15-1	06-24 04:00	2.68	11.97	-0.818	-1.333	758.687	922.636	1137.169	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.39	7689.34	7722.47
GHC15-1	06-24 05:00	2.68	12.08	-0.874	-1.323	758.671	922.703	1137.26	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.37	7689.40	7722.56
GHC15-1	06-24 06:00	2.68	12.03	-0.939	-1.43	758.496	922.783	1137.194	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.20	7689.48	7722.49
GHC15-1	06-24 07:00	2.68	12.58	-1.073	-1.281	758.536	922.754	1137.199	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.24	7689.45	7722.50
GHC15-1	06-24 08:00	2.68	12.99	-1.026	-1.287	758.68	922.76	1137.174	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.38	7689.46	7722.47
GHC15-1	06-24 09:00	2.69	15.34	-0.897	-1.375	758.598	922.664	1137.289	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.30	7689.36	7722.59
GHC15-1	06-24 10:00	2.69	18.69	-0.906	-1.356	758.539	922.607	1137.274	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.24	7689.31	7722.57
GHC15-1	06-24 11:00	2.71	21.59	-0.897	-1.245	758.577	922.619	1137.229	15.3	20.8	23.3	23.5	23.9	DRY	DRY	7754.28	7689.32	7722.53
GHC15-1	06-24 12:00	2.71	24.25	-0.911	-1.291	758.565	922.834	1137.11	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.27	7689.53	7722.41
GHC15-1	06-24 13:00	2.72	26.81	-0.925	-1.268	758.601	922.533	1137.219	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.30	7689.23	7722.52
GHC15-1	06-24 14:00	2.73	28.59	-0.915	-1.453	758.623	922.511	1137.155	15.3	20.8	23.3	23.5	23.9	DRY	DRY	7754.32	7689.21	7722.46
GHC15-1	06-24 15:00	2.73	25.07	-0.874	-1.185	758.607	922.5	1137.145	15.3	20.8	23.3	23.5	23.9	DRY	DRY	7754.31	7689.20	7722.45
GHC15-1	06-24 16:00	2.7	20.25	-0.943	-1.449	758.589	922.421	1137.155	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.29	7689.12	7722.46
GHC15-1	06-24 17:00	2.7	16.37	-1.012	-1.527	758.519	922.697	1137.224	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.22	7689.40	7722.52
GHC15-1	06-24 18:00	2.66	16.06	-0.976	-1.254	758.536	922.562	1137.174	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.24	7689.26	7722.47
GHC15-1	06-24 19:00	2.69	15.96	-0.929	-1.444	758.575	922.675	1137.184	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.28	7689.38	7722.48
GHC15-1	06-24 20:00	2.68	15.16	-0.952	-1.485	758.631	922.455	1137.284	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.33	7689.16	7722.58
GHC15-1	06-24 21:00	2.68	13.42	-0.855	-1.24	758.565	922.59	1137.299	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.27	7689.29	7722.60
GHC15-1	06-24 22:00	2.68	11.97	-0.98	-1.537	758.621	922.754	1137.244	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.32	7689.45	7722.54
GHC15-1	06-24 23:00	2.68	10.97	-0.768	-1.505	758.522	922.506	1137.324	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.22	7689.21	7722.62
GHC15-1	06-25 00:00	2.68	9.97	-0.994	-1.425	758.559	922.415	1137.304	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.26	7689.12	7722.60
GHC15-1	06-25 01:00	2.65	9.77	-0.804	-1.281	758.661	922.715	1137.274	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.36	7689.42	7722.57
GHC15-1	06-25 02:00	2.66	9.65	-0.915	-1.449	758.572	922.579	1137.199	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.27	7689.28	7722.50
GHC15-1	06-25 03:00	2.66	9.07	-0.976	-1.337	758.638	922.46	1137.358	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.34	7689.16	7722.66
GHC15-1	06-25 04:00	2.65	8.06	-0.892	-1.522	758.628	922.573	1137.139	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.33	7689.27	7722.44
GHC15-1	06-25 05:00	2.64	7.71	-0.92	-1.472	758.529	922.455	1137.085	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.23	7689.16	7722.39
GHC15-1	06-25 06:00	2.65	8.03	-0.971	-1.384	758.711	922.438	1137.383	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.41	7689.14	7722.68
GHC15-1	06-25 07:00	2.65	9.37	-0.985	-1.416	758.592	922.438	1137.09	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.29	7689.14	7722.39
GHC15-1	06-25 08:00	2.65	11.25	-1.026	-1.481	758.572	922.511	1137.174	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.27	7689.21	7722.47
GHC15-1	06-25 09:00	2.65	14.23	-0.994	-1.384	758.661	922.562	1137.105	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.36	7689.26	7722.41
GHC15-1	06-25 10:00	2.94	18.69	-0.976	-1.439	758.559	922.697	1137.149	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.26	7689.40	7722.45
GHC15-1	06-25 11:00	2.64	22.45	-0.985	-1.333	758.6	922.703	11										

Bore Hole	LOGGER DATA			SENSOR READINGS (hertz)					SENSOR TEMPERATURES (°C)					GROUNDWATER ELEVATION CALCULATIONS				
	Day 2015	Batt V	Temp C	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5
GHC15-1	06-28 05:00	2.62	8.18	-1.012	-1.31	758.569	922.432	1137.04	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.27	7689.13	7722.34
GHC15-1	06-28 06:00	2.61	8.53	-0.92	-1.222	758.664	922.438	1137.274	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.36	7689.14	7722.57
GHC15-1	06-28 07:00	2.61	8.68	-0.828	-1.342	758.559	922.613	1137.199	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.26	7689.31	7722.50
GHC15-1	06-28 08:00	2.61	8.92	-1.031	-1.476	758.562	922.438	1137.11	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.26	7689.14	7722.41
GHC15-1	06-28 09:00	2.62	15.11	-0.939	-1.263	758.473	922.302	1137.21	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.17	7689.00	7722.51
GHC15-1	06-28 10:00	2.64	22.99	-0.952	-1.359	758.531	922.295	1137.169	15.3	20.9	23.3	23.5	23.9	DRY	DRY	7754.23	7689.00	7722.47
GHC15-1	06-28 11:00	2.66	25.84	-1.012	-1.314	758.707	922.516	1137.1	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.41	7689.22	7722.40
GHC15-1	06-28 12:00	2.68	26.08	-0.911	-1.303	758.623	922.472	1137.11	15.3	20.9	23.3	23.5	23.9	DRY	DRY	7754.32	7689.17	7722.41
GHC15-1	06-28 13:00	2.69	25.45	-0.943	-1.247	758.62	922.381	1137.035	15.3	20.9	23.3	23.5	23.9	DRY	DRY	7754.32	7689.08	7722.34
GHC15-1	06-28 14:00	2.68	17.65	-0.883	-1.226	758.569	922.154	1137.115	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.27	7688.85	7722.42
GHC15-1	06-28 15:00	2.66	13.98	-1.04	-1.416	758.513	922.557	1137.07	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.21	7689.26	7722.37
GHC15-1	06-28 16:00	2.67	22.93	-0.814	-1.354	758.663	922.335	1137.179	15.3	20.9	23.3	23.5	23.9	DRY	DRY	7754.36	7689.04	7722.48
GHC15-1	06-28 17:00	2.68	20.85	-0.836	-1.254	758.592	922.511	1137.045	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.29	7689.21	7722.35
GHC15-1	06-28 18:00	2.66	18.98	-0.939	-1.407	758.565	922.358	1137.164	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.27	7689.06	7722.46
GHC15-1	06-28 19:00	2.65	14.93	-0.726	-1.247	758.559	922.465	1137.264	15.3	20.9	23.2	23.5	23.9	DRY	DRY	7754.26	7689.17	7722.56
GHC15-1	06-28 20:00	2.64	12.25	-0.86	-1.328	758.615	922.256	1137.229	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.32	7688.96	7722.53
GHC15-1	06-28 21:00	2.63	10.89	-0.772	-1.18	758.631	922.449	1137.234	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.33	7689.15	7722.53
GHC15-1	06-28 22:00	2.62	9.67	-0.79	-1.24	758.453	922.483	1137.155	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.15	7689.18	7722.46
GHC15-1	06-28 23:00	2.61	8.85	-0.745	-1.444	758.516	922.251	1137.229	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.22	7688.95	7722.53
GHC15-1	06-29 00:00	2.61	8.6	-0.86	-1.281	758.717	922.352	1137.115	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.42	7689.05	7722.42
GHC15-1	06-29 01:00	2.61	8.7	-0.836	-1.143	758.615	922.069	1137.294	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.32	7688.77	7722.59
GHC15-1	06-29 02:00	2.6	8.11	-0.726	-1.366	758.638	922.358	1137.179	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.34	7689.06	7722.48
GHC15-1	06-29 03:00	2.59	6.87	-0.804	-1.375	758.569	922.483	1137.294	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.27	7689.18	7722.59
GHC15-1	06-29 04:00	2.59	6.9	-0.906	-1.273	758.582	922.352	1137.215	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.28	7689.05	7722.52
GHC15-1	06-29 05:00	2.59	8.21	-0.768	-1.347	758.72	922.149	1137.16	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.42	7688.85	7722.46
GHC15-1	06-29 06:00	2.59	9.52	-0.809	-1.361	758.723	922.375	1137.184	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.42	7689.08	7722.48
GHC15-1	06-29 07:00	2.61	10.47	-0.763	-1.342	758.48	922.358	1137.149	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.18	7689.06	7722.45
GHC15-1	06-29 08:00	2.61	11.92	-1.105	-1.115	758.457	922.557	1137.075	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.16	7689.26	7722.38
GHC15-1	06-29 09:00	2.63	13.72	-0.92	-1.23	758.562	922.398	1137.139	15.3	20.8	23.2	23.5	23.9	DRY	DRY	7754.26	7689.10	7722.44
GHC15-1	06-29 10:00	2.63	18.98	-0.86	-1.34	758.569	922.477	1137.194	15.3	20.9	23.2	23.5	23.9	DRY	DRY	7754.27	7689.18	7722.49
GHC15-1	06-29 11:00	2.65	19.79	-0.892	-1.414	758.625	922.16	1137.055	15.3	20.9	23.2	23.5	23.9	DRY	DRY	7754.33	7688.86	7722.36
GHC15-1	06-29 12:00	2.66	20.16	-0.753	-1.214	758.56	922.421	1137.16	15.3	20.9	23.3	23.5	23.9	DRY	DRY	7754.26	7689.12	7722.46
GHC15-1	06-29 13:00	2.66	21.15	-0.962	-1.447	758.633	922.442	1137.095	15.3	20.9	23.3	23.5	23.9	DRY	DRY	7754.33	7689.14	7722.40
GHC15-1	06-29 14:00	2.66	20.74	-0.809	-1.447	758.62	922.234	1137.21	15.3	20.9	23.3	23.5	23.9	DRY	DRY	7754.32	7688.93	7722.51
GHC15-1	06-29 15:00	2.69	20.98	-0.948	-1.396	758.572	922.46	1137.04	15.3	20.9	23.2	23.5	23.9	DRY	DRY	7754.27	7689.16	7722.34
GHC15-1	06-29 16:00	2.66	18.63	-0.814	-1.363	758.63	922.313	1137.179	15.3	20.9	23.3	23.5	23.9	DRY	DRY	7754.33	7689.01	7722.48
GHC15-1	06-29 17:00	2.65	20.41	-0.888	-1.428	758.61	922.347	1137.06	15.3	20.9	23.3	23.5	23.9	DRY	DRY	7754.31	7689.05	7722.36
GHC15-1	06-29 18:00	2.65	18.74	-0.842	-1.257	758.656	922.239	1137.135	15.3	20								

Bore Hole	LOGGER DATA			SENSOR READINGS (hertz)					SENSOR TEMPERATURES (°C)					GROUNDWATER ELEVATION CALCULATIONS				
	Day 2015	Batt V	Temp C	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5
GHC15-1	07-10 13:19	2.92	17.76	-1.224	-1.164	758.031	921.463	1136.099	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.73	7688.16	7721.40
GHC15-1	07-10 14:00	2.63	18.82	-1.118	-1.34	758.02	921.497	1136.199	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.72	7688.20	7721.50
GHC15-1	07-10 15:00	2.65	21.26	-1.211	-1.368	758.061	921.576	1136.184	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.76	7688.28	7721.48
GHC15-1	07-10 16:00	2.67	20.85	-1.192	-1.419	758.043	921.401	1136.309	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.74	7688.10	7721.61
GHC15-1	07-10 17:00	2.66	18.85	-1.16	-1.391	758.137	921.344	1136.283	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.84	7688.04	7721.58
GHC15-1	07-10 18:00	2.67	22.4	-1.114	-1.34	757.995	921.605	1136.249	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.70	7688.31	7721.55
GHC15-1	07-10 19:00	2.68	20.9	-1.141	-1.382	758.029	921.52	1136.144	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.73	7688.22	7721.44
GHC15-1	07-10 20:00	2.68	19.06	-1.224	-1.34	758.094	921.446	1136.074	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.79	7688.15	7721.37
GHC15-1	07-10 21:00	2.66	13.54	-1.229	-1.377	758.028	921.525	1136.114	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.73	7688.23	7721.41
GHC15-1	07-10 22:00	2.64	10.79	-1.173	-1.53	757.992	921.588	1136.01	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.69	7688.29	7721.31
GHC15-1	07-10 23:00	2.63	9.5	-1.095	-1.396	758.117	921.44	1136.269	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.82	7688.14	7721.57
GHC15-1	07-11 00:00	2.61	7.91	-1.28	-1.345	758.035	921.622	1136.149	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.74	7688.32	7721.45
GHC15-1	07-11 01:00	2.61	6.68	-1.294	-1.386	758.033	921.457	1136.343	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.73	7688.16	7721.64
GHC15-1	07-11 02:00	2.6	6.09	-1.313	-1.326	757.979	921.582	1136.303	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.68	7688.28	7721.60
GHC15-1	07-11 03:00	2.6	5.72	-1.178	-1.294	757.965	921.463	1136.169	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.67	7688.16	7721.47
GHC15-1	07-11 04:00	2.6	5.72	-1.197	-1.331	758.107	921.491	1136.169	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.81	7688.19	7721.47
GHC15-1	07-11 05:00	2.6	6.21	-1.215	-1.35	758.018	921.452	1136.094	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.72	7688.15	7721.39
GHC15-1	07-11 06:00	2.6	6.45	-1.294	-1.312	758.134	921.735	1136.203	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.83	7688.44	7721.50
GHC15-1	07-11 07:00	2.61	6.65	-1.261	-1.368	758.12	921.656	1135.89	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.82	7688.36	7721.19
GHC15-1	07-11 08:00	2.61	7	-1.183	-1.326	758.158	921.571	1135.865	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.86	7688.27	7721.17
GHC15-1	07-11 09:00	2.61	11.92	-1.261	-1.447	758.062	921.395	1136.159	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.76	7688.10	7721.46
GHC15-1	07-11 10:00	2.64	18.55	-1.256	-1.414	758.044	921.395	1135.95	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.74	7688.10	7721.25
GHC15-1	07-11 11:00	2.66	21.2	-1.169	-1.331	758.054	921.525	1136.203	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.75	7688.23	7721.50
GHC15-1	07-11 12:00	2.67	22.56	-1.206	-1.28	758.039	921.65	1136.144	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.74	7688.35	7721.44
GHC15-1	07-11 13:00	2.67	21.39	-1.256	-1.489	757.952	921.429	1136.109	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.65	7688.13	7721.41
GHC15-1	07-11 14:00	2.68	21.48	-1.16	-1.433	758.135	921.48	1136.288	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.84	7688.18	7721.59
GHC15-1	07-11 15:00	2.69	23.39	-0.979	-1.511	758.076	921.559	1136.159	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.78	7688.26	7721.46
GHC15-1	07-11 16:00	2.69	22.14	-1.243	-1.521	757.973	921.605	1136.119	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.67	7688.31	7721.42
GHC15-1	07-11 17:00	2.7	25.42	-1.137	-1.419	758.076	921.537	1136.03	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.78	7688.24	7721.33
GHC15-1	07-11 18:00	2.7	23.53	-1.233	-1.423	758.018	921.588	1136.114	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.72	7688.29	7721.41
GHC15-1	07-11 19:00	2.7	23.5	-1.206	-1.576	757.997	921.622	1136.224	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.70	7688.32	7721.52
GHC15-1	07-11 20:00	2.69	19.95	-1.155	-1.451	758.119	921.525	1136.134	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.82	7688.23	7721.43
GHC15-1	07-11 21:00	2.68	15.18	-1.118	-1.331	758.109	921.582	1136.114	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.81	7688.28	7721.41
GHC15-1	07-11 22:00	2.66	12.66	-1.169	-1.4	758.097	921.644	1136.074	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.80	7688.34	7721.37
GHC15-1	07-11 23:00	2.64	11.09	-1.178	-1.359	758.039	921.656	1136.169	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.74	7688.36	7721.47
GHC15-1	07-12 00:00	2.65	10.49	-1.109	-1.326	758.16	921.548	1136.189	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.86	7688.25	7721.49
GHC15-1	07-12 01:00	2.64	11.09	-1.031	-1.4	757.994	921.452	1136.343	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.69	7688.15	7721.64
GHC15-1	07-12 02:00	2.64																

Bore Hole	LOGGER DATA			SENSOR READINGS (hertz)					SENSOR TEMPERATURES (°C)					GROUNDWATER ELEVATION CALCULATIONS				
	Day 2015	Batt V	Temp C	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5
GHC15-1	07-14 20:00	2.65	9.67	-1.1	-1.386	757.967	921.571	1136.184	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.67	7688.27	7721.48
GHC15-1	07-14 21:00	2.65	8.65	-1.164	-1.377	757.965	921.418	1136.203	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.67	7688.12	7721.50
GHC15-1	07-14 22:00	2.65	7.96	-1.127	-1.265	758.038	921.695	1136.164	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.74	7688.40	7721.46
GHC15-1	07-14 23:00	2.65	8.08	-1.224	-1.35	758.005	921.304	1136.09	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.71	7688.00	7721.39
GHC15-1	07-15 00:00	2.64	8.03	-1.16	-1.206	758.081	921.208	1136.09	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.78	7687.91	7721.39
GHC15-1	07-15 01:00	2.64	7.32	-1.012	-1.326	758.054	921.452	1135.955	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.75	7688.15	7721.26
GHC15-1	07-15 02:00	2.64	6.9	-1.109	-1.298	758.109	921.327	1136.239	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.81	7688.03	7721.54
GHC15-1	07-15 03:00	2.63	6.04	-1.118	-1.391	758.021	921.44	1136.069	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.72	7688.14	7721.37
GHC15-1	07-15 04:00	2.63	5.01	-1.021	-1.437	757.979	921.389	1136.045	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.68	7688.09	7721.35
GHC15-1	07-15 05:00	2.63	4.86	-1.164	-1.335	758.014	921.588	1135.985	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.71	7688.29	7721.29
GHC15-1	07-15 06:00	2.63	5.01	-0.993	-1.433	758.018	921.373	1135.995	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.72	7688.07	7721.30
GHC15-1	07-15 07:00	2.63	5.45	-1.063	-1.359	757.982	921.576	1136.045	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.68	7688.28	7721.35
GHC15-1	07-15 08:00	2.63	6.48	-1.173	-1.345	757.983	921.243	1135.95	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.68	7687.94	7721.25
GHC15-1	07-15 09:00	2.64	10.57	-1.146	-1.182	758.084	921.287	1136.124	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.78	7687.99	7721.42
GHC15-1	07-15 10:00	2.65	16.14	-1.211	-1.423	758.117	921.44	1136.104	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.82	7688.14	7721.40
GHC15-1	07-15 11:00	2.63	18.58	-1.1	-1.206	758.109	921.541	1135.92	15.4	20.9	23.3	23.6	23.9	DRY	DRY	7753.81	7688.24	7721.22
GHC15-1	07-15 12:00	2.68	20.49	-1.164	-1.437	758.078	921.236	1135.955	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.78	7687.94	7721.26
GHC15-1	07-15 13:00	2.69	21.95	-1.146	-1.4	758.105	921.423	1135.89	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.81	7688.12	7721.19
GHC15-1	07-15 14:00	2.7	23.16	-1.192	-1.382	758.041	921.406	1136.06	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.74	7688.11	7721.36
GHC15-1	07-15 15:00	2.7	24.22	-1.169	-1.326	758.117	921.429	1135.905	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.82	7688.13	7721.21
GHC15-1	07-15 16:00	2.69	16.04	-1.211	-1.525	758.059	921.637	1136.064	15.4	20.9	23.3	23.6	23.9	DRY	DRY	7753.76	7688.34	7721.36
GHC15-1	07-15 17:00	2.69	19.92	-1.067	-1.331	758.122	921.552	1135.95	15.4	20.9	23.3	23.6	23.9	DRY	DRY	7753.82	7688.25	7721.25
GHC15-1	07-15 18:00	2.7	20.85	-1.201	-1.469	758.081	921.576	1135.925	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.78	7688.28	7721.23
GHC15-1	07-15 19:00	2.7	18.93	-1.104	-1.289	758.1	921.644	1135.975	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.80	7688.34	7721.28
GHC15-1	07-15 20:00	2.68	14.69	-1.123	-1.294	758.044	921.508	1136.045	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.74	7688.21	7721.35
GHC15-1	07-15 21:00	2.69	12	-1.123	-1.307	758.043	921.35	1135.985	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.74	7688.05	7721.29
GHC15-1	07-15 22:00	2.68	10.64	-1.081	-1.173	758.036	921.367	1136.129	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.74	7688.07	7721.43
GHC15-1	07-15 23:00	2.65	10.24	-1.095	-1.265	758.094	921.406	1135.99	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.79	7688.11	7721.29
GHC15-1	07-16 00:00	2.66	9.37	-1.229	-1.359	758.074	921.593	1135.97	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.77	7688.29	7721.27
GHC15-1	07-16 01:00	2.65	7.74	-1.289	-1.28	757.968	921.373	1136.03	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.67	7688.07	7721.33
GHC15-1	07-16 02:00	2.64	7.12	-1.233	-1.303	758.064	921.52	1136.109	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.76	7688.22	7721.41
GHC15-1	07-16 03:00	2.64	6.43	-1.224	-1.275	758.005	921.31	1135.93	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.71	7688.01	7721.23
GHC15-1	07-16 04:00	2.63	5.89	-1.081	-1.298	758.117	921.276	1136.169	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.82	7687.98	7721.47
GHC15-1	07-16 05:00	2.63	6.48	-1.137	-1.419	758.093	921.248	1136.024	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.79	7687.95	7721.32
GHC15-1	07-16 06:00	2.63	6.82	-1.192	-1.359	758.096	921.435	1136.124	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.80	7688.14	7721.42
GHC15-1	07-16 07:00	2.64	6.68	-1.183	-1.46	758.104	921.316	1136.094	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.80	7688.02	7721.39
GHC15-1	07-16 08:00	2.64	6.9	-1.335	-1.423	758.067	921.463	1136.114	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.77	7688.16	7721.41
GHC15-1	07-16 09:00	2.64	10.97	-1.127	-1.173	758.051	921.463	1135.86	15.4	20.9	23.							

Bore Hole	LOGGER DATA			SENSOR READINGS (hertz)					SENSOR TEMPERATURES (°C)					GROUNDWATER ELEVATION CALCULATIONS				
	Day 2015	Batt V	Temp C	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5
GHC15-1	07-19 03:00	2.64	9.62	-1.303	-1.298	758.007	920.97	1135.716	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.71	7687.67	7721.02
GHC15-1	07-19 04:00	2.66	9.02	-1.201	-1.493	758.005	921.225	1135.666	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.71	7687.93	7720.97
GHC15-1	07-19 05:00	2.66	8.13	-1.118	-1.252	758.117	921.265	1135.706	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.82	7687.97	7721.01
GHC15-1	07-19 06:00	2.66	7.56	-1.197	-1.206	758	921.14	1135.895	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.70	7687.84	7721.20
GHC15-1	07-19 07:00	2.66	8.6	-1.118	-1.234	758.021	921.299	1135.91	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.72	7688.00	7721.21
GHC15-1	07-19 08:00	2.66	9.6	-1.081	-1.372	758.1	921.316	1135.801	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.80	7688.02	7721.10
GHC15-1	07-19 09:00	2.65	13.34	-1.123	-1.441	758.115	921.333	1135.83	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.82	7688.03	7721.13
GHC15-1	07-19 10:00	2.67	19.3	-1.229	-1.484	758.096	921.248	1135.775	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.80	7687.95	7721.08
GHC15-1	07-19 11:00	2.69	23.33	-1.271	-1.238	758.066	921.106	1135.751	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.77	7687.81	7721.05
GHC15-1	07-19 12:00	2.71	25.22	-1.201	-1.437	758.003	921.129	1135.636	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.70	7687.83	7720.94
GHC15-1	07-19 13:00	2.71	25.16	-1.178	-1.396	757.908	921.146	1135.661	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.61	7687.85	7720.96
GHC15-1	07-19 14:00	2.72	25.72	-1.118	-1.539	758.053	921.299	1135.581	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.75	7688.00	7720.88
GHC15-1	07-19 15:00	2.71	21.48	-1.104	-1.238	758.038	921.361	1135.636	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.74	7688.06	7720.94
GHC15-1	07-19 16:00	2.71	18.55	-1.114	-1.363	757.99	921.072	1135.77	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.69	7687.77	7721.07
GHC15-1	07-19 17:00	2.7	19.03	-1.266	-1.335	757.896	921.18	1135.775	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.60	7687.88	7721.08
GHC15-1	07-19 18:00	2.7	17.52	-1.238	-1.396	757.896	921.225	1135.806	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.60	7687.93	7721.11
GHC15-1	07-19 19:00	2.69	15.36	-1.164	-1.396	758.05	921.265	1135.676	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.75	7687.97	7720.98
GHC15-1	07-19 20:00	2.68	14.03	-1.233	-1.516	757.965	921.169	1135.785	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.67	7687.87	7721.09
GHC15-1	07-19 21:00	2.68	12.38	-1.192	-1.335	758.086	921.197	1135.855	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.79	7687.90	7721.16
GHC15-1	07-19 22:00	2.69	11.92	-1.123	-1.312	758.125	921.276	1135.701	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.83	7687.98	7721.00
GHC15-1	07-19 23:00	2.67	10.67	-1.22	-1.377	758.041	921.406	1135.686	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.74	7688.11	7720.99
GHC15-1	07-20 00:00	2.68	10.14	-1.224	-1.238	758.035	921.282	1135.711	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.74	7687.98	7721.01
GHC15-1	07-20 01:00	2.69	9.65	-1.229	-1.34	758.089	921.27	1135.696	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.79	7687.97	7721.00
GHC15-1	07-20 02:00	2.68	9.42	-1.16	-1.303	758.069	921.123	1135.811	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.77	7687.82	7721.11
GHC15-1	07-20 03:00	2.65	8.48	-1.345	-1.562	757.951	921.169	1135.88	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.65	7687.87	7721.18
GHC15-1	07-20 04:00	2.66	7.76	-1.243	-1.377	757.995	921.129	1135.746	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.70	7687.83	7721.05
GHC15-1	07-20 05:00	2.66	7.39	-1.368	-1.321	758.204	921.123	1135.746	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.90	7687.82	7721.05
GHC15-1	07-20 06:00	2.65	7.44	-1.16	-1.307	757.909	921.236	1135.785	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.61	7687.94	7721.09
GHC15-1	07-20 07:00	2.66	7.61	-1.345	-1.414	758.155	921.231	1135.915	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.86	7687.93	7721.22
GHC15-1	07-20 08:00	2.66	9.32	-1.215	-1.433	758.181	921.338	1135.756	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.88	7688.04	7721.06
GHC15-1	07-20 09:00	2.68	11.9	-1.331	-1.479	757.957	921.197	1135.716	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.66	7687.90	7721.02
GHC15-1	07-20 10:00	2.68	14.87	-1.081	-1.363	758.033	921.355	1135.736	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.73	7688.06	7721.04
GHC15-1	07-20 11:00	2.68	16.92	-1.127	-1.368	758.018	921.236	1135.661	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.72	7687.94	7720.96
GHC15-1	07-20 12:00	2.69	16.87	-1.192	-1.382	758.021	921.134	1135.606	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.72	7687.83	7720.91
GHC15-1	07-20 13:00	2.69	16.48	-1.284	-1.257	758.038	921.112	1135.591	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.74	7687.81	7720.89
GHC15-1	07-20 14:00	2.69	18.55	-1.243	-1.359	757.917	921.236	1135.581	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.62	7687.94	7720.88
GHC15-1	07-20 15:00	2.7	19.89	-1.146	-1.571	757.963	921.276	1135.691	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.66	7687.98	7720.99
GHC15-1	07-20 16:00	2.7	19.14	-1.16	-1.284	757.957	921.106	1135.622	15.4</									

Bore Hole	LOGGER DATA			SENSOR READINGS (hertz)					SENSOR TEMPERATURES (°C)					GROUNDWATER ELEVATION CALCULATIONS				
	Day 2015	Batt V	Temp C	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5
GHC15-1	07-23 10:00	2.68	21.04	-1.049	-1.428	757.874	920.965	1135.601	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.57	7687.67	7720.90
GHC15-1	07-23 11:00	2.7	23.99	-1.201	-1.433	758.056	921.185	1135.457	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.76	7687.89	7720.76
GHC15-1	07-23 12:00	2.71	24.77	-1.377	-1.382	757.942	920.828	1135.447	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.64	7687.53	7720.75
GHC15-1	07-23 13:00	2.72	25.78	-1.201	-1.354	757.93	921.061	1135.467	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.63	7687.76	7720.77
GHC15-1	07-23 14:00	2.72	26.29	-1.238	-1.456	753.182	920.959	1135.357	15.4	20.9	23.2	23.5	23.9	DRY	DRY		7687.66	7720.66
GHC15-1	07-23 15:00	2.73	27.3	-1.345	-1.21	758.024	920.8	1135.317	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.72	7687.50	7720.62
GHC15-1	07-23 16:00	2.73	26.99	-1.294	-1.298	758.029	920.981	1135.442	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.73	7687.68	7720.74
GHC15-1	07-23 17:00	2.73	26.63	-1.386	-1.53	758.02	920.919	1135.511	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.72	7687.62	7720.81
GHC15-1	07-23 18:00	2.73	26.81	-1.201	-1.474	757.896	921.004	1135.591	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.60	7687.70	7720.89
GHC15-1	07-23 19:00	2.74	27.55	-1.275	-1.289	757.977	921.14	1135.392	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.68	7687.84	7720.69
GHC15-1	07-23 20:00	2.72	21.7	-1.201	-1.405	758.102	921.066	1135.507	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.80	7687.77	7720.81
GHC15-1	07-23 21:00	2.71	18.26	-1.289	-1.289	758.013	921.015	1135.322	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.71	7687.72	7720.62
GHC15-1	07-23 22:00	2.7	15.78	-1.229	-1.428	757.965	921.049	1135.502	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.67	7687.75	7720.80
GHC15-1	07-23 23:00	2.69	13.42	-1.192	-1.326	757.885	921.004	1135.427	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.59	7687.70	7720.73
GHC15-1	07-24 00:00	2.69	13.19	-1.164	-1.35	757.866	921.032	1135.511	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.57	7687.73	7720.81
GHC15-1	07-24 01:00	2.69	13.14	-1.118	-1.34	757.948	921.015	1135.556	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.65	7687.72	7720.86
GHC15-1	07-24 02:00	2.68	11.8	-1.294	-1.372	758.087	921.14	1135.552	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.79	7687.84	7720.85
GHC15-1	07-24 03:00	2.68	10.57	-1.201	-1.433	757.856	920.857	1135.377	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.56	7687.56	7720.68
GHC15-1	07-24 04:00	2.68	11.2	-1.294	-1.303	757.945	920.947	1135.542	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.65	7687.65	7720.84
GHC15-1	07-24 05:00	2.68	12.1	-1.233	-1.303	757.994	920.987	1135.422	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.69	7687.69	7720.72
GHC15-1	07-24 06:00	2.68	12.48	-1.229	-1.307	757.885	920.93	1135.576	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.59	7687.63	7720.88
GHC15-1	07-24 07:00	2.69	13.01	-1.252	-1.127	757.914	921.1	1135.552	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.61	7687.80	7720.85
GHC15-1	07-24 08:00	2.69	14.26	-1.178	-1.484	757.973	920.845	1135.322	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.67	7687.55	7720.62
GHC15-1	07-24 09:00	2.69	16.14	-1.28	-1.321	757.926	920.93	1135.447	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.63	7687.63	7720.75
GHC15-1	07-24 10:00	2.71	18.21	-1.261	-1.196	757.893	920.8	1135.457	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.59	7687.50	7720.76
GHC15-1	07-24 11:00	2.7	18.29	-1.391	-1.354	757.886	921.095	1135.467	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.59	7687.80	7720.77
GHC15-1	07-24 12:00	2.71	23.73	-1.377	-1.28	758.021	921.01	1135.382	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.72	7687.71	7720.68
GHC15-1	07-24 13:00	2.72	25.78	-1.303	-1.363	757.909	921.066	1135.273	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.61	7687.77	7720.57
GHC15-1	07-24 14:00	2.73	26.84	-1.363	-1.382	757.944	921.089	1135.422	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.64	7687.79	7720.72
GHC15-1	07-24 15:00	2.73	25.25	-1.271	-1.419	757.97	920.999	1135.442	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.67	7687.70	7720.74
GHC15-1	07-24 16:00	2.73	24.69	-1.35	-1.464	757.934	921.129	1135.432	15.4	21	23.3	23.5	23.9	DRY	DRY	7753.63	7687.83	7720.73
GHC15-1	07-24 17:00	2.73	23.24	-1.386	-1.298	757.975	921.01	1135.562	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.68	7687.71	7720.86
GHC15-1	07-24 18:00	2.72	17.92	-1.164	-1.303	757.865	920.942	1135.377	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.57	7687.64	7720.68
GHC15-1	07-24 19:00	2.71	17.87	-1.118	-1.511	758.021	920.896	1135.377	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.72	7687.60	7720.68
GHC15-1	07-24 20:00	2.7	15.44	-1.053	-1.437	758.112	921.01	1135.482	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.81	7687.71	7720.78
GHC15-1	07-24 21:00	2.69	13.16	-1.132	-1.257	758.14	921.066	1135.472	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.84	7687.77	7720.77
GHC15-1	07-24 22:00	2.69	11.95	-1.289	-1.284	757.88	920.868	1135.507	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.58	7687.57	7720.81
GHC15-1	07-24 23:00	2.68	11.07	-1.1	-1.284	757.941	920.97	1135.482	15.4									

Bore Hole	LOGGER DATA			SENSOR READINGS (hertz)					SENSOR TEMPERATURES (°C)					GROUNDWATER ELEVATION CALCULATIONS				
	Day 2015	Batt V	Temp C	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5
GHC15-1	07-27 17:00	2.74	27.65	-1.35	-1.447	757.846	920.755	1135.283	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.55	7687.46	7720.58
GHC15-1	07-27 18:00	2.74	26.96	-1.308	-1.354	757.965	920.698	1135.217	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.67	7687.40	7720.52
GHC15-1	07-27 19:00	2.73	23.73	-1.16	-1.21	757.837	920.823	1135.367	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.54	7687.52	7720.67
GHC15-1	07-27 20:00	2.73	21.48	-1.058	-1.298	757.87	920.687	1135.352	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.57	7687.39	7720.65
GHC15-1	07-27 21:00	2.72	17.58	-1.183	-1.247	757.904	920.766	1135.277	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.60	7687.47	7720.58
GHC15-1	07-27 22:00	2.71	14.9	-1.091	-1.335	757.982	920.721	1135.482	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.68	7687.42	7720.78
GHC15-1	07-27 23:00	2.7	13.19	-1.321	-1.345	757.998	920.67	1135.427	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.70	7687.37	7720.73
GHC15-1	07-28 00:00	2.69	12.5	-1.437	-1.345	758.038	920.845	1135.352	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.74	7687.55	7720.65
GHC15-1	07-28 01:00	2.69	11.97	-1.164	-1.141	757.948	920.76	1135.482	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.65	7687.46	7720.78
GHC15-1	07-28 02:00	2.69	11.32	-1.261	-1.238	757.831	920.834	1135.516	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.53	7687.53	7720.82
GHC15-1	07-28 03:00	2.68	10.57	-1.173	-1.262	757.81	920.749	1135.377	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.51	7687.45	7720.68
GHC15-1	07-28 04:00	2.68	10.12	-1.381	-1.46	757.816	920.721	1135.546	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.52	7687.42	7720.85
GHC15-1	07-28 05:00	2.68	8.85	-1.266	-1.354	757.932	920.715	1135.412	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.63	7687.42	7720.71
GHC15-1	07-28 06:00	2.68	8.58	-1.386	-1.359	757.777	920.687	1135.552	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.48	7687.39	7720.85
GHC15-1	07-28 07:00	2.67	8.16	-1.275	-1.354	757.942	920.602	1135.382	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.64	7687.30	7720.68
GHC15-1	07-28 08:00	2.67	8.6	-1.317	-1.238	757.816	920.749	1135.467	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.52	7687.45	7720.77
GHC15-1	07-28 09:00	2.67	11.6	-1.327	-1.359	757.863	920.653	1135.531	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.56	7687.35	7720.83
GHC15-1	07-28 10:00	2.69	18.18	-1.294	-1.474	757.796	920.551	1135.362	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.50	7687.25	7720.66
GHC15-1	07-28 11:00	2.71	21.78	-1.173	-1.209	757.828	920.619	1135.233	15.4	21	23.3	23.5	23.9	DRY	DRY	7753.53	7687.32	7720.53
GHC15-1	07-28 12:00	2.72	23.44	-1.085	-1.187	757.87	920.561	1135.288	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.57	7687.26	7720.59
GHC15-1	07-28 13:00	2.72	23.82	-1.173	-1.377	757.873	920.641	1135.337	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.57	7687.34	7720.64
GHC15-1	07-28 14:00	2.72	23.96	-1.368	-1.199	757.911	920.63	1135.367	15.4	21	23.3	23.5	23.9	DRY	DRY	7753.61	7687.33	7720.67
GHC15-1	07-28 15:00	2.73	25.27	-1.192	-1.294	757.809	920.76	1135.283	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.51	7687.46	7720.58
GHC15-1	07-28 16:00	2.73	26.44	-1.247	-1.307	758.041	920.755	1135.382	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.74	7687.46	7720.68
GHC15-1	07-28 17:00	2.74	26.02	-1.155	-1.316	757.944	920.755	1135.357	15.4	21	23.3	23.5	23.9	DRY	DRY	7753.64	7687.46	7720.66
GHC15-1	07-28 18:00	2.74	24.92	-1.095	-1.479	757.878	920.738	1135.432	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.58	7687.44	7720.73
GHC15-1	07-28 19:00	2.73	22	-1.155	-1.433	757.841	920.721	1135.273	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.54	7687.42	7720.57
GHC15-1	07-28 20:00	2.72	17.21	-1.275	-1.123	757.982	920.624	1135.178	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.68	7687.32	7720.48
GHC15-1	07-28 21:00	2.7	13.6	-1.266	-1.441	757.906	920.568	1135.382	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.61	7687.27	7720.68
GHC15-1	07-28 22:00	2.69	11.62	-1.313	-1.247	757.853	920.511	1135.317	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.55	7687.21	7720.62
GHC15-1	07-28 23:00	2.68	10.29	-1.224	-1.284	757.88	920.653	1135.297	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.58	7687.35	7720.60
GHC15-1	07-29 00:00	2.68	9.02	-1.1	-1.298	757.794	920.579	1135.387	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.49	7687.28	7720.69
GHC15-1	07-29 01:00	2.67	8.11	-1.114	-1.419	757.856	920.726	1135.387	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.56	7687.43	7720.69
GHC15-1	07-29 02:00	2.68	7.98	-1.178	-1.59	757.958	920.63	1135.277	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.66	7687.33	7720.58
GHC15-1	07-29 03:00	2.69	7.37	-1.132	-1.359	757.906	920.647	1135.467	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.61	7687.35	7720.77
GHC15-1	07-29 04:00	2.68	6.55	-1.169	-1.391	757.856	920.698	1135.422	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.56	7687.40	7720.72
GHC15-1	07-29 05:00	2.66	6.63	-1.34	-1.377	757.802	920.845	1135.402	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.50	7687.55	7720.70
GHC15-1	07-29 06:00	2.68	6.75	-1.238	-1.419	757.878	920.613	1135.422	15.4									

Bore Hole	LOGGER DATA			SENSOR READINGS (hertz)					SENSOR TEMPERATURES (°C)					GROUNDWATER ELEVATION CALCULATIONS				
	Day 2015	Batt V	Temp C	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5
GHC15-1	08-01 00:00	2.68	9.12	-1.41	-1.242	758.043	920.63	1135.352	15.4	21	23.3	23.5	23.9	DRY	DRY	7753.74	7687.33	7720.65
GHC15-1	08-01 01:00	2.67	8.65	-1.275	-1.247	758.014	920.624	1135.073	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.71	7687.32	7720.37
GHC15-1	08-01 02:00	2.68	7.96	-1.233	-1.21	758.107	920.579	1135.382	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.81	7687.28	7720.68
GHC15-1	08-01 03:00	2.67	7.19	-1.141	-1.354	758.038	920.664	1135.472	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.74	7687.36	7720.77
GHC15-1	08-01 04:00	2.66	7.34	-1.187	-1.298	757.952	920.619	1135.372	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.65	7687.32	7720.67
GHC15-1	08-01 05:00	2.66	7.88	-1.215	-1.386	758.119	920.891	1135.442	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.82	7687.59	7720.74
GHC15-1	08-01 06:00	2.69	7.41	-1.137	-1.46	758.071	920.585	1135.382	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.77	7687.29	7720.68
GHC15-1	08-01 07:00	2.63	7.29	-1.35	-1.321	758.081	920.743	1135.437	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.78	7687.44	7720.74
GHC15-1	08-01 08:00	2.68	7.86	-1.4	-1.298	757.93	920.732	1135.462	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.63	7687.43	7720.76
GHC15-1	08-01 09:00	2.66	10.37	-1.173	-1.409	758.074	920.619	1135.362	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.77	7687.32	7720.66
GHC15-1	08-01 10:00	2.69	18.74	-1.247	-1.294	757.929	920.845	1135.352	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.63	7687.55	7720.65
GHC15-1	08-01 11:00	2.7	21.34	-1.271	-1.331	757.873	920.641	1135.432	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.57	7687.34	7720.73
GHC15-1	08-01 12:00	2.71	23.62	-1.151	-1.274	757.835	920.596	1135.337	15.4	21	23.3	23.5	23.9	DRY	DRY	7753.54	7687.30	7720.64
GHC15-1	08-01 13:00	2.72	24.48	-1.243	-1.362	757.789	920.658	1135.193	15.4	21	23.3	23.5	23.9	DRY	DRY	7753.49	7687.36	7720.49
GHC15-1	08-01 14:00	2.72	26.66	-1.256	-1.265	757.855	920.636	1135.247	15.4	21	23.3	23.5	23.9	DRY	DRY	7753.56	7687.34	7720.55
GHC15-1	08-01 15:00	2.72	22.54	-1.178	-1.399	758.053	920.766	1135.317	15.4	21	23.3	23.5	23.9	DRY	DRY	7753.75	7687.47	7720.62
GHC15-1	08-01 16:00	2.71	17.29	-1.183	-1.447	758.119	920.749	1135.317	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.82	7687.45	7720.62
GHC15-1	08-01 17:00	2.71	16.89	-0.956	-1.28	758.094	920.568	1135.472	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.79	7687.27	7720.77
GHC15-1	08-01 18:00	2.71	20.22	-1.123	-1.214	758.079	920.806	1135.343	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.78	7687.51	7720.64
GHC15-1	08-01 19:00	2.71	16.95	-1.076	-1.367	757.99	920.947	1135.372	15.4	21	23.3	23.5	23.9	DRY	DRY	7753.69	7687.65	7720.67
GHC15-1	08-01 20:00	2.7	14.05	-1.1	-1.335	757.988	920.777	1135.283	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.69	7687.48	7720.58
GHC15-1	08-01 21:00	2.69	11.32	-1.224	-1.35	757.958	920.698	1135.283	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.66	7687.40	7720.58
GHC15-1	08-01 22:00	2.67	10.09	-1.28	-1.433	758.057	920.5	1135.472	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.76	7687.20	7720.77
GHC15-1	08-01 23:00	2.67	9.79	-1.247	-1.307	757.992	920.607	1135.437	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.69	7687.31	7720.74
GHC15-1	08-02 00:00	2.68	9.89	-1.252	-1.242	758.044	920.766	1135.337	15.4	21	23.2	23.5	23.9	DRY	DRY	7753.74	7687.47	7720.64
GHC15-1	08-02 01:00	2.67	10.47	-1.169	-1.353	758.109	920.766	1135.352	15.4	21	23.3	23.5	23.9	DRY	DRY	7753.81	7687.47	7720.65
GHC15-1	08-02 02:00	2.68	10.49	-1.197	-1.303	757.93	920.505	1135.367	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.63	7687.21	7720.67
GHC15-1	08-02 03:00	2.68	10.02	-1.118	-1.321	758.005	920.483	1135.437	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.71	7687.18	7720.74
GHC15-1	08-02 04:00	2.67	9.74	-1.266	-1.409	757.912	920.732	1135.333	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.61	7687.43	7720.63
GHC15-1	08-02 05:00	2.68	8.92	-1.238	-6.965	758.076	920.766	1135.417	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.78	7687.47	7720.72
GHC15-1	08-02 06:00	2.67	9.05	-1.229	-1.099	757.985	920.698	1135.392	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.69	7687.40	7720.69
GHC15-1	08-02 07:00	2.68	9.79	-1.146	-1.414	758.156	920.749	1135.477	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.86	7687.45	7720.78
GHC15-1	08-02 08:00	2.68	11.42	-1.266	-1.534	758.059	920.613	1135.357	15.4	20.9	23.3	23.5	23.9	DRY	DRY	7753.76	7687.31	7720.66
GHC15-1	08-02 09:00	2.69	14.8	-1.183	-1.405	757.985	920.528	1135.546	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.69	7687.23	7720.85
GHC15-1	08-02 10:00	2.7	18.85	-1.137	-1.274	758.155	920.715	1135.516	15.4	21	23.3	23.5	23.9	DRY	DRY	7753.86	7687.42	7720.82
GHC15-1	08-02 11:00	2.71	23.9	-1.201	-1.469	757.992	920.534	1135.213	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.69	7687.23	7720.51
GHC15-1	08-02 12:00	2.72	24.66	-1.155	-1.357	757.861	920.522	1135.302	15.4	21	23.3	23.5	23.9	DRY	DRY	7753.56	7687.22	7720.60
GHC15-1	08-02 13:00	2.72	24.34	-1.261	-1.303	757.988	920.653	1135.273	15.4	20.9								

Bore Hole	LOGGER DATA			SENSOR READINGS (hertz)					SENSOR TEMPERATURES (°C)					GROUNDWATER ELEVATION CALCULATIONS				
	Day 2015	Batt V	Temp C	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5
GHC15-1	08-05 07:00	2.66	6.6	-1.299	-1.53	757.777	920.483	1135.252	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.48	7687.18	7720.55
GHC15-1	08-05 08:00	2.66	6.28	-1.252	-1.214	757.852	920.415	1135.198	15.4	21	23.3	23.5	23.9	DRY	DRY	7753.55	7687.12	7720.50
GHC15-1	08-05 09:00	2.66	9.35	-1.187	-1.367	757.881	920.59	1135.053	15.4	21	23.3	23.5	23.9	DRY	DRY	7753.58	7687.29	7720.35
GHC15-1	08-05 10:00	2.69	19.68	-1.335	-1.118	757.837	920.534	1135.068	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.54	7687.23	7720.37
GHC15-1	08-05 11:00	2.7	24.28	-1.299	-1.312	757.985	920.42	1135.104	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.69	7687.12	7720.40
GHC15-1	08-05 12:00	2.71	25.54	-1.127	-1.302	757.863	920.454	1135.148	15.4	21	23.2	23.5	23.9	DRY	DRY	7753.56	7687.15	7720.45
GHC15-1	08-05 13:00	2.71	25.81	-1.428	-1.376	757.853	920.505	1135.068	15.4	21	23.2	23.5	23.9	DRY	DRY	7753.55	7687.21	7720.37
GHC15-1	08-05 14:00	2.72	26.75	-1.284	-1.238	757.912	920.221	1135.008	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.61	7686.92	7720.31
GHC15-1	08-05 15:00	2.73	27.96	-1.381	-1.335	757.759	920.398	1135.068	15.4	21	23.3	23.5	23.9	DRY	DRY	7753.46	7687.10	7720.37
GHC15-1	08-05 16:00	2.73	26.93	-1.132	-1.214	757.919	920.602	1135.073	15.4	21	23.2	23.5	23.9	DRY	DRY	7753.62	7687.30	7720.37
GHC15-1	08-05 17:00	2.73	28.21	-1.35	-1.459	757.82	920.42	1135.078	15.4	21	23.2	23.5	23.9	DRY	DRY	7753.52	7687.12	7720.38
GHC15-1	08-05 18:00	2.74	27.96	-1.192	-1.232	757.848	920.59	1135.143	15.4	21	23.3	23.5	23.9	DRY	DRY	7753.55	7687.29	7720.44
GHC15-1	08-05 19:00	2.73	25.75	-1.197	-1.164	757.919	920.313	1135.113	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.62	7687.01	7720.41
GHC15-1	08-05 20:00	2.73	21.92	-1.137	-1.353	757.823	920.386	1135.023	15.4	21	23.2	23.5	23.9	DRY	DRY	7753.52	7687.09	7720.32
GHC15-1	08-05 21:00	2.71	17.97	-1.525	-1.25	757.967	920.42	1135.053	15.4	21	23.3	23.5	23.9	DRY	DRY	7753.67	7687.12	7720.35
GHC15-1	08-05 22:00	2.7	15.83	-1.104	-1.464	757.855	920.568	1135.008	15.4	21	23.3	23.5	23.9	DRY	DRY	7753.56	7687.27	7720.31
GHC15-1	08-05 23:00	2.7	14.67	-1.396	-1.478	758	920.38	1135.073	15.4	21	23.3	23.5	23.9	DRY	DRY	7753.70	7687.08	7720.33
GHC15-1	08-06 00:00	2.69	13.83	-1.224	-1.311	757.837	920.409	1135.118	15.4	21	23.2	23.5	23.9	DRY	DRY	7753.54	7687.11	7720.42
GHC15-1	08-06 01:00	2.68	13.42	-1.275	-1.279	757.895	920.636	1135.138	15.4	21	23.3	23.5	23.9	DRY	DRY	7753.60	7687.34	7720.44
GHC15-1	08-06 02:00	2.68	12.45	-1.206	-1.131	757.885	920.426	1135.148	15.4	21	23.3	23.5	23.9	DRY	DRY	7753.59	7687.13	7720.45
GHC15-1	08-06 03:00	2.69	11.57	-1.243	-1.256	757.81	920.347	1135.088	15.4	21	23.2	23.5	23.9	DRY	DRY	7753.51	7687.05	7720.39
GHC15-1	08-06 04:00	2.68	11.07	-1.335	-1.394	757.841	920.244	1135.133	15.4	21	23.3	23.5	23.9	DRY	DRY	7753.54	7686.94	7720.43
GHC15-1	08-06 05:00	2.68	10.84	-1.335	-1.363	757.889	920.194	1135.058	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.59	7686.89	7720.36
GHC15-1	08-06 06:00	2.68	10.24	-1.327	-1.368	757.979	920.267	1135.003	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.68	7686.97	7720.30
GHC15-1	08-06 07:00	2.67	9.92	-1.114	-1.247	757.873	920.25	1135.088	15.4	21	23.2	23.5	23.9	DRY	DRY	7753.57	7686.95	7720.39
GHC15-1	08-06 08:00	2.68	10.67	-1.233	-1.229	757.922	920.375	1135.178	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.62	7687.08	7720.48
GHC15-1	08-06 09:00	2.68	12.08	-1.359	-1.414	757.837	920.437	1135.088	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.54	7687.14	7720.39
GHC15-1	08-06 10:00	2.69	19.84	-1.118	-1.279	757.812	920.585	1135.108	15.4	21	23.3	23.5	23.9	DRY	DRY	7753.51	7687.29	7720.41
GHC15-1	08-06 11:00	2.7	23.73	-1.34	-1.186	757.917	920.364	1135.123	15.4	21	23.3	23.5	23.9	DRY	DRY	7753.62	7687.06	7720.42
GHC15-1	08-06 12:00	2.71	25.19	-1.474	-1.422	757.868	920.409	1134.964	15.4	21	23.3	23.5	23.9	DRY	DRY	7753.57	7687.11	7720.26
GHC15-1	08-06 13:00	2.72	25.45	-1.299	-1.269	757.848	920.477	1135.138	15.4	21	23.3	23.5	23.9	DRY	DRY	7753.55	7687.18	7720.44
GHC15-1	08-06 14:00	2.72	25.72	-1.289	-1.232	757.837	920.534	1135.083	15.4	21	23.2	23.5	23.9	DRY	DRY	7753.54	7687.23	7720.38
GHC15-1	08-06 15:00	2.73	26.99	-1.252	-1.247	757.87	920.244	1135.128	15.4	21	23.2	23.5	23.9	DRY	DRY	7753.57	7686.94	7720.43
GHC15-1	08-06 16:00	2.74	29.37	-1.294	-1.26	757.76	920.444	1135.098	15.4	21	23.2	23.5	23.9	DRY	DRY	7753.46	7687.14	7720.40
GHC15-1	08-06 17:00	2.73	26.38	-1.35	-1.199	757.873	920.079	1134.864	15.4	21	23.2	23.5	23.9	DRY	DRY	7753.57	7686.78	7720.16
GHC15-1	08-06 18:00	2.73	24.08	-1.321	-1.177	757.85	920.46	1135.058	15.4	21	23.2	23.5	23.9	DRY	DRY	7753.55	7687.16	7720.36
GHC15-1	08-06 19:00	2.72	20.95	-1.359	-1.311	757.822	920.233	1134.929	15.4	21	23.3	23.5	23.9	DRY	DRY	7753.52	7686.93	7720.23
GHC15-1	08-06 20:00	2.71	17.89	-1.368	-1.223	757.883	920.352	1135.044	15.4	21	23.2	23.5	23.9	DRY				

Bore Hole	LOGGER DATA			SENSOR READINGS (hertz)					SENSOR TEMPERATURES (°C)					GROUNDWATER ELEVATION CALCULATIONS				
	Day 2015	Batt V	Temp C	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5
GHC15-1	08-09 14:00	2.73	25.39	-1.459	-1.283	757.828	920.04	1134.66	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.53	7686.74	7719.96
GHC15-1	08-09 15:00	2.73	23.99	-1.357	-1.311	757.764	920.221	1134.874	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.46	7686.92	7720.17
GHC15-1	08-09 16:00	2.72	22	-1.548	-1.325	757.789	920.488	1134.859	15.4	21	23.3	23.5	23.9	DRY	DRY	7753.49	7687.19	7720.16
GHC15-1	08-09 17:00	2.72	23.59	-1.326	-1.247	757.914	920.426	1134.854	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.61	7687.13	7720.15
GHC15-1	08-09 18:00	2.72	26.08	-1.47	-1.441	757.826	920.267	1134.904	15.4	21	23.2	23.5	23.9	DRY	DRY	7753.53	7686.97	7720.20
GHC15-1	08-09 19:00	2.73	24.57	-1.396	-1.418	757.741	920.278	1134.929	15.4	21	23.2	23.5	23.9	DRY	DRY	7753.44	7686.98	7720.23
GHC15-1	08-09 20:00	2.71	17.42	-1.35	-1.056	757.891	920.182	1134.755	15.4	21	23.3	23.5	23.9	DRY	DRY	7753.59	7686.88	7720.06
GHC15-1	08-09 21:00	2.7	13.9	-1.483	-1.33	757.876	920.409	1134.809	15.4	21	23.2	23.5	23.9	DRY	DRY	7753.58	7687.11	7720.11
GHC15-1	08-09 22:00	2.68	12.15	-1.313	-1.093	757.874	920.483	1134.844	15.4	21	23.3	23.5	23.9	DRY	DRY	7753.57	7687.18	7720.14
GHC15-1	08-09 23:00	2.68	11.32	-1.224	-1.422	757.855	920.415	1134.864	15.4	21	23.3	23.5	23.9	DRY	DRY	7753.56	7687.12	7720.16
GHC15-1	08-10 00:00	2.67	10.57	-1.386	-1.274	757.843	920.301	1134.899	15.4	21	23.2	23.5	23.9	DRY	DRY	7753.54	7687.00	7720.20
GHC15-1	08-10 01:00	2.67	10.17	-1.567	-1.325	757.838	920.318	1134.64	15.4	21	23.3	23.5	23.9	DRY	DRY	7753.54	7687.02	7719.94
GHC15-1	08-10 02:00	2.67	10.27	-1.483	-1.186	757.81	920.386	1134.755	15.4	21	23.2	23.5	23.9	DRY	DRY	7753.51	7687.09	7720.06
GHC15-1	08-10 03:00	2.67	9.69	-1.511	-1.283	757.759	920.347	1135.063	15.4	21	23.3	23.5	23.9	DRY	DRY	7753.46	7687.05	7720.36
GHC15-1	08-10 04:00	2.68	8.92	-1.423	-1.33	757.874	920.5	1135.063	15.4	21	23.3	23.5	23.9	DRY	DRY	7753.57	7687.20	7720.36
GHC15-1	08-10 05:00	2.68	8.95	-1.427	-1.279	757.716	920.369	1135.063	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.42	7687.07	7720.36
GHC15-1	08-10 06:00	2.69	9.12	-1.327	-1.316	757.815	920.415	1134.934	15.4	21	23.3	23.5	23.9	DRY	DRY	7753.52	7687.12	7720.23
GHC15-1	08-10 07:00	2.67	8.73	-1.41	-1.219	757.82	920.335	1134.923	15.4	21	23.2	23.5	23.9	DRY	DRY	7753.52	7687.04	7720.22
GHC15-1	08-10 08:00	2.67	9.32	-1.313	-1.28	757.764	920.318	1134.974	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.46	7687.02	7720.27
GHC15-1	08-10 09:00	2.67	10.67	-1.521	-1.311	757.906	920.335	1134.869	15.4	21	23.2	23.5	23.9	DRY	DRY	7753.61	7687.04	7720.17
GHC15-1	08-10 10:00	2.68	15.03	-1.329	-1.223	757.911	920.313	1134.884	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.61	7687.01	7720.18
GHC15-1	08-10 11:00	2.69	17.55	-1.345	-1.303	757.906	920.352	1134.889	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.61	7687.05	7720.19
GHC15-1	08-10 12:00	2.7	16.58	-1.488	-1.214	757.856	920.494	1134.954	15.4	21	23.2	23.5	23.9	DRY	DRY	7753.56	7687.19	7720.25
GHC15-1	08-10 13:00	2.7	18.53	-1.196	-1.371	757.796	920.244	1134.904	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.50	7686.94	7720.20
GHC15-1	08-10 14:00	2.71	20.44	-1.414	-1.186	757.893	920.216	1134.884	15.4	21	23.2	23.5	23.9	DRY	DRY	7753.59	7686.92	7720.18
GHC15-1	08-10 15:00	2.71	20.9	-1.465	-1.256	757.779	920.437	1134.879	15.4	21	23.3	23.5	23.9	DRY	DRY	7753.48	7687.14	7720.18
GHC15-1	08-10 16:00	2.71	17.87	-1.548	-1.426	757.856	920.391	1134.989	15.4	21	23.2	23.5	23.9	DRY	DRY	7753.56	7687.09	7720.29
GHC15-1	08-10 17:00	2.7	13.6	-1.28	-1.348	757.813	920.335	1134.958	15.4	21	23.2	23.5	23.9	DRY	DRY	7753.51	7687.04	7720.26
GHC15-1	08-10 18:00	2.7	18.34	-1.497	-1.242	757.874	920.216	1135.083	15.4	21	23.3	23.5	23.9	DRY	DRY	7753.57	7686.92	7720.38
GHC15-1	08-10 19:00	2.7	16.04	-1.206	-1.501	757.878	920.205	1134.989	15.4	21	23.3	23.5	23.9	DRY	DRY	7753.58	7686.91	7720.29
GHC15-1	08-10 20:00	2.69	13.09	-1.47	-1.45	757.88	920.375	1134.974	15.4	21	23.2	23.5	23.9	DRY	DRY	7753.58	7687.08	7720.27
GHC15-1	08-10 21:00	2.68	10.57	-1.423	-1.214	757.803	920.239	1135.034	15.4	20.9	23.2	23.5	23.9	DRY	DRY	7753.50	7686.94	7720.33
GHC15-1	08-10 22:00	2.68	9.57	-1.308	-1.524	757.866	920.517	1134.899	15.4	21	23.2	23.5	23.9	DRY	DRY	7753.57	7687.22	7720.20
GHC15-1	08-10 23:00	2.65	9.02	-1.303	-1.367	757.886	920.341	1135.083	15.4	21	23.2	23.5	23.9	DRY	DRY	7753.59	7687.04	7720.38
GHC15-1	08-11 00:00	2.66	9.05	-1.313	-1.367	757.893	920.324	1134.958	15.4	21	23.2	23.5	23.9	DRY	DRY	7753.59	7687.02	7720.26
GHC15-1	08-11 01:00	2.67	8.7	-1.261	-1.357	757.859	920.38	1135.068	15.4	21	23.2	23.5	23.9	DRY	DRY	7753.56	7687.08	7720.37
GHC15-1	08-11 02:00	2.66	8.11	-1.34	-1.39	757.816	920.448	1134.989	15.4	21	23.2	23.5	23.9	DRY	DRY	7753.52	7687.15	7720.29
GHC15-1	08-11 03:00	2.66	8.08	-1.41	-1.256	757.88	920.239	1135.044	15.4	21	23.2	23.5	23.9	DRY	DRY	7753.58	7686.94	

Bore Hole	LOGGER DATA			SENSOR READINGS (hertz)					SENSOR TEMPERATURES (°C)					GROUNDWATER ELEVATION CALCULATIONS				
	Day 2015	Batt V	Temp C	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5
GHC15-1	08-13 21:00	2.68	11.67	-1.329	-1.26	757.843	920.284	1135.038	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.54	7686.98	7720.34
GHC15-1	08-13 22:00	2.67	11.85	-1.335	-1.292	757.878	920.33	1134.984	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.58	7687.03	7720.28
GHC15-1	08-13 23:00	2.68	11.75	-1.26	-1.51	757.934	920.375	1134.923	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.63	7687.08	7720.22
GHC15-1	08-14 00:00	2.69	11.2	-1.2	-1.283	758.016	920.335	1134.993	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.72	7687.04	7720.29
GHC15-1	08-14 01:00	2.69	10.94	-1.326	-1.385	757.914	920.262	1134.984	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.61	7686.96	7720.28
GHC15-1	08-14 02:00	2.68	9.74	-1.308	-1.311	758.169	920.528	1134.954	15.4	21	23.2	23.5	23.9	DRY	DRY	7753.87	7687.23	7720.25
GHC15-1	08-14 03:00	2.65	9.25	-1.357	-1.32	757.958	920.386	1134.854	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.66	7687.09	7720.15
GHC15-1	08-14 04:00	2.66	8.82	-1.299	-1.339	757.992	920.369	1135.014	15.4	21	23.2	23.5	23.9	DRY	DRY	7753.69	7687.07	7720.31
GHC15-1	08-14 05:00	2.67	8.6	-1.209	-1.311	757.947	920.454	1135.104	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.65	7687.15	7720.40
GHC15-1	08-14 06:00	2.67	8.38	-1.26	-1.408	757.973	920.267	1134.974	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.67	7686.97	7720.27
GHC15-1	08-14 07:00	2.66	8.53	-1.297	-1.404	757.952	920.295	1134.864	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.65	7687.00	7720.16
GHC15-1	08-14 08:00	2.68	8.95	-1.279	-1.279	757.929	920.38	1134.859	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.63	7687.08	7720.16
GHC15-1	08-14 09:00	2.63	10.72	-1.307	-1.223	758.053	920.307	1134.984	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.75	7687.01	7720.28
GHC15-1	08-14 10:00	2.68	20.44	-1.256	-1.339	757.88	920.273	1134.794	15.4	21	23.2	23.5	23.9	DRY	DRY	7753.58	7686.97	7720.09
GHC15-1	08-14 11:00	2.7	25.3	-1.178	-1.205	757.84	920.136	1134.799	15.4	21	23.2	23.5	23.9	DRY	DRY	7753.54	7686.84	7720.10
GHC15-1	08-14 12:00	2.71	26.23	-1.192	-1.487	757.979	920.273	1134.829	15.4	21	23.2	23.5	23.9	DRY	DRY	7753.68	7686.97	7720.13
GHC15-1	08-14 13:00	2.72	23.73	-1.154	-1.306	757.856	920.324	1134.834	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.56	7687.02	7720.13
GHC15-1	08-14 14:00	2.71	18.87	-1.321	-1.288	757.99	920.103	1134.958	15.4	21	23.3	23.5	23.9	DRY	DRY	7753.69	7686.80	7720.26
GHC15-1	08-14 15:00	2.7	20.46	-1.187	-1.117	758	920.273	1134.889	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.70	7686.97	7720.19
GHC15-1	08-14 16:00	2.71	22.12	-1.211	-1.232	758.102	920.143	1134.979	15.4	21	23.3	23.5	23.9	DRY	DRY	7753.80	7686.84	7720.28
GHC15-1	08-14 17:00	2.71	19.52	-1.067	-1.316	758.036	920.318	1134.909	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.74	7687.02	7720.21
GHC15-1	08-14 18:00	2.7	17.26	-1.163	-1.45	758.062	920.069	1134.869	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.76	7686.77	7720.17
GHC15-1	08-14 19:00	2.7	15.26	-1.284	-1.399	758.104	920.307	1135.023	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.80	7687.01	7720.32
GHC15-1	08-14 20:00	2.69	14.18	-1.237	-1.247	757.987	920.324	1134.984	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.69	7687.02	7720.28
GHC15-1	08-14 21:00	2.69	13.77	-1.099	-1.335	758.072	920.324	1134.923	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.77	7687.02	7720.22
GHC15-1	08-14 22:00	2.68	12.48	-1.311	-1.219	758.071	920.341	1135.028	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.77	7687.04	7720.33
GHC15-1	08-14 23:00	2.68	12.03	-1.353	-1.566	758.056	920.273	1135.048	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.76	7686.97	7720.35
GHC15-1	08-15 00:00	2.67	11.67	-1.232	-1.265	757.97	920.284	1134.969	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.67	7686.98	7720.27
GHC15-1	08-15 01:00	2.67	11.65	-1.173	-1.426	757.97	920.273	1134.989	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.67	7686.97	7720.29
GHC15-1	08-15 02:00	2.67	11.77	-1.335	-1.335	757.895	920.33	1134.923	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.60	7687.03	7720.22
GHC15-1	08-15 03:00	2.68	10.97	-1.154	-1.325	757.977	920.278	1134.923	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.68	7686.98	7720.22
GHC15-1	08-15 04:00	2.68	9.6	-1.192	-1.445	757.906	920.426	1134.984	15.4	21	23.2	23.5	23.9	DRY	DRY	7753.61	7687.13	7720.28
GHC15-1	08-15 05:00	2.68	9.45	-1.339	-1.348	758.084	920.33	1134.964	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.78	7687.03	7720.26
GHC15-1	08-15 06:00	2.64	10.22	-1.293	-1.474	758.024	920.477	1134.923	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.72	7687.18	7720.22
GHC15-1	08-15 07:00	2.66	11.2	-1.307	-1.247	758.062	920.29	1134.825	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.76	7686.99	7720.13
GHC15-1	08-15 08:00	2.69	11.57	-1.363	-1.214	757.979	920.341	1134.958	15.4	21	23.2	23.5	23.9	DRY	DRY	7753.68	7687.04	7720.26
GHC15-1	08-15 09:00	2.68	13.11	-1.256	-1.459	758.074	920.38	1134.884	15.4	21	23.2	23.5	23.9	DRY	DRY	7753.77	7687.08	7720.18
GHC15-1	08-15 10:00	2.68	19.81	-1.377	-1.399	758.035	920.131	1134.81.81										

Bore Hole	LOGGER DATA			SENSOR READINGS (hertz)					SENSOR TEMPERATURES (°C)					GROUNDWATER ELEVATION CALCULATIONS				
	Day 2015	Batt V	Temp C	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5
GHC15-1	08-18 04:00	2.65	7.76	-2.075	-1.441	757.963	920.364	1134.784	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.66	7687.06	7720.08
GHC15-1	08-18 05:00	2.65	7.27	-1.848	-1.39	757.926	920.284	1134.814	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.63	7686.98	7720.11
GHC15-1	08-18 06:00	2.65	6.6	-1.866	-1.195	757.878	920.199	1134.854	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.58	7686.90	7720.15
GHC15-1	08-18 07:00	2.64	5.72	-1.835	-1.227	757.948	920.262	1134.974	15.4	21	23.2	23.5	23.9	DRY	DRY	7753.65	7686.96	7720.27
GHC15-1	08-18 08:00	2.64	5.23	-1.872	-1.344	757.963	920.194	1134.749	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.66	7686.89	7720.05
GHC15-1	08-18 09:00	2.64	6.4	-1.909	-1.242	757.871	920.29	1134.943	15.5	21	23.3	23.5	23.8	DRY	DRY	7753.57	7686.99	7720.24
GHC15-1	08-18 10:00	2.66	15.16	-1.82	-1.33	757.762	920.16	1134.729	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.46	7686.86	7720.03
GHC15-1	08-18 11:00	2.67	18.74	-2.01	-1.205	757.818	920.16	1134.794	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.52	7686.86	7720.09
GHC15-1	08-18 12:00	2.69	19.06	-1.936	-1.112	757.855	920.216	1134.744	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.56	7686.92	7720.04
GHC15-1	08-18 13:00	2.69	18.82	-1.792	-1.371	757.98	920.216	1134.614	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.68	7686.92	7719.91
GHC15-1	08-18 14:00	2.69	19.65	-1.658	-1.269	757.757	920.187	1134.715	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.46	7686.89	7720.02
GHC15-1	08-18 15:00	2.7	21.92	-1.89	-1.302	757.853	920.177	1134.565	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.55	7686.88	7719.87
GHC15-1	08-18 16:00	2.7	19.97	-1.987	-1.367	757.853	920.086	1134.54	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.55	7686.79	7719.84
GHC15-1	08-18 17:00	2.7	20.3	-1.881	-1.353	757.992	920.301	1134.759	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.69	7687.00	7720.06
GHC15-1	08-18 18:00	2.69	16.5	-1.829	-1.191	757.809	920.262	1134.814	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.51	7686.96	7720.11
GHC15-1	08-18 19:00	2.68	12.66	-1.838	-1.279	757.841	920.069	1134.844	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.54	7686.77	7720.14
GHC15-1	08-18 20:00	2.69	9.62	-1.848	-1.436	757.798	920.205	1134.739	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.50	7686.91	7720.04
GHC15-1	08-18 21:00	2.65	7.49	-1.788	-1.307	757.84	920.205	1134.675	15.5	20.9	23.2	23.5	23.9	DRY	DRY	7753.54	7686.91	7719.98
GHC15-1	08-18 22:00	2.65	6.77	-1.895	-1.186	757.945	920.335	1134.879	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.65	7687.04	7720.18
GHC15-1	08-18 23:00	2.65	6.43	-1.968	-1.491	757.826	920.221	1134.575	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.53	7686.92	7719.88
GHC15-1	08-19 00:00	2.64	5.64	-2.006	-1.186	758.001	920.221	1134.804	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.70	7686.92	7720.10
GHC15-1	08-19 01:00	2.63	4.69	-1.965	-1.186	757.883	919.893	1134.715	15.4	21	23.2	23.5	23.9	DRY	DRY	7753.58	7686.59	7720.02
GHC15-1	08-19 02:00	2.63	4.01	-2.07	-1.205	757.83	920.103	1134.625	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.53	7686.80	7719.93
GHC15-1	08-19 03:00	2.62	3.59	-2.089	-1.227	757.837	920.143	1134.739	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.54	7686.84	7720.04
GHC15-1	08-19 04:00	2.62	3.35	-1.982	-1.311	757.922	919.904	1134.794	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.62	7686.60	7720.09
GHC15-1	08-19 05:00	2.62	3.1	-2.07	-1.237	757.781	920.074	1134.59	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.48	7686.77	7719.89
GHC15-1	08-19 06:00	2.62	2.91	-1.968	-1.195	757.843	920.273	1134.78	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.54	7686.97	7720.08
GHC15-1	08-19 07:00	2.62	2.72	-2.145	-1.311	757.88	920.052	1134.65	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.58	7686.75	7719.95
GHC15-1	08-19 08:00	2.62	3.03	-1.987	-1.181	757.889	919.977	1134.77	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.59	7686.68	7720.07
GHC15-1	08-19 09:00	2.61	4.15	-1.983	-1.39	757.886	920.108	1134.605	15.4	21	23.2	23.5	23.9	DRY	DRY	7753.59	7686.81	7719.91
GHC15-1	08-19 10:00	2.63	4.4	-2.024	-1.348	757.825	920.108	1134.775	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.53	7686.81	7720.08
GHC15-1	08-19 11:00	2.63	4.57	-1.936	-1.357	757.826	919.966	1134.68	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.53	7686.67	7719.98
GHC15-1	08-19 12:00	2.64	6.75	-2.01	-1.219	757.809	919.984	1134.665	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.51	7686.68	7719.97
GHC15-1	08-19 13:00	2.65	11.04	-2.01	-1.292	757.893	920.177	1134.501	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.59	7686.88	7719.80
GHC15-1	08-19 14:00	2.63	14.49	-2.001	-1.413	757.87	919.887	1134.594	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.57	7686.59	7719.89
GHC15-1	08-19 15:00	2.68	18.13	-2.061	-1.422	757.852	919.977	1134.694	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.55	7686.68	7719.99
GHC15-1	08-19 16:00	2.7	20.46	-1.904	-1.316	757.901	920.035	1134.501	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.60	7686.74	7719.80
GHC15-1	08-19 17:00	2.7	20.68	-1.913	-1.385	757.843	919.859	1134.715	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.54	7686.56	7720.02
GHC15-1	08-19 18:00	2.7	19.09	-1.802	-1.274	757.838	919.859	1134.475	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.54	7686.56	7719.78
GHC15-1	08-19 19:00	2.7	16.27	-1.852	-1.325	757.881	919.961	1134.655	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.58	7686.66	7719.96
GHC15-1	08-19 20:00	2.69	11.42	-1.866	-1.256	757.822	920.391	1134.496	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.52	7687.09	7719.80
GHC15-1	08-19 21:00	2.65	7.22	-2.006	-1.45	757.889	919.78	1134.55	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.59	7686.48	7719.85
GHC15-1	08-19 22:00	2.65	5.64	-1.927	-1.371	757.915	919.893	1134.575	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.62	7686.59	7719.88
GHC15-1	08-19 23:00	2.63	4.49	-1.876	-1.357	757.863	919.904	1134.62	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.56	7686.60	7719.92
GHC15-1	08-20 00:00	2.62	3.88	-2.001	-1.283	757.721	919.99	1134.57	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.42	7686.69	7719.87
GHC15-1	08-20 01:00	2.62	2.98	-1.978	-1.357	757.688	919.966	1134.49	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.39	7686.67	7719.79
GHC15-1	08-20 02:00	2.62	2.98	-1.964	-1.25	757.701	919.739	1134.614	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.40	7686.44	7719.91
GHC15-1	08-20 03:00	2.62	4.15	-1.982	-1.348	757.706	919.961	1134.535	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.41	7686.66	7719.84
GHC15-1	08-20 04:00	2.63	5.4	-2.093	-1.469	757.618	919.847	1134.535	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.32	7686.55	7719.84
GHC15-1	08-20 05:00	2.63	5.25	-1.838	-1.288	757.658	919.722	1134.451	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.36	7686.42	7719.75
GHC15-1	08-20 06:00	2.63	4.64	-2.029	-1.339	757.678	919.984	1134.55	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.38	7686.68	7719.85
GHC15-1	08-20 07:00	2.63	4.1	-2.056	-1.394	757.698	919.899	1134.589	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.40	7686.60	7719.89
GHC15-1	08-20 08:00	2.62	4.18	-2.047	-1.399	757.731	919.882	1134.465	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.43	7686.58	7719.77
GHC15-1	08-20 09:00	2.63	6.13	-2.015	-1.339	757.612	919.943	1134.501	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.31	7686.64	7719.80
GHC15-1	08-20 10:00	2.65	15.8	-1.872	-1.367	757.713	919.909	1134.435	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.41	7686.61	7719.74
GHC15-1	08-20 11:00	2.69	20	-1.959	-1.316	757.767	920.017	1134.554	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.47	7686.72	7719.85
GHC15-1	08-20 12:00	2.69	21.53	-2.015	-1.269	757.629	919.763	1134.465	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.33	7686.46	7719.77
GHC15-1	08-20 13:00	2.7	21.92	-1.932	-1.607	757.622	919.847	1134.505	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.32	7686.55	7719.81
GHC15-1	08-20 14:00	2.7	22.4	-1.885	-1.487	757.557	919.666	1134.59	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.26	7686.37	7719.89
GHC15-1	08-20 15:00	2.7	24.45	-1.964	-1.367	757.673	919.933	1134.485	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.37	7686.63	7719.79

Bore Hole	LOGGER DATA			SENSOR READINGS (hertz)					SENSOR TEMPERATURES (°C)					GROUNDWATER ELEVATION CALCULATIONS				
	Day 2015	Batt V	Temp C	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5
GHC15-1	08-22 11:00	2.69	22.65	-1.927	-1.418	757.684	919.825	1134.401	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.38	7686.53	7719.70
GHC15-1	08-22 12:00	2.7	24.31	-1.964	-1.515	757.701	919.683	1134.401	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.40	7686.38	7719.70
GHC15-1	08-22 13:00	2.7	24.77	-1.876	-1.496	757.609	919.763	1134.546	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.31	7686.46	7719.85
GHC15-1	08-22 14:00	2.7	22.17	-1.992	-1.584	757.695	919.569	1134.475	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.40	7686.27	7719.78
GHC15-1	08-22 15:00	2.7	22.26	-2.052	-1.454	757.67	919.666	1134.56	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.37	7686.37	7719.86
GHC15-1	08-22 16:00	2.7	24.1	-2.033	-1.325	757.591	919.734	1134.41	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.29	7686.43	7719.71
GHC15-1	08-22 17:00	2.71	26.35	-2.075	-1.58	757.639	919.694	1134.371	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.34	7686.39	7719.67
GHC15-1	08-22 18:00	2.71	25.39	-1.987	-1.529	757.635	919.825	1134.336	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.34	7686.53	7719.64
GHC15-1	08-22 19:00	2.71	21.34	-1.936	-1.524	757.668	919.808	1134.48	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.37	7686.51	7719.78
GHC15-1	08-22 20:00	2.69	17.08	-1.876	-1.432	757.673	919.773	1134.36	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.37	7686.47	7719.66
GHC15-1	08-22 21:00	2.68	13.01	-2.033	-1.279	757.615	919.893	1134.43	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.32	7686.59	7719.73
GHC15-1	08-22 22:00	2.68	11.77	-1.968	-1.459	757.612	919.847	1134.42	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.31	7686.55	7719.72
GHC15-1	08-22 23:00	2.66	10.67	-2.084	-1.232	757.655	919.899	1134.385	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.36	7686.60	7719.69
GHC15-1	08-23 00:00	2.65	8.8	-1.913	-1.469	757.569	919.904	1134.455	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.27	7686.60	7719.76
GHC15-1	08-23 01:00	2.65	7.88	-2.126	-1.394	757.648	919.876	1134.56	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.35	7686.58	7719.86
GHC15-1	08-23 02:00	2.64	7.56	-2.047	-1.353	757.667	919.535	1134.501	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.37	7686.24	7719.80
GHC15-1	08-23 03:00	2.64	7.24	-1.904	-1.436	757.576	919.853	1134.49	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.28	7686.55	7719.79
GHC15-1	08-23 04:00	2.64	6.95	-1.862	-1.436	757.566	919.813	1134.441	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.27	7686.51	7719.74
GHC15-1	08-23 05:00	2.64	6.68	-1.885	-1.33	757.708	919.576	1134.261	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.41	7686.28	7719.56
GHC15-1	08-23 06:00	2.64	6.28	-1.909	-1.566	757.622	919.712	1134.554	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.32	7686.41	7719.85
GHC15-1	08-23 07:00	2.64	6.11	-1.862	-1.464	757.579	919.683	1134.406	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.28	7686.38	7719.71
GHC15-1	08-23 08:00	2.64	6.38	-1.876	-1.519	757.658	919.78	1134.425	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.36	7686.48	7719.73
GHC15-1	08-23 09:00	2.64	7.81	-1.964	-1.311	757.637	919.705	1134.271	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.34	7686.41	7719.57
GHC15-1	08-23 10:00	2.65	10.29	-2.075	-1.408	757.618	919.813	1134.446	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.32	7686.51	7719.75
GHC15-1	08-23 11:00	2.66	16.14	-1.968	-1.482	757.632	919.82	1134.435	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.33	7686.52	7719.74
GHC15-1	08-23 12:00	2.67	19.11	-1.885	-1.399	757.637	919.847	1134.501	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.34	7686.55	7719.80
GHC15-1	08-23 13:00	2.69	21.09	-2.001	-1.344	757.656	919.78	1134.505	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.36	7686.48	7719.81
GHC15-1	08-23 14:00	2.7	23.3	-1.955	-1.418	757.703	919.66	1134.385	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.40	7686.36	7719.69
GHC15-1	08-23 15:00	2.7	23.04	-2.006	-1.491	757.68	919.643	1134.415	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.38	7686.34	7719.72
GHC15-1	08-23 16:00	2.71	23.47	-1.941	-1.482	757.826	919.643	1134.451	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.53	7686.34	7719.75
GHC15-1	08-23 17:00	2.71	24.16	-2.042	-1.335	757.599	919.808	1134.58	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.30	7686.51	7719.88
GHC15-1	08-23 18:00	2.71	24.28	-1.844	-1.454	757.602	919.626	1134.525	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.30	7686.33	7719.83
GHC15-1	08-23 19:00	2.7	19.19	-1.992	-1.339	757.617	919.746	1134.465	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.32	7686.45	7719.77
GHC15-1	08-23 20:00	2.69	14.52	-1.973	-1.357	757.596	919.739	1134.496	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.30	7686.44	7719.80
GHC15-1	08-23 21:00	2.69	11.52	-1.964	-1.506	757.731	919.836	1134.375	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.43	7686.54	7719.68
GHC15-1	08-23 22:00	2.66	10.27	-1.862	-1.242	757.698	919.859	1134.441	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.40	7686.56	7719.74
GHC15-1	08-23 23:00	2.66	8.7	-2.047	-1.311	757.675	919.746	1134.371	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.38	7686.45	7719.67
GHC15-1	08-24 00:00	2.65	7.71	-2.13	-1.279	757.675	919.757	1134.546	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.38	7686.46</	

Bore Hole	LOGGER DATA			SENSOR READINGS (hertz)					SENSOR TEMPERATURES (°C)					GROUNDWATER ELEVATION CALCULATIONS				
	Day 2015	Batt V	Temp C	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5
GHC15-1	08-26 18:00	2.69	18.77	-1.779	-1.247	757.951	919.728	1134.54	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.65	7686.43	7719.84
GHC15-1	08-26 19:00	2.69	15.7	-1.968	-1.381	757.895	919.717	1134.42	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.60	7686.42	7719.72
GHC15-1	08-26 20:00	2.69	12.96	-1.723	-1.348	757.843	920.029	1134.375	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.54	7686.73	7719.68
GHC15-1	08-26 21:00	2.68	10.77	-1.918	-1.256	757.831	919.825	1134.49	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.53	7686.53	7719.79
GHC15-1	08-26 22:00	2.65	9.45	-1.885	-1.501	757.899	919.632	1134.461	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.60	7686.33	7719.76
GHC15-1	08-26 23:00	2.65	8.87	-1.829	-1.167	757.858	919.916	1134.47	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.56	7686.62	7719.77
GHC15-1	08-27 00:00	2.65	8.13	-1.806	-1.344	757.84	919.757	1134.505	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.54	7686.46	7719.81
GHC15-1	08-27 01:00	2.64	7.86	-1.802	-1.265	757.885	919.689	1134.53	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.59	7686.39	7719.83
GHC15-1	08-27 02:00	2.64	7.83	-1.881	-1.663	757.929	919.638	1134.48	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.63	7686.34	7719.78
GHC15-1	08-27 03:00	2.64	8.06	-1.654	-1.232	757.843	919.82	1134.375	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.54	7686.52	7719.68
GHC15-1	08-27 04:00	2.64	8.21	-1.992	-1.353	757.84	919.632	1134.41	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.54	7686.33	7719.71
GHC15-1	08-27 05:00	2.64	8.21	-2.075	-1.478	757.837	919.773	1134.391	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.54	7686.47	7719.69
GHC15-1	08-27 06:00	2.64	7.78	-1.751	-1.33	757.904	919.7	1134.446	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.60	7686.40	7719.75
GHC15-1	08-27 07:00	2.64	8.03	-2.075	-1.432	757.908	919.943	1134.415	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.61	7686.64	7719.72
GHC15-1	08-27 08:00	2.65	9.27	-2.098	-1.205	757.738	919.803	1134.381	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.44	7686.50	7719.68
GHC15-1	08-27 09:00	2.65	10.57	-1.982	-1.205	757.93	919.83	1134.52	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.63	7686.53	7719.82
GHC15-1	08-27 10:00	2.66	12.33	-1.885	-1.45	757.936	919.751	1134.42	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.64	7686.45	7719.72
GHC15-1	08-27 11:00	2.64	17.94	-1.946	-1.283	757.781	919.751	1134.451	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.48	7686.45	7719.75
GHC15-1	08-27 12:00	2.69	22.37	-1.941	-1.205	757.746	919.683	1134.515	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.45	7686.38	7719.82
GHC15-1	08-27 13:00	2.69	19.06	-1.964	-1.25	757.911	919.694	1134.485	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.61	7686.39	7719.79
GHC15-1	08-27 14:00	2.69	20.54	-1.955	-1.195	757.84	919.705	1134.485	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.54	7686.41	7719.79
GHC15-1	08-27 15:00	2.7	22.4	-1.946	-1.26	757.779	919.847	1134.605	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.48	7686.55	7719.91
GHC15-1	08-27 16:00	2.7	22.4	-1.918	-1.274	757.917	919.751	1134.535	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.62	7686.45	7719.84
GHC15-1	08-27 17:00	2.7	19.11	-1.885	-1.209	758.024	919.615	1134.401	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.72	7686.32	7719.70
GHC15-1	08-27 18:00	2.7	20.08	-1.927	-1.232	757.871	919.943	1134.446	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.57	7686.64	7719.75
GHC15-1	08-27 19:00	2.68	14.72	-1.899	-1.195	757.837	919.598	1134.41	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.54	7686.30	7719.71
GHC15-1	08-27 20:00	2.69	11.55	-1.848	-1.103	757.863	919.763	1134.52	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.56	7686.46	7719.82
GHC15-1	08-27 21:00	2.66	10.57	-1.923	-1.297	757.939	919.739	1134.475	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.64	7686.44	7719.78
GHC15-1	08-27 22:00	2.65	9.89	-1.95	-1.459	757.873	920.029	1134.48	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.57	7686.73	7719.78
GHC15-1	08-27 23:00	2.64	8.35	-1.927	-1.232	757.83	919.746	1134.546	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.53	7686.45	7719.85
GHC15-1	08-28 00:00	2.64	7.24	-1.936	-1.302	757.777	919.82	1134.465	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.48	7686.52	7719.77
GHC15-1	08-28 01:00	2.63	7.09	-2.056	-1.404	757.977	919.581	1134.49	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.68	7686.28	7719.79
GHC15-1	08-28 02:00	2.64	7.34	-2.098	-1.205	757.889	919.694	1134.425	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.59	7686.39	7719.73
GHC15-1	08-28 03:00	2.64	7.27	-2.019	-1.302	757.731	919.791	1134.501	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.43	7686.49	7719.80
GHC15-1	08-28 04:00	2.64	7.22	-2.038	-1.265	757.826	919.666	1134.446	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.53	7686.37	7719.75
GHC15-1	08-28 05:00	2.64	7.39	-1.964	-1.348	757.816	919.768	1134.385	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.52	7686.47	7719.69
GHC15-1	08-28 06:00	2.64	7.29	-2.056	-1.459	757.833	919.65	1134.446	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.53	7686.35	7719.75
GHC15-1	08-28 07:00	2.64	7.04	-1.973	-1.353	757.797	919.763	1134.535	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.50	7686.46	7719.84
GHC15-1	08-28 08:00	2.64	7.07	-1.996	-1.199	757.813	919.786	1134.42	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.51	7686.49	7719.72
GHC15-1	08-28 09:00	2.63	7.76	-1.992	-1.199	757.87	919.853	1134.301	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.57	7686.55	7719.60
GHC15-1	08-28 10:00	2.65	13.65	-2.033	-1.247	757.833	919.694	1134.51	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.53	7686.39	7719.81
GHC15-1	08-28 11:00	2.66	16.19	-1.927	-1.265	757.881	919.739	1134.391	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.58	7686.44	7719.69
GHC15-1	08-28 12:00	2.67	17.92	-1.959	-1.265	757.888	919.83	1134.396	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.59	7686.53	7719.70
GHC15-1	08-28 13:00	2.69	19.6	-1.927	-1.306	757.909	919.904	1134.585	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.61	7686.60	7719.89
GHC15-1	08-28 14:00	2.69	22.34	-1.89	-1.247	757.873	919.655	1134.345	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.57	7686.36	7719.65
GHC15-1	08-28 15:00	2.69	23.73	-1.899	-1.413	757.782	919.757	1134.425	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.48	7686.46	7719.73
GHC15-1	08-28 16:00	2.69	18.71	-1.866	-1.274	757.954	919.683	1134.381	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.65	7686.38	7719.68
GHC15-1	08-28 17:00	2.69	18.9	-1.927	-1.08	757.909	919.717	1134.41	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.61	7686.42	7719.71
GHC15-1	08-28 18:00	2.69	17.34	-2.038	-1.32	757.866	919.576	1134.316	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.57	7686.28	7719.62
GHC15-1	08-28 19:00	2.69	14.05	-1.964	-1.237	757.798	919.791	1134.316	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.50	7686.49	7719.62
GHC15-1	08-28 20:00	2.68	12.23	-1.968	-1.441	757.973	919.847	1134.501	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.67	7686.55	7719.80
GHC15-1	08-28 21:00	2.66	10.77	-2.006	-1.199	757.85	919.552	1134.446	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.55	7686.25	7719.75
GHC15-1	08-28 22:00	2.66	9.74	-2.024	-1.445	757.796	919.728	1134.49	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.50	7686.43	7719.79
GHC15-1	08-28 23:00	2.65	9	-2.084	-1.413	757.848	919.87	1134.49	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.55	7686.57	7719.79
GHC15-1	08-29 00:00	2.64	8.35	-2.163	-1.227	757.85	919.825	1134.546	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.55	7686.53	7719.85
GHC15-1	08-29 01:00	2.64	7.61	-1.866	-1.316	757.826	919.603	1134.505	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.53	7686.30	7719.81
GHC15-1	08-29 02:00	2.63	7.12	-2.089	-1.404	757.781	919.689	1134.605	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.48	7686.39	7719.91
GHC15-1	08-29 03:00	2.64	7.32	-1.996	-1.344	757.856	919.83	1134.525	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.56	7686.53	7719.83
GHC15-1	08-29 04:00	2.64	7.37	-1.788	-1.33	757.876	919.847	1134.47	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.58	7686.55	7719.77
GHC15-1	08-29 05:00	2.63	6.82	-2.056	-1.306	757.886	919.859	1134.525	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.59	7686.56	7719.8

Bore Hole	LOGGER DATA			SENSOR READINGS (hertz)					SENSOR TEMPERATURES (°C)					GROUNDWATER ELEVATION CALCULATIONS				
	Day 2015	Batt V	Temp C	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5
GHC15-1	08-31 01:00	2.66	11.42	-1.941	-1.292	757.896	919.496	1134.306	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.60	7686.20	7719.61
GHC15-1	08-31 02:00	2.65	10.62	-1.973	-1.603	757.863	919.581	1134.441	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.56	7686.28	7719.74
GHC15-1	08-31 03:00	2.65	10.52	-2.019	-1.524	757.922	919.773	1134.391	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.62	7686.47	7719.69
GHC15-1	08-31 04:00	2.64	10.24	-1.941	-1.269	757.902	919.728	1134.301	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.60	7686.43	7719.60
GHC15-1	08-31 05:00	2.65	9.82	-1.932	-1.205	757.855	919.564	1134.241	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.56	7686.26	7719.54
GHC15-1	08-31 06:00	2.65	9.92	-1.927	-1.247	757.833	919.581	1134.181	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.53	7686.28	7719.48
GHC15-1	08-31 07:00	2.65	10.19	-1.968	-1.344	757.843	919.564	1134.311	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.54	7686.26	7719.61
GHC15-1	08-31 08:00	2.65	10.92	-1.959	-1.279	757.764	919.717	1134.401	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.46	7686.42	7719.70
GHC15-1	08-31 09:00	2.65	12.38	-2.126	-1.177	757.8	919.626	1134.36	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.50	7686.33	7719.66
GHC15-1	08-31 10:00	2.66	14.95	-2.01	-1.219	757.871	919.524	1134.375	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.57	7686.22	7719.68
GHC15-1	08-31 11:00	2.67	20.22	-1.904	-1.232	757.912	919.677	1134.291	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.61	7686.38	7719.59
GHC15-1	08-31 12:00	2.69	20.85	-1.959	-1.199	757.759	919.621	1134.216	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.46	7686.32	7719.52
GHC15-1	08-31 13:00	2.69	24.28	-2.047	-1.436	757.798	919.558	1134.117	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.50	7686.26	7719.42
GHC15-1	08-31 14:00	2.7	23.59	-2.121	-1.112	757.825	919.615	1134.42	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.53	7686.32	7719.72
GHC15-1	08-31 15:00	2.69	18.77	-2.089	-1.325	757.828	919.893	1134.391	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.53	7686.59	7719.69
GHC15-1	08-31 16:00	2.68	13.47	-2.07	-1.311	757.88	919.513	1134.55	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.58	7686.21	7719.85
GHC15-1	08-31 17:00	2.68	18.39	-1.895	-1.227	757.76	919.689	1134.455	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.46	7686.39	7719.76
GHC15-1	08-31 18:00	2.68	16.42	-1.834	-1.538	757.807	919.712	1134.61	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.51	7686.41	7719.91
GHC15-1	08-31 19:00	2.68	13.16	-2.001	-1.362	757.742	919.717	1134.485	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.44	7686.42	7719.79
GHC15-1	08-31 20:00	2.66	11.22	-1.904	-1.237	757.917	919.739	1134.401	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.62	7686.44	7719.70
GHC15-1	08-31 21:00	2.65	9.89	-2.01	-1.283	757.85	919.581	1134.47	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.55	7686.28	7719.77
GHC15-1	08-31 22:00	2.65	9.02	-2.052	-1.45	757.901	919.638	1134.49	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.60	7686.34	7719.79
GHC15-1	08-31 23:00	2.64	8.21	-2.223	-1.242	757.82	919.638	1134.365	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.52	7686.34	7719.67
GHC15-1	09-01 00:00	2.64	7.76	-1.95	-1.335	757.813	919.479	1134.306	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.51	7686.18	7719.61
GHC15-1	09-01 01:00	2.64	7.74	-2.033	-1.588	757.661	919.502	1133.941	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.36	7686.20	7719.24
GHC15-1	09-01 02:00	2.64	7.09	-1.941	-1.26	757.747	919.638	1134.355	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.45	7686.34	7719.66
GHC15-1	09-01 03:00	2.63	6.65	-2.075	-1.371	757.767	919.552	1134.166	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.47	7686.25	7719.47
GHC15-1	09-01 04:00	2.63	6.45	-2.01	-1.247	757.871	919.377	1134.336	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.57	7686.08	7719.64
GHC15-1	09-01 05:00	2.63	5.89	-2.084	-1.112	757.859	919.576	1134.296	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.56	7686.28	7719.60
GHC15-1	09-01 06:00	2.63	5.25	-2.01	-1.242	757.896	919.535	1134.42	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.60	7686.24	7719.72
GHC15-1	09-01 07:00	2.63	5.11	-1.978	-1.297	757.767	919.473	1134.485	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.47	7686.17	7719.79
GHC15-1	09-01 08:00	2.62	5.55	-1.899	-1.306	757.871	919.445	1134.401	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.57	7686.15	7719.70
GHC15-1	09-01 09:00	2.63	7.98	-1.946	-1.325	757.912	919.484	1134.186	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.61	7686.18	7719.49
GHC15-1	09-01 10:00	2.64	11.62	-2.029	-1.302	757.771	919.722	1134.371	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.47	7686.42	7719.67
GHC15-1	09-01 11:00	2.66	15.26	-2.089	-1.325	757.79	919.479	1134.251	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.49	7686.18	7719.55
GHC15-1	09-01 12:00	2.69	18.08	-1.973	-1.426	757.783	919.638	1134.53	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.48	7686.34	7719.83
GHC15-1	09-01 13:00	2.68	20.9	-1.932	-1.399	757.744	919.524	1134.271	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.44	7686.22	7719.57
GHC15-1	09-01 14:00	2.69	22.12	-1.932	-1.394	757.612	919.542	1134.251	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.31	7686.	

Bore Hole	LOGGER DATA			SENSOR READINGS (hertz)					SENSOR TEMPERATURES (°C)					GROUNDWATER ELEVATION CALCULATIONS				
	Day 2015	Batt V	Temp C	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5
GHC15-1	09-04 08:00	2.62	6.82	-2.093	-1.58	757.624	919.371	1134.172	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.32	7686.07	7719.47
GHC15-1	09-04 09:00	2.63	9.27	-2.103	-1.399	757.551	919.643	1134.191	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.25	7686.34	7719.49
GHC15-1	09-04 10:00	2.64	12.96	-1.946	-1.274	757.625	919.712	1134.117	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.33	7686.41	7719.42
GHC15-1	09-04 11:00	2.66	16.61	-1.788	-1.515	757.675	919.547	1134.042	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.38	7686.25	7719.34
GHC15-1	09-04 12:00	2.65	18.71	-2.126	-1.367	757.565	919.751	1134.126	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.27	7686.45	7719.43
GHC15-1	09-04 13:00	2.66	20.35	-2.148	-1.474	757.574	919.638	1134.241	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.27	7686.34	7719.54
GHC15-1	09-04 14:00	2.68	21.39	-1.909	-1.542	757.673	919.496	1134.236	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.37	7686.20	7719.54
GHC15-1	09-04 15:00	2.68	20.08	-2.019	-1.635	757.609	919.513	1134.012	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.31	7686.21	7719.31
GHC15-1	09-04 16:00	2.67	18.1	-1.923	-1.408	757.772	919.49	1134.022	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.47	7686.19	7719.32
GHC15-1	09-04 17:00	2.69	16.66	-1.932	-1.594	757.556	919.757	1134.106	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.26	7686.46	7719.41
GHC15-1	09-04 18:00	2.66	13.77	-2.103	-1.496	757.668	919.638	1134.141	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.37	7686.34	7719.44
GHC15-1	09-04 19:00	2.65	11.27	-2.07	-1.381	757.596	919.581	1134.086	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.30	7686.28	7719.39
GHC15-1	09-04 20:00	2.65	10.89	-2.084	-1.51	757.579	919.632	1134.036	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.28	7686.33	7719.34
GHC15-1	09-04 21:00	2.64	10.37	-2.117	-1.57	757.526	919.547	1134.112	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.23	7686.25	7719.41
GHC15-1	09-04 22:00	2.64	9.6	-2.093	-1.529	757.503	919.655	1134.042	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.20	7686.36	7719.34
GHC15-1	09-04 23:00	2.63	9.35	-2.112	-1.418	757.65	919.603	1134.096	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.35	7686.30	7719.40
GHC15-1	09-05 00:00	2.63	8.75	-2.107	-1.426	757.698	919.519	1134.066	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.40	7686.22	7719.37
GHC15-1	09-05 01:00	2.63	8.03	-2.112	-1.551	757.475	919.672	1134.191	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.18	7686.37	7719.49
GHC15-1	09-05 02:00	2.63	7.17	-2.117	-1.599	757.639	919.513	1134.112	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.34	7686.21	7719.41
GHC15-1	09-05 03:00	2.62	6.58	-2.103	-1.515	757.562	919.564	1134.151	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.26	7686.26	7719.45
GHC15-1	09-05 04:00	2.62	6.26	-1.904	-1.464	757.569	919.638	1134.136	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.27	7686.34	7719.44
GHC15-1	09-05 05:00	2.62	6.43	-2.084	-1.588	757.53	919.496	1134.326	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.23	7686.20	7719.63
GHC15-1	09-05 06:00	2.62	5.86	-2.033	-1.487	757.596	919.569	1134.112	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.30	7686.27	7719.41
GHC15-1	09-05 07:00	2.61	5.67	-2.079	-1.547	757.538	919.672	1134.076	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.24	7686.37	7719.38
GHC15-1	09-05 08:00	2.62	6.09	-2.033	-1.529	757.648	919.473	1134.086	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.35	7686.17	7719.39
GHC15-1	09-05 09:00	2.62	7.71	-1.978	-1.482	757.645	919.638	1134.046	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.35	7686.34	7719.35
GHC15-1	09-05 10:00	2.63	9.15	-2.084	-1.672	757.609	919.592	1134.096	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.31	7686.29	7719.40
GHC15-1	09-05 11:00	2.63	11.45	-2.112	-1.57	757.572	919.576	1134.162	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.27	7686.28	7719.46
GHC15-1	09-05 12:00	2.64	14.8	-2.042	-1.496	757.49	919.519	1134.052	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.19	7686.22	7719.35
GHC15-1	09-05 13:00	2.67	18.32	-2.269	-1.422	757.607	919.535	1133.982	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.31	7686.24	7719.28
GHC15-1	09-05 14:00	2.65	17.08	-2.14	-1.487	757.519	919.655	1134.196	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.22	7686.36	7719.50
GHC15-1	09-05 15:00	2.68	17.18	-2.093	-1.464	757.617	919.734	1134.112	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.32	7686.43	7719.41
GHC15-1	09-05 16:00	2.68	19.27	-2.079	-1.487	757.644	919.564	1134.231	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.34	7686.26	7719.53
GHC15-1	09-05 17:00	2.68	16.92	-2.195	-1.533	757.655	919.587	1134.186	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.36	7686.29	7719.49
GHC15-1	09-05 18:00	2.68	16.76	-2.191	-1.394	757.585	919.564	1133.927	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.29	7686.26	7719.23
GHC15-1	09-05 19:00	2.68	15.62	-2.195	-1.487	757.633	919.82	1134.001	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.33	7686.52	7719.30
GHC15-1	09-05 20:00	2.66	11.77	-2.024	-1.566	757.629	919.484	1134.046	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.33	7686.18	7719.35
GHC15-1	09-05 21:00	2.64	9.87	-2.075	-1.58	757.569	919.751	1134										

Bore Hole	LOGGER DATA			SENSOR READINGS (hertz)					SENSOR TEMPERATURES (°C)					GROUNDWATER ELEVATION CALCULATIONS				
	Day 2015	Batt V	Temp C	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5
GHC15-1	09-08 15:00	2.69	23.41	-1.955	-1.445	757.597	919.78	1134.201	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.30	7686.48	7719.50
GHC15-1	09-08 16:00	2.69	25.13	-2.14	-1.339	757.548	919.394	1134.076	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.25	7686.09	7719.38
GHC15-1	09-08 17:00	2.69	24.8	-2.13	-1.603	757.45	919.473	1133.947	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.15	7686.17	7719.25
GHC15-1	09-08 18:00	2.68	23.39	-2.075	-1.445	757.572	919.484	1133.922	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.27	7686.18	7719.22
GHC15-1	09-08 19:00	2.68	20.11	-2.061	-1.441	757.594	919.603	1133.847	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.29	7686.30	7719.15
GHC15-1	09-08 20:00	2.67	14.75	-1.918	-1.542	757.5	919.456	1133.927	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.20	7686.16	7719.23
GHC15-1	09-08 21:00	2.64	11.37	-1.992	-1.418	757.569	919.705	1133.932	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.27	7686.41	7719.23
GHC15-1	09-08 22:00	2.63	9.94	-2.121	-1.519	757.503	919.66	1133.962	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.20	7686.36	7719.26
GHC15-1	09-08 23:00	2.62	9.15	-2.024	-1.459	757.483	919.626	1134.096	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.18	7686.33	7719.40
GHC15-1	09-09 00:00	2.62	8.45	-2.056	-1.515	757.661	919.416	1134.022	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.36	7686.12	7719.32
GHC15-1	09-09 01:00	2.62	7.64	-1.955	-1.626	757.579	919.66	1133.917	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.28	7686.36	7719.22
GHC15-1	09-09 02:00	2.61	6.65	-2.13	-1.561	757.551	919.683	1133.982	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.25	7686.38	7719.28
GHC15-1	09-09 03:00	2.6	6.36	-2.061	-1.644	757.48	919.626	1134.036	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.18	7686.33	7719.34
GHC15-1	09-09 04:00	2.61	6.31	-2.084	-1.538	757.585	919.581	1134.057	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.29	7686.28	7719.36
GHC15-1	09-09 05:00	2.61	5.2	-2.089	-1.506	757.497	919.558	1133.947	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.20	7686.26	7719.25
GHC15-1	09-09 06:00	2.6	4.52	-2.089	-1.677	757.533	919.569	1133.862	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.23	7686.27	7719.16
GHC15-1	09-09 07:00	2.59	4.13	-1.95	-1.426	757.526	919.456	1133.957	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.23	7686.16	7719.26
GHC15-1	09-09 08:00	2.6	4.59	-2.093	-1.654	757.55	919.331	1134.052	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.25	7686.03	7719.35
GHC15-1	09-09 09:00	2.6	6.09	-2.145	-1.491	757.519	919.462	1133.857	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.22	7686.16	7719.16
GHC15-1	09-09 10:00	2.62	14.82	-2.015	-1.436	757.497	919.53	1134.022	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.20	7686.23	7719.32
GHC15-1	09-09 11:00	2.65	19.81	-2.052	-1.519	757.553	919.576	1134.106	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.25	7686.28	7719.41
GHC15-1	09-09 12:00	2.66	21.31	-2.098	-1.469	757.524	919.552	1133.941	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.22	7686.25	7719.24
GHC15-1	09-09 13:00	2.66	22.06	-2.14	-1.501	757.569	919.535	1133.922	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.27	7686.24	7719.22
GHC15-1	09-09 14:00	2.68	23.73	-2.084	-1.399	757.493	919.7	1133.862	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.19	7686.40	7719.16
GHC15-1	09-09 15:00	2.68	25.99	-2.158	-1.524	757.581	919.587	1133.847	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.28	7686.29	7719.15
GHC15-1	09-09 16:00	2.69	27.58	-2.329	-1.381	757.723	919.626	1134.006	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.42	7686.33	7719.31
GHC15-1	09-09 17:00	2.69	27.33	-2.006	-1.542	757.556	919.558	1133.782	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.26	7686.26	7719.08
GHC15-1	09-09 18:00	2.69	25.96	-1.992	-1.469	757.557	919.576	1133.896	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.26	7686.28	7719.20
GHC15-1	09-09 19:00	2.69	23.47	-2.089	-1.515	757.519	919.643	1133.822	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.22	7686.34	7719.12
GHC15-1	09-09 20:00	2.69	17.21	-1.866	-1.7	757.47	919.603	1134.057	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.17	7686.30	7719.36
GHC15-1	09-09 21:00	2.65	13.57	-1.825	-1.404	757.513	919.569	1133.822	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.21	7686.27	7719.12
GHC15-1	09-09 22:00	2.64	12.5	-2.126	-1.506	757.556	919.558	1133.977	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.26	7686.26	7719.28
GHC15-1	09-09 23:00	2.64	11.22	-2.093	-1.464	757.414	919.542	1133.932	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.11	7686.24	7719.23
GHC15-1	09-10 00:00	2.63	10.32	-2.158	-1.478	757.427	919.569	1133.992	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.13	7686.27	7719.29
GHC15-1	09-10 01:00	2.62	8.73	-2.14	-1.496	757.596	919.672	1133.967	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.30	7686.37	7719.27
GHC15-1	09-10 02:00	2.62	7.86	-2.135	-1.404	757.509	919.468	1134.057	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.21	7686.17	7719.36
GHC15-1	09-10 03:00	2.62	7.78	-2.181	-1.542	757.602	919.603	1133.907	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.30	7686.30	7719.21
GHC15-1	09-10 04:00	2.62	8.25	-2.112	-1.357	757.652	919.479	1133.892	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.35	7686.18</	

Bore Hole	LOGGER DATA			SENSOR READINGS (hertz)					SENSOR TEMPERATURES (°C)					GROUNDWATER ELEVATION CALCULATIONS				
	Day 2015	Batt V	Temp C	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5
GHC15-1	09-12 22:00	2.64	11.55	-2.089	-1.408	757.5	919.201	1134.017	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.20	7685.90	7719.32
GHC15-1	09-12 23:00	2.64	10.62	-2.177	-1.311	757.474	919.49	1133.782	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.17	7686.19	7719.08
GHC15-1	09-13 00:00	2.63	9.82	-1.973	-1.418	757.553	919.388	1133.862	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.25	7686.09	7719.16
GHC15-1	09-13 01:00	2.63	9.12	-2.13	-1.288	757.53	919.411	1133.787	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.23	7686.11	7719.09
GHC15-1	09-13 02:00	2.62	8.87	-2.13	-1.432	757.569	919.49	1133.837	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.27	7686.19	7719.14
GHC15-1	09-13 03:00	2.62	8.4	-2.191	-1.242	757.658	919.343	1133.982	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.36	7686.04	7719.28
GHC15-1	09-13 04:00	2.62	7.88	-2.093	-1.496	757.615	919.542	1133.907	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.32	7686.24	7719.21
GHC15-1	09-13 05:00	2.62	7.34	-2.061	-1.432	757.576	919.479	1133.807	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.28	7686.18	7719.11
GHC15-1	09-13 06:00	2.62	6.87	-2.07	-1.459	757.652	919.502	1133.912	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.35	7686.20	7719.21
GHC15-1	09-13 07:00	2.61	6.23	-2.07	-1.445	757.635	919.513	1133.787	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.34	7686.21	7719.09
GHC15-1	09-13 08:00	2.61	5.94	-2.084	-1.464	757.602	919.49	1133.881	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.30	7686.19	7719.18
GHC15-1	09-13 09:00	2.62	7.59	-1.959	-1.519	757.512	919.286	1133.947	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.21	7685.99	7719.25
GHC15-1	09-13 10:00	2.63	16.79	-2.158	-1.551	757.569	919.502	1133.937	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.27	7686.20	7719.24
GHC15-1	09-13 11:00	2.66	22.17	-1.923	-1.575	757.501	919.349	1133.947	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.20	7686.05	7719.25
GHC15-1	09-13 12:00	2.69	23.84	-2.056	-1.588	757.404	919.569	1133.747	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.10	7686.27	7719.05
GHC15-1	09-13 13:00	2.69	23.24	-2.093	-1.519	757.534	919.349	1133.732	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.23	7686.05	7719.03
GHC15-1	09-13 14:00	2.67	23.5	-1.95	-1.478	757.531	919.377	1134.006	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.23	7686.08	7719.31
GHC15-1	09-13 15:00	2.68	24.05	-2.098	-1.418	757.513	919.309	1133.817	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.21	7686.01	7719.12
GHC15-1	09-13 16:00	2.68	21.67	-1.858	-1.339	757.562	919.49	1133.927	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.26	7686.19	7719.23
GHC15-1	09-13 17:00	2.68	23.79	-2.052	-1.469	757.572	919.439	1133.782	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.27	7686.14	7719.08
GHC15-1	09-13 18:00	2.68	21.28	-1.936	-1.394	757.554	919.416	1134.027	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.25	7686.12	7719.33
GHC15-1	09-13 19:00	2.67	17.58	-2.154	-1.408	757.569	919.337	1133.947	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.27	7686.04	7719.25
GHC15-1	09-13 20:00	2.65	14.28	-2.233	-1.367	757.615	919.428	1133.882	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.32	7686.13	7719.18
GHC15-1	09-13 21:00	2.64	12.78	-2.052	-1.469	757.519	919.309	1133.902	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.22	7686.01	7719.20
GHC15-1	09-13 22:00	2.64	12.2	-2.14	-1.413	757.542	919.382	1133.827	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.24	7686.08	7719.13
GHC15-1	09-13 23:00	2.64	11.65	-2.098	-1.709	757.427	919.32	1133.598	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.13	7686.02	7718.90
GHC15-1	09-14 00:00	2.63	11.2	-2.061	-1.594	757.655	919.349	1133.817	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.36	7686.05	7719.12
GHC15-1	09-14 01:00	2.63	10.44	-2.015	-1.58	757.605	919.349	1133.827	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.31	7686.05	7719.13
GHC15-1	09-14 02:00	2.62	8.87	-2.13	-1.474	757.384	919.139	1133.822	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.08	7685.84	7719.12
GHC15-1	09-14 03:00	2.62	7.17	-2.14	-1.621	757.364	919.246	1133.932	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.06	7685.95	7719.23
GHC15-1	09-14 04:00	2.61	6.33	-2.107	-1.594	757.437	919.331	1134.081	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.14	7686.03	7719.38
GHC15-1	09-14 05:00	2.61	6.16	-2.001	-1.644	757.516	919.462	1134.072	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.22	7686.16	7719.37
GHC15-1	09-14 06:00	2.61	6.09	-1.978	-1.649	757.521	919.462	1133.896	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.22	7686.16	7719.20
GHC15-1	09-14 07:00	2.6	5.55	-2.223	-1.621	757.599	919.406	1133.867	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.30	7686.11	7719.17
GHC15-1	09-14 08:00	2.61	6.87	-2.246	-1.64	757.553	919.36	1133.862	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.25	7686.06	7719.16
GHC15-1	09-14 09:00	2.62	8.13	-2.288	-1.394	757.516	919.314	1133.792	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.22	7686.01	7719.09
GHC15-1	09-14 10:00	2.63	15.91	-2.019	-1.599	757.553	919.286	1133.777	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.25	7685.99	7719.08
GHC15-1	09-14 11:00	2.65	20.93	-2.107	-1.542	757.551	919.28	1133.708	15.									

Bore Hole	LOGGER DATA			SENSOR READINGS (hertz)					SENSOR TEMPERATURES (°C)					GROUNDWATER ELEVATION CALCULATIONS				
	Day 2015	Batt V	Temp C	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5
GHC15-1	09-17 05:00	2.59	5.33	-2.195	-1.783	757.427	919.008	1133.777	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.13	7685.71	7719.08
GHC15-1	09-17 06:00	2.59	4.71	-2.26	-1.806	757.398	919.059	1133.737	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.10	7685.76	7719.04
GHC15-1	09-17 07:00	2.59	4.69	-2.098	-1.876	757.398	919.269	1133.727	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.10	7685.97	7719.03
GHC15-1	09-17 08:00	2.59	4.79	-2.2	-1.75	757.505	919.008	1133.743	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.21	7685.71	7719.04
GHC15-1	09-17 09:00	2.6	5.4	-2.181	-1.672	757.407	918.878	1133.598	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.11	7685.58	7718.90
GHC15-1	09-17 10:00	2.61	13.34	-2.329	-1.793	757.446	919.076	1133.727	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.15	7685.78	7719.03
GHC15-1	09-17 11:00	2.63	17.16	-2.177	-1.672	757.411	918.866	1133.603	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.11	7685.57	7718.90
GHC15-1	09-17 12:00	2.65	18.82	-2.167	-1.885	757.489	918.929	1133.618	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.19	7685.63	7718.92
GHC15-1	09-17 13:00	2.66	19.79	-2.209	-1.88	757.416	918.94	1133.568	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.12	7685.64	7718.87
GHC15-1	09-17 14:00	2.66	20.74	-2.148	-1.709	757.414	918.94	1133.638	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.11	7685.64	7718.94
GHC15-1	09-17 15:00	2.66	22.31	-2.219	-1.894	757.427	919.025	1133.667	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.13	7685.73	7718.97
GHC15-1	09-17 16:00	2.65	23.41	-2.209	-1.644	757.427	918.952	1133.782	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.13	7685.65	7719.08
GHC15-1	09-17 17:00	2.67	23.53	-2.307	-1.941	757.515	919.133	1133.618	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.22	7685.83	7718.92
GHC15-1	09-17 18:00	2.69	22.76	-2.205	-1.826	757.512	919.32	1133.518	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.21	7686.02	7718.82
GHC15-1	09-17 19:00	2.65	19.73	-2.173	-1.681	757.483	919.235	1133.633	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.18	7685.94	7718.93
GHC15-1	09-17 20:00	2.65	13.83	-2.255	-1.848	757.526	918.979	1133.722	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.23	7685.68	7719.02
GHC15-1	09-17 21:00	2.63	10.99	-2.288	-1.797	757.493	918.844	1133.578	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.19	7685.54	7718.88
GHC15-1	09-17 22:00	2.63	9.62	-2.205	-1.857	757.463	918.986	1133.468	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.16	7685.69	7718.77
GHC15-1	09-17 23:00	2.61	8.63	-2.223	-1.853	757.45	919.105	1133.722	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.15	7685.81	7719.02
GHC15-1	09-18 00:00	2.61	7.56	-2.2	-1.728	757.404	919.178	1133.633	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.10	7685.88	7718.93
GHC15-1	09-18 01:00	2.6	6.5	-2.13	-1.83	757.474	919.229	1133.548	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.17	7685.93	7718.85
GHC15-1	09-18 02:00	2.59	5.28	-2.135	-1.654	757.46	919.093	1133.513	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.16	7685.79	7718.81
GHC15-1	09-18 03:00	2.59	4.76	-2.079	-1.765	757.444	918.821	1133.623	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.14	7685.52	7718.92
GHC15-1	09-18 04:00	2.59	4.67	-2.283	-1.843	757.493	918.883	1133.573	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.19	7685.58	7718.87
GHC15-1	09-18 05:00	2.59	4.54	-2.107	-1.853	757.457	919.002	1133.643	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.16	7685.70	7718.94
GHC15-1	09-18 06:00	2.59	4.64	-2.436	-1.774	757.437	919.07	1133.638	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.14	7685.77	7718.94
GHC15-1	09-18 07:00	2.59	4.54	-2.121	-1.756	757.457	918.997	1133.593	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.16	7685.70	7718.89
GHC15-1	09-18 08:00	2.59	4.1	-2.205	-1.88	757.45	919.156	1133.698	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.15	7685.86	7719.00
GHC15-1	09-18 09:00	2.59	4.74	-2.2	-1.705	757.447	919.224	1133.498	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.15	7685.92	7718.80
GHC15-1	09-18 10:00	2.6	12.48	-2.112	-1.714	757.325	918.997	1133.578	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.03	7685.70	7718.88
GHC15-1	09-18 11:00	2.63	16.42	-2.205	-1.918	757.409	919.133	1133.643	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.11	7685.83	7718.94
GHC15-1	09-18 12:00	2.64	17.6	-2.177	-1.788	757.465	918.963	1133.677	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.17	7685.66	7718.98
GHC15-1	09-18 13:00	2.65	18.18	-2.024	-1.64	757.394	919.031	1133.419	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.09	7685.73	7718.72
GHC15-1	09-18 14:00	2.65	18.58	-2.084	-1.668	757.49	918.844	1133.633	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.19	7685.54	7718.93
GHC15-1	09-18 15:00	2.66	19.3	-2.209	-1.681	757.437	919.037	1133.498	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.14	7685.74	7718.80
GHC15-1	09-18 16:00	2.66	19.17	-2.288	-1.903	757.463	918.974	1133.618	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.16	7685.67	7718.92
GHC15-1	09-18 17:00	2.66	17.52	-2.167	-1.635	757.472	918.866	1133.593	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.17	7685.57	7718.89
GHC15-1	09-18 18:00	2.66	15.52	-2.227	-1.75	757.384	919.11	1133.628	15.5									

Bore Hole	LOGGER DATA			SENSOR READINGS (hertz)					SENSOR TEMPERATURES (°C)					GROUNDWATER ELEVATION CALCULATIONS				
	Day 2015	Batt V	Temp C	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5
GHC15-1	09-21 12:00	2.66	24.95	-2.246	-1.621	757.554	919.002	1133.488	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.25	7685.70	7718.79
GHC15-1	09-21 13:00	2.66	25.57	-2.214	-1.519	757.454	919.105	1133.473	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.15	7685.81	7718.77
GHC15-1	09-21 14:00	2.67	25.75	-2.279	-1.83	757.519	918.963	1133.563	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.22	7685.66	7718.86
GHC15-1	09-21 15:00	2.69	26.69	-2.173	-1.663	757.477	919.122	1133.538	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.18	7685.82	7718.84
GHC15-1	09-21 16:00	2.66	26.99	-2.103	-1.778	757.475	918.85	1133.508	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.18	7685.55	7718.81
GHC15-1	09-21 17:00	2.66	24.66	-2.214	-1.797	757.49	919.105	1133.488	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.19	7685.81	7718.79
GHC15-1	09-21 18:00	2.68	22.37	-2.084	-1.58	757.485	919.088	1133.453	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.19	7685.79	7718.75
GHC15-1	09-21 19:00	2.66	17.97	-2.348	-1.737	757.53	919.195	1133.573	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.23	7685.90	7718.87
GHC15-1	09-21 20:00	2.64	14.87	-2.186	-1.848	757.444	919.082	1133.653	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.14	7685.78	7718.95
GHC15-1	09-21 21:00	2.63	13.62	-2.219	-1.793	757.457	919.161	1133.503	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.16	7685.86	7718.80
GHC15-1	09-21 22:00	2.63	13.34	-2.103	-1.644	757.407	918.991	1133.533	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.11	7685.69	7718.83
GHC15-1	09-21 23:00	2.63	12.5	-2.056	-1.728	757.384	918.952	1133.528	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.08	7685.65	7718.83
GHC15-1	09-22 00:00	2.62	11.82	-2.274	-1.769	757.407	919.048	1133.513	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.11	7685.75	7718.81
GHC15-1	09-22 01:00	2.62	10.97	-2.195	-1.681	757.44	918.957	1133.478	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.14	7685.66	7718.78
GHC15-1	09-22 02:00	2.62	10.37	-2.223	-1.631	757.422	918.986	1133.568	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.12	7685.69	7718.87
GHC15-1	09-22 03:00	2.62	9.82	-2.177	-1.58	757.404	919.02	1133.388	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.10	7685.72	7718.69
GHC15-1	09-22 04:00	2.61	9.82	-2.214	-1.894	757.391	919.031	1133.598	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.09	7685.73	7718.90
GHC15-1	09-22 05:00	2.61	9.87	-2.297	-1.802	757.503	918.986	1133.398	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.20	7685.69	7718.70
GHC15-1	09-22 06:00	2.61	9.3	-2.177	-1.774	757.449	918.872	1133.568	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.15	7685.57	7718.87
GHC15-1	09-22 07:00	2.61	9.82	-2.334	-1.709	757.417	918.883	1133.588	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.12	7685.58	7718.89
GHC15-1	09-22 08:00	2.61	9.94	-2.246	-1.76	757.5	918.94	1133.593	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.20	7685.64	7718.89
GHC15-1	09-22 09:00	2.62	10.89	-2.163	-1.765	757.512	918.963	1133.414	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.21	7685.66	7718.71
GHC15-1	09-22 10:00	2.63	18.61	-2.181	-1.672	757.455	919.088	1133.558	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.16	7685.79	7718.86
GHC15-1	09-22 11:00	2.65	20.63	-2.385	-1.728	757.421	918.912	1133.378	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.12	7685.61	7718.68
GHC15-1	09-22 12:00	2.66	22.79	-2.191	-1.728	757.505	919.025	1133.548	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.21	7685.73	7718.85
GHC15-1	09-22 13:00	2.66	23.3	-2.158	-1.815	757.524	918.85	1133.558	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.22	7685.55	7718.86
GHC15-1	09-22 14:00	2.66	23.76	-2.163	-1.922	757.516	919.212	1133.483	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.22	7685.91	7718.78
GHC15-1	09-22 15:00	2.67	23.64	-2.334	-1.88	757.477	919.229	1133.478	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.18	7685.93	7718.78
GHC15-1	09-22 16:00	2.66	20.54	-2.311	-1.7	757.492	918.946	1133.338	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.19	7685.65	7718.64
GHC15-1	09-22 17:00	2.66	19.22	-2.233	-1.922	757.483	919.076	1133.563	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.18	7685.78	7718.86
GHC15-1	09-22 18:00	2.65	16.09	-2.302	-1.797	757.431	919.099	1133.488	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.13	7685.80	7718.79
GHC15-1	09-22 19:00	2.64	13.52	-2.265	-1.551	757.509	918.9	1133.359	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.21	7685.60	7718.66
GHC15-1	09-22 20:00	2.63	11.55	-2.205	-1.7	757.509	919.065	1133.603	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.21	7685.77	7718.90
GHC15-1	09-22 21:00	2.62	10.04	-2.158	-1.695	757.454	918.997	1133.503	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.15	7685.70	7718.80
GHC15-1	09-22 22:00	2.61	7.71	-2.2	-1.686	757.407	919.008	1133.393	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.11	7685.71	7718.69
GHC15-1	09-22 23:00	2.6	6.82	-2.14	-1.584	757.414	919.184	1133.513	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.11	7685.88	7718.81
GHC15-1	09-23 00:00	2.6	6.23	-2.242	-1.788	757.444	919.025	1133.577	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.14	7685.73	7718.88
GHC15-1	09-23 01:00	2.6	6.18	-2.177	-1.705	757.417	918.991	1133.488	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.12	7685.69	7718.79
GHC15-1	09-23 02:00	2.6	6.06	-2.293	-1.686	757.449	919.122	1133.453	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.15	7685.82	7718.75
GHC15-1	09-23 03:00	2.59	5.94	-2.01	-1.695	757.48	919.002	1133.498	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.18	7685.70	7718.80
GHC15-1	09-23 04:00	2.59	5.72	-2.075	-1.742	757.381	919.139	1133.583	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.08	7685.84	7718.88
GHC15-1	09-23 05:00	2.59	5.37	-2.167	-1.644	757.387	919.122	1133.658	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.09	7685.82	7718.96
GHC15-1	09-23 06:00	2.59	5.33	-2.242	-1.746	757.541	918.838	1133.462	15.5	21	23.3	23.5	23.8	DRY	DRY	7753.24	7685.54	7718.76
GHC15-1	09-23 07:00	2.59	5.42	-2.191	-1.7	757.44	919.076	1133.618	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.14	7685.78	7718.92
GHC15-1	09-23 08:00	2.59	5.28	-2.061	-1.594	757.417	918.997	1133.488	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.12	7685.70	7718.79
GHC15-1	09-23 09:00	2.59	5.64	-2.214	-1.894	757.45	918.866	1133.502	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.15	7685.57	7718.80
GHC15-1	09-23 10:00	2.6	11.57	-2.26	-1.7	757.47	919.207	1133.468	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.17	7685.91	7718.77
GHC15-1	09-23 11:00	2.62	16.42	-2.186	-1.607	757.424	918.912	1133.428	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.12	7685.61	7718.73
GHC15-1	09-23 12:00	2.63	17.73	-2.209	-1.788	757.452	919.11	1133.448	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.15	7685.81	7718.75
GHC15-1	09-23 13:00	2.64	17.47	-2.112	-1.649	757.319	919.133	1133.419	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.02	7685.83	7718.72
GHC15-1	09-23 14:00	2.65	18.29	-2.098	-1.839	757.518	919.031	1133.593	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.22	7685.73	7718.89
GHC15-1	09-23 15:00	2.65	18.93	-2.246	-1.815	757.457	919.082	1133.533	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.16	7685.78	7718.83
GHC15-1	09-23 16:00	2.65	16.56	-2.348	-1.867	757.454	919.133	1133.508	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.15	7685.83	7718.81
GHC15-1	09-23 17:00	2.64	16.01	-2.103	-1.566	757.467	919.002	1133.468	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.17	7685.70	7718.77
GHC15-1	09-23 18:00	2.64	14.11	-2.13	-1.691	757.387	919.24	1133.593	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.09	7685.94	7718.89
GHC15-1	09-23 19:00	2.63	13.29	-2.339	-1.588	757.421	919.156	1133.423	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.12	7685.86	7718.72
GHC15-1	09-23 20:00	2.62	10.84	-2.195	-1.57	757.477	919.105	1133.608	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.18	7685.81	7718.91
GHC15-1	09-23 21:00	2.61	8.4	-2.283	-1.857	757.434	919.054	1133.473	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.13	7685.75	7718.77
GHC15-1	09-23 22:00	2.6	6.75	-2.219	-1.621	757.444	918.952	1133.573	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.14	7685.65	7718.87
GHC15-1	09-23 23:00	2.59	6.45	-2.107	-1.621	757.553	919.054	1133.448	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.25	7685.75	7718.75
GHC15-1	09-24 00:00	2.5																

Bore Hole	LOGGER DATA			SENSOR READINGS (hertz)					SENSOR TEMPERATURES (°C)					GROUNDWATER ELEVATION CALCULATIONS				
	Day 2015	Batt V	Temp C	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5
GHC15-1	09-25 19:00	2.65	17.84	-2.186	-1.607	757.503	918.929	1133.593	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.20	7685.63	7718.89
GHC15-1	09-25 20:00	2.63	12.71	-2.135	-1.469	757.542	918.923	1133.423	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.24	7685.62	7718.72
GHC15-1	09-25 21:00	2.61	10.24	-2.089	-1.491	757.417	919.054	1133.453	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.12	7685.75	7718.75
GHC15-1	09-25 22:00	2.6	8.97	-2.191	-1.626	757.467	919.201	1133.494	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.17	7685.90	7718.79
GHC15-1	09-25 23:00	2.6	8.48	-2.246	-1.551	757.401	918.895	1133.488	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.10	7685.60	7718.79
GHC15-1	09-26 00:00	2.59	7.61	-2.242	-1.556	757.486	919.19	1133.558	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.19	7685.89	7718.86
GHC15-1	09-26 01:00	2.59	6.4	-2.056	-1.728	757.467	919.099	1133.478	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.17	7685.80	7718.78
GHC15-1	09-26 02:00	2.58	5.47	-2.246	-1.575	757.562	919.031	1133.613	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.26	7685.73	7718.91
GHC15-1	09-26 03:00	2.57	4.98	-2.205	-1.454	757.46	918.94	1133.743	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.16	7685.64	7719.04
GHC15-1	09-26 04:00	2.57	4.67	-2.26	-1.631	757.46	919.037	1133.623	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.16	7685.74	7718.92
GHC15-1	09-26 05:00	2.57	5.64	-2.237	-1.621	757.53	919.093	1133.553	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.23	7685.79	7718.85
GHC15-1	09-26 06:00	2.58	5.64	-2.293	-1.594	757.546	919.082	1133.693	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.25	7685.78	7718.99
GHC15-1	09-26 07:00	2.58	6.23	-2.13	-1.599	757.48	919.178	1133.623	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.18	7685.88	7718.92
GHC15-1	09-26 08:00	2.58	6.53	-2.163	-1.538	757.519	918.742	1133.552	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.22	7685.44	7718.85
GHC15-1	09-26 09:00	2.59	6.7	-2.098	-1.496	757.49	919.054	1133.323	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.19	7685.75	7718.62
GHC15-1	09-26 10:00	2.6	13.98	-2.061	-1.464	757.48	918.787	1133.568	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.18	7685.49	7718.87
GHC15-1	09-26 11:00	2.62	20.08	-2.191	-1.371	757.427	918.946	1133.428	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.13	7685.65	7718.73
GHC15-1	09-26 12:00	2.64	22.14	-2.219	-1.491	757.475	919.093	1133.518	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.18	7685.79	7718.82
GHC15-1	09-26 13:00	2.65	22.99	-2.148	-1.33	757.501	919.212	1133.498	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.20	7685.91	7718.80
GHC15-1	09-26 14:00	2.65	24.22	-2.191	-1.491	757.477	919.076	1133.453	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.18	7685.78	7718.75
GHC15-1	09-26 15:00	2.66	25.19	-2.158	-1.588	757.483	919.235	1133.568	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.18	7685.94	7718.87
GHC15-1	09-26 16:00	2.66	25.75	-2.191	-1.547	757.449	919.014	1133.633	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.15	7685.71	7718.93
GHC15-1	09-26 17:00	2.67	24.89	-2.117	-1.39	757.515	919.173	1133.409	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.22	7685.87	7718.71
GHC15-1	09-26 18:00	2.66	22.82	-2.13	-1.454	757.561	919.042	1133.494	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.26	7685.74	7718.79
GHC15-1	09-26 19:00	2.65	18.05	-2.135	-1.594	757.432	918.94	1133.473	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.13	7685.64	7718.77
GHC15-1	09-26 20:00	2.63	13.11	-2.148	-1.496	757.516	919.07	1133.453	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.22	7685.77	7718.75
GHC15-1	09-26 21:00	2.61	10.74	-2.07	-1.524	757.474	918.923	1133.494	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.17	7685.62	7718.79
GHC15-1	09-26 22:00	2.6	9.37	-2.237	-1.519	757.341	919.229	1133.433	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.04	7685.93	7718.73
GHC15-1	09-26 23:00	2.6	8.7	-2.191	-1.547	757.447	919.229	1133.643	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.15	7685.93	7718.94
GHC15-1	09-27 00:00	2.6	8.63	-2.089	-1.575	757.493	919.065	1133.583	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.19	7685.77	7718.88
GHC15-1	09-27 01:00	2.59	7.32	-2.26	-1.459	757.516	919.093	1133.464	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.22	7685.79	7718.76
GHC15-1	09-27 02:00	2.58	5.84	-2.265	-1.542	757.46	918.969	1133.548	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.16	7685.67	7718.85
GHC15-1	09-27 03:00	2.57	4.93	-2.367	-1.432	757.387	918.957	1133.533	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.09	7685.66	7718.83
GHC15-1	09-27 04:00	2.58	6.55	-2.167	-1.566	757.474	919.054	1133.647	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.17	7685.75	7718.95
GHC15-1	09-27 05:00	2.59	8.58	-2.325	-1.594	757.47	918.878	1133.588	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.17	7685.58	7718.89
GHC15-1	09-27 06:00	2.6	9.25	-2.112	-1.506	757.566	919.133	1133.658	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.27	7685.83	7718.96
GHC15-1	09-27 07:00	2.6	8.65	-2.237	-1.496	757.486	919.093	1133.473	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.19	7685.79	7718.77
GHC15-1	09-27 08:00	2.6	8.5	-2.173	-1.575	757.53	918.923	1133.494	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.23	7685.62	7718.79
GHC15-1	09-27 09:00	2.59	8.55	-2.126	-1.58	757.437	919.02	1133.528	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.14	7685.72	7718.83
GHC15-1	09-27 10:00	2.61	15.88	-2.093	-1.663	757.48	918.883	1133.618	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.18	7685.58	7718.92
GHC15-1	09-27 11:00	2.63	20.74	-2.246	-1.649	757.452	919.224	1133.528	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.15	7685.92	7718.83
GHC15-1	09-27 12:00	2.64	23.79	-2.219	-1.469	757.444	918.991	1133.478	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.14	7685.69	7718.78
GHC15-1	09-27 13:00	2.65	25.25	-2.167	-1.617	757.398	919.002	1133.518	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.10	7685.72	7718.82
GHC15-1	09-27 14:00	2.66	26.44	-2.186	-1.631	757.409	918.912	1133.483	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.11	7685.61	7718.78
GHC15-1	09-27 15:00	2.67	27.71	-2.191	-1.64	757.421	919.212	1133.588	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.12	7685.91	7718.89
GHC15-1	09-27 16:00	2.67	27.58	-2.237	-1.538	757.437	919.173	1133.468	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.14	7685.87	7718.77
GHC15-1	09-27 17:00	2.66	26.66	-2.181	-1.718	757.45	918.957	1133.448	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.15	7685.66	7718.75
GHC15-1	09-27 18:00	2.67	24.37	-2.251	-1.811	757.538	918.923	1133.473	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.24	7685.62	7718.77
GHC15-1	09-27 19:00	2.66	19.52	-2.404	-1.556	757.465	918.946	1133.603	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.17	7685.65	7718.90
GHC15-1	09-27 20:00	2.63	14.82	-2.13	-1.542	757.444	919.042	1133.329	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.14	7685.74	7718.63
GHC15-1	09-27 21:00	2.62	12.81	-2.093	-1.728	757.493	918.895	1133.404	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.19	7685.60	7718.70
GHC15-1	09-27 22:00	2.61	11.35	-2.376	-1.621	757.384	918.986	1133.498	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.08	7685.69	7718.80
GHC15-1	09-27 23:00	2.61	10.32	-2.103	-1.64	757.404	919.19	1133.409	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.10	7685.89	7718.71
GHC15-1	09-28 00:00	2.6	9.82	-2.233	-1.802	757.437	919.048	1133.374	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.14	7685.75	7718.67
GHC15-1	09-28 01:00	2.6	9.82	-2.177	-1.695	757.483	919.116	1133.548	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.18	7685.82	7718.85
GHC15-1	09-28 02:00	2.6	9.84	-2.173	-1.506	757.579	919.065	1133.448	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.28	7685.77	7718.75
GHC15-1	09-28 03:00	2.6	9.89	-2.233	-1.617	757.503	918.895	1133.414	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.20	7685.60	7718.71
GHC15-1	09-28 04:00	2.6	8.3	-2.26	-1.672	757.361	918.979	1133.458	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.06	7685.68	7718.76
GHC15-1	09-28 05:00	2.59	7.86	-2.26	-1.547	757.361	919.218	1133.438	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.06	7685.92	7718.74
GHC15-1	09-28 06:00	2.59	8.43	-2.26	-1.51	757.533	918.979	1133.494	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.23	7685.68	771

Bore Hole	LOGGER DATA			SENSOR READINGS (hertz)					SENSOR TEMPERATURES (°C)					GROUNDWATER ELEVATION CALCULATIONS				
	Day 2015	Batt V	Temp C	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5
GHC15-1	09-30 02:00	2.58	5.52	-2.167	-1.654	757.384	918.719	1133.393	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.08	7685.42	7718.69
GHC15-1	09-30 03:00	2.57	5.96	-2.047	-1.487	757.421	918.935	1133.359	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.12	7685.64	7718.66
GHC15-1	09-30 04:00	2.58	6.23	-2.093	-1.631	757.434	918.827	1133.494	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.13	7685.53	7718.79
GHC15-1	09-30 05:00	2.58	7	-2.297	-1.566	757.454	919.065	1133.558	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.15	7685.77	7718.86
GHC15-1	09-30 06:00	2.59	7.81	-2.274	-1.709	757.45	919.173	1133.548	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.15	7685.87	7718.85
GHC15-1	09-30 07:00	2.59	7.78	-2.084	-1.631	757.483	918.895	1133.423	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.18	7685.60	7718.72
GHC15-1	09-30 08:00	2.59	8.08	-2.329	-1.426	757.411	918.906	1133.553	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.11	7685.61	7718.85
GHC15-1	09-30 09:00	2.6	9.37	-2.209	-1.862	757.506	918.986	1133.603	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.21	7685.69	7718.90
GHC15-1	09-30 10:00	2.6	11.04	-2.126	-1.686	757.364	918.946	1133.508	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.06	7685.65	7718.81
GHC15-1	09-30 11:00	2.61	14.28	-2.223	-1.672	757.444	918.878	1133.374	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.14	7685.58	7718.67
GHC15-1	09-30 12:00	2.62	16.42	-2.214	-1.765	757.463	918.889	1133.433	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.16	7685.59	7718.73
GHC15-1	09-30 13:00	2.63	15.85	-2.214	-1.686	757.381	918.979	1133.393	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.08	7685.68	7718.69
GHC15-1	09-30 14:00	2.63	18.05	-2.167	-1.769	757.5	919.002	1133.338	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.20	7685.70	7718.64
GHC15-1	09-30 15:00	2.64	20.46	-2.079	-1.788	757.55	918.906	1133.438	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.25	7685.61	7718.74
GHC15-1	09-30 16:00	2.63	17.55	-2.265	-1.718	757.416	918.991	1133.483	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.12	7685.69	7718.78
GHC15-1	09-30 17:00	2.63	17.05	-2.195	-1.75	757.411	919.008	1133.503	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.11	7685.71	7718.80
GHC15-1	09-30 18:00	2.61	11.32	-2.2	-1.607	757.444	919.133	1133.284	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.14	7685.83	7718.58
GHC15-1	09-30 19:00	2.6	9.6	-2.047	-1.75	757.394	919.02	1133.513	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.09	7685.72	7718.81
GHC15-1	09-30 20:00	2.59	7.88	-2.302	-1.626	757.417	919.093	1133.409	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.12	7685.79	7718.71
GHC15-1	09-30 21:00	2.59	7.39	-2.242	-1.672	757.368	918.957	1133.528	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.07	7685.66	7718.83
GHC15-1	09-30 22:00	2.58	7.27	-2.13	-1.7	757.444	918.923	1133.409	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.14	7685.62	7718.71
GHC15-1	09-30 23:00	2.58	6.58	-2.148	-1.695	757.414	918.929	1133.508	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.11	7685.63	7718.81
GHC15-1	10-01 00:00	2.58	6.6	-2.056	-1.599	757.474	918.979	1133.488	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.17	7685.68	7718.79
GHC15-1	10-01 01:00	2.58	6.75	-2.255	-1.621	757.477	919.116	1133.374	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.18	7685.82	7718.67
GHC15-1	10-01 02:00	2.58	6.97	-2.163	-1.311	757.454	918.724	1133.508	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.15	7685.42	7718.81
GHC15-1	10-01 03:00	2.58	7.19	-2.302	-1.732	757.391	919.014	1133.468	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.09	7685.71	7718.77
GHC15-1	10-01 04:00	2.58	7.32	-2.029	-1.551	757.47	918.952	1133.553	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.17	7685.65	7718.85
GHC15-1	10-01 05:00	2.58	7.09	-2.112	-1.487	757.358	918.832	1133.478	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.06	7685.53	7718.78
GHC15-1	10-01 06:00	2.58	6.36	-2.135	-1.556	757.46	918.838	1133.378	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.16	7685.54	7718.68
GHC15-1	10-01 07:00	2.57	5.33	-2.07	-1.566	757.434	918.912	1133.433	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.13	7685.61	7718.73
GHC15-1	10-01 08:00	2.59	5.62	-2.227	-1.464	757.44	918.929	1133.494	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.14	7685.63	7718.79
GHC15-1	10-01 09:00	2.58	8.3	-2.2	-1.778	757.45	918.724	1133.368	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.15	7685.42	7718.67
GHC15-1	10-01 10:00	2.59	12.99	-2.223	-1.7	757.462	918.974	1133.508	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.16	7685.67	7718.81
GHC15-1	10-01 11:00	2.62	18.98	-2.227	-1.524	757.351	918.957	1133.354	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.05	7685.66	7718.65
GHC15-1	10-01 12:00	2.63	21.04	-2.219	-1.718	757.383	918.866	1133.304	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.08	7685.57	7718.60
GHC15-1	10-01 13:00	2.63	21.78	-2.283	-1.612	757.411	918.974	1133.333	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.11	7685.67	7718.63
GHC15-1	10-01 14:00	2.63	19.6	-2.126	-1.756	757.384	918.946	1133.294	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.08	7685.65	7718.59
GHC15-1	10-01 15:00	2.64	22	-2.177	-1.644	757.414	919.161	1133.329	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.11	7685.86	7718.63
GHC15-1	10-01 16:00	2.65	24.63	-2.288	-1.506	757.524	919.031	1133.319	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.22	7685.73	7718.62
GHC15-1	10-01 17:00	2.65	22.48	-2.181	-1.732	757.463	918.895	1133.324	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.16	7685.60	7718.62
GHC15-1	10-01 18:00	2.63	17.6	-2.167	-1.783	757.424	919.02	1133.314	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.12	7685.72	7718.61
GHC15-1	10-01 19:00	2.62	13.44	-2.186	-1.603	757.341	918.798	1133.383	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.04	7685.50	7718.68
GHC15-1	10-01 20:00	2.61	11.14	-2.223	-1.626	757.497	919.093	1133.448	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.20	7685.79	7718.75
GHC15-1	10-01 21:00	2.6	9.87	-2.414	-1.691	757.398	918.929	1133.383	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.10	7685.63	7718.68
GHC15-1	10-01 22:00	2.59	9.12	-2.223	-1.774	757.463	918.969	1133.453	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.16	7685.67	7718.75
GHC15-1	10-01 23:00	2.59	8.65	-2.145	-1.515	757.427	918.929	1133.383	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.13	7685.63	7718.68
GHC15-1	10-02 00:00	2.59	8.75	-2.066	-1.686	757.437	918.844	1133.349	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.14	7685.54	7718.65
GHC15-1	10-02 01:00	2.59	8.58	-2.288	-1.75	757.431	918.73	1133.364	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.13	7685.43	7718.66
GHC15-1	10-02 02:00	2.58	8.11	-2.307	-1.797	757.417	918.94	1133.204	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.12	7685.64	7718.50
GHC15-1	10-02 03:00	2.58	7.81	-2.079	-1.663	757.424	918.946	1133.374	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.12	7685.65	7718.67
GHC15-1	10-02 04:00	2.58	7.39	-2.158	-1.793	757.53	918.809	1133.314	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.23	7685.51	7718.61
GHC15-1	10-02 05:00	2.58	7.81	-2.154	-1.654	757.46	918.798	1133.453	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.16	7685.50	7718.75
GHC15-1	10-02 06:00	2.58	8.9	-2.015	-1.788	757.424	918.979	1133.443	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.12	7685.68	7718.74
GHC15-1	10-02 07:00	2.58	8.9	-2.279	-1.588	757.503	918.952	1133.464	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.20	7685.65	7718.76
GHC15-1	10-02 08:00	2.58	7.98	-2.167	-1.617	757.387	918.889	1133.438	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.09	7685.59	7718.74
GHC15-1	10-02 09:00	2.58	8.28	-2.066	-1.635	757.437	918.895	1133.508	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.14	7685.60	7718.81
GHC15-1	10-02 10:00	2.59	12.88	-2.209	-1.626	757.463	918.986	1133.488	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.16	7685.69	7718.79
GHC15-1	10-02 11:00	2.6	17.26	-2.343	-1.599	757.422	919.025	1133.304	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.12	7685.73	7718.60
GHC15-1	10-02 12:00	2.62	18.77	-2.343	-1.83	757.417	918.832	1133.374	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.12	7685.53	7718.67
GHC15-1	10-02 13:00	2.62	19.09	-2.098	-1.797	757.489	918.957	1133.238	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.19	7685.66	

Bore Hole	LOGGER DATA			SENSOR READINGS (hertz)					SENSOR TEMPERATURES (°C)					GROUNDWATER ELEVATION CALCULATIONS				
	Day 2015	Batt V	Temp C	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5
GHC15-1	10-04 09:00	2.55	4.23	-2.237	-1.903	757.5	918.634	1133.035	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.20	7685.33	7718.34
GHC15-1	10-04 10:00	2.56	9.74	-2.265	-1.839	757.368	918.577	1133.304	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.07	7685.28	7718.60
GHC15-1	10-04 11:00	2.59	14.64	-2.154	-1.756	757.341	918.628	1133.364	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.04	7685.33	7718.66
GHC15-1	10-04 12:00	2.6	15.57	-2.348	-1.76	757.391	918.662	1133.274	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.09	7685.36	7718.57
GHC15-1	10-04 13:00	2.61	15.31	-2.32	-1.769	757.498	918.713	1133.079	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.20	7685.41	7718.38
GHC15-1	10-04 14:00	2.62	17.68	-2.417	-1.806	757.391	918.594	1133.075	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.09	7685.29	7718.38
GHC15-1	10-04 15:00	2.63	20.22	-2.329	-1.746	757.381	918.662	1133.248	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.08	7685.36	7718.55
GHC15-1	10-04 16:00	2.63	20.74	-2.279	-1.843	757.402	918.753	1133.104	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.10	7685.45	7718.40
GHC15-1	10-04 17:00	2.64	20.11	-2.251	-1.89	757.495	918.713	1133.219	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.20	7685.41	7718.52
GHC15-1	10-04 18:00	2.63	17.29	-2.432	-1.992	757.452	918.713	1133.299	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.15	7685.41	7718.60
GHC15-1	10-04 19:00	2.61	11.42	-2.334	-1.774	757.424	918.481	1133.214	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.12	7685.18	7718.51
GHC15-1	10-04 20:00	2.59	7.14	-2.381	-1.677	757.477	918.497	1133.194	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.18	7685.20	7718.49
GHC15-1	10-04 21:00	2.56	5.25	-2.2	-1.714	757.325	918.719	1133.169	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.03	7685.42	7718.47
GHC15-1	10-04 22:00	2.55	4.52	-2.167	-1.862	757.457	918.657	1133.084	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.16	7685.36	7718.38
GHC15-1	10-04 23:00	2.55	4.15	-2.362	-1.848	757.506	918.696	1133.094	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.21	7685.40	7718.39
GHC15-1	10-05 00:00	2.55	3.49	-2.255	-1.899	757.398	918.657	1133.119	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.10	7685.36	7718.42
GHC15-1	10-05 01:00	2.55	3.35	-2.348	-1.644	757.345	918.634	1133.094	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.05	7685.33	7718.39
GHC15-1	10-05 02:00	2.54	2.89	-2.297	-1.88	757.356	918.469	1133.174	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.06	7685.17	7718.47
GHC15-1	10-05 03:00	2.54	2.18	-2.288	-1.802	757.424	918.469	1125.848	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.12	7685.17	
GHC15-1	10-05 04:00	2.54	2.23	-2.575	-1.691	757.364	918.503	1133.099	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.06	7685.20	7718.40
GHC15-1	10-05 05:00	2.54	2.35	-2.148	-1.705	757.374	918.634	1133.064	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.07	7685.33	7718.36
GHC15-1	10-05 06:00	2.54	2.23	-2.246	-1.737	757.319	918.56	1133.075	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.02	7685.26	7718.38
GHC15-1	10-05 07:00	2.54	1.84	-2.297	-1.76	757.351	918.588	1133.114	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.05	7685.29	7718.41
GHC15-1	10-05 08:00	2.53	1.77	-2.26	-1.705	757.437	918.622	1133.114	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.14	7685.32	7718.41
GHC15-1	10-05 09:00	2.54	1.94	-2.181	-1.89	757.45	918.599	1133.164	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.15	7685.30	7718.46
GHC15-1	10-05 10:00	2.55	8.58	-2.385	-1.793	757.44	918.492	1133.133	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.14	7685.19	7718.43
GHC15-1	10-05 11:00	2.59	15.65	-2.302	-1.926	757.325	918.441	1133.119	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.03	7685.14	7718.42
GHC15-1	10-05 12:00	2.61	17.94	-2.233	-1.76	757.374	918.435	1133.169	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.07	7685.14	7718.47
GHC15-1	10-05 13:00	2.62	18.87	-2.205	-1.806	757.434	918.617	1133.209	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.13	7685.32	7718.51
GHC15-1	10-05 14:00	2.62	19.68	-2.432	-1.848	757.361	918.651	1133.135	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.06	7685.35	7718.44
GHC15-1	10-05 15:00	2.63	21.34	-2.357	-1.723	757.371	918.577	1133.294	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.07	7685.28	7718.59
GHC15-1	10-05 16:00	2.64	22.23	-2.242	-1.848	757.364	918.407	1133.129	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.06	7685.11	7718.43
GHC15-1	10-05 17:00	2.64	21.34	-2.246	-1.709	757.393	918.514	1133.169	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.09	7685.21	7718.47
GHC15-1	10-05 18:00	2.63	19.19	-2.32	-1.778	757.417	918.572	1133.164	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.12	7685.27	7718.46
GHC15-1	10-05 19:00	2.61	13.14	-2.348	-1.834	757.44	918.39	1133.054	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.14	7685.09	7718.35
GHC15-1	10-05 20:00	2.59	9.2	-2.455	-1.857	757.292	918.497	1133.269	15.5	21	23.2	23.5	23.9	DRY	DRY	7752.99	7685.20	7718.57
GHC15-1	10-05 21:00	2.58	8.21	-2.422	-1.778	757.256	918.503	1133.129	15.5	21	23.2	23.5	23.9	DRY	DRY	7752.96	7685.20	7718.43
GHC15-1	10-05 22:00	2.59	7.02	-2.371	-1.89	757.328	918.407	1133.153	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.03	7685.11	7718.45
GHC15-1	10-05 23:00	2.58	6.63	-2.32	-1.806	757.368	918.424	1133.084	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.07	7685.12	7718.38
GHC15-1	10-06 00:00	2.56	5.89	-2.205	-1.908	757.368	918.412	1132.995	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.07	7685.11	7718.30
GHC15-1	10-06 01:00	2.56	5.18	-2.219	-1.885	757.48	918.582	1133.229	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.18	7685.28	7718.53
GHC15-1	10-06 02:00	2.55	5.25	-2.255	-1.843	757.358	918.577	1133.029	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.06	7685.28	7718.33
GHC15-1	10-06 03:00	2.56	5.64	-2.348	-1.951	757.213	918.52	1133.119	15.5	21	23.2	23.5	23.9	DRY	DRY	7752.91	7685.22	7718.42
GHC15-1	10-06 04:00	2.56	5.35	-2.371	-1.903	757.295	918.384	1133.163	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.00	7685.08	7718.46
GHC15-1	10-06 05:00	2.55	4.4	-2.173	-1.783	757.355	918.56	1133.114	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.06	7685.26	7718.41
GHC15-1	10-06 06:00	2.55	3.66	-2.251	-1.885	757.364	918.565	1133.202	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.06	7685.27	7718.50
GHC15-1	10-06 07:00	2.54	3.45	-2.334	-1.811	757.417	918.599	1133.054	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.12	7685.30	7718.35
GHC15-1	10-06 08:00	2.55	3.64	-2.432	-1.802	757.332	918.628	1125.687	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.03	7685.33	
GHC15-1	10-06 09:00	2.55	3.74	-2.348	-1.862	757.434	918.605	1133.174	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.13	7685.31	7718.47
GHC15-1	10-06 10:00	2.55	8.28	-2.269	-1.955	757.444	918.322	1133.274	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.14	7685.02	7718.57
GHC15-1	10-06 11:00	2.57	10.42	-2.325	-1.926	757.364	918.497	1133.114	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.06	7685.20	7718.41
GHC15-1	10-06 12:00	2.59	12.91	-2.389	-1.862	757.285	918.435	1133.204	15.5	21	23.2	23.5	23.9	DRY	DRY	7752.99	7685.14	7718.50
GHC15-1	10-06 13:00	2.59	11.45	-2.26	-1.686	757.332	918.639	1133.144	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.03	7685.34	7718.44
GHC15-1	10-06 14:00	2.6	12.08	-2.339	-1.867	757.358	918.685	1133.154	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.06	7685.39	7718.45
GHC15-1	10-06 15:00	2.59	11.97	-2.13	-1.936	757.37	918.572	1133.259	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.07	7685.27	7718.56
GHC15-1	10-06 16:00	2.6	15.57	-2.307	-1.876	757.483	918.429	1133.024	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.18	7685.13	7718.32
GHC15-1	10-06 17:00	2.61	14.28	-2.399	-1.834	757.371	918.412	1133.244	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.07	7685.11	7718.54
GHC15-1	10-06 18:00	2.6	11.5	-2.181	-1.843	757.374	918.322	1133.374	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.07	7685.02	7718.67
GHC15-1	10-06 19:00	2.59	8.23	-2.353	-1.857	757.368	918.549	1133.135	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.07	7685.25	7718.44
GHC15-1	10-06 20:00	2.59	5.69	-2.148	-1.853	757.338	918.486	1133.104	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.04	7685.19	7

Bore Hole	LOGGER DATA			SENSOR READINGS (hertz)					SENSOR TEMPERATURES (°C)					GROUNDWATER ELEVATION CALCULATIONS				
	Day 2015	Batt V	Temp C	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5
GHC15-1	10-08 16:00	2.6	14.39	-2.482	-1.834	757.404	918.639	1133.299	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.10	7685.34	7718.60
GHC15-1	10-08 17:00	2.61	17.26	-2.459	-1.788	757.381	918.599	1133.169	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.08	7685.30	7718.47
GHC15-1	10-08 18:00	2.61	14.93	-2.283	-1.765	757.414	918.657	1133.238	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.11	7685.36	7718.54
GHC15-1	10-08 19:00	2.59	12.03	-2.477	-1.912	757.305	918.696	1133.184	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.01	7685.40	7718.48
GHC15-1	10-08 20:00	2.58	9.67	-2.334	-1.756	757.381	918.463	1133.089	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.08	7685.16	7718.39
GHC15-1	10-08 21:00	2.57	8.3	-2.233	-1.788	757.411	918.435	1133.075	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.11	7685.14	7718.38
GHC15-1	10-08 22:00	2.56	6.5	-2.414	-1.926	757.457	918.56	1133.159	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.16	7685.26	7718.46
GHC15-1	10-08 23:00	2.55	5.5	-2.427	-1.802	757.434	918.56	1133.079	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.13	7685.26	7718.38
GHC15-1	10-09 00:00	2.55	5.06	-2.288	-1.89	757.421	918.611	1133.064	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.12	7685.31	7718.36
GHC15-1	10-09 01:00	2.55	5.06	-2.343	-1.695	757.319	918.599	1133.234	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.02	7685.30	7718.53
GHC15-1	10-09 02:00	2.55	4.64	-2.334	-1.742	757.421	918.701	1133.243	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.12	7685.40	7718.54
GHC15-1	10-09 03:00	2.55	3.76	-2.246	-1.894	757.467	918.565	1132.954	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.17	7685.27	7718.25
GHC15-1	10-09 04:00	2.54	3.45	-2.255	-1.815	757.401	918.611	1133.248	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.10	7685.31	7718.55
GHC15-1	10-09 05:00	2.54	2.72	-2.237	-1.811	757.49	918.526	1133.364	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.19	7685.23	7718.66
GHC15-1	10-09 06:00	2.53	2.18	-2.325	-1.867	757.472	918.68	1133.188	15.5	21	23.3	23.5	23.8	DRY	DRY	7753.17	7685.38	7718.49
GHC15-1	10-09 07:00	2.53	2.11	-2.376	-1.839	757.523	918.554	1133.114	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.22	7685.25	7718.41
GHC15-1	10-09 08:00	2.53	1.69	-2.288	-1.806	757.509	918.605	1133.209	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.21	7685.31	7718.51
GHC15-1	10-09 09:00	2.52	1.18	-2.269	-1.732	757.483	918.367	1133.149	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.18	7685.07	7718.45
GHC15-1	10-09 10:00	2.53	7.46	-2.408	-1.82	757.509	918.435	1132.979	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.21	7685.14	7718.28
GHC15-1	10-09 11:00	2.55	15.41	-2.436	-1.737	757.452	918.696	1133.124	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.15	7685.40	7718.42
GHC15-1	10-09 12:00	2.59	15.91	-2.432	-1.695	757.459	918.572	1133.014	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.16	7685.27	7718.31
GHC15-1	10-09 13:00	2.6	16.32	-2.311	-1.58	757.497	918.657	1133.184	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.20	7685.36	7718.48
GHC15-1	10-09 14:00	2.6	17	-2.148	-1.695	757.474	918.594	1133.168	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.17	7685.29	7718.47
GHC15-1	10-09 15:00	2.61	19.27	-2.367	-1.826	757.469	918.657	1133.294	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.17	7685.36	7718.59
GHC15-1	10-09 16:00	2.61	19.38	-2.279	-1.82	757.506	918.809	1133.238	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.21	7685.51	7718.54
GHC15-1	10-09 17:00	2.62	18.63	-2.288	-1.64	757.335	918.634	1133.159	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.04	7685.33	7718.46
GHC15-1	10-09 18:00	2.61	14.8	-2.255	-1.584	757.421	918.622	1133.124	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.12	7685.32	7718.42
GHC15-1	10-09 19:00	2.59	11.17	-2.389	-1.524	757.427	918.657	1133.084	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.13	7685.36	7718.38
GHC15-1	10-09 20:00	2.58	8.92	-2.237	-1.765	757.454	918.668	1133.099	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.15	7685.37	7718.40
GHC15-1	10-09 21:00	2.57	6.65	-2.334	-1.793	757.417	918.668	1133.135	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.12	7685.37	7718.44
GHC15-1	10-09 22:00	2.55	4.76	-2.237	-1.594	757.46	918.565	1133.054	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.16	7685.27	7718.35
GHC15-1	10-09 23:00	2.54	3.88	-2.214	-1.746	757.411	918.577	1133.093	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.11	7685.28	7718.39
GHC15-1	10-10 00:00	2.54	4.74	-2.246	-1.876	757.387	918.588	1133.274	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.09	7685.29	7718.57
GHC15-1	10-10 01:00	2.54	5.62	-2.145	-1.774	757.44	918.657	1133.248	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.14	7685.36	7718.55
GHC15-1	10-10 02:00	2.55	6.04	-2.307	-1.691	757.437	918.713	1133.189	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.14	7685.41	7718.49
GHC15-1	10-10 03:00	2.55	6.11	-2.167	-1.793	757.45	918.719	1133.338	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.15	7685.42	7718.64
GHC15-1	10-10 04:00	2.55	5.79	-2.394	-1.709	757.361	918.673	1133.224	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.06	7685.37	7718.52
GHC15-1	10-10 05:00	2.55	5.72	-2.227	-1.732	757.407	918.724	1133.005	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.11	7685.42	

Bore Hole	LOGGER DATA			SENSOR READINGS (hertz)					SENSOR TEMPERATURES (°C)					GROUNDWATER ELEVATION CALCULATIONS				
	Day 2015	Batt V	Temp C	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5
GHC15-1	10-12 23:00	2.54	3.71	-2.283	-1.732	757.431	918.497	1133.118	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.13	7685.20	7718.42
GHC15-1	10-13 00:00	2.54	4.49	-2.316	-1.862	757.483	918.52	1133.189	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.18	7685.22	7718.49
GHC15-1	10-13 01:00	2.54	5.62	-2.242	-1.7	757.546	918.378	1133.139	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.25	7685.08	7718.44
GHC15-1	10-13 02:00	2.55	5.96	-2.473	-1.826	757.447	918.424	1133.073	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.15	7685.12	7718.37
GHC15-1	10-13 03:00	2.55	6.09	-2.251	-1.848	757.374	918.599	1133.274	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.07	7685.30	7718.57
GHC15-1	10-13 04:00	2.55	5.99	-2.279	-1.82	757.414	918.52	1133.159	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.11	7685.22	7718.46
GHC15-1	10-13 05:00	2.55	5.99	-2.209	-1.778	757.421	918.668	1133.269	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.12	7685.37	7718.57
GHC15-1	10-13 06:00	2.55	5.33	-2.343	-1.912	757.414	918.634	1133.179	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.11	7685.33	7718.48
GHC15-1	10-13 07:00	2.55	5.5	-2.274	-1.778	757.49	918.685	1133.393	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.19	7685.39	7718.69
GHC15-1	10-13 08:00	2.54	5.5	-2.158	-1.848	757.49	918.628	1133.128	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.19	7685.33	7718.43
GHC15-1	10-13 09:00	2.55	5.28	-2.353	-1.76	757.374	918.531	1133.198	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.07	7685.23	7718.50
GHC15-1	10-13 10:00	2.55	9.84	-2.404	-1.686	757.401	918.424	1133.284	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.10	7685.12	7718.58
GHC15-1	10-13 11:00	2.57	14.9	-2.385	-1.783	757.411	918.509	1133.199	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.11	7685.21	7718.50
GHC15-1	10-13 12:00	2.59	16.89	-2.436	-1.575	757.407	918.554	1133	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.11	7685.25	7718.30
GHC15-1	10-13 13:00	2.6	18.85	-2.288	-1.691	757.493	918.322	1133.135	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.19	7685.02	7718.44
GHC15-1	10-13 14:00	2.61	21.17	-2.329	-1.732	757.429	918.446	1133.174	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.13	7685.15	7718.47
GHC15-1	10-13 15:00	2.62	23.62	-2.283	-1.82	757.531	918.628	1133.135	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.23	7685.33	7718.44
GHC15-1	10-13 16:00	2.63	24.69	-2.302	-1.75	757.457	918.793	1133.174	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.16	7685.49	7718.47
GHC15-1	10-13 17:00	2.63	24.25	-2.357	-1.793	757.509	918.628	1133.229	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.21	7685.33	7718.53
GHC15-1	10-13 18:00	2.63	22.06	-2.353	-1.737	757.394	918.486	1133.119	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.09	7685.19	7718.42
GHC15-1	10-13 19:00	2.61	15.75	-2.376	-1.732	757.482	918.509	1133.244	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.18	7685.21	7718.54
GHC15-1	10-13 20:00	2.58	10.54	-2.357	-1.524	757.434	918.742	1133.279	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.13	7685.44	7718.58
GHC15-1	10-13 21:00	2.59	8.28	-2.325	-1.783	757.486	918.481	1133.129	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.19	7685.18	7718.43
GHC15-1	10-13 22:00	2.56	7	-2.404	-1.853	757.364	918.492	1133.075	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.06	7685.19	7718.38
GHC15-1	10-13 23:00	2.55	5.96	-2.441	-1.714	757.463	918.509	1133.064	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.16	7685.21	7718.36
GHC15-1	10-14 00:00	2.55	5.25	-2.158	-1.695	757.44	918.605	1133.224	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.14	7685.31	7718.52
GHC15-1	10-14 01:00	2.54	5.23	-2.404	-1.834	757.384	918.549	1133.179	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.08	7685.25	7718.48
GHC15-1	10-14 02:00	2.55	5.52	-2.422	-1.737	757.378	918.424	1133.149	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.08	7685.12	7718.45
GHC15-1	10-14 03:00	2.55	5.5	-2.103	-1.908	757.434	918.481	1133.048	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.13	7685.18	7718.35
GHC15-1	10-14 04:00	2.55	5.86	-2.255	-1.88	757.483	918.758	1133.144	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.18	7685.46	7718.44
GHC15-1	10-14 05:00	2.55	5.84	-2.353	-1.932	757.457	918.775	1133.169	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.16	7685.48	7718.47
GHC15-1	10-14 06:00	2.55	5.74	-2.408	-1.867	757.364	918.742	1133.108	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.06	7685.44	7718.41
GHC15-1	10-14 07:00	2.55	5.67	-2.233	-1.88	757.431	918.572	1133.189	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.13	7685.27	7718.49
GHC15-1	10-14 08:00	2.55	5.74	-2.325	-1.867	757.551	918.572	1133.212	15.5	21	23.3	23.5	23.8	DRY	DRY	7753.25	7685.27	7718.51
GHC15-1	10-14 09:00	2.55	5.86	-2.154	-1.658	757.474	918.668	1133.139	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.17	7685.37	7718.44
GHC15-1	10-14 10:00	2.55	11.09	-2.394	-1.681	757.463	918.651	1133.128	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.16	7685.35	7718.43
GHC15-1	10-14 11:00	2.59	19.97	-2.26	-1.778	757.503	918.634	1133.144	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.20	7685.33	7718.44
GHC15-1	10-14 12:00	2.61	21.89	-2.404	-1.612	757.505	918.395	1133.259	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.21	7685.10	7718

Bore Hole	LOGGER DATA			SENSOR READINGS (hertz)					SENSOR TEMPERATURES (°C)					GROUNDWATER ELEVATION CALCULATIONS				
	Day 2015	Batt V	Temp C	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5
GHC15-1	10-17 06:00	2.53	4.25	-2.385	-1.793	757.55	918.582	1133.279	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.25	7685.28	7718.58
GHC15-1	10-17 07:00	2.53	4.15	-2.163	-1.876	757.519	918.708	1133.364	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.22	7685.41	7718.66
GHC15-1	10-17 08:00	2.54	4.2	-2.214	-1.756	757.574	918.747	1133.302	15.5	21	23.3	23.5	23.8	DRY	DRY	7753.27	7685.45	7718.60
GHC15-1	10-17 09:00	2.54	4.84	-2.14	-1.76	757.533	918.605	1133.212	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.23	7685.31	7718.51
GHC15-1	10-17 10:00	2.54	9.02	-2.422	-1.547	757.559	918.758	1133.218	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.26	7685.46	7718.52
GHC15-1	10-17 11:00	2.58	16.14	-2.269	-1.834	757.485	918.549	1133.297	15.5	21	23.3	23.5	23.8	DRY	DRY	7753.19	7685.25	7718.60
GHC15-1	10-17 12:00	2.59	17.79	-2.181	-1.728	757.457	918.69	1133.248	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.16	7685.39	7718.55
GHC15-1	10-17 13:00	2.6	18.08	-2.311	-1.797	757.49	918.696	1133.199	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.19	7685.40	7718.50
GHC15-1	10-17 14:00	2.6	19.06	-2.293	-1.723	757.474	918.543	1133.308	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.17	7685.24	7718.61
GHC15-1	10-17 15:00	2.61	20.49	-2.2	-1.783	757.404	918.441	1133.308	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.10	7685.14	7718.61
GHC15-1	10-17 16:00	2.61	21.56	-2.468	-1.705	757.424	918.68	1133.294	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.12	7685.38	7718.59
GHC15-1	10-17 17:00	2.62	20.06	-2.269	-1.691	757.426	918.701	1133.229	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.13	7685.40	7718.53
GHC15-1	10-17 18:00	2.61	14.95	-2.126	-1.83	757.48	918.492	1133.005	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.18	7685.19	7718.31
GHC15-1	10-17 19:00	2.58	10.17	-2.283	-1.695	757.506	918.651	1133.179	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.21	7685.35	7718.48
GHC15-1	10-17 20:00	2.55	7.83	-2.154	-1.561	757.398	918.582	1133.204	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.10	7685.28	7718.50
GHC15-1	10-17 21:00	2.56	6.97	-2.274	-1.57	757.463	918.701	1133.264	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.16	7685.40	7718.56
GHC15-1	10-17 22:00	2.55	6.45	-2.283	-1.728	757.45	918.509	1133.229	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.15	7685.21	7718.53
GHC15-1	10-17 23:00	2.54	5.94	-2.209	-1.612	757.474	918.56	1133.048	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.17	7685.26	7718.35
GHC15-1	10-18 00:00	2.53	5.23	-2.436	-1.603	757.454	918.288	1133.219	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.15	7684.99	7718.52
GHC15-1	10-18 01:00	2.54	4.74	-2.385	-1.612	757.493	918.634	1133.174	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.19	7685.33	7718.47
GHC15-1	10-18 02:00	2.54	4.15	-2.385	-1.714	757.431	918.463	1133.099	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.13	7685.16	7718.40
GHC15-1	10-18 03:00	2.53	4.01	-2.288	-1.635	757.404	918.52	1133.135	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.10	7685.22	7718.44
GHC15-1	10-18 04:00	2.53	4.18	-2.394	-1.793	757.364	918.322	1133.024	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.06	7685.02	7718.32
GHC15-1	10-18 05:00	2.53	4.13	-2.422	-1.788	757.454	918.452	1132.993	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.15	7685.15	7718.29
GHC15-1	10-18 06:00	2.53	3.84	-2.26	-1.951	757.463	918.599	1132.974	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.16	7685.30	7718.27
GHC15-1	10-18 07:00	2.53	2.72	-2.543	-1.756	757.474	918.538	1133.139	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.17	7685.24	7718.44
GHC15-1	10-18 08:00	2.52	2.23	-2.427	-1.588	757.424	918.599	1133.035	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.12	7685.30	7718.34
GHC15-1	10-18 09:00	2.52	3.3	-2.14	-1.797	757.46	918.639	1133.234	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.16	7685.34	7718.53
GHC15-1	10-18 10:00	2.53	8.78	-2.455	-1.709	757.5	918.565	1133.124	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.20	7685.27	7718.42
GHC15-1	10-18 11:00	2.56	14.8	-2.422	-1.561	757.493	918.787	1133.169	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.19	7685.49	7718.47
GHC15-1	10-18 12:00	2.58	16.27	-2.325	-1.658	757.572	918.713	1133.199	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.27	7685.41	7718.50
GHC15-1	10-18 13:00	2.59	18.53	-2.246	-1.612	757.431	918.701	1133.084	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.13	7685.40	7718.38
GHC15-1	10-18 14:00	2.6	16.92	-2.455	-1.681	757.454	918.628	1133.169	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.15	7685.33	7718.47
GHC15-1	10-18 15:00	2.58	10.97	-2.357	-1.811	757.48	918.588	1133.289	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.18	7685.29	7718.59
GHC15-1	10-18 16:00	2.58	13.93	-2.422	-1.964	757.539	918.469	1133.234	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.24	7685.17	7718.53
GHC15-1	10-18 17:00	2.59	15.52	-2.445	-1.742	757.463	918.611	1133.209	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.16	7685.31	7718.51
GHC15-1	10-18 18:00	2.59	14.34	-2.385	-1.894	757.444	918.582	1133.204	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.14	7685.28	7718.50
GHC15-1	10-18 19:00	2.58	10.37	-6.459	-1.826	757.374	918.611	1133.254	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.07	7685.31	7718.55
GHC15-1	10-18 20:00	2.56	7.83	-2.181	-1.951	757.47	918.549	1133.189	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.17	7685.25	7718.49
GHC15-1	10-18 21:00	2.55	5.64	-2.237	-1.691	757.483	918.452	1133.099	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.18	7685.15	7718.40
GHC15-1	10-18 22:00	2.54	4.52	-2.283	-1.728	752.609	918.424	1133.013	15.5	21	23.2	23.5	23.8	DRY	DRY		7685.12	7718.31
GHC15-1	10-18 23:00	2.53	3.86	-2.13	-1.862	757.493	918.418	1133.088	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.19	7685.12	7718.39
GHC15-1	10-19 00:00	2.52	3.3	-2.445	-1.834	757.454	918.373	1133.194	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.15	7685.07	7718.49
GHC15-1	10-19 01:00	2.53	2.98	-2.357	-1.663	757.404	918.52	1133.224	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.10	7685.22	7718.52
GHC15-1	10-19 02:00	2.52	2.98	-2.167	-1.843	757.513	918.486	1133.045	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.21	7685.19	7718.35
GHC15-1	10-19 03:00	2.52	2.91	-2.223	-1.82	757.355	918.424	1133.169	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.06	7685.12	7718.47
GHC15-1	10-19 04:00	2.52	2.42	-2.089	-1.769	757.371	918.39	1133.154	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.07	7685.09	7718.45
GHC15-1	10-19 05:00	2.52	2.28	-2.524	-1.815	757.355	918.429	1133.078	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.06	7685.13	7718.38
GHC15-1	10-19 06:00	2.51	2.08	-2.126	-1.663	757.391	918.458	1133.103	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.09	7685.16	7718.40
GHC15-1	10-19 07:00	2.52	1.79	-2.293	-1.732	757.447	918.526	1133.104	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.15	7685.23	7718.40
GHC15-1	10-19 08:00	2.52	1.79	-2.269	-1.765	757.463	918.526	1133	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.16	7685.23	7718.30
GHC15-1	10-19 09:00	2.52	3.37	-2.173	-1.746	757.444	918.531	1133.045	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.14	7685.23	7718.35
GHC15-1	10-19 10:00	2.53	6.55	-2.214	-1.867	757.467	918.526	1133.219	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.17	7685.23	7718.52
GHC15-1	10-19 11:00	2.55	8.23	-2.209	-1.932	757.509	918.367	1133.075	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.21	7685.07	7718.38
GHC15-1	10-19 12:00	2.55	8.08	-2.367	-1.769	757.444	918.469	1133.164	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.14	7685.17	7718.46
GHC15-1	10-19 13:00	2.55	9.4	-2.177	-1.765	757.467	918.481	1133.274	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.17	7685.18	7718.57
GHC15-1	10-19 14:00	2.58	11.87	-2.255	-1.964	757.48	918.424	1133.119	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.18	7685.12	7718.42
GHC15-1	10-19 15:00	2.57	11.77	-2.353	-1.788	757.427	918.458	1133.094	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.13	7685.16	7718.39
GHC15-1	10-19 16:00	2.56	10.72	-2.251	-1.977	757.391	918.299	1133.064	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.09	7685.00	7718.36
GHC15-1	10-19 17:00	2.58	13.57	-2.329	-1.903	757.556	918.441	1133.149	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.26	7685.14	77

Bore Hole	LOGGER DATA			SENSOR READINGS (hertz)					SENSOR TEMPERATURES (°C)					GROUNDWATER ELEVATION CALCULATIONS				
	Day 2015	Batt V	Temp C	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5
GHC15-1	10-21 13:00	2.5	3.45	-2.598	-1.797	757.483	918.577	1132.954	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.18	7685.28	7718.25
GHC15-1	10-21 14:00	2.51	3.37	-2.404	-1.765	757.44	918.407	1132.964	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.14	7685.11	7718.26
GHC15-1	10-21 15:00	2.51	2.76	-2.598	-1.853	757.444	918.509	1132.949	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.14	7685.21	7718.25
GHC15-1	10-21 16:00	2.5	2.23	-2.626	-1.973	757.463	918.339	1132.969	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.16	7685.04	7718.27
GHC15-1	10-21 17:00	2.5	0.97	-2.52	-1.774	757.434	918.35	1132.929	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.13	7685.05	7718.23
GHC15-1	10-21 18:00	2.46	0.14	-2.515	-2.024	757.48	918.367	1132.894	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.18	7685.07	7718.19
GHC15-1	10-21 19:00	2.48	-0.47	-2.362	-1.83	757.545	918.538	1132.939	15.5	21	23.3	23.5	23.8	DRY	DRY	7753.25	7685.24	7718.24
GHC15-1	10-21 20:00	2.48	-0.83	-2.288	-1.806	757.404	918.497	1133.035	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.10	7685.20	7718.34
GHC15-1	10-21 21:00	2.47	-0.83	-2.575	-1.88	757.477	918.412	1132.965	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.18	7685.11	7718.27
GHC15-1	10-21 22:00	2.47	-0.83	-2.547	-1.945	757.463	918.129	1132.859	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.16	7684.83	7718.16
GHC15-1	10-21 23:00	2.47	-0.88	-2.432	-1.83	757.407	918.39	1132.85	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.11	7685.09	7718.15
GHC15-1	10-22 00:00	2.47	-0.93	-2.422	-1.723	757.407	918.316	1133.035	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.11	7685.02	7718.34
GHC15-1	10-22 01:00	2.47	-1.17	-2.445	-1.83	757.394	918.429	1132.873	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.09	7685.13	7718.17
GHC15-1	10-22 02:00	2.48	-1.02	-2.533	-1.691	757.46	918.305	1132.894	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.16	7685.01	7718.19
GHC15-1	10-22 03:00	2.47	-0.56	-2.533	-1.802	757.361	918.531	1133.035	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.06	7685.23	7718.34
GHC15-1	10-22 04:00	2.48	-0.66	-2.408	-1.843	757.384	918.106	1133.018	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.08	7684.81	7718.32
GHC15-1	10-22 05:00	2.47	-0.49	-2.538	-1.769	757.486	918.384	1133.064	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.19	7685.08	7718.36
GHC15-1	10-22 06:00	2.48	-0.44	-2.529	-1.584	757.486	918.214	1132.943	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.19	7684.91	7718.24
GHC15-1	10-22 07:00	2.47	-0.54	-2.414	-1.867	757.519	918.299	1132.954	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.22	7685.00	7718.25
GHC15-1	10-22 08:00	2.48	-0.54	-2.63	-1.607	757.47	918.31	1133.023	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.17	7685.01	7718.32
GHC15-1	10-22 09:00	2.47	-0.37	-2.58	-1.76	757.46	918.22	1132.918	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.16	7684.92	7718.22
GHC15-1	10-22 10:00	2.48	0.72	-2.524	-1.654	757.391	918.027	1133.035	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.09	7684.73	7718.34
GHC15-1	10-22 11:00	2.5	1.6	-2.515	-2.037	757.444	918.225	1132.92	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.14	7684.93	7718.22
GHC15-1	10-22 12:00	2.52	7.54	-2.487	-1.806	757.48	918.095	1133.069	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.18	7684.80	7718.37
GHC15-1	10-22 13:00	2.55	11.95	-2.63	-1.941	757.497	918.395	1132.939	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.20	7685.10	7718.24
GHC15-1	10-22 14:00	2.55	8.45	-2.607	-1.932	757.394	918.452	1132.965	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.09	7685.15	7718.27
GHC15-1	10-22 15:00	2.53	4.98	-2.371	-1.746	757.398	918.361	1132.965	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.10	7685.06	7718.27
GHC15-1	10-22 16:00	2.52	2.62	-2.552	-1.788	757.497	918.186	1133.035	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.20	7684.89	7718.34
GHC15-1	10-22 17:00	2.5	1.23	-2.482	-1.848	757.411	918.333	1133.029	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.11	7685.03	7718.33
GHC15-1	10-22 18:00	2.47	0.51	-2.477	-1.871	757.411	918.35	1132.935	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.11	7685.05	7718.24
GHC15-1	10-22 19:00	2.48	0.04	-2.626	-1.788	757.391	918.163	1132.983	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.09	7684.86	7718.28
GHC15-1	10-22 20:00	2.48	-0.32	-2.436	-1.714	757.315	918.373	1133.049	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.02	7685.07	7718.35
GHC15-1	10-22 21:00	2.47	-0.64	-2.487	-1.718	757.513	918.259	1132.909	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.21	7684.96	7718.21
GHC15-1	10-22 22:00	2.47	-1	-2.594	-1.765	757.404	918.214	1132.809	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.10	7684.91	7718.11
GHC15-1	10-22 23:00	2.47	-1.58	-2.501	-1.848	757.431	918.208	1132.959	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.13	7684.91	7718.26
GHC15-1	10-23 00:00	2.46	-1.88	-2.704	-1.778	757.411	918.186	1132.979	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.11	7684.89	7718.28
GHC15-1	10-23 01:00	2.46	-2.05	-2.414	-1.908	757.523	918.208	1132.99	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.22	7684.91	7718.29
GHC15-1	10-23 02:00	2.45	-1.68	-2.543	-1.714	757.545	918.129	1132.845	15.5	21	23.3	23.5	23.9	DRY	DRY	7753.25	7684.83	7718.15
GHC15-1																		

Bore Hole	LOGGER DATA			SENSOR READINGS (hertz)					SENSOR TEMPERATURES (°C)					GROUNDWATER ELEVATION CALCULATIONS				
	Day 2015	Batt V	Temp C	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5
GHC15-1	10-25 20:00	2.51	3.74	-2.667	-1.853	757.421	918.078	1132.959	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.12	7684.78	7718.26
GHC15-1	10-25 21:00	2.5	3.1	-2.736	-1.728	757.292	918.271	1132.918	15.5	21	23.2	23.5	23.8	DRY	DRY	7752.99	7684.97	7718.22
GHC15-1	10-25 22:00	2.5	2.62	-2.667	-1.769	757.384	918.22	1132.943	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.08	7684.92	7718.24
GHC15-1	10-25 23:00	2.49	2.28	-2.505	-1.82	757.348	918.083	1132.949	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.05	7684.78	7718.25
GHC15-1	10-26 00:00	2.46	1.82	-2.677	-1.718	757.404	918.231	1133.024	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.10	7684.93	7718.32
GHC15-1	10-26 01:00	2.49	1.84	-2.52	-1.714	757.378	918.208	1132.9	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.08	7684.91	7718.20
GHC15-1	10-26 02:00	2.48	1.74	-2.653	-1.769	757.483	918.163	1133.084	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.18	7684.86	7718.38
GHC15-1	10-26 03:00	2.49	1.94	-2.681	-1.839	757.358	918.316	1132.884	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.06	7685.02	7718.18
GHC15-1	10-26 04:00	2.47	1.96	-2.644	-1.973	757.5	918.237	1132.865	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.20	7684.94	7718.17
GHC15-1	10-26 05:00	2.5	1.96	-2.714	-1.718	757.417	918.242	1132.918	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.12	7684.94	7718.22
GHC15-1	10-26 06:00	2.48	1.01	-2.612	-1.918	757.467	918.327	1133.064	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.17	7685.03	7718.36
GHC15-1	10-26 07:00	2.48	0.12	-2.501	-1.769	757.513	918.089	1133.009	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.21	7684.79	7718.31
GHC15-1	10-26 08:00	2.47	-0.61	-2.468	-2.07	757.401	918.299	1132.903	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.10	7685.00	7718.20
GHC15-1	10-26 09:00	2.47	0.48	-2.742	-1.765	757.493	918.242	1132.843	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.19	7684.94	7718.14
GHC15-1	10-26 10:00	2.48	2.3	-2.617	-1.797	757.417	918.095	1132.915	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.12	7684.80	7718.22
GHC15-1	10-26 11:00	2.5	6.65	-2.621	-2.037	757.48	918.089	1132.959	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.18	7684.79	7718.26
GHC15-1	10-26 12:00	2.52	7.66	-2.69	-1.709	757.348	918.271	1132.825	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.05	7684.97	7718.13
GHC15-1	10-26 13:00	2.53	9.57	-2.58	-1.834	757.391	918.145	1132.855	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.09	7684.85	7718.16
GHC15-1	10-26 14:00	2.53	6.58	-2.672	-1.626	757.398	918.208	1132.794	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.10	7684.91	7718.09
GHC15-1	10-26 15:00	2.52	5.99	-2.77	-1.826	757.401	918.191	1133.019	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.10	7684.89	7718.32
GHC15-1	10-26 16:00	2.52	4.98	-2.649	-1.668	757.503	918.152	1133.01	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.20	7684.85	7718.31
GHC15-1	10-26 17:00	2.51	5.2	-2.477	-1.951	757.391	918.242	1133.154	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.09	7684.94	7718.45
GHC15-1	10-26 18:00	2.51	4.01	-2.588	-1.899	757.387	918.168	1132.875	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.09	7684.87	7718.18
GHC15-1	10-26 19:00	2.5	1.96	-2.556	-1.903	757.46	918.253	1132.925	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.16	7684.95	7718.23
GHC15-1	10-26 20:00	2.48	0.24	-2.681	-1.871	757.493	918.101	1133.045	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.19	7684.80	7718.35
GHC15-1	10-26 21:00	2.47	-0.2	-2.594	-1.737	757.411	918.202	1132.939	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.11	7684.90	7718.24
GHC15-1	10-26 22:00	2.47	-0.93	-2.83	-1.932	757.381	918.248	1133.01	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.08	7684.95	7718.31
GHC15-1	10-26 23:00	2.47	-1.17	-2.566	-1.867	757.398	918.276	1132.92	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.10	7684.98	7718.22
GHC15-1	10-27 00:00	2.45	-1.73	-2.644	-1.941	757.431	918.197	1132.84	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.13	7684.90	7718.14
GHC15-1	10-27 01:00	2.44	-2.44	-2.588	-1.885	757.341	918.237	1132.945	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.04	7684.94	7718.25
GHC15-1	10-27 02:00	2.43	-2.8	-2.626	-1.709	757.384	918.282	1132.754	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.08	7684.98	7718.05
GHC15-1	10-27 03:00	2.43	-2.9	-2.505	-1.797	757.546	918.22	1132.809	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.25	7684.92	7718.11
GHC15-1	10-27 04:00	2.44	-2.8	-2.57	-1.774	757.447	918.412	1132.979	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.15	7685.11	7718.28
GHC15-1	10-27 05:00	2.43	-2.22	-2.52	-1.783	757.414	918.242	1132.988	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.11	7684.94	7718.29
GHC15-1	10-27 06:00	2.44	-2.1	-2.612	-1.912	757.533	918.22	1132.943	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.23	7684.92	7718.24
GHC15-1	10-27 07:00	2.44	-2.27	-2.477	-1.802	757.437	918.231	1132.815	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.14	7684.93	7718.12
GHC15-1	10-27 08:00	2.44	-2.51	-2.764	-1.732	757.483	918.14	1133.009	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.18	7684.84	7718.31
GHC15-1	10-27 09:00	2.44	-3.12	-2.64	-1.728	757.434	918.186	1132.845	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.13	7684.89	7718.15
GHC15-1	1><																	

Bore Hole	LOGGER DATA			SENSOR READINGS (hertz)					SENSOR TEMPERATURES (°C)					GROUNDWATER ELEVATION CALCULATIONS				
	Day 2015	Batt V	Temp C	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5
GHC15-1	10-30 03:00	2.45	-1.83	-2.733	-1.853	757.262	918.271	1132.72	15.5	21	23.2	23.5	23.9	DRY	DRY	7752.96	7684.97	7718.02
GHC15-1	10-30 04:00	2.46	-2.14	-2.718	-1.853	757.08	918.055	1132.6	15.5	21	23.2	23.5	23.9	DRY	DRY	7752.78	7684.76	7717.90
GHC15-1	10-30 05:00	2.45	-1.9	-2.714	-1.899	757.239	918.101	1132.714	15.5	21	23.2	23.5	23.8	DRY	DRY	7752.94	7684.80	7718.01
GHC15-1	10-30 06:00	2.45	-1.75	-2.612	-1.932	757.179	918.259	1132.535	15.5	21	23.2	23.5	23.8	DRY	DRY	7752.88	7684.96	7717.84
GHC15-1	10-30 07:00	2.45	-1.95	-2.718	-1.862	757.328	918.157	1132.83	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.03	7684.86	7718.13
GHC15-1	10-30 08:00	2.44	-1.93	-2.733	-2.029	757.262	918.253	1132.725	15.5	21	23.2	23.5	23.9	DRY	DRY	7752.96	7684.95	7718.03
GHC15-1	10-30 09:00	2.45	-1.85	-2.871	-2.052	757.358	918.163	1132.83	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.06	7684.86	7718.13
GHC15-1	10-30 10:00	2.46	-1.15	-2.793	-2.024	757.332	918.186	1132.774	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.03	7684.89	7718.07
GHC15-1	10-30 11:00	2.46	-0.2	-2.788	-2.042	757.292	918.145	1132.755	15.5	21	23.2	23.5	23.9	DRY	DRY	7752.99	7684.85	7718.06
GHC15-1	10-30 12:00	2.47	0.82	-2.718	-1.941	757.203	918.129	1132.465	15.5	21	23.2	23.5	23.8	DRY	DRY	7752.90	7684.83	7717.77
GHC15-1	10-30 13:00	2.48	2.84	-2.733	-1.992	757.236	918.186	1132.58	15.5	21	23.2	23.5	23.9	DRY	DRY	7752.94	7684.89	7717.88
GHC15-1	10-30 14:00	2.5	2.86	-2.774	-2.019	757.133	917.992	1132.521	15.5	21	23.2	23.5	23.9	DRY	DRY	7752.83	7684.69	7717.82
GHC15-1	10-30 15:00	2.5	4.4	-2.677	-2.019	757.176	918.276	1132.636	15.5	21	23.2	23.5	23.9	DRY	DRY	7752.88	7684.98	7717.94
GHC15-1	10-30 16:00	2.51	4.79	-2.71	-1.783	757.179	918.157	1132.63	15.5	21	23.2	23.5	23.9	DRY	DRY	7752.88	7684.86	7717.93
GHC15-1	10-30 17:00	2.51	3.62	-2.626	-2.112	757.15	918.129	1132.785	15.5	21	23.2	23.5	23.9	DRY	DRY	7752.85	7684.83	7718.09
GHC15-1	10-30 18:00	2.47	-0.22	-2.686	-2.015	757.147	918.066	1132.769	15.5	21	23.2	23.5	23.8	DRY	DRY	7752.85	7684.77	7718.07
GHC15-1	10-30 19:00	2.46	-2.63	-2.811	-2.112	757.189	918.157	1132.495	15.5	21	23.2	23.5	23.8	DRY	DRY	7752.89	7684.86	7717.80
GHC15-1	10-30 20:00	2.44	-3.69	-2.848	-1.982	757.288	918.112	1132.724	15.5	21	23.2	23.5	23.8	DRY	DRY	7752.99	7684.81	7718.02
GHC15-1	10-30 21:00	2.43	-4.43	-2.681	-2.019	757.233	918.327	1132.619	15.5	21	23.2	23.5	23.8	DRY	DRY	7752.93	7685.03	7717.92
GHC15-1	10-30 22:00	2.42	-5.07	-2.71	-1.996	757.2	918.225	1132.644	15.5	21	23.2	23.5	23.8	DRY	DRY	7752.90	7684.93	7717.94
GHC15-1	10-30 23:00	2.4	-5.5	-2.695	-1.964	757.117	917.935	1132.626	15.5	21	23.2	23.5	23.9	DRY	DRY	7752.82	7684.64	7717.93
GHC15-1	10-31 00:00	2.41	-5.27	-2.751	-1.826	757.147	917.998	1132.48	15.5	21	23.2	23.5	23.8	DRY	DRY	7752.85	7684.70	7717.78
GHC15-1	10-31 01:00	2.4	-4.87	-2.797	-2.107	757.147	918.145	1132.854	15.5	21	23.2	23.5	23.8	DRY	DRY	7752.85	7684.85	7718.15
GHC15-1	10-31 02:00	2.41	-5	-2.871	-1.867	757.117	917.982	1132.66	15.5	21	23.2	23.5	23.9	DRY	DRY	7752.82	7684.68	7717.96
GHC15-1	10-31 03:00	2.42	-4.87	-2.718	-1.857	757.193	918.095	1132.559	15.5	21	23.2	23.5	23.8	DRY	DRY	7752.89	7684.80	7717.86
GHC15-1	10-31 04:00	2.41	-4.3	-2.884	-1.903	757.122	918.117	1132.626	15.5	21	23.3	23.5	23.9	DRY	DRY	7752.82	7684.82	7717.93
GHC15-1	10-31 05:00	2.42	-4.11	-2.857	-2.107	757.173	917.947	1132.58	15.5	21	23.2	23.5	23.9	DRY	DRY	7752.87	7684.65	7717.88
GHC15-1	10-31 06:00	2.43	-4.01	-2.853	-1.815	757.196	918.032	1132.645	15.5	21	23.2	23.5	23.9	DRY	DRY	7752.90	7684.73	7717.95
GHC15-1	10-31 07:00	2.42	-4.28	-2.862	-1.959	757.153	917.986	1132.724	15.5	21	23.2	23.5	23.8	DRY	DRY	7752.85	7684.69	7718.02
GHC15-1	10-31 08:00	2.42	-4.58	-2.82	-2.019	757.216	918.208	1132.694	15.5	21	23.2	23.5	23.8	DRY	DRY	7752.92	7684.91	7717.99
GHC15-1	10-31 09:00	2.42	-4.16	-2.862	-2.052	757.276	918.14	1132.609	15.5	21	23.2	23.5	23.8	DRY	DRY	7752.98	7684.84	7717.91
GHC15-1	10-31 10:00	2.43	-1.32	-2.839	-1.992	757.206	918.095	1132.655	15.5	21	23.2	23.5	23.9	DRY	DRY	7752.91	7684.80	7717.96
GHC15-1	10-31 11:00	2.47	5.94	-2.736	-2.07	757.173	918.078	1132.62	15.5	21	23.2	23.5	23.9	DRY	DRY	7752.87	7684.78	7717.92
GHC15-1	10-31 12:00	2.5	8.63	-2.936	-1.862	757.176	918.208	1132.571	15.5	21	23.2	23.5	23.9	DRY	DRY	7752.88	7684.91	7717.87
GHC15-1	10-31 13:00	2.52	9.67	-2.83	-2.042	757.162	917.952	1132.554	15.5	21	23.3	23.5	23.8	DRY	DRY	7752.86	7684.65	7717.85
GHC15-1	10-31 14:00	2.53	11.17	-2.834	-2.057	757.133	918.061	1132.714	15.5	21	23.2	23.5	23.8	DRY	DRY	7752.83	7684.76	7718.01
GHC15-1	10-31 15:00	2.55	12.66	-2.941	-2.001	757.153	917.992	1132.551	15.5	21	23.2	23.5	23.9	DRY	DRY	7752.85	7684.69	7717.85
GHC15-1	10-31 16:00	2.55	12.96	-2.931	-1.977	757.176	917.975	1132.59	15.5	21	23.2	23.5	23.9	DRY	DRY	7752.88	7684.68	7717.89
GHC15-1																		

Bore Hole	LOGGER DATA			SENSOR READINGS (hertz)					SENSOR TEMPERATURES (°C)					GROUNDWATER ELEVATION CALCULATIONS				
	Day 2015	Batt V	Temp C	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5
GHC15-1	11-03 10:00	2.47	2.16	-2.797	-1.885	757.332	918.145	1132.595	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.03	7684.85	7717.90
GHC15-1	11-03 11:00	2.49	7.83	-2.751	-1.992	757.292	918.095	1132.495	15.5	21	23.2	23.5	23.8	DRY	DRY	7752.99	7684.80	7717.80
GHC15-1	11-03 12:00	2.51	9.52	-2.751	-1.774	757.189	918.293	1132.525	15.5	21	23.2	23.5	23.8	DRY	DRY	7752.89	7684.99	7717.83
GHC15-1	11-03 13:00	2.52	10.59	-2.626	-2.01	757.276	918.248	1132.62	15.5	21	23.2	23.5	23.9	DRY	DRY	7752.98	7684.95	7717.92
GHC15-1	11-03 14:00	2.53	11.37	-2.774	-1.969	757.282	918.186	1132.58	15.5	21	23.2	23.5	23.9	DRY	DRY	7752.98	7684.89	7717.88
GHC15-1	11-03 15:00	2.54	12.3	-2.695	-2.015	757.355	918.083	1132.745	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.06	7684.78	7718.05
GHC15-1	11-03 16:00	2.55	13.29	-2.594	-1.912	757.153	918.072	1132.51	15.5	21	23.2	23.5	23.9	DRY	DRY	7752.85	7684.77	7717.81
GHC15-1	11-03 17:00	2.55	13.62	-2.797	-1.973	757.229	918.214	1132.496	15.5	21	23.2	23.5	23.9	DRY	DRY	7752.93	7684.91	7717.80
GHC15-1	11-03 18:00	2.54	10.09	-2.756	-2.037	757.236	918.117	1132.54	15.5	21	23.2	23.5	23.8	DRY	DRY	7752.94	7684.82	7717.84
GHC15-1	11-03 19:00	2.53	5.52	-2.839	-1.918	757.219	918.083	1132.824	15.5	21	23.2	23.5	23.8	DRY	DRY	7752.92	7684.78	7718.12
GHC15-1	11-03 20:00	2.5	3.64	-2.908	-2.057	757.226	918.248	1132.605	15.5	21	23.2	23.5	23.9	DRY	DRY	7752.93	7684.95	7717.91
GHC15-1	11-03 21:00	2.49	3.06	-2.751	-1.903	757.203	918.021	1132.435	15.5	21	23.2	23.5	23.8	DRY	DRY	7752.90	7684.72	7717.74
GHC15-1	11-03 22:00	2.5	2.5	-2.756	-1.932	757.189	917.805	1132.645	15.5	21	23.2	23.5	23.9	DRY	DRY	7752.89	7684.51	7717.95
GHC15-1	11-03 23:00	2.48	1.82	-2.764	-1.973	757.2	918.237	1132.805	15.5	21	23.2	23.5	23.9	DRY	DRY	7752.90	7684.94	7718.11
GHC15-1	11-04 00:00	2.48	1.45	-2.816	-1.746	757.216	917.998	1132.76	15.5	21	23.2	23.5	23.9	DRY	DRY	7752.92	7684.70	7718.06
GHC15-1	11-04 01:00	2.47	1.55	-2.927	-2.061	757.127	918.112	1132.549	15.5	21	23.2	23.5	23.8	DRY	DRY	7752.83	7684.81	7717.85
GHC15-1	11-04 02:00	2.47	0.97	-2.797	-2.126	757.262	917.947	1132.709	15.5	21	23.2	23.5	23.8	DRY	DRY	7752.96	7684.65	7718.01
GHC15-1	11-04 03:00	2.47	0.58	-2.751	-1.76	757.209	918.112	1132.645	15.5	21	23.2	23.5	23.9	DRY	DRY	7752.91	7684.81	7717.95
GHC15-1	11-04 04:00	2.46	0.04	-2.793	-1.765	757.153	918.061	1132.699	15.5	21	23.2	23.5	23.8	DRY	DRY	7752.85	7684.76	7718.00
GHC15-1	11-04 05:00	2.46	-0.47	-2.857	-2.061	757.176	917.964	1132.66	15.5	21	23.2	23.5	23.9	DRY	DRY	7752.88	7684.66	7717.96
GHC15-1	11-04 06:00	2.47	-0.56	-2.718	-1.996	757.219	918.129	1132.6	15.5	21	23.2	23.5	23.9	DRY	DRY	7752.92	7684.83	7717.90
GHC15-1	11-04 07:00	2.45	-0.93	-2.843	-1.973	757.226	917.964	1132.766	15.5	21	23.2	23.5	23.9	DRY	DRY	7752.93	7684.66	7718.07
GHC15-1	11-04 08:00	2.46	-1.34	-2.736	-2.094	757.193	917.952	1132.659	15.5	21	23.2	23.5	23.8	DRY	DRY	7752.89	7684.65	7717.96
GHC15-1	11-04 09:00	2.44	-2	-2.779	-1.969	757.189	918.237	1132.835	15.5	21	23.2	23.5	23.9	DRY	DRY	7752.89	7684.94	7718.14
GHC15-1	11-04 10:00	2.45	-0.08	-2.853	-1.945	757.147	918.134	1132.65	15.5	21	23.2	23.5	23.9	DRY	DRY	7752.85	7684.83	7717.95
GHC15-1	11-04 11:00	2.47	5.45	-2.672	-2.047	757.137	918.344	1132.59	15.5	21	23.2	23.5	23.9	DRY	DRY	7752.84	7685.04	7717.89
GHC15-1	11-04 12:00	2.5	7.61	-2.908	-2.102	757.243	918.038	1132.734	15.5	21	23.2	23.5	23.8	DRY	DRY	7752.94	7684.74	7718.03
GHC15-1	11-04 13:00	2.5	6.4	-2.876	-1.871	757.236	918.032	1132.58	15.5	21	23.2	23.5	23.9	DRY	DRY	7752.94	7684.73	7717.88
GHC15-1	11-04 14:00	2.51	6.8	-2.783	-1.922	757.259	918.231	1132.655	15.5	21	23.2	23.5	23.9	DRY	DRY	7752.96	7684.93	7717.96
GHC15-1	11-04 15:00	2.53	9.05	-2.996	-1.977	757.179	918.117	1132.639	15.5	21	23.2	23.5	23.8	DRY	DRY	7752.88	7684.82	7717.94
GHC15-1	11-04 16:00	2.53	6.63	-2.783	-2.024	757.239	918.066	1132.474	15.5	21	23.2	23.5	23.8	DRY	DRY	7752.94	7684.77	7717.77
GHC15-1	11-04 17:00	2.5	3.4	-2.927	-1.826	757.186	918.061	1132.59	15.5	21	23.2	23.5	23.8	DRY	DRY	7752.89	7684.76	7717.89
GHC15-1	11-04 18:00	2.49	1.38	-2.843	-2.001	757.236	918.089	1132.664	15.5	21	23.2	23.5	23.8	DRY	DRY	7752.94	7684.79	7717.96
GHC15-1	11-04 19:00	2.47	-0.03	-3.038	-2.052	757.153	918.117	1132.63	15.5	21	23.2	23.5	23.9	DRY	DRY	7752.85	7684.82	7717.93
GHC15-1	11-04 20:00	2.46	-1.56	-2.843	-1.936	757.087	917.901	1132.63	15.5	21	23.2	23.5	23.9	DRY	DRY	7752.79	7684.60	7717.93
GHC15-1	11-04 21:00	2.44	-2.63	-2.95	-2.135	757.084	917.89	1132.571	15.5	21	23.2	23.5	23.9	DRY	DRY	7752.78	7684.59	7717.87
GHC15-1	11-04 22:00	2.43	-3.81	-3.047	-2.001	757.213	918.049	1132.614	15.5	21	23.2	23.5	23.8	DRY	DRY	7752.91	7684.75	7717.91
GHC15-1	11-04 23:00	2.41	-4.5	-2.936	-1.826	757.13	918.027	1132.616	15.5	21	23.2	23.5	23.9	DRY	DRY	7752.83	7684.73	7717.92
GHC15-1																		

Bore Hole	LOGGER DATA			SENSOR READINGS (hertz)					SENSOR TEMPERATURES (°C)					GROUNDWATER ELEVATION CALCULATIONS				
	Day 2015	Batt V	Temp C	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5	Piezo1	Piezo2	Piezo3	Piezo4	Piezo5
GHC15-1	11-07 17:00	2.55	12.56	-2.834	-2.001	757.292	918.083	1132.649	15.5	21	23.2	23.5	23.8	DRY	DRY	7752.99	7684.78	7717.95
GHC15-1	11-07 18:00	2.53	7.74	-2.941	-1.885	757.364	918.095	1132.8	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.06	7684.80	7718.10
GHC15-1	11-07 19:00	2.49	-0.78	-2.783	-2.01	757.213	918.027	1132.73	15.5	21	23.2	23.5	23.9	DRY	DRY	7752.91	7684.73	7718.03
GHC15-1	11-07 20:00	2.45	-4.77	-2.816	-1.83	757.196	918.061	1132.624	15.5	21	23.2	23.5	23.8	DRY	DRY	7752.90	7684.76	7717.92
GHC15-1	11-07 21:00	2.41	-6.27	-2.955	-1.871	757.249	917.992	1132.626	15.5	21	23.2	23.5	23.9	DRY	DRY	7752.95	7684.69	7717.93
GHC15-1	11-07 22:00	2.41	-5.52	-2.913	-2.098	757.176	918.095	1132.66	15.5	21	23.2	23.5	23.9	DRY	DRY	7752.88	7684.80	7717.96
GHC15-1	11-07 23:00	2.41	-4.38	-2.894	-1.922	757.157	917.986	1132.525	15.5	21	23.2	23.5	23.8	DRY	DRY	7752.86	7684.69	7717.83
GHC15-1	11-08 00:00	2.42	-3.29	-2.797	-2.047	757.166	918.134	1132.634	15.5	21	23.2	23.5	23.8	DRY	DRY	7752.87	7684.83	7717.93
GHC15-1	11-08 01:00	2.42	-3.02	-2.848	-2.019	757.239	918.122	1132.62	15.5	21	23.2	23.5	23.9	DRY	DRY	7752.94	7684.82	7717.92
GHC15-1	11-08 02:00	2.43	-2.49	-2.843	-1.996	757.348	918.055	1132.595	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.05	7684.76	7717.90
GHC15-1	11-08 03:00	2.44	-2.44	-2.83	-1.964	757.348	917.93	1132.594	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.05	7684.63	7717.89
GHC15-1	11-08 04:00	2.44	-2.56	-2.802	-1.992	757.285	917.907	1132.785	15.5	21	23.2	23.5	23.9	DRY	DRY	7752.99	7684.61	7718.09
GHC15-1	11-08 05:00	2.44	-2.54	-2.83	-2.01	757.338	918.112	1132.654	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.04	7684.81	7717.95
GHC15-1	11-08 06:00	2.44	-2.71	-2.959	-1.912	757.361	917.982	1132.655	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.06	7684.68	7717.96
GHC15-1	11-08 07:00	2.44	-2.49	-2.959	-1.936	757.322	918.237	1132.554	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.02	7684.94	7717.85
GHC15-1	11-08 08:00	2.45	-2.54	-2.871	-1.903	757.358	918.117	1132.879	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.06	7684.82	7718.18
GHC15-1	11-08 09:00	2.44	-2.12	-2.746	-1.987	757.295	918.271	1132.6	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.00	7684.97	7717.90
GHC15-1	11-08 10:00	2.45	-0.32	-2.746	-1.843	757.299	918.061	1132.634	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.00	7684.76	7717.93
GHC15-1	11-08 11:00	2.49	9.22	-2.64	-1.977	757.332	918.061	1132.584	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.03	7684.76	7717.88
GHC15-1	11-08 12:00	2.52	13.04	-2.834	-1.959	757.351	917.998	1132.554	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.05	7684.70	7717.85
GHC15-1	11-08 13:00	2.53	13.88	-2.802	-1.945	757.328	918.101	1132.594	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.03	7684.80	7717.89
GHC15-1	11-08 14:00	2.54	14.49	-2.797	-1.941	757.335	918.22	1132.605	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.04	7684.92	7717.91
GHC15-1	11-08 15:00	2.55	15.8	-2.69	-2.047	757.299	918.061	1132.566	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.00	7684.76	7717.87
GHC15-1	11-08 16:00	2.55	16.74	-2.82	-2.07	757.256	918.134	1132.684	15.5	21	23.2	23.5	23.8	DRY	DRY	7752.96	7684.83	7717.98
GHC15-1	11-08 17:00	2.56	15.88	-2.71	-1.987	757.319	918.112	1132.73	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.02	7684.81	7718.03
GHC15-1	11-08 18:00	2.55	10.87	-2.7	-1.987	757.394	918.117	1132.554	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.09	7684.82	7717.85
GHC15-1	11-08 19:00	2.52	4.13	-2.774	-1.951	757.378	918.061	1132.619	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.08	7684.76	7717.92
GHC15-1	11-08 20:00	2.46	1.09	-2.723	-1.941	757.325	918.276	1132.66	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.03	7684.98	7717.96
GHC15-1	11-08 21:00	2.46	-1.02	-2.848	-1.862	757.371	917.873	1132.604	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.07	7684.57	7717.90
GHC15-1	11-08 22:00	2.45	-2.27	-2.77	-1.945	757.335	918.021	1132.574	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.04	7684.72	7717.87
GHC15-1	11-08 23:00	2.43	-3.88	-2.825	-1.826	757.305	918.089	1132.664	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.01	7684.79	7717.96
GHC15-1	11-09 00:00	2.43	-3.52	-2.718	-1.982	757.325	918.271	1132.645	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.03	7684.97	7717.95
GHC15-1	11-09 01:00	2.41	-4.35	-2.834	-1.926	757.358	918.373	1132.66	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.06	7685.07	7717.96
GHC15-1	11-09 02:00	2.42	-3.61	-2.825	-1.941	757.364	918.191	1132.74	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.06	7684.89	7718.04
GHC15-1	11-09 03:00	2.41	-4.4	-2.913	-1.992	757.411	918.395	1132.795	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.11	7685.10	7718.10
GHC15-1	11-09 04:00	2.4	-5.52	-2.764	-2.006	757.348	918.237	1132.73	15.5	21	23.2	23.4	23.9	DRY	DRY	7753.05	7684.94	7718.03
GHC15-1	11-09 05:00	2.4	-5.87	-2.894	-2.08	757.299	918.055	1132.619	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.00	7684.76	7717.92
GHC15-1	11-09 06:00	2.4	-5	-2.825	-1.885	757.431	918.089	1132.655	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.13	7684.79	7717.96
GHC15-1	11-09 07:00	2.42	-4.4	-2.825	-2.066	757.374	918.288	1132.644	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.07	7684.99	7717.94
GHC15-1	11-09 08:00	2.41	-4.43	-2.764	-2.015	757.506	918.038	1132.616	15.5	21	23.2	23.5	23.9	DRY	DRY	7753.21	7684.74	7717.92
GHC15-1	11-09 09:00	2.42	-3.86	-2.7	-1.973	757.454	918.168	1132.59	15.5	21	23.2	23.5	23.8	DRY	DRY	7753.15	7684.87	7717.89

Attachment 3 – Deep Carbonate Geochemistry Evaluation

MEMORANDUM

To: Dr. Adrian Brown
Adrian Brown Consultants
103 West 4th Avenue
Denver, CO 80223
Project No.: 055422.R TM01
From: Jeffrey Winick, Schlumberger Water Services
Date: November 20, 2015
Pages: 17

SUBJECT: TASK 3 CRIPPLE CREEK DEEP CARBONATE STUDY GEOCHEMICAL MODELING RESULTS

1 INTRODUCTION

In the first quarter of 2015, Adrian Brown Consultants (ABC) conducted a hydrogeological and geochemical sampling and testing program to gather data in support of Newmont's proposed underground mine expansion in the Northern Diatreme of Cripple Creek (CC&V). CC&V is now in the process of preparing mine permitting application documents and have requested supporting geoscientific studies to assess the extent to which an underground expansion may impact on the quality of water reporting to the Carlton Tunnel.

Pursuant to this request from Newmont, geochemical modeling has been performed through the integration of data obtained from the Deep Carbonate (DC) project boreholes (vertical hole GHC15-3, and angled hole CPC14-1) in the Northern Diatreme with historical information available across the Cripple Creek district available for characterization of the Northern Diatreme, to assess the long-term potential for acid-rock drainage and metal leaching (ARD/ML). This modeling, founded largely on empirical test work depicting the acid forming and consuming properties of the host rock assemblages through which water interacting with the ore zone will ultimately migrate, supports the assertion that the inventory of carbonate within the deposit significantly exceeds acid-generation capacity and that this is likely to avert ARD/ML in perpetuity irrespective of any acceleration of sulfide oxidation arising from future mining.

This memorandum outlines two approaches adopted to quantitatively validate the assertion outlined above with respect to the ARD/ML risk associated with underground mine expansion. The first involved the use of a simple acid-base accounting (ABA) mass-balance type spreadsheet geochemical model, which incorporates conservative sulfide oxidation rates determined on the basis of kinetic humidity cell test (HCT) geochemical testing. The second involved the use of a thermodynamically constrained geochemical model constructed using PHREEQC to evaluate the behavior of and fate of metals which may be liberated through sulfide oxidation within the diatreme. This model clearly demonstrates that as long as excess acid neutralizing capacity exists within the rock mass, the water quality exiting the system through the Carlton Tunnel will remain buffered at circumneutral pH and at gypsum saturation with sulfate concentrations of the order of 1500 mg/L. Metals leached from sulfide-bearing rock are sequestered through the very

significant attenuation capacity of the diatreme provided by precipitation of supersaturated metal oxides and hydroxides in response to pH-buffering, and metals removal via sorption to precipitated ferrihydrite.

2 MASS-BALANCE GEOCHEMICAL MODEL

An acid-base accounting (ABA) mass-balance geochemical model was constructed in Excel to demonstrate the long-term buffering capacity of the diatreme rock mass assuming (a) sulfide and carbonate contents of the rock assemblage as determined through static testing and (b) sulfide oxidation rates as determined from kinetic testing. The geochemical spreadsheet model is available electronically for use in any future permitting applications and is shown in Attachment B.

2.1 Model conceptualization

The diatreme system at CC&V is conceptualized as a large column comprised of three “cells,” each with distinct rock properties and levels of water saturation. The cells are representative of three primary hydrogeologic units within the diatreme. The cells transmit water entering at the top of the column as recharge, through to the base of the column. Water discharged at the base of the column is considered within the conceptualization to flow laterally through a saturated rock mass and ultimately to exit the diatreme via the Carlton Tunnel.

The designation of the three cells applied for purposes of mass balance acid-base account modeling is as follows:

1. CELL 1, OVERBURDEN (1,500 ft) – Overburden placed as mine backfill, leached ore, and other waste and ore stockpiles which have been mined out of the underlying unsaturated diatreme rock mass. The overburden is placed at site elevations from about 10,500 to 9,000 feet above sea level (fasl),
2. CELL 2 VADOSE (2,000 ft) – From elevations of 9,000 to 7,000 fasl the diatreme bedrock is present as a fractured, unsaturated rock mass which will transmit water infiltrating from the overlying overburden, carrying with it residual acidity once the total buffering capacity of the overburden in CELL 1 is depleted, and
3. CELL 3 SATURATED (1,000 ft) – The saturated level of the diatreme rock mass is generally controlled by the elevation of the Carlton Tunnel (6,890 fasl). CELL 3 consists of the saturated diatreme rock mass below this water level, through which infiltrated water from above will flow and exit the system.

The average flow through the system is about 1660 gpm. No net increase in flow from the Carlton Tunnel is expected as a result of changing surface disturbance patterns in the future (ABC, 2008). Water levels within the eastern and western eruptive centres within the diatreme are drained and controlled by the elevation of the Carlton Tunnel. Prior to the currently ongoing Deep Carbonate (DC) project investigation, water levels in the northern eruptive centre were unknown. These have now been measured to be anywhere from 670 to 1,480 ft higher than the elevation of Carlton Tunnel, indicating that the Northern Diatreme is not as well drained by the main diatreme mass (as previously assumed) and that a hydraulic gradient exists from the Northern Diatreme towards the Carlton Tunnel.

As previously reported by ABC (2015), the diatreme rock mass is generally oxidized above the level of the pre-mining, geologic water table (from about 9,700 to 9,400 fasl). Below this level, the sulfide content of the sequence increases. For the purposes of the geochemical modeling, the entire diatreme is assumed to be drained at the elevation of the Carlton Tunnel, and the hydraulic gradient indicates potential impact trajectories of proposed underground mining activities in the Northern Diatreme. A fundamental assumption built into the model is that sulfides in the rock mass of CELL 3 will not oxidize as long as they remain saturated. Therefore, the neutralizing capacity of the saturated diatreme

will be consumed only in the neutralization of acidity carried in infiltrating water transported from overlying cells in the conceptual model.

The conceptual model considers the existing mine configuration and overburden masses at time zero. It then projects forward the impacts of mining as material is excavated from CELL 2 and is placed as overburden in CELL 1. Tonnages placed are based on a 20-year projection of mine-life which assumes annual extraction of 100M tonnes of material from the vadose zone and placed as overburden. The model can be run in perpetuity.

2.1.1 Diatreme carbon and sulphur contents

The geochemical properties of the diatreme have been described in detail in prior reports (ABC, 2008; ABC, 2012). However, the available data are largely restricted to elevations above about 9,000 fasl, and almost exclusively within the western and eastern eruptive centres at depths below 9,000 fasl. One exception to this is borehole GHC-474 which was drilled in the northern eruptive centre to an elevation of 7842 fasl, but did not encounter the phreatic surface. Among the available borehole data, an extensive LECO carbon and sulphur database has been compiled, along with selected acid-base accounting data including sulphur speciation, neutralizing potential, and net-acid generation tests. However by virtue of the depths and lateral distributions of the available boreholes, the historical data are skewed towards shallow depths and also towards the southern part of the diatreme with increasing depth (western and eastern eruptive centres). The following approach was adopted to develop the appropriate average carbon and sulphur contents which were assigned to model CELL 1, CELL 2, and CELL 3, as summarized in Table 2-1.

Sulfur

In all cases, reactive sulfur contents were assumed to be the proportion of sulfur present as sulfide-sulfur, as determined on the basis of sulfur speciation data within the historical testwork database, and the recent data available through the current DC drilling project. The geochemical model assumes that 100% of sulfide-sulfur is present as reactive pyrite. As previously investigated by ABC (2008), a comparison of NAG acidity (total oxidizable sulfur) to available sulfide material demonstrates that only a proportion of the sulfide material will actually be reactive. Therefore the assumption that all sulfide is present as pyrite and will oxidize to generate acid is a conservative simplification to the model.

Total- and sulfide-sulfur contents were determined on an average basis for each of the model cells utilizing LECO and sulfur speciation data. The inclusion of the sulfur speciation data from the current DC drilling project may be regarded as helping to overcome the paucity of geochemical data for the diatreme at depths below about 9,000 fasl. On the basis of sulfide-sulfur, the total acid generating capacity (AGP) of the modeled cells was stoichiometrically determined in terms of tCaCO₃/Kt.

Carbon

All carbon in the Cripple Creek mining district is present as inorganic carbon. The database of LECO carbon values can therefore be directly correlated to available carbonate neutralizing capacity. Average carbon values for each of the cells were determined using the LECO carbon database and neutralizing potential data where available, including those from the current DC project, in order to develop average acid neutralizing capacities (ANP) of the modeled cells in terms of tCaCO₃/Kt.

Table 2-1: Carbon and sulfur contents determined for modeled cells

Model Cell	Data Source	S _{total}	S _{pyrite}	AGP (%S _{pyrite})	ANP	NNP	NNP (Cumulative)
		%	%	tCaCO ₃ /Kt	tCaCO ₃ /Kt	tCaCO ₃ /Kt	tCaCO ₃ /Kt
CELL 1	Ore (ABC, 2008; Table 6)	1.35%	1.06%	33.1	21.9		↓
	Waste (ABC, 2008; Table 6)	1.19%	0.91%	28.4	14.7		
	Average Total Overburden (ABC, 2008; Table 6)	1.26%	0.97%	30.3	17.7		
	CPC14-3 (10500-9000ft)	2.48%	2.22%	69.4	1.0		
	GHC15-1 (10500-9000ft)	2.42%	1.95%	60.9	1.2		
	AVERAGE	2.05%	1.72%	53.5	6.6	-46.9	-46.9
CELL 2	LECO Database (9000-7000ft)	2.88%	1.60%	50.0	65.4		↓
	CPC14-3 (9000-7000ft)	4.65%	2.74%	85.4	23.4		
	GHC15-1 (9000-7000ft)	4.66%	2.44%	76.1	68.9		
	AVERAGE	4.06%	2.26%	70.5	52.6	-17.9	-64.9
CELL 3	LECO Database (7000-6000ft)	2.15%	1.11%	34.7	79.3		↓
	CPC14-3 (7000-6000ft)	3.99%	2.76%	86.0	81.7		
	GHC15-1 (7000-6000ft)	5.13%	1.96%	61.1	81.9		
	AVERAGE	3.76%	1.94%	60.6	81.0	81.0*	16.1
* In-situ AGP for CELL 3 does not influence the NNP, as the reactive sulfide is rendered inert due to submergence							

Bulk model acid-base accounting

As shown in Table 2-1, the average net-neutralization potential (NNP) of the model cells has been calculated following standard acid-base accounting procedures. Following these conventions, NNP is equivalent to ANP minus AGP. NNP values which are negative indicate that excess AGP exists and all ANP will be consumed leaving residual acidity which can be conveyed to underlying model cells. The calculation assumes that all acid-generation and neutralization reactions are instantaneous and does not consider the kinetic rates at which these reactions will occur. However, it does indicate the ultimate fate of each cell in the geochemical model as being net-neutralizing or net-acid generating. In the case of CELL 1 and CELL 2, insufficient neutralization capacity exists to fully buffer the acid generation potential, and it would be expected that some acidity will eventually be generated and leached downward through the column leach model. The cumulative NNP through the column leach model is tracked and demonstrates that although NNP exiting the base of CELL 2 will be acid-generating (-64.9 tCaCO₃/Kt), the ANP within CELL 3 is more than sufficient (81.0 tCaCO₃/Kt) to buffer this. Therefore the flow ultimately exiting CELL 3 will be net-neutralizing. This is largely a result of the fact that the AGP within CELL 3 is rendered inert due to its submergence below the water table.

2.1.2 Sulfide oxidation rates

Reactive sulfide-sulfur in the diatreme will not instantaneously oxidize but will do so at a kinetically constrained rate. This rate is a function of numerous factors including pH, Eh, temperature, and microbial activity. Kinetic humidity cell test (HCT) data were utilized to represent likely rates of sulfide oxidation. HCTs from the current DC project have not been running for sufficient duration to allow for a meaningful assessment of sulfide oxidation rates at depths below about 1000 ft. Therefore by necessity, the available historical HCT data which encompass measured depths from 100 to 712ft (depths only within modeled CELL 1) were utilized to determine sulfide oxidation rates. These were applied to the entirety of the geochemical model leach column. Once sufficient HCT data become available as part of the ongoing DC project, these will be more representative of sulfide oxidation rates for model CELL 2. At that time, the geochemical model should be updated accordingly.

Sulfide oxidation rates were determined by assigning a time and surface area equivalency to sulfate generation as recorded in HCT leachates. The conservative assumption made in this approach is that all sulfate generated by HCT leachates originates from the oxidation of available sulfide. In reality, some of the sulfate in the HCT leachates may be derived from sulfate dissolution (notably gypsum). The effect of this is to conservatively skew sulfide oxidation the rate estimates likely to be encountered in the field setting.

The time and surface area equivalency of sulfate generation by sulfide oxidation was determined as follows:

1. On a time (yearly) basis, sulfate concentrations (mg/L) in weekly HCT leachates were multiplied by known leachate volumes to generate a sulfate mass loading per unit time (mg/yr).
2. The sum of sulfate mass loading from all HCTs was divided by the total material mass charges in all utilized HCTs in order to generate an averaged sulfate mass loading per unit mass of material, per unit time (mg/kg/yr).

HCT scaling factors

In order to apply humidity cell test data at the field scale, it is necessary to develop a scaling procedure which accounts for the difference in reactive surface areas found in the HCT materials as compared to those found within the run-of mine (ROM) overburden (CELL 1) or within the unsaturated fractured diatreme bedrock (CELL 2). A similar calculation could be made for CELL 3, however as explained above, the sulfide reactivity of this material is assumed to be zero due to its submergence below the water table. It is therefore not considered here.

Grain size analyses were used to determine averaged specific surface areas in terms of m^2/kg for the HCT and ROM materials. A specific surface area for the fractured bedrock was estimated on the basis of rock-quality data obtained from DC borehole GHC15-1. A ratio of the material-specific surface areas allows for translation of the HCT-derived mass loadings as above to actual sulfate loading, and by definition, sulfide oxidation rates anticipated within the diatreme (Table 2-2).

Table 2-2: Summary of scaled sulfate loading for geochemical model cells

Material Type	HCT Derived SO4 Loading Rate (Unscaled)	Specific Surface Area	Model Cell		Surface Area Scaling Factor	Scaled SO4 Loading Rate
	mg/kg/yr	m2/kg				mg/kg/yr
HCT ¹	3428	6.67	CELL 1	Overburden	0.072070	247.03
ROM ¹		0.48	CELL 2	Vadose	0.002542	8.71
Fractured Bedrock ²		0.017	CELL 3	INERT SULFIDE SULFUR		
¹HCT and ROM specific surface areas determined from grain size data						
²Fractured Bedrock specific surface area estimated from GHC15-1 RQD data						

The scaled sulfate loading rates were stoichiometrically converted to percentages of sulfide-sulfur consumed and compared to total available pyritic sulphide as determined in Table 2-1. On this basis, a pyrite “consumption” rate to a condition of ultimate exhaustion can be determined. As shown in Table 2-3, at the calculated sulphide oxidation rates, it is estimated that the 1.72% pyritic sulfide available to oxidize in CELL 1 will be exhausted in 208 years. The 2.26% pyritic sulfide content in CELL 2 will be consumed in 7767 years.

Table 2-3: Calculated time to pyrite exhaustion

Model Cell	Spyrite	Consumed Spyrite	Time to Pyrite Exhaustion
	%	%/yr	years
CELL 1	1.72%	0.008%	208
CELL 2	2.26%	0.0003%	7767

2.2 Mass-balance geochemical model results

The column leach model representation of the Cripple Creek diatreme reflects a classic buffering system whereby protons generated through the oxidation of pyrite and acidity are consumed in-situ by available calcium carbonate. This will occur until either the neutralization capacity, or the acid generation capacity of the materials are exhausted. In the process, the ARD buffering reactions liberate sulfate, calcium, and iron in solution, along with a host of other trace metals which have been investigated using a thermodynamically constrained PHREEQC geochemical model as described in more detail in Section 3.

2.2.1 Tracking acidity, neutralization and calcium and sulfate concentrations

The spreadsheet geochemical model reflects the overall potential for individual model cells to buffer generated acidity, or to consume available neutralization potential and transmit downward residual acidity as determined by cumulative NNP (Table 2-1). The spreadsheet model incorporates the kinetic rates of sulfide oxidation as determined above in order to track the evolution of acidity and residual NP remaining in-situ in the rock mass over time. The model assumes that acid neutralizing capacity is fixed in the rock mass and reacts in-situ until exhausted. The model does not track the residual alkalinity in infiltrating water that will be transported downward from overlying cells during and

following consumption of the sulfide-sulfur through oxidation. The model is constructed such that residual acidity may only be transported down through the column leach once 100% of the in-situ neutralization capacity is exhausted.

Additionally, the model tracks the evolution of, sulfate, iron, calcium, and gypsum. The concentration of calcium and sulfate ions in solution at circumneutral pH will be controlled by the solubility of gypsum which is on the order of 1.57×10^{-2} mol/L under these aqueous conditions. By definition, in each of the model cells, as long as pyrite is still available to oxidize and carbonate buffering hasn't been exhausted, sulfate and calcium concentrations in solution will remain fixed by gypsum saturation limits at 1503 mg/L and 627 mg/L respectively.

2.2.2 Results

The output of the spreadsheet geochemical model in terms of generated acidity, residual acid neutralization potential, and residual acidity in the water is visualized for the three model cells in Figure 2-1, Figure 2-2 and 2-3. In CELL 1, there is an initial 20-year pulse in residual ANP as material is mined from the underlying unsaturated zone (CELL 2) and added to the overburden. During this time, generated acidity ramps up as the total available reactive sulfide-sulfur increases until steady-state conditions are reached. Once this occurs, generated acidity remains constant until pyrite exhaustion in year 2223. Long before this occurs (in year 2043), the available residual ANP is exhausted and the 100% of the generated acidity is free to infiltrate to the underlying cells.

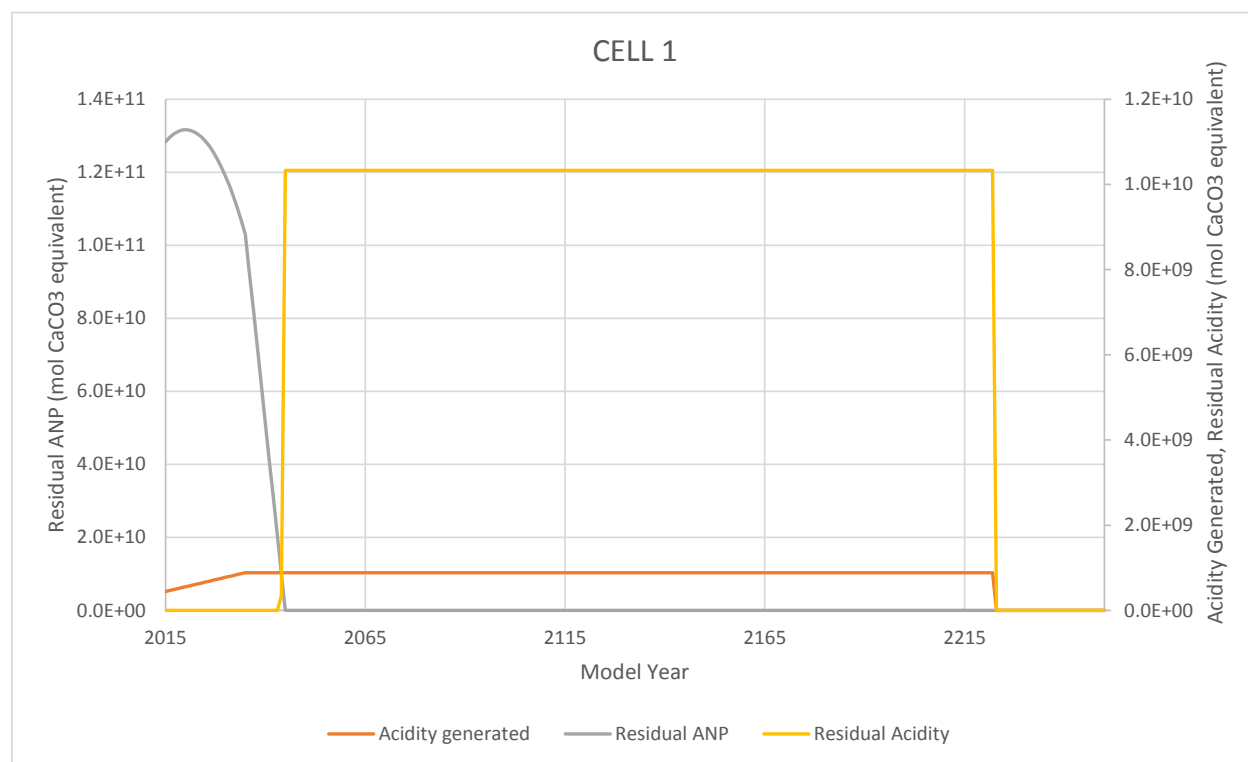


Figure 2-1: Spreadsheet based geochemical modeling results for CELL 1

The modeling results of CELL 2 (Figure 2-2) shows that during the first 20 years when active mining is occurring, both residual ANP and generated acidity decline as a result of excavation of sulfide and carbonate bearing material from CELL 2 and placement of this material as overburden on CELL 1. The net-effect of this to the overall cumulative NNP is zero as it represents only a spatial re-allocation of the acid generating and acid neutralizing materials, while their net cumulative reactive amounts remain constant. Following the cessation of mining, generated acidity remains constant

until reactive pyrite exhaustion in year 9782. Long before this occurs (year 5955), the available residual ANP is exhausted and 100% of the acidity is free to infiltrate to CELL 3 and react with available carbonate.

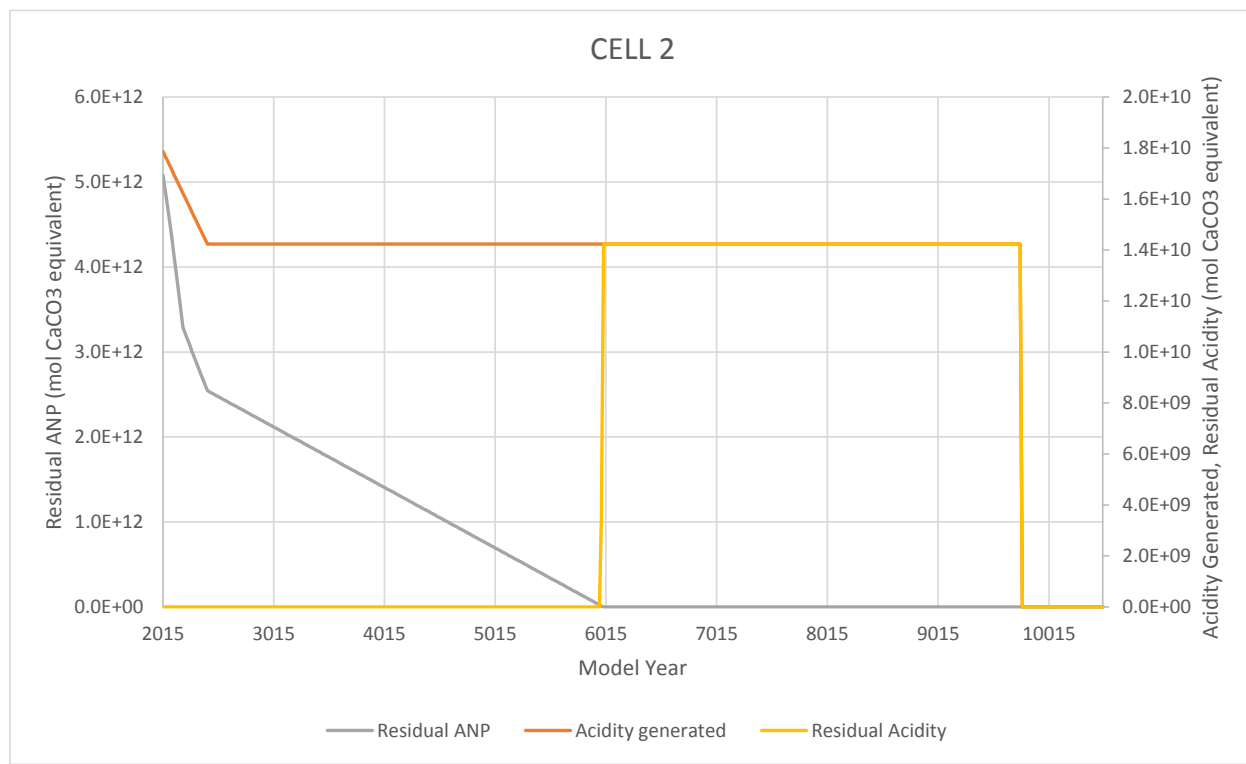


Figure 2-2: Spreadsheet based geochemical modeling results for CELL 2

Due to its submergence below the water table, there is no acidity generated in-situ in CELL 3 (Figure 2-3), only residual ANP is present to react with infiltrating water from above. The available ANP in CELL 3 is essentially dormant from the start of the model until year 5955 when acidity infiltrating from CELL 2 reacts with available ANP in the saturated diatreme. The model predicts this will occur until year 9782 when reactive pyrite in CELL 2 is exhausted. Following this, significant residual ANP will remain in-situ in CELL 3 in perpetuity and the entire system will always be maintained at neutral pH and in equilibrium with carbonate and gypsum.

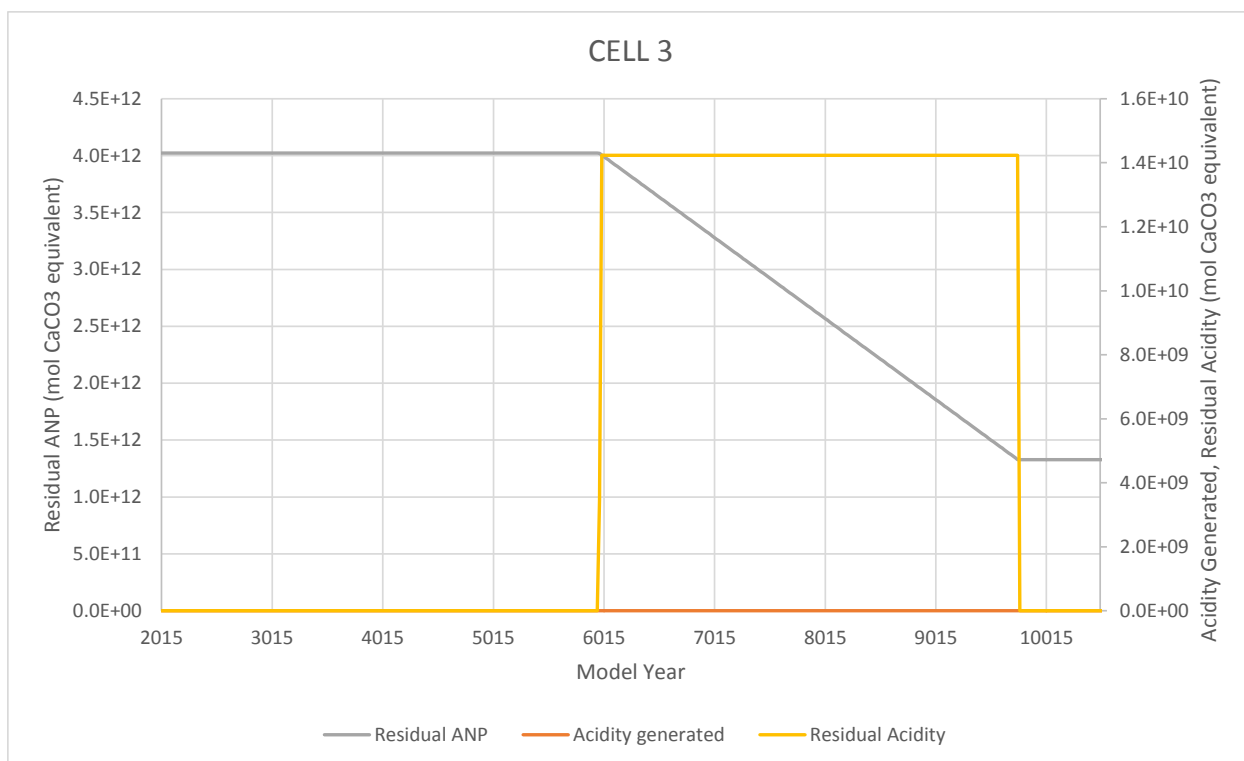


Figure 2-3: Spreadsheet based geochemical modeling results for CELL 3

The model predicts that the water at the base of the column will achieve neutral pH, with sulfate and calcium concentrations of 1503 mg/L and 627 mg/L. Notably, this water chemistry is nearly identical to that observed currently existing the Carlton Tunnel, confirming that the entire diatreme mass is currently acting as a large buffering reactor. The overall cumulative NNP of the column leach model and the spreadsheet model results showing a steady-state, positive inventory of residual ANP in CELL 3, predicts that this condition will exist in perpetuity. The following section describes the results of a thermodynamically constrained PHREEQC geochemical model which aims to investigate the behavior of reactive trace metal constituents which will be liberated within this ARD buffered environment.

The mass-balance spreadsheet geochemical model described in Section 2 provides a simple confirmation of the buffering environment which will prevail within the Cripple Creek diatreme. When sulfide-sulfur is oxidized and acidity is buffered, trace metal constituents are, however, liberated and may remain in solution to varying degrees as a complex function of the aqueous geochemical environment. Tracking the mobility of these solutes with a mass balance geochemical model is not possible. Instead it is necessary to use a thermodynamically constrained geochemical model such as PHREEQC which can quantitatively account for the effects of solution pH, redox condition, temperature, and mineral saturation controls on trace metal speciation and solubility. This section describes the development of a PHREEQC geochemical model which simulates the behavior of trace metals within the Cripple Creek diatreme system. The geochemical model uses net-acid generation (NAG) leachate chemistry to simulate the metals input to the system during pyrite oxidation. The behavior of these solutes within a carbonate buffered ARD regime are evaluated.

3.1 Model conceptualization and construction

As with the spreadsheet based model, the PHREEQC geochemical model was conceptualized as a column comprised of the three cells described previously Section 2.1. The sulfide sulfur and carbonate neutralization contents for the cells (Table 2-1) were utilized to calculate the total acid generating (moles of pyrite) and acid neutralizing (moles of calcite) materials in each of the cells which were available to react within the PHREEQC geochemical model.

For each cell the available sulfide sulfur was assumed in the PHREEQC model to be completely oxidized to generate a primary acid solution containing sulfate, iron, and acidity. This is similar to what occurs in a NAG test. A suite of metal concentrations averaged from NAG leachate chemistry from the DC drilling program (GHC15-1 and CPC14-3) were added to the acid solutions generated in each cell. The NAG leachate chemistries were selected on the basis of sample depth ranges corresponding to the appropriate model cells. The effect of this was to simulate a worst-case scenario for metal loading during sulfide oxidation within the Cripple Creek diatreme. The model was then applied to simulate the interaction of both protons and solute metals with available carbonate (moles of calcite) buffering capacity in the given model cell as determined from Table 2-1.

The same procedure was carried out for each underlying cell, with the exception of CELL 3 which, as conceptualized in the spreadsheet based model, is submerged and will not generate acid. CELL 3's pyrite content will not oxidize, its in-situ material only provides carbonate buffering capacity for the infiltrating solutions from overlying cells, and all metals in solution in CELL 3 are entirely sourced from the overlying ARD/ML processes.

At various steps within the PHREEQC geochemical model, the solutions were equilibrated with respect to atmospheric carbon dioxide and gypsum which is present throughout the diatreme rock mass as determined by XRD data. Following equilibration, solute speciation and mineral saturation indices were evaluated, and those likely to precipitate (such as ferrihydrite and other metal hydroxides), were precipitated from solution until equilibrium conditions were achieved. The resulting solution chemistry from the PHREEQC geochemical model was then compared to the chemistry of flow observed exiting the Carlton Tunnel. A reasonable match between the two solutions indicates that the geochemical model is representative of the carbonate buffered, ARD/ML processes within the diatreme system. The following sections outline the rationale for data selection and the methodology by which the PHREEQC geochemical model was constructed.

3.1.1 Simulating acid production

The production of acid through sulfide oxidation was simulated in the PHREEQC model in the following way. For each cell, the percent sulfide was converted to a molar quantity of pyrite. This pyrite was then reacted with a hydrogen peroxide solution in rock-solution ratios and reagent concentrations in accordance with a standard NAG test. Depending on the available pyrite for oxidation, this step yielded a sulfuric acid solution, to which metals were subsequently added. As an example, CELL 1 has a sulfide content of 1.72% which equates to 0.00067 moles of pyrite in a standard NAG sample mass of 2.5 g. This quantity of pyrite was reacted within PHREEQC with 250 ml of a 15% H₂O₂ solution at a reaction temperature of 100°C to simulate a boiling oxidizing reaction as occurs in a typical NAG test. The resulting solution was then cooled to 25°C in PHREEQC forming the primary sulfuric acid solution as shown below in Table 3-1.

Table 3-1: Example of primary sulfuric acid solution formed from complete oxidation of available pyrite in CELL 1

Parameter	Units	Result
pH	s.u.	2.57
Eh	mV	1124
Temperature	°C	25
SO ₄	mg/L	515
Fe	mg/L	150

3.1.2 Addition of metals

NAG leachate data from the current DC project were used to represent the maximum concentrations of solutes which may be leached during acid generation within the diatreme (Attachment C). NAG leachate chemistry are available for samples at depths corresponding to CELL 3, however since this cell is modeled to be submerged below the water table and will not oxidize or generate acidity, metals from these samples were not considered further in the PHREEQC model. For each geochemical model cell, an average of all samples corresponding to the depths within that cell was computed and this averaged metals concentration was applied to the sulfuric acid solution. As an example, the resulting solution chemistry generated by PHREEQC for CELL 1 following pyrite oxidation and metals addition is shown below in Table 3-2.

Table 3-2: Example of sulfuric acid solution with metals added from NAG leachates corresponding to CELL 1

Parameter	Units	Result
pH	s.u.	2.77
Eh	mV	1112
Temperature	°C	25
Ag	mg/L	0.009
Al	mg/L	13.582

Parameter	Units	Result
As	mg/L	0.001
B	mg/L	0.090
Ba	mg/L	0.112
Be	mg/L	0.002
Cd	mg/L	0.019
Co	mg/L	0.084
Cr	mg/L	0.008
Cu	mg/L	0.537
Fe	mg/L	149.665
Hg	mg/L	0.000
K	mg/L	11.409
Li	mg/L	0.019
Mg	mg/L	1.233
Mn	mg/L	2.063
Mo	mg/L	0.022
Na	mg/L	2.092
Ni	mg/L	0.043
Pb	mg/L	0.137
SO4	mg/L	515.096
Sb	mg/L	0.000
Se	mg/L	0.010
Sn	mg/L	0.035
Sr	mg/L	6.565
Tl	mg/L	0.001
V	mg/L	0.007
Zn	mg/L	1.592

The chemistry in Table 3-2 represents the contact water proton and metal loading within the diatreme waters prior to buffering with carbonate. It can be observed at this stage that the redox potential of the solution is very strongly oxidizing. This is entirely an artefact of using hydrogen peroxide to oxidize pyrite and create the primary sulfuric acid solution. In order to correct for this, the redox potential was adjusted to more representative values observed in the Carlton Tunnel discharge by removing the necessary oxygen from the system.

3.1.3 Equilibration with atmospheric CO₂ and mineral phases

The mineralogy of the diatreme has been evaluated using Reitveld XRD data, and from this it is apparent that there is extensive mineralogical calcite and gypsum within the rock mass. The subsequent modeling step then involved equilibration of the sulfuric acid, metal-laden solution from above with calcite, gypsum, and atmospheric CO₂. Calcite was made available in molar quantities defined by the neutralization potential of the rock mass in each cell. For example, from Table 2-1, CELL 1 has been determined to contain a carbonate neutralization capacity of 6.6 tCaCO₃/Kt. This equates to 0.000165 moles of calcite for the standard NAG sample mass of 2.5g. This molar quantity of calcite was reacted with the sulfuric acid, metal-loaded solution, thereby performing the critical carbonate buffering step in neutralization of acidity within the diatreme system. The resulting solution chemistry from CELL 1 is shown in Table 3-3.

Table 3-3: Example of final chemistry modeled in PHREEQC to exit the base of CELL 1

Parameter	Units	Result
pH	s.u.	2.95
Eh	mV	170
Temperature	°C	25
Ag	mg/L	0.009
Al	mg/L	13.574
As	mg/L	0.001
B	mg/L	0.090
Ba	mg/L	0.112
Be	mg/L	0.002
C	mg/L	0.130
Ca	mg/L	612.793
Cd	mg/L	0.019
Co	mg/L	0.084
Cr	mg/L	0.008
Cu	mg/L	0.536
Fe	mg/L	149.609
Hg	mg/L	0.000
K	mg/L	11.405
Li	mg/L	0.018
Mg	mg/L	1.233
Mn	mg/L	2.062
Mo	mg/L	0.022

Parameter	Units	Result
Na	mg/L	2.091
Ni	mg/L	0.071
Pb	mg/L	0.137
SO4	mg/L	1921.039
Sb	mg/L	0.000
Se	mg/L	0.008
Sn	mg/L	0.035
Sr	mg/L	6.562
Tl	mg/L	0.001
V	mg/L	0.007
Zn	mg/L	1.592

In the case of CELL 1, the chemistry of the solution following neutralization remains fairly acidic owing to the net-acid generating properties of the overburden materials (NNP = -46.9 tCaCO₃/Kt).

Following an identical approach as used for CELL 1, a solution was generated in CELL 2 representative of the in-situ ARD/ML and carbonate buffering processes which will occur within the unsaturated zone. Sulfide sulfur, calcite content and metals concentrations specific to the materials in CELL 2 were utilized to generate the CELL 2 chemistry. The solution from CELL 1 as above infiltrates CELL 2 and was mixed with the solution generated in CELL 2 in order to create a combined chemistry that then exits the base of CELL 2 and infiltrates the saturated fractured diatreme in CELL 3. Once in the saturated diatreme, the infiltrated solution from overlying cells is free to react in PHREEQC with available calcite in molar quantities determined as above and from Table 2-1. No additional pyrite oxidation will occur in CELL 3, so this final step in the PHREEQC model reflects the neutralization of residual acidity carried downward through the leach column from above.

Following a reaction with calcite, the mineral saturation states in the resulting solution were evaluated and those supersaturated phases which would be likely to precipitate from solution were identified. These phases were precipitated from solution until equilibrium conditions were reached. The following supersaturated mineral phases were determined to be likely to precipitate from solution:

- Barite
- CdMoO₄
- Cerrusite
- Ferrihydrite
- Gibbsite
- Pb₂V₂O₇
- Pb₃(VO₄)₂
- PbMoO₄
- Rhodochrosite

- Tenorite.

The final solution chemistry from CELL 3 was compared to discharge from the Carlton Tunnel (CT01) as shown in Table 3-4. The full evolution of PHREEQC modeled solution chemistries simulated as water infiltrates downward through the cells are also shown below (Table 3-4).

Table 3-4: PHREEQC modeled chemistry evolution of infiltrating water

Parameter	Units	CELL 1	CELL 2	CELL 3 Without Sorption	CELL 3 With Sorption	CT01
pH	s.u.	2.95	6.45	7.73	7.73	7.4
Eh	mV	170	170	170	170	156.2
Temperature	°C	25	25	25	25	22.8
Ag	mg/L	0.009	0.015	0.015	0.015	0.01
Al	mg/L	13.574	22.621	0.007	0.007	0.07
As	mg/L	0.001	0.002	0.002	0.000	0.001
B	mg/L	0.090	0.149	0.149	0.149	0.11
Ba	mg/L	0.112	0.185	0.006	0.006	0.014
Be	mg/L	0.002	0.005	0.005	0.000	0.0013
Ca	mg/L	612.793	608.384	659.684	659.684	551
Cd	mg/L	0.019	0.027	0.027	0.004	0.0017
Co	mg/L	0.084	0.166	0.166	0.124	0.01
Cr	mg/L	0.008	0.016	0.016	0.000	0.01
Cu	mg/L	0.536	0.860	0.010	0.002	0.01
Fe	mg/L	149.609	346.183	0.000	0.000	0.02
Hg	mg/L	0.000	0.000	0.000	0.000	0.00015
K	mg/L	11.405	23.760	23.768	23.768	5.7
Li	mg/L	0.018	0.048	0.048	0.048	0.09
Mg	mg/L	1.233	26.954	26.954	26.760	29.15
Mn	mg/L	2.062	17.954	7.906	7.900	0.905
Mo	mg/L	0.022	0.180	0.001	0.156	0.02
Na	mg/L	2.091	5.662	5.665	5.665	90.8
Ni	mg/L	0.071	0.175	0.175	0.064	0.01
Pb	mg/L	0.137	0.702	0.175	0.000	0.0001
SO4	mg/L	1921.039	2081.526	1581.806	1578.923	1270
Sb	mg/L	0.000	0.001	0.001	0.001	0.0004

Parameter	Units	CELL 1	CELL 2	CELL 3 Without Sorption	CELL 3 With Sorption	CT01
Se	mg/L	0.008	0.019	0.019	0.007	0.0001
Sn	mg/L	0.035	0.055	0.055	0.055	0.04
Sr	mg/L	6.562	13.818	13.818	13.818	12.55
Tl	mg/L	0.001	0.002	0.002	0.002	0.0001
V	mg/L	0.007	0.023	0.000	2.2E-05	0.005
Zn	mg/L	1.592	2.883	2.884	4.2E-01	0.07

3.1.4 Sorption and ferrihydrite

In general, the final solution exiting CELL 3 compares closely to the water discharged at CT01. With some minor exceptions (Cd, Co, Ni, Se, Tl, Zn), most constituents are consistent with observed CT01 discharge. Some of the differences can be explained by the fact that the geochemical modelling at this stage did not account for sorption of constituents to precipitated ferrihydrite as observed in most systems of this nature. Therefore, a ferrihydrite surface was created in the PHREEQC geochemical model and was equilibrated with the solution chemistry. Following precipitation of ferrihydrite and this attendant surface, the resulting solution chemistry was generated, as shown in Table 3-4, for comparison against a solution without this surface.

The resulting solution chemistry closely reflects that of the actual discharge from the Carlton Tunnel. Most metals concentrations are extremely low as a result of direct precipitation of metal oxides and hydroxides and sorption of metals to precipitated ferrihydrite. The exception to this is zinc, which is also slightly elevated in the Carlton Tunnel discharge. The other major carbonate buffered indicators, sulfate and calcium are also similar to observed concentrations at CT01.

4 CONCLUSIONS

Carbonate buffering of acidity which may be produced by sulfide oxidation within the Cripple Creek diatreme has been modeled through two approaches. The first utilized static geochemical testwork data to construct a mass balance spreadsheet model which simulates acid generation through oxidation of sulfide at kinetic rates constrained through humidity cell testing. The results of this model demonstrate that the cumulative neutralizing potential of the diatreme is sufficient to buffer any acidity generated within the diatreme in perpetuity and regardless of any additional underground mining expansion. The spreadsheet model assumes the system is at gypsum saturation and predicts sulfate and calcium concentrations which closely match observed concentrations in the Carlton Tunnel discharge.

The effect of metal leaching and contaminant mobility was subsequently investigated through a thermodynamically constrained geochemical model using PHREEQC. The PHREEQC geochemical model simulates a carbonate buffered system and evaluates the behavior of trace metals liberated in solution through the oxidation of sulfide bearing material. The geochemical model results calibrate well to observed discharge concentrations at the Carlton Tunnel. The model predicts that metal release will be generally sequestered and attenuated within the diatreme rock mass through precipitation of metal oxides and hydroxides, and potentially as sorption to precipitated ferrihydrite.

LIST OF ATTACHMENTS

Attachment A – Memorandum Limitations

Attachment B – Mass Balance Spreadsheet Geochemical Model

Attachment C – NAG Leachate Chemistry

ATTACHMENT A: MEMORANDUM LIMITATIONS

MEMORANDUM LIMITATIONS

This memorandum has been prepared for the specific purpose identified herein at the request of and for the use of the Client. Observations, conclusions, and recommendations contained herein are opinions based upon the scope of services, information obtained through observations and measurements taken by Schlumberger Water Services at certain points and certain times, and interpretation and extrapolation of secondary information from published and unpublished material. The memorandum may infer the configuration of strata, ground, and groundwater conditions both between data points and below the maximum depth of investigation. The memorandum also may deduce temporal trends and averages for climatic, hydrological, and water quality parameters. Such interpretations and extrapolations are only indicative and no liability is accepted for variations between the opinions expressed herein and conditions that may be identified at a later date through direct measurement and observation.

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Should any information contained in this memorandum be used by any unauthorized third parties, it is done so at their own risk.

ATTACHMENT B: MASS BALANCE SPREADSHEET GEOCHEMICAL MODEL

CRIPPLE CREEK DIATREME GEOCHEMISTRY MODEL							
PARAMETERS		ALL CELLS					
TIMESTEP	year	1					
Infiltration Rate	in/yr	6.99					
Infiltration Rate	m/yr	0.1775					
Area of diatreme	mi2	7					
Area of diatreme	m2	1.81E+07					
1993-2008 Total Overburden Mined	t	1.31E+09					
2008-2015 Total Overburden Mined	t	6.10E+08					
Projected Overburden Mining	t/y	8.71E+07					
Tonnes as Overburden at Start	t	1.92E+09					
Vadose Bedrock Porosity	%	10%					
<u>CELL 1 - OVERBURDEN</u>							
Start Time	year	2015	2016	2017	2018	2019	2020 → ... ∞
End Time	year	2016	2017	2018	2019	2020	2021 → ... ∞
OVERBURDEN MATERIAL							
Overburden at start	t	1.92E+09	2.02E+09	2.12E+09	2.22E+09	2.32E+09	2.42E+09 → ... ∞
Overburden mined	t	1.00E+08	1.00E+08	1.00E+08	1.00E+08	1.00E+08	1.00E+08 → ... ∞
Overburden at end	t	2.02E+09	2.12E+09	2.22E+09	2.32E+09	2.42E+09	2.52E+09 → ... ∞
FLOW							
Through flow	m3/yr	3.22E+06	3.22E+06	3.22E+06	3.22E+06	3.22E+06	3.22E+06 → ... ∞
Through flow	gpm	1618	1618	1618	1618	1618	1618 → ... ∞
Through flow	gpm	1662	1662	1662	1662	1662	1662 → ... ∞
PYRITE OXIDATION							
SO4 production rate	mg/kg/time increment	2.47E+02	2.47E+02	2.47E+02	2.47E+02	2.47E+02	2.47E+02 → ... ∞
SO4 production total	mol	5.19E+09	5.44E+09	5.70E+09	5.96E+09	6.22E+09	6.47E+09 → ... ∞
Fe Leached	mol	2.59E+09	2.72E+09	2.85E+09	2.98E+09	3.11E+09	3.24E+09 → ... ∞
Spyritic Consumed	mol	5.19E+09	5.44E+09	5.70E+09	5.96E+09	6.22E+09	6.47E+09 → ... ∞
Spyritic Consumed	% of total mass	0.008%	0.008%	0.008%	0.008%	0.008%	0.008% → ... ∞
Spyritic Consumed	Cumulative %	0.008%	0.016%	0.025%	0.033%	0.041%	0.049% → ... ∞
Pyrite Oxidation Rate	% of total Pyrite/TTIMESTEP	0.48%	0.48%	0.48%	0.48%	0.48%	0.48% → ... ∞
Acidity generated as CaCO3 eq	mol CaCO3	5.19E+09	5.44E+09	5.70E+09	5.96E+09	6.22E+09	6.47E+09 → ... ∞
CARBONATE NEUTRALIZING							
ANP Available	tCaCO3/Kt	6.62E+00	6.38E+00	6.14E+00	5.92E+00	5.70E+00	5.49E+00 → ... ∞
ANP Available	mol CaCO3	1.34E+11	1.35E+11	1.36E+11	1.37E+11	1.38E+11	1.38E+11 → ... ∞
ANP Consumed	mol CaCO3	5.19E+09	5.44E+09	5.70E+09	5.96E+09	6.22E+09	6.47E+09 → ... ∞
ANP Residual	mol CaCO3	1.28E+11	1.29E+11	1.30E+11	1.31E+11	1.31E+11	1.32E+11 → ... ∞
GYPSUM PRODUCTION							
SO4 Precipitated as Gypsum	mol	5.14E+09	5.39E+09	5.65E+09	5.91E+09	6.17E+09	6.42E+09 → ... ∞
SO4 Residual in Infiltrating Water	mol	5.04E+07	5.04E+07	5.04E+07	5.04E+07	5.04E+07	5.04E+07 → ... ∞
SO4 Residual in Infiltrating Water	mg/L	1503.38	1503.38	1503.38	1503.38	1503.38	1503.38 → ... ∞
SO4 in Carleton Tunnel	mg/L	1500.00	1500.00	1500.00	1500.00	1500.00	1500.00 → ... ∞
Theoretical Ca production total	mol	5.19E+09	5.44E+09	5.70E+09	5.96E+09	6.22E+09	6.47E+09 → ... ∞
Ca Precipitated as Gypsum	mol	5.14E+09	5.39E+09	5.65E+09	5.91E+09	6.17E+09	6.42E+09 → ... ∞
Ca Residual in Infiltrating Water	mol	5.04E+07	5.04E+07	5.04E+07	5.04E+07	5.04E+07	5.04E+07 → ... ∞
Ca Residual in Infiltrating Water	mg/L	627.22	627.22	627.22	627.22	627.22	627.22 → ... ∞
Ca in Carleton Tunnel	mg/L	500.00	500.00	500.00	500.00	500.00	500.00 → ... ∞
RESIDUAL ACIDITY							
	mol CaCO3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00 → ... ∞
<u>CELL 2 - VADOSE</u>							
Start Time	year	2015	2016	2017	2018	2019	2020 → ... ∞
End Time	year	2016	2017	2018	2019	2020	2021 → ... ∞
VADOSE MATERIAL							
Vadose at start	t	9.95E+09	9.85E+09	9.75E+09	9.65E+09	9.55E+09	9.45E+09 → ... ∞
Vadose mined	t	1.00E+08	1.00E+08	1.00E+08	1.00E+08	1.00E+08	1.00E+08 → ... ∞
Vadose at end	t	9.85E+09	9.75E+09	9.65E+09	9.55E+09	9.45E+09	9.35E+09 → ... ∞
FLOW							
Through flow	m3/yr	3.22E+06	3.22E+06	3.22E+06	3.22E+06	3.22E+06	3.22E+06 → ... ∞
Through flow	gpm	1618	1618	1618	1618	1618	1618 → ... ∞
Through flow	gpm	1662	1662	1662	1662	1662	1662 → ... ∞
PYRITE OXIDATION							
SO4 production rate	mg/kg/time increment	8.71E+00	8.71E+00	8.71E+00	8.71E+00	8.71E+00	8.71E+00 → ... ∞
SO4 production total	mol	8.93E+08	8.84E+08	8.75E+08	8.66E+08	8.57E+08	8.48E+08 → ... ∞
Fe Leached	mol	4.47E+08	4.42E+08	4.38E+08	4.33E+08	4.28E+08	4.24E+08 → ... ∞
Spyritic Consumed	mol	8.93E+08	8.84E+08	8.75E+08	8.66E+08	8.57E+08	8.48E+08 → ... ∞
Spyritic Consumed	% of total mass	0.0003%	0.0003%	0.0003%	0.0003%	0.0003%	0.0003% → ... ∞
Spyritic Consumed	Cumulative %	0.0003%	0.0006%	0.0009%	0.0012%	0.0015%	0.0017% → ... ∞
Pyrite Oxidation Rate	% of total Pyrite/TTIMESTEP	0.013%	0.013%	0.013%	0.013%	0.013%	0.013% → ... ∞
Acidity generated as CaCO3 eq	mol CaCO3	8.93E+08	8.84E+08	8.75E+08	8.66E+08	8.57E+08	8.48E+08 → ... ∞
CARBONATE NEUTRALIZING							
ANP Available	tCaCO3/Kt	5.26E+01	5.26E+01	5.25E+01	5.25E+01	5.25E+01	5.25E+01 → ... ∞
ANP Available	mol CaCO3	5.17E+12	5.12E+12	5.06E+12	5.01E+12	4.96E+12	4.90E+12 → ... ∞
ANP Consumed	mol CaCO3	8.93E+08	8.84E+08	8.75E+08	8.66E+08	8.57E+08	8.48E+08 → ... ∞
ANP Residual	mol CaCO3	5.17E+12	5.12E+12	5.06E+12	5.01E+12	4.96E+12	4.90E+12 → ... ∞

CELL 3 - SATURATED

Start Time	year	2015	2016	2017	2018	2019	2020 → ... ∞
End Time	year	2016	2017	2018	2019	2020	2021 → ... ∞

SATURATED MATERIAL

Saturated	t	4.97E+09	4.97E+09	4.97E+09	4.97E+09	4.97E+09	4.97E+09 → ... ∞
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FLOW

Through flow	m3/yr	3.22E+06	3.22E+06	3.22E+06	3.22E+06	3.22E+06	3.22E+06 → ... ∞
Through flow	gpm	1618	1618	1618	1618	1618	1618 → ... ∞
<i>Through flow</i>	<i>gpm</i>	<i>1662</i>	<i>1662</i>	<i>1662</i>	<i>1662</i>	<i>1662</i>	<i>1662 → ... ∞</i>

PYRITE OXIDATION - NONE**CARBONATE NEUTRALIZING**

ANP Available	tCaCO3/Kt	8.10E+01	8.10E+01	8.10E+01	8.10E+01	8.10E+01	8.10E+01 → ... ∞
ANP Available	mol CaCO3	4.02E+12	4.02E+12	4.02E+12	4.02E+12	4.02E+12	4.02E+12 → ... ∞
ANP Consumed	mol CaCO3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00 → ... ∞
ANP Residual	mol CaCO3	4.02E+12	4.02E+12	4.02E+12	4.02E+12	4.02E+12	4.02E+12 → ... ∞

GYPSUM PRODUCTION

SO4 Precipitated as Gypsum	mol	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00 → ... ∞
SO4 Residual in Infiltrating Water	mol	5.04E+07	5.04E+07	5.04E+07	5.04E+07	5.04E+07	5.04E+07 → ... ∞
SO4 Residual in Infiltrating Water	mg/L	1503.38	1503.38	1503.38	1503.38	1503.38	1503.38 → ... ∞
<i>SO4 in Carleton Tunnel</i>	<i>mg/L</i>	<i>1500.00</i>	<i>1500.00</i>	<i>1500.00</i>	<i>1500.00</i>	<i>1500.00</i>	<i>1500.00 → ... ∞</i>
Theoretical Ca production total	mol	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00 → ... ∞
Ca Precipitated as Gypsum	mol	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00 → ... ∞
Ca Residual in Infiltrating Water	mol	5.04E+07	5.04E+07	5.04E+07	5.04E+07	5.04E+07	5.04E+07 → ... ∞
Ca Residual in Infiltrating Water	mg/L	627.22	627.22	627.22	627.22	627.22	627.22 → ... ∞
<i>Ca in Carleton Tunnel</i>	<i>mg/L</i>	<i>500.00</i>	<i>500.00</i>	<i>500.00</i>	<i>500.00</i>	<i>500.00</i>	<i>500.00 → ... ∞</i>

RESIDUAL ACIDITY

	mol CaCO3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00 → ... ∞
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ATTACHMENT C: NAG LEACHATE CHEMISTRY

Model Cell	Sample ID	Depth Mid-Point Elev	Al	Sb	As	Ba	Be	Bj	B	Cd	Ca	Cr	Co	Cu	Ga	Fe	Pb	Li	Mg	Mn	Hg	Mo	Ni	K	Sc	Se	Ag	Na	Sr	Tl	Sn	Ti	V	Zn
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
CELL 1	GHC15-1/100-300/Static	10165	11.8	0.0002	0.0001	0.043	0.00117	0.02	0.09	0.0018	2.2	0.005	0.04	0.22	0.05	1.4	0.0007	0.015	0.7	0.238	0.0001	0.01	0.021	11.1	0.05	0.0062	0.005	0.8	0.526	0.0014	0.02	0.0025	0.0025	0.1
	GHC15-1/300-500/Static	9965	8.02	0.0002	0.0001	0.042	0.00113	0.02	0.08	0.0021	1.4	0.005	0.03	0.33	0.05	0.61	0.0005	0.014	0.6	0.075	0.0001	0.01	0.016	10.7	0.05	0.0047	0.01	0.7	1.4	0.0009	0.02	0.0025	0.0025	0.12
	CPC14-3/440-600/Static	9896	0.015	0.0005	0.0001	0.611	0.000025	0.02	0.07	0.00005	1.1	0.005	0.005	0.005	0.05	0.01	0.00005	0.004	0.5	0.037	0.0001	0.03	0.004	10.4	0.05	0.0003	0.005	1.3	13.3	0.0002	0.02	0.0025	0.01	0.005
	GHC15-1/500-700/Static	9765	8.24	0.0002	0.0001	0.045	0.00136	0.02	0.11	0.0057	1	0.005	0.02	0.51	0.05	0.5	0.0127	0.013	0.5	0.095	0.0002	0.01	0.012	10.5	0.05	0.0078	0.01	0.9	0.764	0.0008	0.02	0.0025	0.0025	0.24
	CPC14-3/600-800/Static	9720	1.2	0.0002	0.0002	0.15	0.00086	0.1	0.14	0.0007	1.8	0.025	0.025	0.025	0.25	0.05	0.0011	0.02	2	0.05	0.0001	0.1	0.02	13	0.25	0.0021	0.025	2	10.6	0.0007	0.1	0.015	0.015	0.07
	GHC15-1/700-900/Static	9565	19.1	0.0002	0.0011	0.048	0.00177	0.02	0.14	0.0741	1.3	0.005	0.1	0.96	0.05	18	0.1483	0.018	0.8	0.296	0.0001	0.01	0.039	8.7	0.05	0.0112	0.005	2.2	1.02	0.0012	0.02	0.0025	0.006	4.52
	CPC14-3/800-1000/Static	9544	11.9	0.0002	0.0005	0.074	0.00113	0.02	0.1	0.0012	0.8	0.005	0.02	0.19	0.05	1.14	0.0022	0.02	0.7	0.062	0.0001	0.01	0.015	11	0.05	0.0072	0.005	1.5	23.8	0.0011	0.04	0.0025	0.0025	0.11
	CPC14-3/1000-1200/Static	9367	23.2	0.0002	0.0029	0.075	0.00155	0.02	0.13	0.0313	1.6	0.005	0.15	0.75	0.05	36.8	0.0046	0.031	1.5	0.109	0.0001	0.01	0.079	10.1	0.05	0.0079	0.005	2.1	14.5	0.0014	0.02	0.006	0.0025	0.22
	GHC15-1/900-1100/Static	9365	21	0.0002	0.0021	0.04	0.00279	0.1	0.08	0.0401	23.1	0.025	0.14	0.91	0.25	72.2	0.2921	0.02	3	0.63	0.0001	0.05	0.07	13	0.25	0.0186	0.025	3	1.27	0.0017	0.1	0.015	0.015	5.09
	CPC14-3/1200-1400/Static	9192	23.8	0.0002	0.0028	0.056	0.00241	0.02	0.06	0.0243	1.7	0.005	0.19	1.43	0.05	102	0.0011	0.021	1.5	0.187	0.0001	0.01	0.114	11.9	0.05	0.0087	0.005	3.2	2.26	0.0011	0.02	0.005	0.01	0.97
	GHC15-1/1100-1300/Static	9165	18.9	0.0002	0.002	0.039	0.00292	0.02	0.04	0.0419	51.2	0.005	0.14	0.9	0.05	111	1.13	0.022	1.3	0.373	0.0001	0.01	0.062	11.8	0.05	0.0177	0.005	2.3	7.81	0.001	0.02	0.016	0.014	6.36
	CPC14-3/1400-1600/Static	9017	15.8	0.0002	0.0017	0.126	0.00263	0.02	0.04	0.0016	12.4	0.005	0.15	0.21	0.05	71.3	0.0551	0.024	1.7	22.6	0.0001	0.01	0.068	14.7	0.05	0.0095	0.005	5.1	1.53	0.0013	0.02	0.0025	0.0025	1.3
	CELL 1 OVERBURDEN AVG		13.58125	0.000225	0.001142	0.112417	0.001645	0.033333	0.09	0.018738	8.3	0.008333	0.084167	0.536667	0.083333	34.58417	0.137371	0.0185	1.233333	2.062667	0.000108	0.0225	0.043333	11.40833	0.083333	0.008492	0.009167	2.091667	6.565	0.001067	0.035	0.006208	0.007083	1.592083
CELL 2	GHC15-1/1300-1500/Static	8965	17	0.0002	0.001	0.074	0.00334	0.02	0.03	0.0138	19.7	0.005	0.11	0.43	0.05	126	0.8965	0.031	2	13.3	0.0001	0.01	0.063	16	0.05	0.0146	0.005	3.9	9.91	0.0006	0.02	0.007	0.012	2.48
	CPC14-3/1600-1800/Static	8842	16.2	0.0002	0.0021	0.08	0.00804	0.02	0.06	0.0033	12.7	0.005	0.12	0.28	0.05	62.6	0.1179	0.042	3	12.1	0.0001	0.01	0.06	14.1	0.05	0.0117	0.005	5.3	1.46	0.0011	0.02	0.0025	0.0025	0.79
	GHC15-1/1500-1700/Static	8765	17.5	0.0002	0.0007	0.067	0.00647	0.02	0.07	0.008	46.1	0.01	0.11	0.42	0.05	151	0.5178	0.036	4.5	47.6	0.0001	0.01	0.093	18.2	0.05	0.0109	0.01	3.5	12.3	0.0006	0.02	0.017	0.014	2.05
	CPC14-3/1800-2000/Static	8668	10.4	0.0002	0.002	0.13	0.00465	0.02	0.06	0.005	9.5	0.005	0.11	0.32	0.05	94.8	0.3236	0.032	6.8	15.2	0.0001	0.01	0.052	10	0.05	0.0106	0.01	4.7	3.47	0.0005	0.02	0.007	0.0025	0.85
	GHC15-1/1700-1900/Static	8565	10.5	0.0002	0.0005	0.035	0.0051	0.02	0.05	0.025	102	0.005	0.1	0.45	0.05	49.2	0.941	0.024	50.8	51.2	0.0001	0.01	0.066	13.1	0.05	0.0104	0.005	2.3	14	0.0006	0.02	0.0025	0.007	3.73
	CPC14-3/2000-2200/Static	8495	12.8	0.0002	0.0009	0.197	0.00514	0.02	0.07	0.0013	34.7	0.005	0.13	0.33	0.05	79.9	0.1197	0.074	30.4	14.8	0.0001	0.01	0.058	17.5	0.05	0.0111	0.005	5.4	6.28	0.001	0.02	0.011	0.005	0.32
	GHC15-1/1900-2100/Static	8366	7.69	0.0002	0.0005	0.021	0.0048	0.02	0.06	0.0241	134	0.01	0.11	0.44	0.05	27.8	0.872	0.018	69.2	38.3	0.0001	0.01	0.095	12.4	0.05	0.012	0.005	1.5	13.4	0.00025	0.02	0.0025	0.0025	2.95
	CPC14-3/2200-2400/Static	8319	11.3	0.001	0.0011	0.149	0.00481	0.02	0.06	0.006	102	0.005	0.12	0.4	0.05	95.3	0.6585	0.066	21	15	0.0001	0.01	0.051	16.4	0.05	0.0102	0.01	4.9	5.86	0.0009	0.02	0.014	0.008	1
	GHC15-1/2100-2300/Static	8166	10.3	0.0002	0.0002	0.037	0.0039	0.02	0.06	0.0094	150	0.005	0.08	0.54	0.05	37.3	0.501	0.019	46.2	13.3	0.0001	0.01	0.064	13.1	0.05	0.0116	0.01	1.4	10	0.0003	0.02	0.0025	0.006	1.37
	CPC14-3/2400-2600/Static	8142	8.6	0.0006	0.0009	0.081	0.00515	0.02	0.11	0.0036	364	0.005	0.07	0.2	0.05	44.7	0.5425	0.041	10.9	12.8	0.0001	0.01	0.029	8.3	0.05	0.0103	0.005	4.1	8.72	0.0003	0.02	0.01	0.0025	0.56
	GHC15-1/2300-2500/Static	7966	6.39	0.0002	0.0004	0.035	0.00177	0.02	0.07	0.0173	178	0.005	0.07	0.19	0.05	11.6	0.3675	0.01	53	16.6	0.0001	0.01	0.062	10.2	0.05	0.009	0.005	1.5	7.22	0.0002	0.02	0.0025	0.005	2.28
	CPC14-3/2600-2800/Static	7963	8.7	0.0002	0.0004	0.101	0.0049	0.02	0.03	0.0045	345	0.005	0.12	0.26	0.05	86.9	0.7852	0.043	26.6	10.4	0.0001	0.01	0.116	13.1	0.05	0.0104	0.005	4.1	8.12	0.0007	0.02	0.007	0.0025	0.77
	CPC14-3/2800-3000/Static	7783	8.01	0.0009	0.001	0.071	0.0026	0.02	0.04	0.0061	289	0.005	0.08	0.42	0.05	67	1.78	0.026	7.6	19	0.0001	0.01	0.07	7.3	0.05	0.0108	0.005	5	6.85	0.0003	0.02	0.0025	0.0025	1.2
	GHC15-1/2500-2700/Static	7766	4.25	0.0002	0.0003	0.022	0.0015	0.02	0.08	0.0174	592	0.01	0.06	0.29	0.05	22.1	0.6532	0.017	53.6	8.05	0.0001	0.31	0.042	6.3	0.05	0.0158	0.005	1.3	6.62	0.0002	0.02	0.02	0.045	2.72
	CPC14-3/3000-3200/Static	7603	6.51	0.0002	0.0003	0.101	0.00149	0.02	0.04	0.0004	189	0.005	0.05	0.14	0.05	30.1	0.091	0.028	5.6	1.77	0.0001	0.01	0.047	8.5	0.05	0.0069	0.005	4.4	4.27	0.0005	0.02	0.005	0.0025	0.08
	GHC15-1/2700-2900/Static	7566	5.91	0.0002	0.0003	0.029	0.00254	0.02	0.03	0.003	541	0.01	0.05	0.02	0.05	0.98	0.0616	0.014	62	6.95	0.0001	1.03	0.045	7.6	0.05	0.0191	0.005	2	7.44	0.0001	0.02	0.01	0.184	0.5
	CPC14-3/3200-3400/Static	7422	7.16	0.0002	0.0005	0.071	0.0031	0.02	0.04	0.0067	196	0.01	0.08	0.44	0.05	23.5	1.27	0.027	12.1															

Attachment 4 – Ground Water Flow Model

CRIPPLE CREEK MINING DISTRICT GROUNDWATER MODEL

Prepared by: Adrian Brown, P.E.
February 27, 2012

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PLATES

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Plate 002 - Diatreme implementation in model
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Subject:	Cripple Creek Mining District Groundwater Model	Project #:	1385E	 AdrianBrown
Project:	Cresson Project Hydrogeochemical Evaluation	Date:	27-Feb-2012	
Author:	Adrian Brown, P.E.	Page:	1 of 3	

1.0 INTRODUCTION

A model of the Cripple Creek Mining District has been constructed and run to evaluate the impact of mining operations associated with Mine Life Extension 2 (MLE2).

2.0 MODELING METHOD

Type: Finite Difference Hydraulic Model
Method: MODFLOW
Code: Visual MODFLOW (V2.8.3)
Supplier: WHI Inc. (now Schlumberger Corp)

3.0 MODEL CONSTRUCTION

Locality: Cripple Creek, Teller County, Colorado

Area: 30 square miles centered between Cripple Creek and Victor, Colorado

Bound	X (E) (ft)	Y (N) (ft)	Comment
Lower left	26000	42000	Coordinates are CC&V mine coordinates
Upper right	54000	72000	Coordinates are CC&V mine coordinates

Mesh: Equal 500 foot grid horizontally, with max. 250 feet thick layers (except for uppermost layer)

Parameter	Unit	Value	Comment
Area	sq.ft	8.4E+08	30.1 square miles
X length	ft	28,000	5.3 miles
Y length	ft	30,000	5.7 miles
Cell X width	ft	500	
Cell Y width	ft	500	
Cells in X direction	#	56	
Cells in Y direction	#	60	
Cells per layer		3,360	
Top elevation	ft msl	10,500	2 miles
Bottom elevation	ft msl	5,000	0.9 miles
Layer thickness	ft	250	Uppermost layers vary due to topography
Layers		22	
Cells		73,920	

Plate 001 - Model Grid showing MLE2 Facilities and Diatreme Outcrop

4.0 MATERIALS

Basis: Materials selected based on geometry of Diatreme

Material	Comment
Precambrian	Surrounds Diatreme on all sides
Tertiary vents	Primary volcanic eruptive centers, and orebody hosts
Tertiary overflow	Apron to east, low permeability, and not ore-bearing

Plate 002 - Diatreme implementation in model

In Grid: Materials distributed over 22 layers based on 500 foot contours of diatreme

Plate 003 - Model layers with materials

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5.0 HYDRAULIC CONDUCTIVITY

Initial: Based on measured values from a total of 74 injection/withdrawal tests in wells

Material	Kx [cm/s]	Ky [cm/s]	Kz [cm/s]	Comment
Precambrian	2.00E-06	2.00E-06	5.00E-07	Kv set equal to infiltration rate
Tertiary vents	2.00E-05	2.00E-05	2.00E-04	Kv higher due to vertical fractures
Tertiary overflow	2.00E-06	2.00E-06	2.00E-05	K lower in overflow area/dead

Plate 004 - Hydraulic Conductivity Test Data

6.0 BOUNDARY CONDITIONS

6.1 Top surface

Infiltration: Infiltration fixed over entire surface.

Location	Infiltration by Period (in/yr)			Comment
	Pre-Mine	During	After	
Ground surface	6	6	6	Carlton flow / Diatreme area
Stream beds	10	10	10	Wetter
Mines	6	6	6	~ normal infiltration
VLFs	6	0	6	VLFs perforated at reclamation
Overburden Storage	6	0	6	~20 yr to reach field capacity
Backfilled mines	6	0	6	~20 yr to reach field capacity

Plate 005 - Infiltration

Limit: Maximum head at each cell limited to ground surface by use of one drain per cell.
Each cell is thus drained at ground surface removing any infiltration that cannot enter the grid.

6.2 Sides

No flow: No flow boundary prevents either ingress or egress of water to analysis domain

6.3 Bottom

No flow: No flow boundary prevents either ingress or egress of water to analysis domain

7.0 CALIBRATION

7.1 Carlton Tunnel Flow

Method: Pre-mining Carlton Tunnel Flow = 1,691 gpm
Infiltration rate and hydraulic conductivity varied to match outflow to pre-mining inflow.

Plate 006 - Carlton Tunnel Flow

Results: It was possible to match flow to 1691 gpm in all cases

7.2 Vertical Head

Method: Current vertical head gradients are as follows:

Material	Iv (ft/ft)	Comment
Precambrian	0	Generally close to hydrostatic, except at WHEX
Tertiary vents	-1	Holes generally close to zero pressure at all depths
Tertiary overflow	-0.5	Gradients generally negative, but not drained

Plate 007 - Vertical Hydraulic Gradients

Results: Calibration was achieved to reasonable accuracy by adjusting K for the Tertiary Overflow.
Comparison of vertical gradients in the GVPW piezometer strings is shown in Plate 008.

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Plate 008 - GVPW Well Vertical Hydraulic Gradients

7.3 Calibrated Parameter Values

Hydraulic Conductivity:

Material	Kx [cm/s]	Ky [cm/s]	Kz [cm/s]	Color
Precambrian	5E-7	5E-7	5E-7	
Diatreme Vents	0.0001	0.0001	0.0001	
Diatreme Overflow	1E-6	1E-6	1E-6	
	3E-5	3E-5	3E-5	

Infiltration: The infiltration that best matched the results was 6.0 inches per year.

7.4 Calibration Results

The head and flow direction plots for the calibrated pre-mining condition is shown in Plate 009. The diagrams show the flow towards the Carlton Tunnel.

Plate 009 - Calibrated Pre-mining Condition

The flow to the Carlton Tunnel is computed by the modeling:

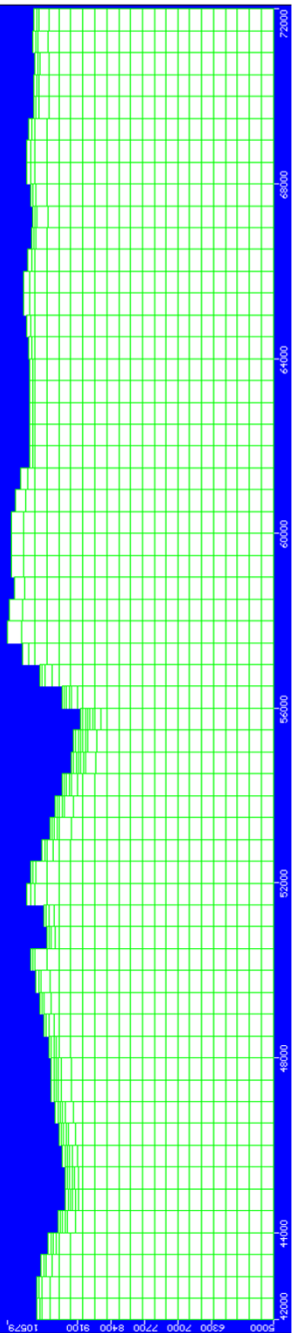
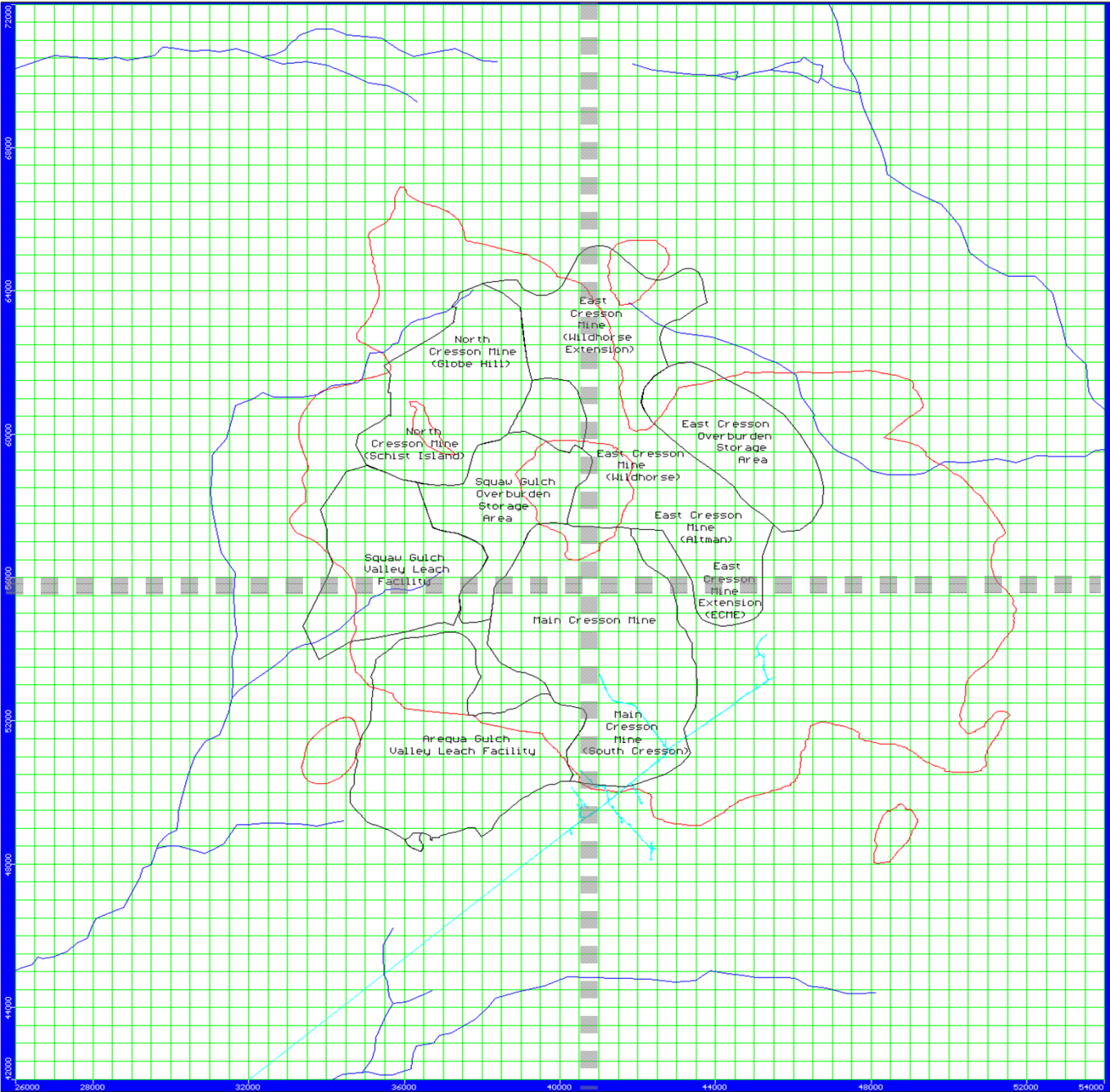
Flow to Carlton Tunnel-Drain 2 = 1691 gpm

8.0 MLE-2 ANALYSIS

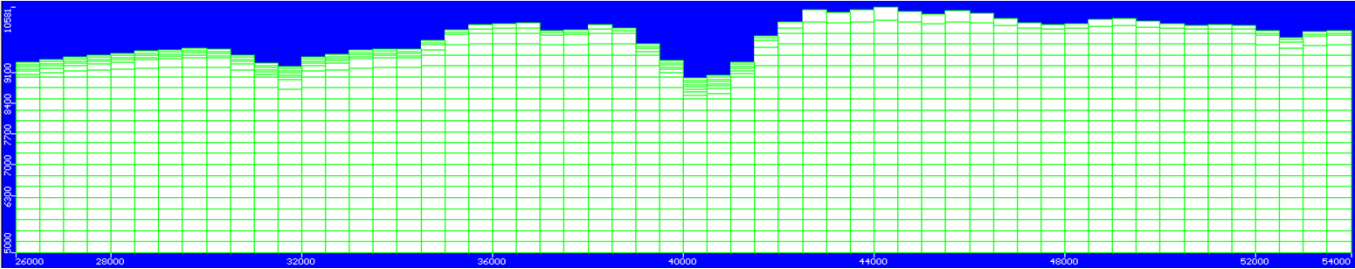
The interception of infiltration water by MLE2 facilities has been computed as follows:

Facility	Interception method	Flow (gpm)	Run
AGVLF	Liner Interception	-64.8	CC-56
SGVLF	Liner Interception	-86.6	CC-57
ECOSA	Overburden Sequestration	-71.1	CC-52
SGOSA	Overburden Sequestration	-70.8	CC-55
WHEX	Backfill Sequestration	-35.0	CC-58
Main Cresson	Backfill Sequestration	-58.2	CC-59

The interception has no identifiable effect on the groundwater flow vectors or heads.

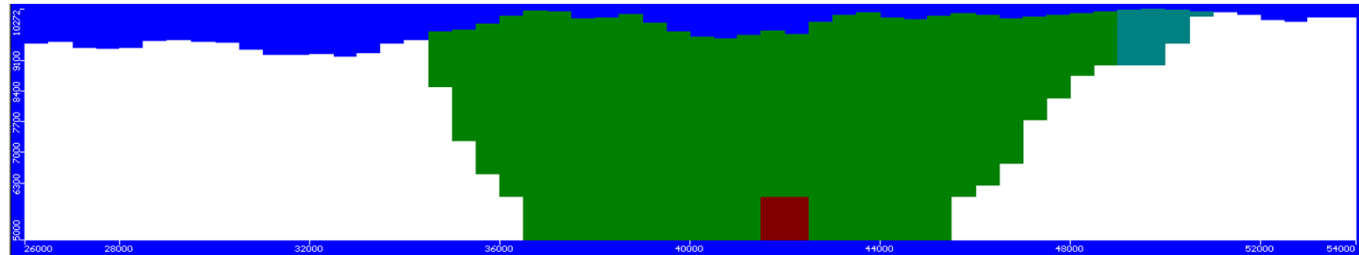
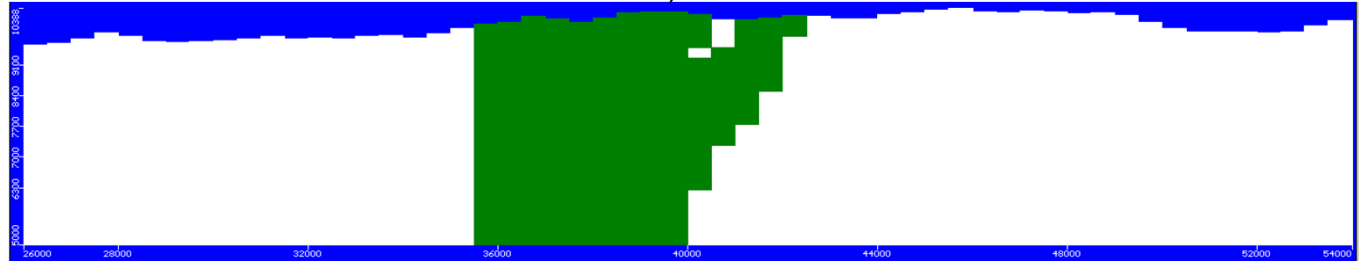
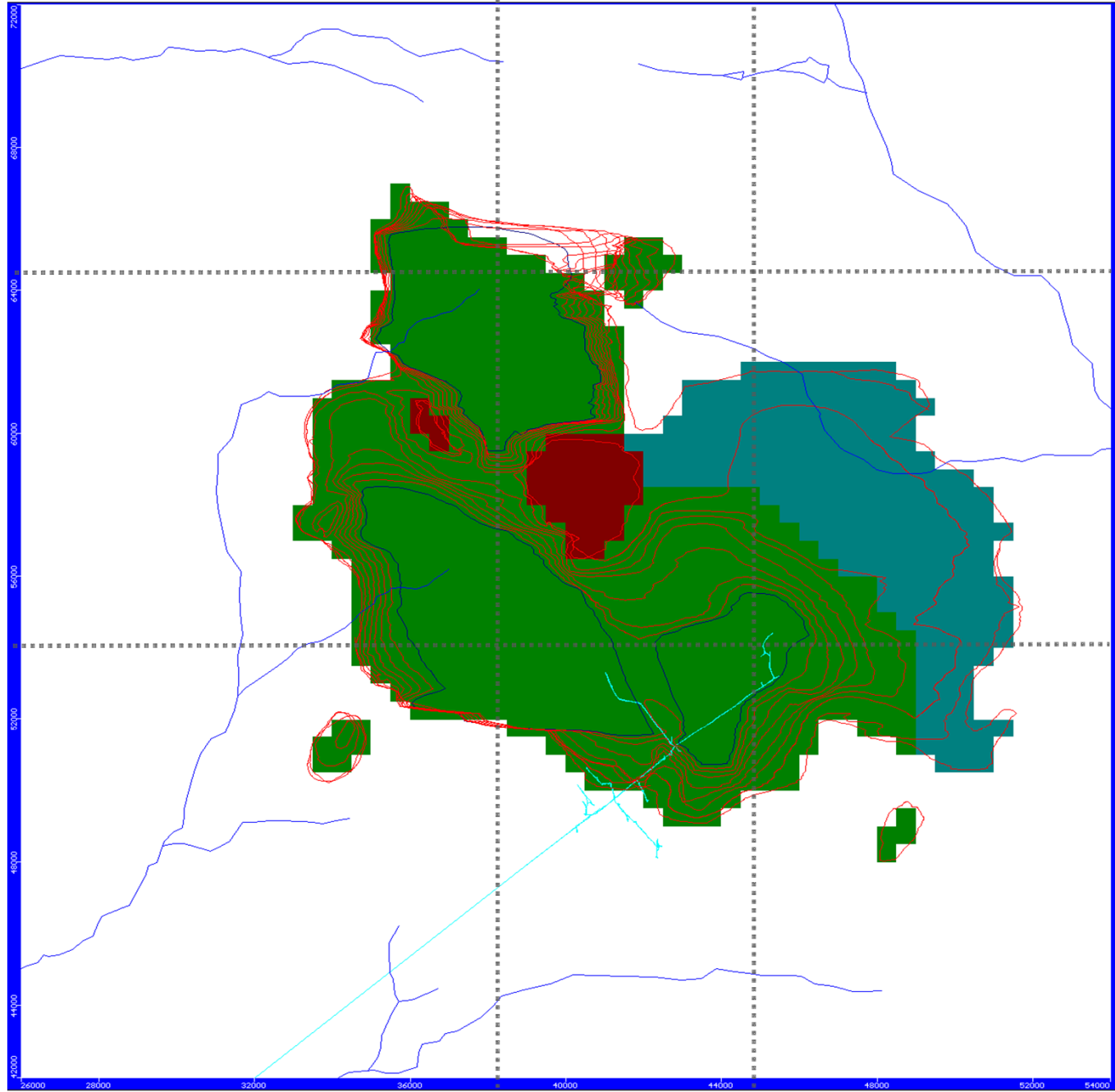
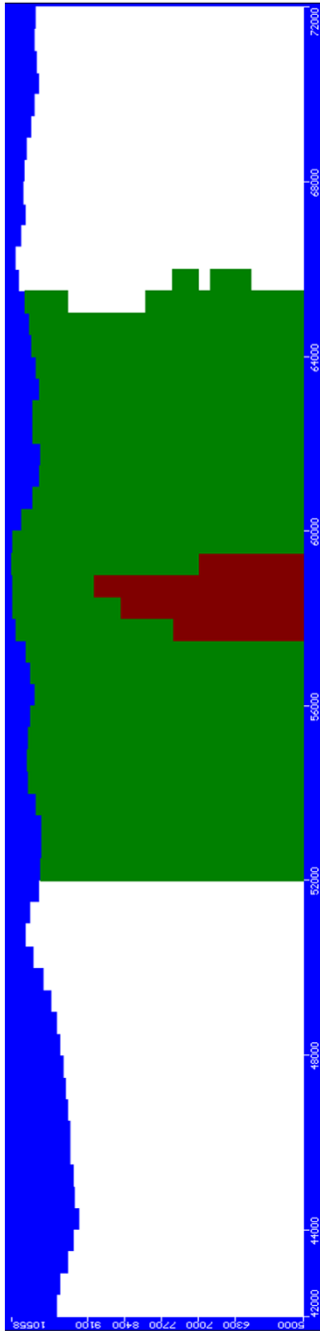


Column 30 - 40,750'E



Row 33 - 55,750'N

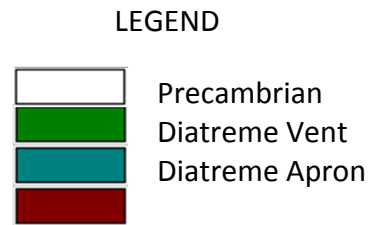
Column 25 - 38,250'E



Row 16 - 64,250'N

Row 37 - 53,750'N

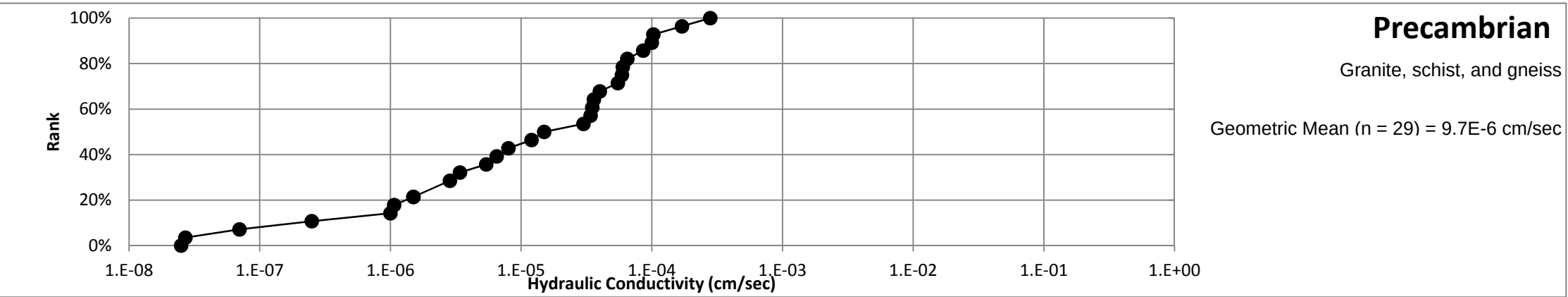
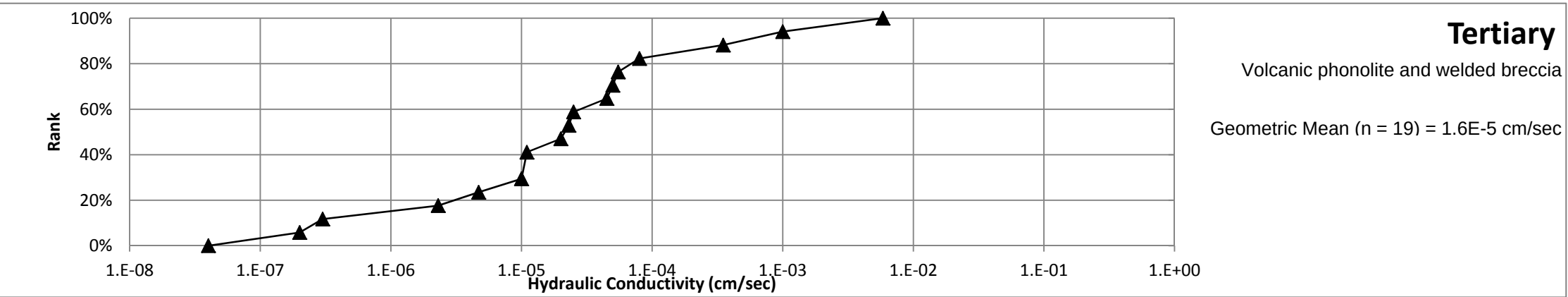
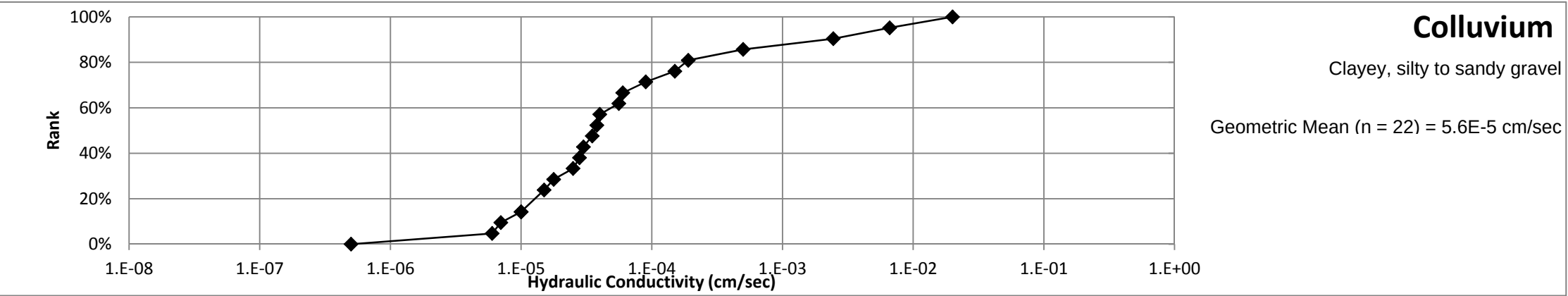
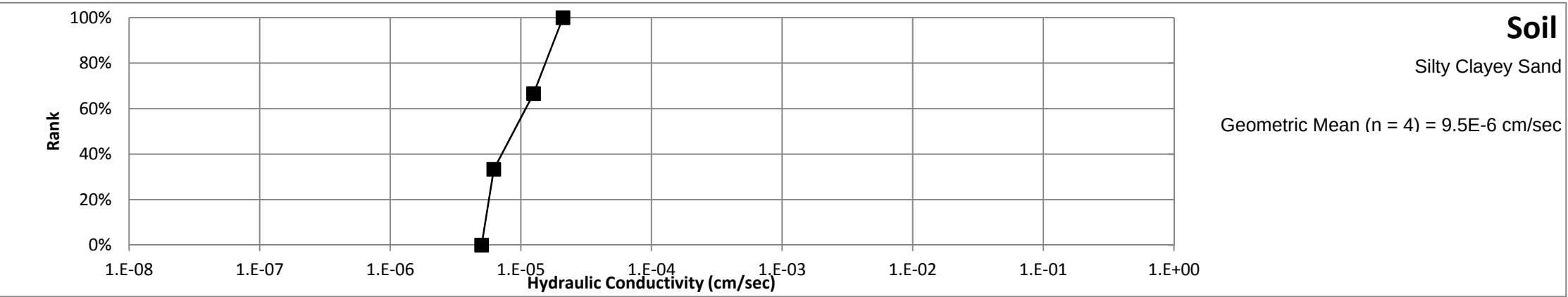
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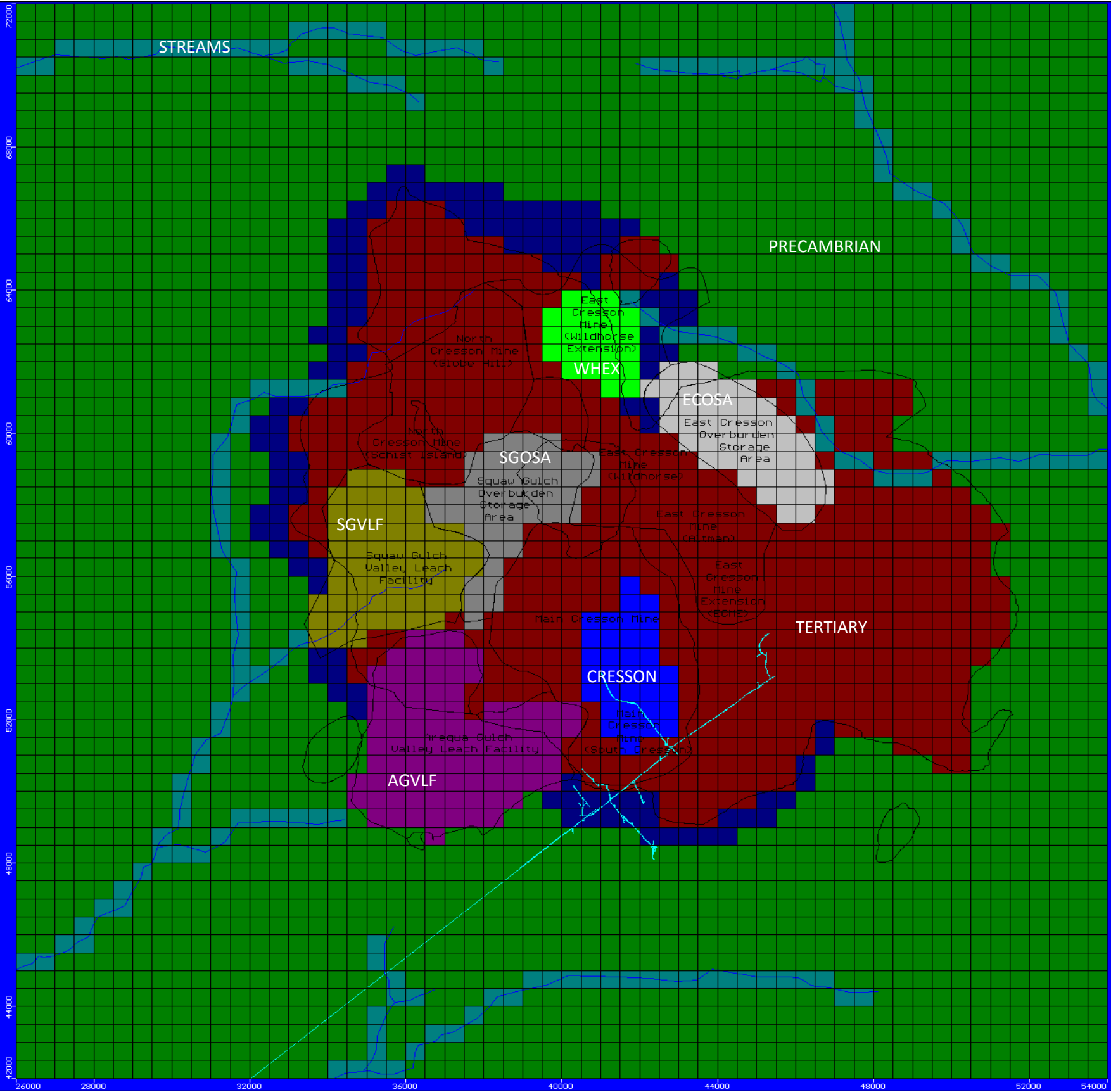
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Folder:	Raymond\7_Report\3_Report\1604C_20090601_AB_Report.xls\ABC01-10
Cripple Creek District Hydraulic Model	
PLATE 002	
DIATREME IMPLEMENTATION	



Well and Depth	Material	Hydraulic Conductivity (cm/s)
CAM-01A-200	Tertiary	1.0E-05
CAM-01A-200	Tertiary	1.0E-05
CAM-01B-70	Tertiary	3.0E-07
CAM-01C-500	Tertiary	2.3E-06
COB-01A-200	Precambrian	1.5E-06
COB-01B-60	Precambrian	5.4E-06
ESPMW-01-221	Precambrian	1.0E-04
GRMW-01A-153	Precambrian	2.9E-06
GRMW-02A-149	Precambrian	3.0E-05
GRMW-03A-200	Precambrian	1.5E-06
GVMW-01B-50	Colluvium	1.9E-04
GVMW-02B-30	Colluvium	5.0E-04
GVMW-03A-500	Precambrian	6.5E-06
GVMW-03B-50	Colluvium	2.8E-05
GVMW-04A-480	Precambrian	5.5E-05
GVMW-05A-250	Precambrian	1.5E-05
GVMW-06A-200	Precambrian	1.0E-06
GVMW-07A-200	Precambrian	4.0E-05
GVMW-07B-50	Tertiary	2.3E-05
GVMW-08A-250	Tertiary	1.0E-03
GVMW-08B-50	Tertiary	5.5E-05
GVMW-09A-200	Precambrian	2.5E-08
GVMW-10-270	Tertiary	5.8E-03
GVMW-12A-300	Precambrian	1.2E-05
GVMW-12B-50	Colluvium	7.0E-06
GVMW-13B-550	Precambrian	1.0E-04
GVMW-13C-50	Colluvium	6.0E-06
GVMW-14B-100	Precambrian	8.0E-06
GVMW-14C-625	Precambrian	1.7E-04
GVMW-15A-820	Precambrian	3.4E-05
GVMW-15B-102	Precambrian	2.8E-04
GVMW-15C-1000	Precambrian	2.7E-08
GVMW-16B-102	Precambrian	2.5E-07
GVMW-17A-820	Tertiary	5.0E-05
GVMW-17B-105	Precambrian	3.6E-05
GVMW-21A-190	Precambrian	7.0E-08
GVMW-22A-90	Precambrian	3.4E-06
GVMW-22B-30	Colluvium	5.6E-05
GVMW-23A-70	Precambrian	8.6E-05
GVMW-23B-30	Precambrian	3.5E-05
GVMW-24A-250	Tertiary	4.0E-08
GVMW-24B-100	Tertiary	3.5E-04
GVPZ-01-34	Soil	1.3E-05
GVPZ-02-29	Soil	2.1E-05
GVPZ-03-19	Soil	5.0E-06
GVPZ-04-40	Soil	6.2E-06
OSABH-01-49	Colluvium	1.0E-05
OSABH-02-44	Colluvium	1.0E-05
OSABH-04-39	Colluvium	4.0E-05
OSABH-05-30	Colluvium	6.6E-03
OSABH-06-33	Colluvium	5.0E-07
OSABH-07-29	Colluvium	3.5E-05
OSABH-08-29	Colluvium	9.0E-05
OSABH-12-39	Colluvium	6.0E-05
OSABH-13-30	Colluvium	2.4E-03
OSABH-14-29	Colluvium	2.5E-05
OSABH-15-23	Colluvium	2.0E-02
OSABH-16-40	Colluvium	3.0E-05
OSABH-17-30	Colluvium	1.5E-04
OSABH-18-52	Colluvium	1.5E-05
OSABH-19-30	Colluvium	3.8E-05
PGMW-02-218	Precambrian	6.5E-05
SGMW-03A-150	Precambrian	1.1E-06
SGMW-03B-52	Tertiary	4.5E-05
SGMW-05-256	Tertiary	2.0E-05
VIN-02A-270	Tertiary	2.0E-07
VIN-02B-140	Tertiary	4.7E-06
WCMW-02-65	Colluvium	1.8E-05
WCMW-03-134	Precambrian	5.9E-05
WCMW-06-234	Precambrian	6.0E-05
WLMW-01A-185	Tertiary	1.0E-05
WLMW-01B-50	Tertiary	1.1E-05
WLMW-01C-500	Tertiary	2.5E-05
WLMW-01D-750	Tertiary	8.0E-05



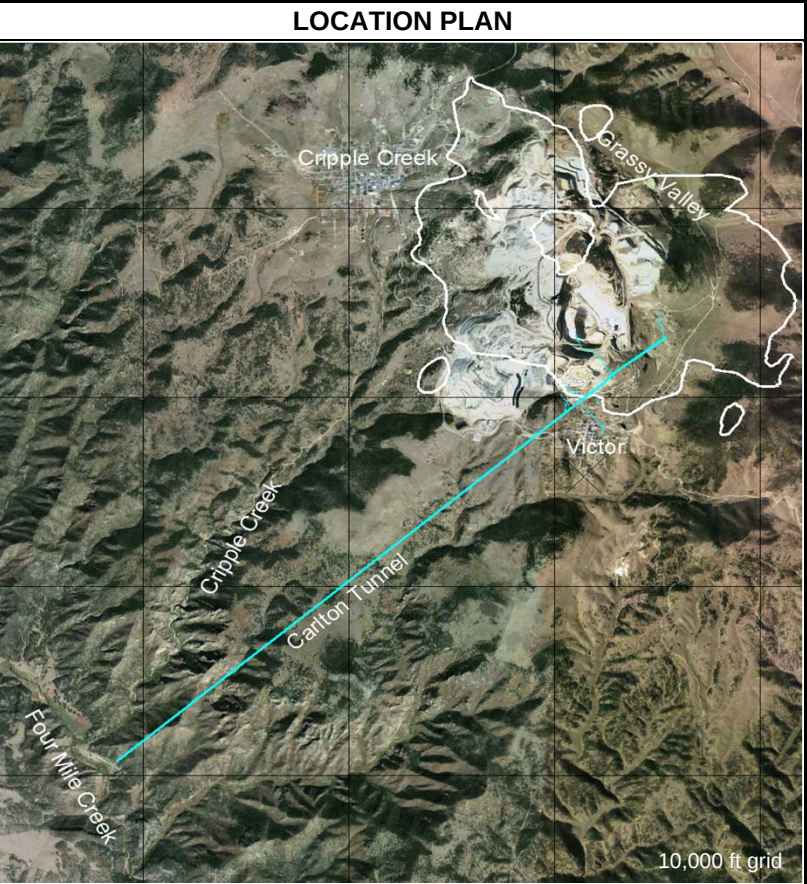
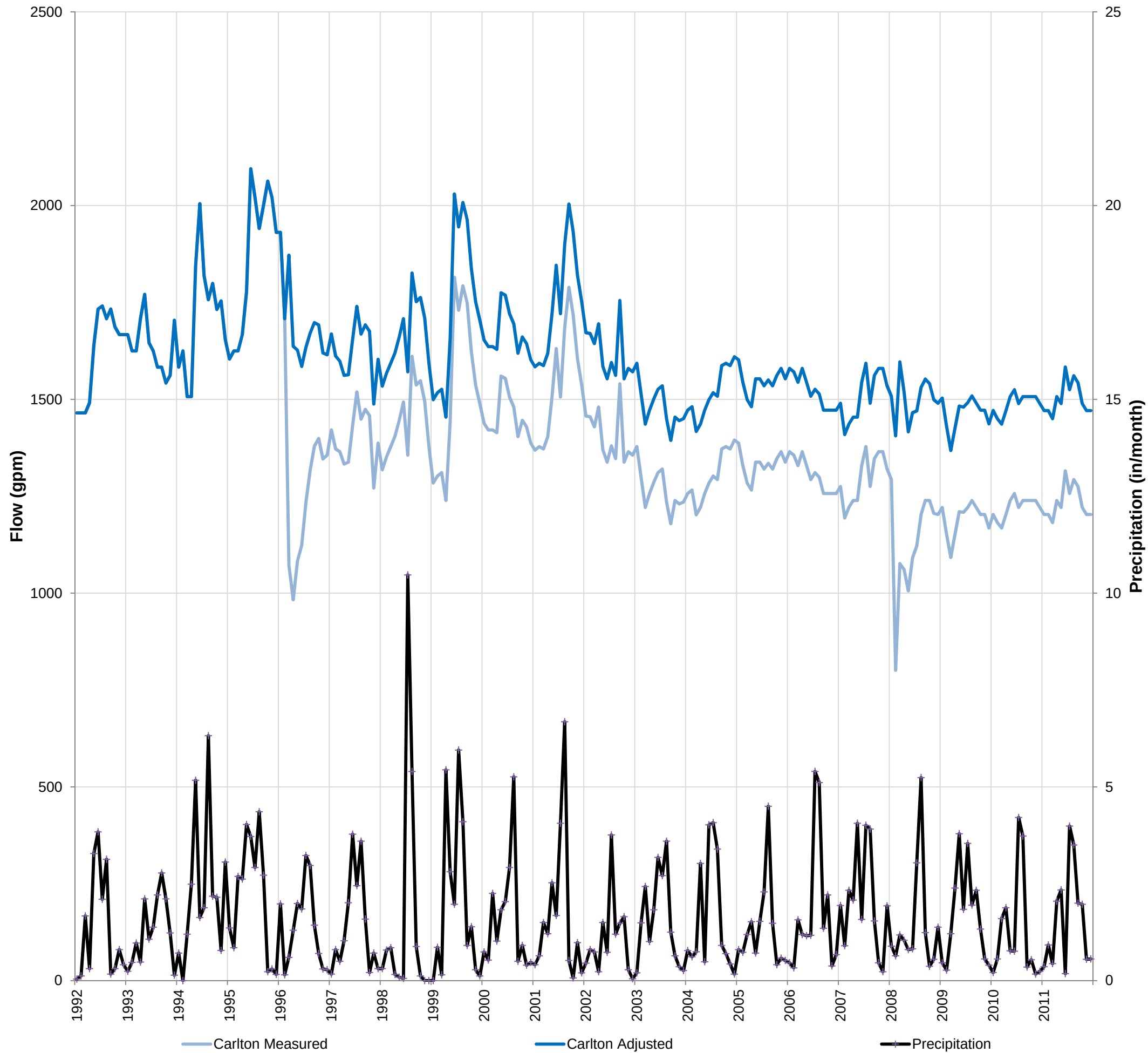
 Adrian Brown Consultants, Inc. 130 W 4th Ave, Denver CO 80223	Notes: 1. Permeability testing performed in vertical wells using slug injection or withdrawal methods. 2. Analysis of tests performed using Hvorslev and Theim analytical methods. 3. Test results and analysis presented in Attachment 2. 4. All results are for saturated horizontal hydraulic conductivity.	Scale:	No scale	Cripple Creek District Hydraulic Model
		Drawn:	Adrian Brown	
		Date:	26-Feb-2012	HYDRAULIC CONDUCTIVITY BY GEOLOGIC MATERIAL
		File:	D:\Documents_model\[CC Model-03.xlsx]P003-Layers	
		Folder:		



- Notes:
1. Layers are generally 250 feet thick.
 2. MLE 2 facilities and creeks shown for geographic reference
 3. Each panel is about 5 1/2 miles wide

Scale:	1" ~ 5 miles
Drawn:	A.Brown
Date:	27-Feb-2012
File:	D:\Documents_model\CC Model-03.xlsx\005-Infiltration
Folder:	

Cripple Creek District Hydraulic Model
PLATE 005
SURFACE INFILTRATION ZONES



SEEPAGE RATE		
Time period	1992-2002	2003-2011
Average flow (gpm)	1691	1503
Infiltration area (sq.mile)	8.7	8.7
Seepage rate (in/year)	5.9	5.2
Average precipitation (in/y)	19.47	19.07
Seepage rate (% precip)	30%	27%

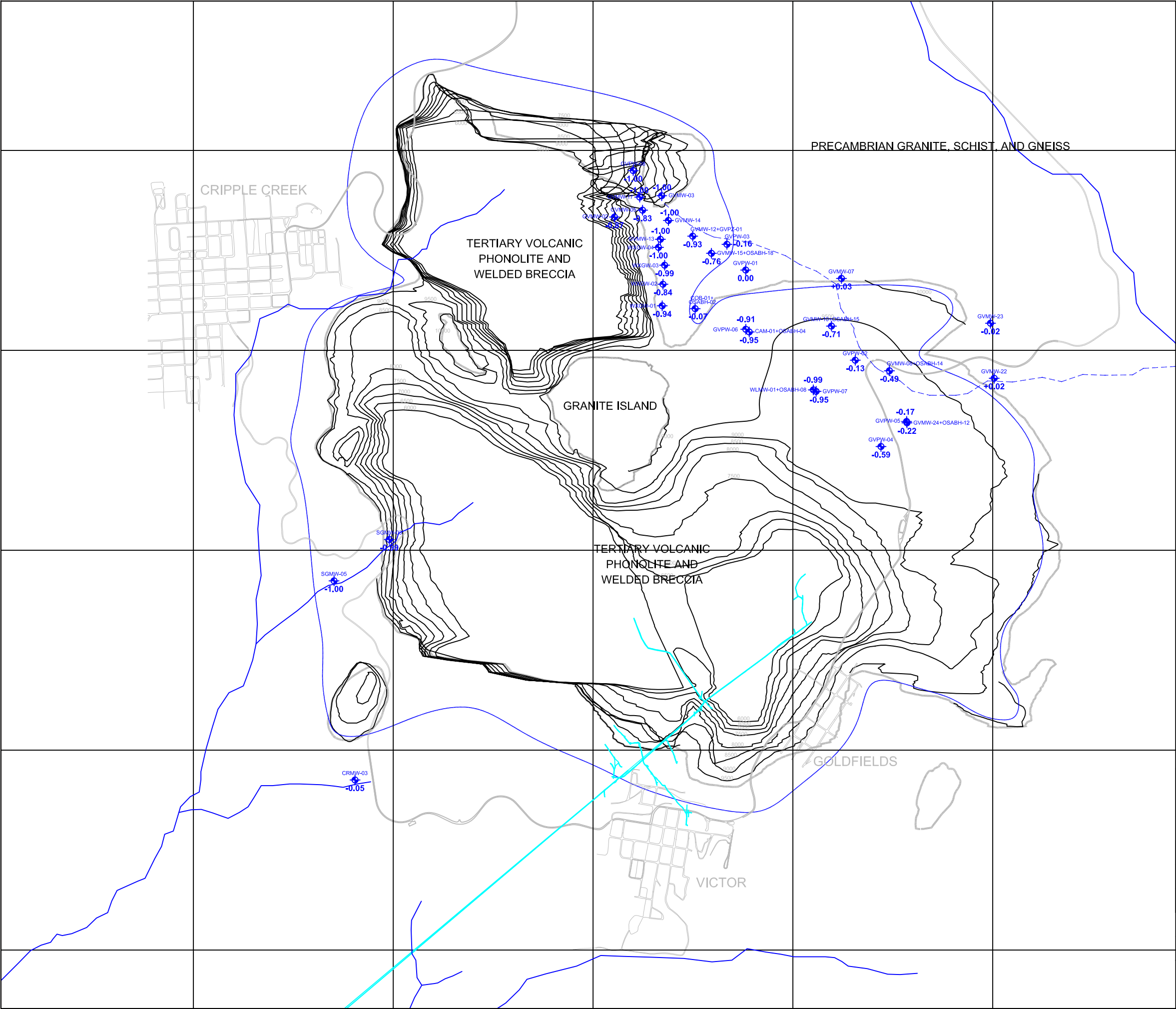
- NOTES**
- 1 Carlton Tunnel flow measured at portal (1992-1995), below ponds (1996-present). Portal flow adjusted for losses.
 - 2 Carlton Tunnel flow measured below ponds 1996-present. Flow adjusted to account for losses.
 - 3 Infiltration area includes the capture area of the Cripple Creek diatreme.

 Adrian Brown Consultants, Inc. 130 W 4th Ave, Denver CO 80223	
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Drawn:	A.Brown
Date:	26-Feb-2012
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Folder:	

Cripple Creek District Hydraulic Model

PLATE 006

CARLTON TUNNEL FLOW



LEGEND

GVPW-7 Well Number(s)

-0.95 Well Location (average)

 Vertical Hydraulic Gradient
(ft head gain per ft depth)

Surface Limit of Volcanic Diatreme

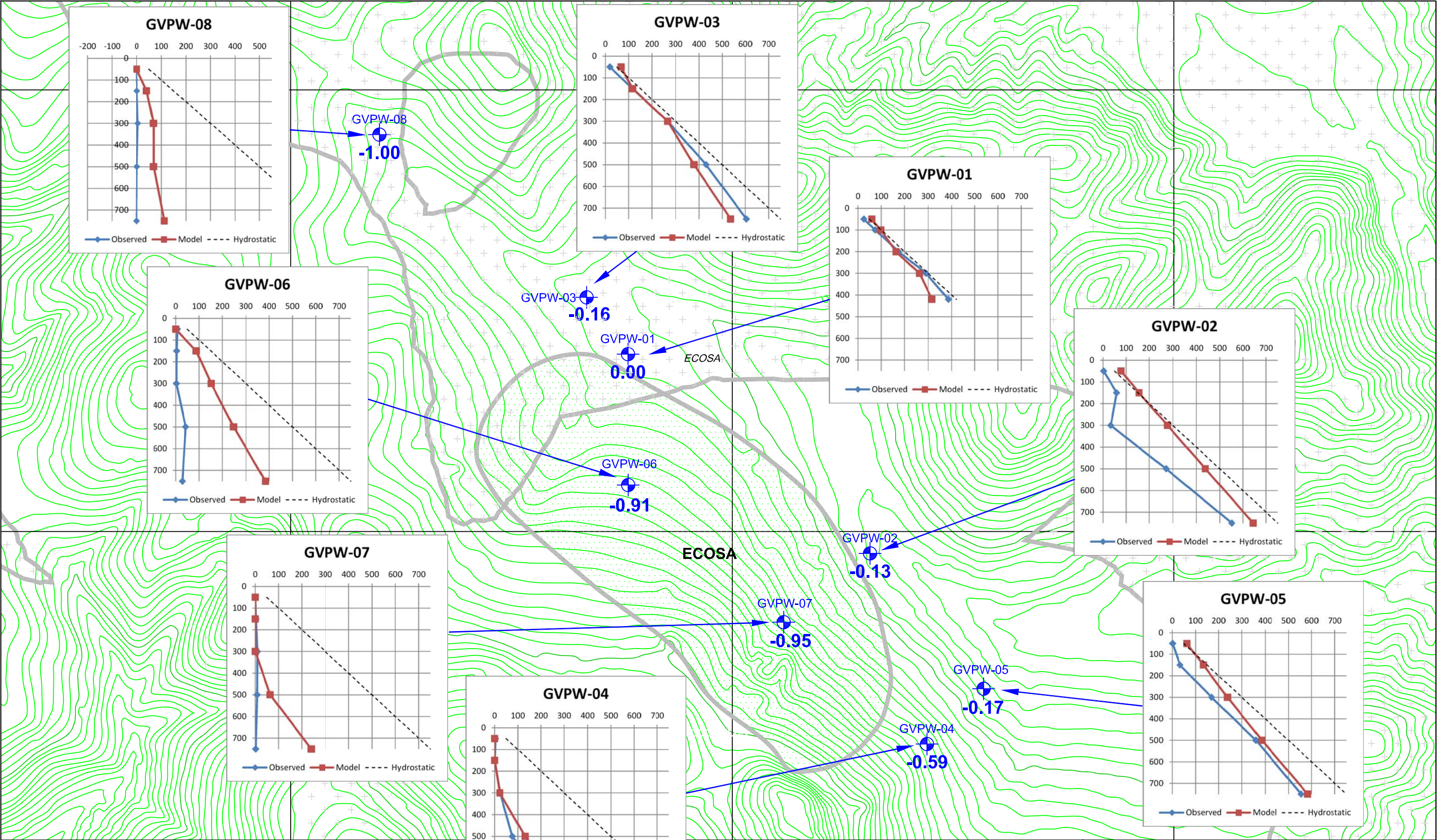
9500 Subsurface Contours of Volcanic Diatreme
(interval = 500')

10500 Surface Contours(2011)
(interval = 25 ft)

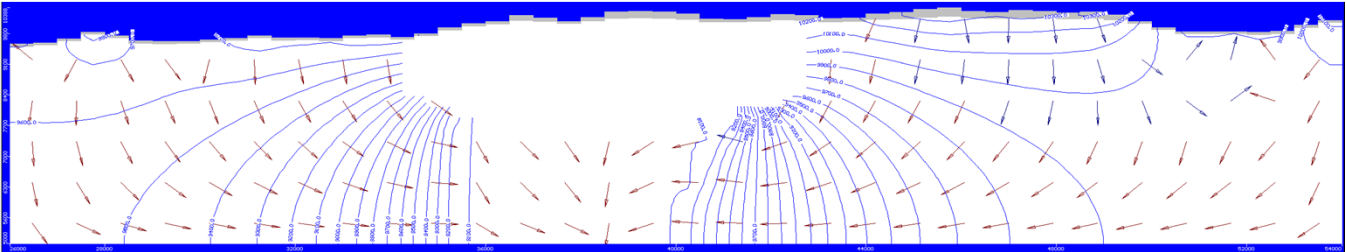
Streams
(dashed where intermittent)

Boundary of Infiltration capture by diatreme
(defined by strong vertical hydraulic head)

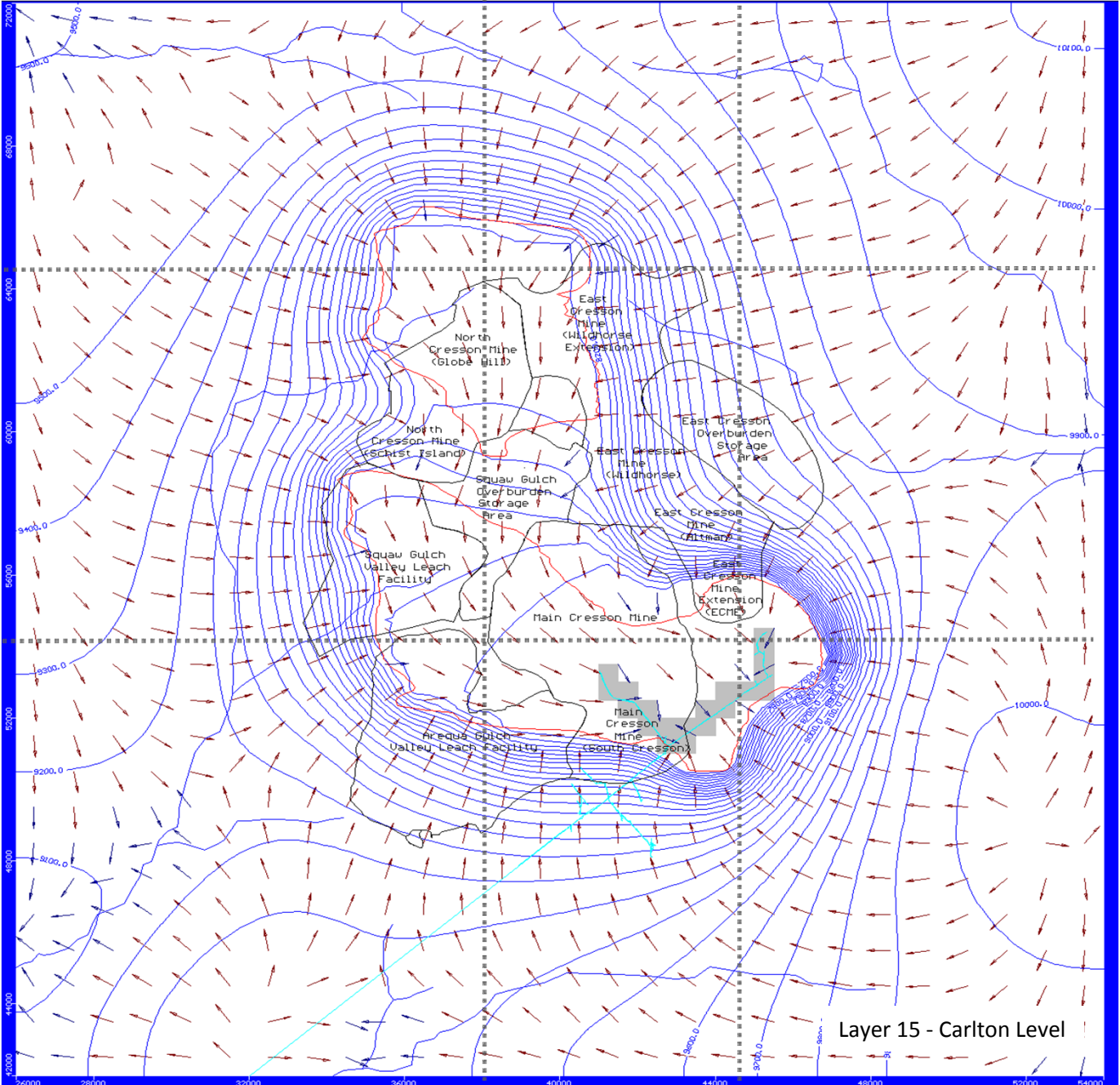
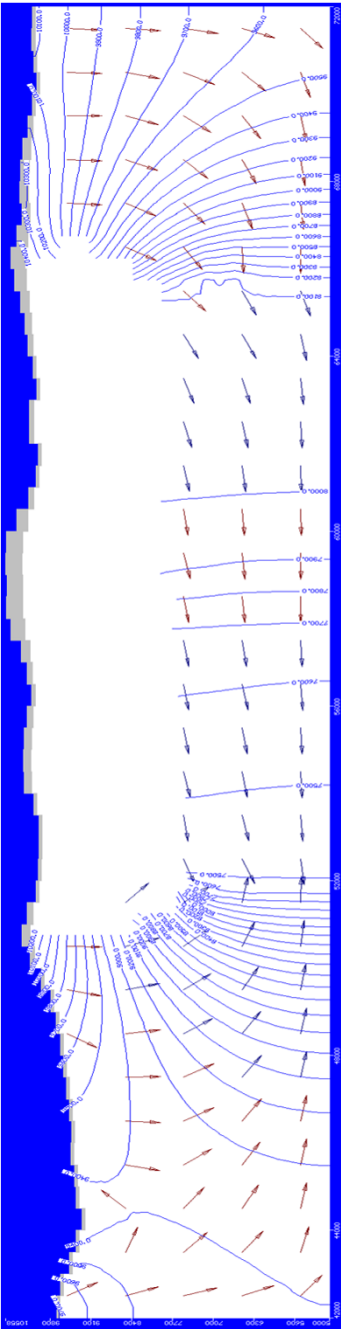
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Drawing:	MLE2-Master-36-MODEL.dwg
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Cripple Creek District Hydraulic Model	
PLATE 007	
VERTICAL HYDRAULIC GRADIENTS	



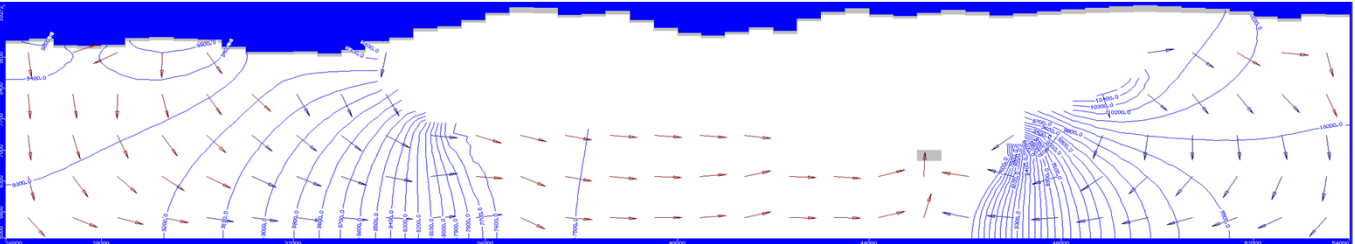
Row 16 - 64,250'N



Column 25 - 38,250'E



Layer 15 - Carlton Level



Row 37 - 53,750'N

LEGEND

- Flow Direction (refers to tail location)
- Head Equipotential (100 ft interval)



Adrian Brown Consultants, Inc.
130 W 4th Ave, Denver CO 80223

Scale:	1" ~ 4,000 ft
Drawn:	A.Brown
Date:	27-Feb-2012
File:	D:\Documents_model\CC Model-03.xlsx\008 - Pre-Mine Flow
Folder:	

Cripple Creek District Hydraulic Model
PLATE 009

PRE-MINING HEAD EQUIPOTENTIALS
AND FLOW DIRECTIONS

Cripple Creek & Victor Gold Mining Company
Hydrologic Evaluation,
CC&V
December 2015

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1. INTRODUCTION

Cripple Creek & Victor Gold Mining Company (CC&V) operates the Cresson Project, a gold mining and processing operation in the Cripple Creek Mining District (“District”). The Cresson Project is located between the cities of Cripple Creek and Victor, Colorado southwest of Pikes Peak.

The gold mineralization in the District occurs primarily in the Cripple Creek Diatreme – an alkaline volcanic diatreme-intrusive complex (“Diatreme”). The country rocks surrounding the Diatreme are dominantly Precambrian in age and include gneiss, schist, quartz monzonite, augen, gneiss/granodiorite and granite. The Diatreme is a steep-walled crater with a crudely elliptical outline at the surface. The volcanic activity which created the Diatreme took place during the Tertiary period, approximately 32 million years ago and included placement of plugs, flow domes, small stocks and late-stage diatremal pipes and dikes. Following the placement of the diatreme rock, the rocks were subjected to intense potassium metasomatism, hydrothermal brecciation and gold mineralization. Carbonate-rich styles of alteration post date the precious metal mineralization event. The carbonate alteration plays a major role in the ground water chemistry of the area, as evidenced by the alkaline nature of regional ground water draining from the Carlton Tunnel.

The District has been mined for over 100 years. In order to effectively mine at deeper depths, as the District was developed a series of progressively deeper drainage tunnels were constructed to drain the ground water. The deepest tunnel, the Carlton Tunnel, was completed in 1941 and has dewatered the rock in the District to an elevation below approximately 7,000 feet.

This report presents a brief description of the surface water flows and drainage basins in the vicinity of the Cresson Project and a compilation of the surface water and ground water monitoring data for active monitoring locations. The report also discusses currently approved activities and planned activities under the Cresson Project Amendment 11 (“A-11”) and potential effects to surface and ground water as a result of those activities. A separate report titled “Amendment 11-Hydrogeochemistry” dated December 2015 and prepared by Adrian Brown Consultants, Inc. (“ABC”) has also been prepared for A-11 which addresses the hydrogeological and geochemical properties associated with A-11. Certain discussions contained in this report rely on the ABC report and contain references to data in the ABC report.

1.1 Site Description

The Cresson Project area is located southwest of Pikes Peak in southern Teller County, Colorado. The center of the permit area lies approximately 2 miles southeast of Cripple

Creek, Colorado and approximately 1 ¼ miles north of Victor, Colorado although the permit boundary lies closer to both towns. The current mine area lies entirely within the Cripple Creek Mining Overlay District. The site is accessible from State Highway (“SH”) 67 as it runs between the cities of Cripple Creek and Victor and from Teller County Road 82.

The site lies in high altitude, relatively dry mountainous terrain and may be characterized by rolling hills with numerous peaks and valleys, some quite steep. The site topography has been locally changed by mining activities over the last 100 years or more. The approximate range in elevation of the project area is from a minimum elevation of approximately 9,000 feet above mean sea level (“amsl”) near the toe of the Arequa Gulch Valley Leach Facility (“AGVLF”) to a maximum elevation of approximately 10,450 feet amsl at the crest of the hill east of the East Cresson Mine area.

Under the current permit approvals, mining of ore and overburden, based on anticipated production rates and other factors, was anticipated to continue to approximately 2024, processing of solution from the Squaw Gulch Valley Leach Facility would continue to approximately 2032, and final reclamation and closure would be completed in roughly 2042. The extent of permitted activities is shown on Figure 1-1.

In order to advance the Cresson Project, CC&V is proposing to modify its current permit conditions through A-11. The amendment will 1) raise the East Cresson Overburden Storage Area (“ECOSA”) to 10,960 ft amsl; 2) adjust the permit boundary to include the Enhanced Management Practices (“EMP”) sediment pond 009a in Poverty Gulch; 3) add underground mining to the mining methods employed at CC&V; 4) incorporate the Chicago Tunnel /Proper Adit permit and plan of operations in order to place exploration development rock on an existing overburden storage area and route future ore to the high-grade mill facilities; 5) increase the final stacking height of the Arequa Gulch Valley Leach Facility to 10,400 ft amsl; and 6) modify the mining and backfilling sequence in various mining areas.

2. CC&V SURFACE AND GROUND WATER MONITORING PROGRAM

CC&V has an active water monitoring program at the site that includes both surface water monitor stations and ground water monitor wells, piezometers, and boreholes. Approximately nine surface water monitoring locations and seventeen ground water monitoring locations are considered compliance sites and monitoring data are collected according to an approved frequency and list of parameters. The remainder of the monitoring sites discussed in this document are monitored in accordance with CC&V's internal procedures. The parameters being monitored are shown on Table 2-1 for surface and ground water sites.

The following sections provide summaries of monitoring data that have been collected through the third quarter of 2015. Samples were collected on a quarterly basis at compliance locations and less frequently at other locations. Surface water and ground water samples and field data were collected by CC&V professional staff. Quality assurance and quality control procedures were included in the sampling and analytical procedures as part of the certified Environmental Management System at CC&V. All analytical testing was performed by qualified third-party analytical laboratories that participate in external quality assurance and quality control programs.

The compliance locations for current surface water and ground water monitoring discussed in this report are shown on Figure 2-1. A summary of the monitoring program by drainage and the potential impacts, if any as a result of A-11 activities, is provided in the sections that follow.

3. WILSON CREEK, BATEMAN CREEK, THERESA GULCH

The following section provides information about the surface and groundwater monitoring programs in the Wilson Creek Drainage.

3.1 Current Conditions

The Wilson Creek drainage and the A-11 permit boundary are shown on Figure 1-1. Wilson Creek is a south, west, and southwest oriented with two tributary branches: Bateman Creek which lies west of the Town of Victor and flows south and the North Fork of Wilson Creek (also known as Theresa Gulch) which begins north of the Town of Goldfields and flows south to south west. After the confluence of these two branches approximately 1.7 miles southwest of the Town of Victor, Wilson Creek flows southwest and south where it confluences with Four Mile Creek approximately six miles southwest from the town of Victor.

Wilson Creek has stream standards and is classified as usable for recreation (Class E), agriculture, and as Aquatic Life Class 2 cold water stream. Standards exist for pH, dissolved oxygen, E. Coli, temperature, cyanide, nutrients of nitrates, nitrites, and ammonia, as well as trace metals (arsenic, boron, cadmium, chromium, copper, iron, lead, manganese, mercury, molybdenum, nickel, selenium, silver, and zinc).

The mine disturbance in the Wilson Creek drainage consists of the southern boundary of the AGVLF, AGADR, and associated surface facilities in the upper reaches of Bateman Creek. The existing Enhanced Management Practices (“EMP”) that collect and dissipate storm water runoff are shown on Figure 1-1.

The North Fork of Wilson Creek (Theresa Gulch) at and above the Town of Goldfields is within the Diatreme as is shown on Figure 1-1. The remainder of the Wilson Creek drainage lies in the granites¹ adjacent to the Diatreme as is shown on Figure 1-1.

3.1.1. Amendment 11

The activities associated with A-11 do not propose to construct new or expand existing facilities in the Wilson Creek drainage. The EMPs will continue to operate as currently permitted.

¹ “Granites” collectively refers to the Precambrian granites, granodiorites, schists, and gneiss units that are adjacent to the Diatreme.

The activities associated with A-11 will not impact the existing surface and ground water monitor stations in the Wilson Creek drainage, including the tributaries.

3.1.2. Surface Water

3.1.2.1. Monitoring Program

Surface water conditions in the Wilson Creek drainage are assessed at six locations. There are four surface stations in the North Fork of Wilson Creek (including Theresa Gulch). These stations (in the downstream direction) are T-1, T-2, T-3, and WCSW. There is one surface water station in Bateman Creek. This station is BCSW. There is one station in Wilson Creek below the confluence of the North Fork of Wilson Creek and Bateman Creek. This station is WCSW-01. The compliance surface water stations are shown on Figure 2-1. T-1 is located within the Diatreme. Surface stations T-2, T-3, WCSW, BCSW, and WCSW-01 are located over the granites adjacent to the Diatreme. The City of Victor Wastewater Treatment Plant discharges to Wilson Creek about halfway between T-3 and WCSW.

Field parameters and water quality samples are collected quarterly at T-2 and WCSW-01, and analyzed for the surface water parameters listed in Table 2-1. Field parameters and water quality samples also are collected periodically for T1, T3, BCSW, and WCSW and analyzed for some or all the parameters listed in Table 2-1.

3.1.2.2. Data

The period of record and compiled field measurements and water quality data (number of measurements, less than detection events, maximum value, minimum value, average value, standard deviation, and median value) for the sample stations T-1, T-2, T-3, WCSW, BCSW, and WCSW-01 are provided in Tables 3-1, 3-2, 3-3, 3-4, 3-5, and 3-6 respectively. Time series plots of selected parameters (flow and pH, nitrate, and sulfate) are provided in Figures 3-1 and 3-2, respectively.

3.1.2.3. Discussion

North Fork of Wilson Creek

Surface water flows in the North Fork of Wilson Creek (Theresa Gulch) are seasonal and generally low. Flow, when it occurs, is typically in the 2nd quarter due to snowmelt and runoff. Occasional 3rd and 4th quarter flows due to seasonal rains also are observed. Median measured (non-zero) flows are 9, 19, and 20 gpm for T-1, T-2, and T-3, respectively. Flow data are shown in Figure 3-1. Flow rates (when reported for the same day) increase, in most cases, in a downstream direction (T-1 to T-2 to T-3). The median (non-zero) flow increases between T-3 to WCSW from 20 gpm to 211 gpm, respectively.

Flows at WCSW are more evenly and seasonally represented due to discharges from the City of Victor Wastewater Treatment Plant.

The surface waters in the North Fork of the Wilson Creek (T-1, T-2, and T-3 in Theresa Gulch) are characterized as calcium-bicarbonate (T-1) or calcium-sulfate (T-2 and T-3) waters. Water quality data provided in Tables 3-1, 3-2, and 3-3 show median field pH values that are circum-neutral and stable at 7.59 standard units (“SU”) at T-1, 7.21 SU at T-2, and 7.24 SU at T-3. Median nitrate values increase from T-1 (<0.05 mg/L as N) to T-2 (2.24 mg/l as N) and then decrease to T-3 (1.62 mg/l as N). Median sulfate values increase in the downstream direction from 20 mg/l at T-1, to 288 mg/l at T-2, and to 441 mg/l at T-3. Time series plots of selected parameters (pH, nitrate, and sulfate) are provided in Figure 3-2. The downgradient increase in sulfate is potentially attributable to the historic mine features (e.g., Independence Mill Tailings) in the drainage between T-2 and T-3. These tailings were stabilized and closed by CC&V in 2007. The water quality impacts of this closure are expected to be positive in the long-run and result in the reduction of sulfate concentrations, along with other constituents.

Compiled data and statistics for aluminum, manganese, and zinc, which are common geochemical indicators in the Diatreme, are provided in Tables 3-1, 3-2, and 3-3. The water quality data indicate that aluminum and zinc concentrations have been low and stable for the individual stations T-1, T-2, and T-3 since 1986, 1986, and 1994, respectively. Manganese concentrations have been low and stable for T-1 and T-2 and slightly elevated for T-3 since 1986, 1986, and 1994, respectively. Other trace metals are analyzed as part of the monitoring program. Median values for cadmium, chromium, copper, lead, mercury, nickel, selenium, and silver for T-1, T-2, and T-3 were less than the analytical detection limits. Median arsenic values for T-1 and T-2 were less than the analytical detection limit. Since the Independence Tailings were stabilized and closed by CC&V in 2007, arsenic concentrations at T-3 have been less than detection (2008-2015). Trace metal data are provided in Tables 3-1, 3-2, and 3-3.

The surface water at WCSW is characterized as calcium sulfate water. Table 3-4 is a summary of the water quality data. The median field pH and nitrate values in the North Fork of Wilson Creek between T-3 and WCSW increase from 7.27 SU to 8.10 SU and from 1.62 mg/l as N to 2.26 mg/l as N, respectively. Median sulfate values in the North Fork of Wilson Creek between T-3 and WCSW decreased from 441 mg/l to 157 mg/l, respectively. The City of Victor Wastewater Treatment Plant discharges to the creek about halfway between T-3 and WCSW.

Compilation data and statistics for aluminum, manganese, and zinc, which are common geochemical indicators in the Diatreme, for WCSW are provided in Table 3-4. The water quality data indicate low and relatively stable parameter concentrations for aluminum,

manganese, and zinc for WCSW since 1996. Other trace metals are analyzed as part of the monitoring program. Median values for arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, and silver for WCSW were less than the analytical detection limits. Trace metal data also are provided in Table 3-4.

Bateman Creek

Surface water flow in Bateman Creek (BCSW) is seasonal and generally low. Flow, when it occurs, is typically in the 2nd quarter due to snowmelt and runoff. Occasional 3rd and 4th quarter flows due to seasonal rains also are observed or in the 1st quarter due to melting conditions. Median measured (non-zero) flow is 9.5 gpm. Flow data are shown in Figure 3-1.

The surface water at BCSW is characterized as calcium-bicarbonate water. Data in Table 3-5 show the median pH value is circum-neutral at 7.55 SU. Data in Table 3-5 shows the median nitrate and sulfate values are 0.06 mg/l as N and 45.2 mg/l, respectively. Time series plots of selected parameters (pH, nitrate, and sulfate) are provided in Figure 3-2.

Compilation data and statistics for aluminum, manganese, and zinc, which are common geochemical indicators in the Diatreme, for BCSW are provided in Table 3-5. The water quality data indicate low and relatively stable parameter concentrations for aluminum, manganese, and zinc for BCSW since 1997. Other trace metals are analyzed as part of the monitoring program. Median values for arsenic, cadmium, chromium, copper, lead, mercury, selenium, and silver for BCSW were less than the analytical detection limits. Trace metal data also are provided in Table 3-5.

Wilson Creek (below Bateman Creek and North Fork of Wilson Creek)

Surface water flow in Wilson Creek at WCSW-01, below the confluence of Bateman Creek and the North Fork of Wilson Creek, peaks in the 2nd quarter due to snowmelt and runoff. Median measured (non-zero) flow is 118 gpm. Flow data are shown in Figure 3-1.

The surface water in Wilson Creek at WCSW-01 is characterized as calcium-bicarbonate water. Data in Table 3-6 shows the median pH value is 8.01 SU. Median nitrate and sulfate values are 3.71 mg/l as N and 148 mg/l, respectively. The elevated sulfate values at WCSW-01 in 2013 and 2014, but declining in 2015, are due to an elevated contribution of flow and sulfate from T-3 in the same time period. Time series plots of selected parameters (pH, nitrate, and sulfate) are provided in Figure 3-2.

Compilation data and statistics for aluminum, manganese, and zinc, which are common geochemical indicators in the Diatreme, for WCSW-01 are provided in summary Table

3-6. The water quality data indicate low and relatively stable parameter concentrations for aluminum, manganese, and zinc for WCSW-01 since 2000, except for elevated concentrations of zinc and manganese in 2014 and 2015, respectively. Other trace metals are analyzed as part of the monitoring program. Median values for arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, and silver for WCSW-01 were less than the analytical detection limits. Trace metal data also are provided in Table 3-6.

3.1.2.4. A-11 Impacts to Surface Waters in Wilson Creek

No impacts are anticipated to the surface water resources in Wilson Creek drainage (including Theresa Gulch and Bateman Creek) due to A-11. Flows and water quality conditions are expected to remain consistent with historic measurements and will be influenced by seasonal and annual variations in precipitation. Water quality conditions for selected parameters at T-3 may continue to show improvements from the Independence Tailings closure project in 2007.

The flow and water quality conditions in the surface waters of Wilson Creek will continue to be monitored by T-1, T-2, T-3, WCSW, BCSW, and WCSW-01.

3.1.3. Ground Water

3.1.3.1. Monitoring Program

Ground water conditions in the Wilson Creek drainage are assessed by three monitor wells (Figure 2-1). All the monitor wells are located in the Bateman Creek drainage. The monitor wells are designated WCMW-02, WCMW-03, and WCMW-06. WCMW-02 is completed in the alluvium²/shallow bedrock. WCMW-03 and WCMW-06 are completed in the bedrock. All the monitor wells are located in the granites adjacent to the Diatreme.

Field parameters and water quality samples are collected quarterly at WCMW-03 and WCMW-06 and analyzed for the ground water parameters listed in Table 2-1. Field parameters and water quality samples also are collected quarterly at WCMW-02 and analyzed for the ground water parameters listed in Table 2-1.

3.1.3.2. Data

The period of record and compiled field and water quality data (number of measurements, less than detection events, maximum value, minimum value, average value, standard deviation, and median value) for the monitor wells WCMW-02, WCMW-03, and WCMW-06 are provided in Tables 3-7, 3-8, and 3-9, respectively. Figure 3-3 shows the

² "Alluvium" refers to soil, colluvium, and alluvium materials in the subsurface.

water level measurements for WCMW-02, WCMW-03, and WCMW-06. Time series plots of selected parameters (pH, nitrate, and sulfate) are provided in Figure 3-4.

3.1.3.3. Discussion

Ground water levels in WCMW-02, WCMW-03, and WCMW-06 vary from 24.42 to 48.18 feet below measuring point (“bmp”), 54.1 to 79.12 feet bmp, and 2.95 to 7.61 feet bmp, respectively. The timing and magnitude of the water level peaks for the Wilson Creek monitor wells (shown in Figure 3-3 for the periods of record) appear to be related to the melting and infiltration of the snow in the spring months and the precipitation events in the summer and fall months. The rise in water level at WCMW-03 in 2015 may be due to elevated precipitation and infiltration.

Water quality conditions for WCMW-02, WCMW-03, and WCMW-06 are provided in Tables 3-7, 3-8, and 3-9. Shallow alluvium (WCMW-02) ground water is characterized as calcium-sulfate water, similar to the surface waters. Shallow bedrock (WCMW-03) and deeper bedrock (WCMW-06) ground water are characterized as calcium-bicarbonate waters.

Data in Tables 3-7, 3-8, and 3-9 show median field pH values of 7.35 SU, 7.70 SU, and 7.01 SU in WCMW-02, WCMW-03, and WCMW-06, respectively. Tables 3-7, 3-8, and 3-9 show median nitrate values of 7.35 mg/l as N, 0.08 mg/l as N, and <0.05 mg/l as N in WCMW-02, WCMW-03, and WCMW-06, respectively. Tables 3-7, 3-8, and 3-9 show median sulfate values of 223 mg/l, 20.2 mg/l, and 56.1 mg/l in WCMW-02, WCMW-03, and WCMW-06, respectively. Time series plots of selected parameters (pH, nitrate, and sulfate) are provided in Figure 3-4.

Compiled data and statistics for aluminum, manganese, and zinc, which are common geochemical indicators in the Diatreme, are provided in Tables 3-7, 3-8, and 3-9. The water quality data indicate low and relatively stable parameter concentrations for aluminum and zinc at WCMW-02, WCMW-03, and WCMW-06 since the mid-1990s, respectively. Manganese concentrations also were low and relatively stable at WCMW-03 and WCMW-06 over the period of record. Manganese concentrations at WCMW-02 were low and variable in the mid to late 1990s, but low and relatively stable since 1999. Other trace metals are analyzed as part of the monitoring program. Median values for arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, and silver in the ground waters at WCMW-02, WCMW-03, and WCMW-06 were less than the analytical detection limits. Trace metal data also are provided in Tables 3-7, 3-8, and 3-9.

The capture of precipitation by the impermeable liner of the AGVLF in the upper reaches of Arequa Gulch is decreasing the infiltration of precipitation to, and the saturation of the alluvium and the shallow bedrock in both Arequa Gulch and in the upper reaches of the

adjacent Bateman Creek drainage. The decreased infiltration also has lowered the water table in the upper reaches of Arequa Gulch (e.g., WCMW-03 during 2011-2014). The sulfide oxidation in the exposed spent materials³ beneath the liner are now being exposed to oxygen during low flow periods (late fall through winter), which is increasing the sulfide oxidation in those exposed spent materials. The transport of the oxidation products likely is causing the gradual increase in sulfate and other constituents (since 2000) in the shallow bedrock ground water (WCMW-02) similar to that observed in the Arequa Gulch monitor wells (see Section 5 for discussion). Concentrations of sulfate and other parameters at WCMW-02 may continue to rise due to the sulfide oxidation under the AGVLF in the upper reaches of Arequa Gulch and the close proximity of WCMW-02 to the Arequa Gulch drainage. For most other parameters at WCMW-02, water quality conditions in the alluvium and shallow bedrock are expected to be similar to or slight elevated from the current conditions.

3.1.3.4. A-11 Impacts to Ground Waters in the Wilson Creek Drainages

No impacts are anticipated to the ground water resources in the Wilson Creek drainage due to A-11. Water level and water quality conditions at WCMW-03 and WCMW-06 are expected to remain consistent with historic measurements. The concentration of sulfate and other constituents in the ground water at WCMW-02 may increase with the continued reduction of infiltration and recharge by precipitation to the alluvium and shallow bedrock in the upper Bateman Creek drainage due to the impermeable liner system of the AGVLF in the adjacent and upgradient Arequa Gulch drainage.

The ground water levels and water quality conditions in the Wilson Creek drainage will continue to be monitored by WCMW-02, WCMW-03, and WCMW-06.

3.2 Vindicator Valley

3.1.4. Current Conditions

The Vindicator Valley drainage and the permit boundary are shown on Figure 1-1. Vindicator Valley is a south oriented dry drainage, which confluent with the North Fork of Wilson Creek where Teller County Road 81 passes through the area. The North

³ The spent materials pre-date CC&V operations (before early 1990's) and are composed of tailings that were produced by a milling and cyanide leach operation and contained trace levels of cyanide, as well as sulfide minerals associated with the ore body. Also present are overburden deposits that were generally run-of-mine material produced from early surface mining and underground mine development, and which contained low levels of sulfide minerals, in particular pyrite. (CC&V internal discussion)

Fork of Wilson Creek is a south-southwest flowing drainage (through the unincorporated Town of Goldfield).

The disturbance in Vindicator valley consists of the east wall of the Main Cresson Mine area and the south wall of the East Cresson Mine Extension. Development of these surface mines will continue through existing permit approvals. The limits of these mine components are shown on Figure 1-1. The existing EMPs that collect and dissipate storm water runoff are shown on Figure 1-1.

Vindicator Valley is within the Diatreme as is shown on Figure 1-1.

3.1.5. Amendment 11 in Vindicator Valley

The activities associated with A-11 do not propose to construct new or expand existing facilities in the Vindicator Valley drainage. The EMPs will continue to operate s currently designed and constructed.

A-11 will not impact existing monitor stations in the Vindicator Valley drainage.

3.1.6. Vindicator Valley Surface Water

3.1.6.1. Monitoring Program

There are no surface water resources in Vindicator Valley. Three surface water monitor stations are sited in the North Fork of Wilson Creek (Theresa Gulch). These sample stations are discussed in the Wilson Creek section (Section 3.1). The Wilson Creek sample stations are shown on Figure 2-1.

3.1.6.2. Data

There are no surface water data for Vindicator Valley.

3.1.6.3. Discussion

There are no surface water resources in Vindicator Valley.

3.1.7. Ground Water

3.1.7.1. Monitoring Program

Ground water conditions in Vindicator Valley are assessed by a two monitor wells (Figure 2-1), designated VIN-2A (deep bedrock) and VIN-2B (shallow bedrock). Both monitor wells are located within the Diatreme. VIN-2A and VIN-2B are co-located to allow assessment of vertical conditions of water levels and water quality in the Diatreme.

Field parameters and water quality samples are collected quarterly at VIN-2A and VIN-2B and analyzed for the ground water parameters listed in Table 2-1.

3.1.7.2. Data

The period of record and compiled field and water quality data (number of measurements, less than detection events, maximum value, minimum value, average value, standard deviation, and median value) for VIN-2A and VIN-2B are provided in Tables 3-10 and 3-11, respectively. Figure 3-5 shows the water level measurements. Time series plots of selected parameters (pH, nitrate, and sulfate) for VIN-2A and VIN-2B are provided in Figure 3-6.

3.1.7.3. Discussion

Ground water levels in VIN-2A (deep bedrock) have shown minimal water conditions at or near the bottom of the monitor well (approximately 245 feet bmp) since installation in 2005. Ground water levels in VIN-2B (shallow bedrock) have shown consistently saturated conditions (87.75-113.5 feet bmp) since installation in 2004. There has been a slow rise in the water level at VIN-2B since 2005.

The consistently saturated conditions in the shallow monitor well (VIN-2B) and the minimal water conditions in the co-located deeper monitor well (VIN-2A) suggest a downward gradient and that the shallow bedrock ground water is captured by the Diatreme at this location. The water levels for VIN-2B and VIN-2A are shown in Figure 3-5.

Field and water quality conditions for VIN-2A and VIN-2B are provided in Tables 3-10 and 3-11. Shallow bedrock ground water (VIN-2B) in Vindicator Valley is characterized as calcium-sulfate water. Data in Tables 3-10 and 3-11 show a median pH value of 7.18 SU in the shallow bedrock (VIN-2B) and a median pH value of 7.17 SU in the deeper bedrock (VIN-2A). Median nitrate values are <0.05 mg/L as N in the shallow and deep bedrock. Median sulfate values are 728 mg/L in the shallow bedrock and 708 mg/l in the deep bedrock. Sulfate concentrations are elevated in VIN-2B and showed a slight increase from 2005 to 2007 and seasonal trends through 2009. Sulfate concentrations showed elevated, but stable conditions in 2010 through 2015. Time series plots for pH, nitrate, and sulfate are provided in Figure 3-6.

Compiled data and statistics for aluminum, manganese, and zinc, which are common geochemical indicators in the Diatreme, are provided for VIN-2B in Table 3-11. The water quality data indicate relatively stable and low concentrations for aluminum and zinc at VIN-2B since 2004. Manganese concentrations are elevated and showed a slight increase from 2005 to 2008. Manganese concentrations in 2009, 2010, and 2011 have

been stable and slightly declining through 2015. Other trace metals are analyzed as part of the monitoring program. Median values for arsenic, cadmium, chromium, copper, lead, mercury, selenium, and silver in the ground waters at VIN-2B were less than the analytical detection limits. The median value for nickel was elevated, but at the detection limit. Trace metal data for VIN-2A are at or below detection for the limited dataset. Trace metal data also are provided in Tables 3-10 and 3-11.

3.1.7.4. A-11 Impacts to Ground Waters

No impacts are anticipated to the ground water resources in the Vindicator Valley due to A-11 activities. Water level and overall water quality conditions at VIN-2A and VIN-2B are expected to remain consistent with historic measurements.

The ground water levels and water quality conditions in Vindicator Valley will continue to be monitored by VIN-2A and VIN-2B.

4. CRIPPLE CREEK AND TRIBUTARIES

The following sections describe the surface water and ground water monitoring programs in the Crippled Creek Drainage, which includes Poverty Gulch, Squaw Gulch, and Cripple Creek.

4.1 Poverty Gulch

4.1.1. Current Conditions

The Poverty Gulch drainage and the permit boundary are shown on Figure 1-1. Poverty Gulch is a west oriented dry drainage that passes through the Town of Cripple Creek and intersects with Cripple Creek.

The disturbance in Poverty Gulch consists of the North Cresson Mine and the Chicago Tunnel/Proper Adit permit. Development of the North Cresson Mine will continue through 2024 under previous approvals. Rehabilitation of the Chicago Tunnel portal began in late 2015. Underground exploration, development and mining in the Chicago Tunnel may continue through 2020. The limits of the mine are shown on Figure 1-1. The existing EMPs that collect and dissipate storm water runoff are shown on Figure 1-1

4.1.2. Amendment 11 Impacts to Poverty Gulch

The A-11 permit and affected lands boundary realignment will include the portal facilities at the Chicago Tunnel portal area. Work at the Chicago Tunnel will include rehabilitation of historic underground workings, development of adits and declines to access exploration targets, exploration drilling, and mining. The EMPs will continue to operate as designed and constructed for the duration of the permit period. The area of disturbance for the Chicago Tunnel mine area is shown on Figure 1-1.

The activities associated with A-11 will not impact the existing monitor stations in the Poverty Gulch drainage.

4.1.3. Surface Water

There are no surface water resources in Poverty Gulch.

4.1.4. Ground Water

4.1.4.1. Monitoring Program

Ground water conditions in Poverty Gulch are assessed by a one monitor well (Figure 2-1). The monitor well is designated PGMW-2 and is completed in the Diatreme.

Field parameters and water quality samples are collected quarterly at PGMW-2 and analyzed for the ground water parameters listed in Table 2-1.

4.1.4.2. Data

Figure 4-1 shows the water level measurements. Table 4-1 shows the water level data. Due to the dry conditions in the well, no water quality data are available.

4.1.4.3. Discussion

PGMW-2 has shown dry conditions in the monitor well since installation in 2005.

The dry conditions in PGMW-2 suggest that the bedrock ground water is captured by the Diatreme at this location.

4.1.4.4. A-11 Impacts to Ground Waters

The underground workings that will be accessed by the Chicago Tunnel portal lie within the Diatreme and have been dewatered by the historic drainage tunnels. No impacts are anticipated to the ground water resources in the Poverty Gulch due to A-11.

The water level and water quality conditions in the Diatreme bedrock will continue to be monitored by PGMW-2.

4.2 Squaw Gulch

4.2.1. Current Conditions

The Squaw Gulch drainage and the permit boundary are shown on Figure 1-1. Squaw Gulch is a southwest-oriented, ephemeral drainage that crosses the Diatreme-granite boundary. Squaw Gulch drains into Cripple Creek approximately 4,700 feet southwest of where State Highway (“SH”) 67 crosses the drainage. Squaw Gulch is a use protected stream that is classified as recreation (Class N), agriculture, and Class 2 cold water aquatic habitat. Standards exist for pH, dissolved oxygen, and E. Coli, nitrates, nitrites, and cyanide, and selected trace metals including arsenic, boron, cadmium, chromium, copper, lead, mercury, molybdenum, selenium, and zinc.

The current disturbance in the Squaw Gulch drainage consists of the SGVLF, SGOSA, and other infrastructure. The SGOSA construction started in 1993. Rock placement in the SGOSA will continue through approximately 2024 under the current permits. The SGVLF construction started in 2013. The current and final limits of the SGOSA and SGVLF are shown on Figure 1-1. The existing EMPs that collect and dissipate storm water runoff are shown on Figure 1-1.

Monitoring locations SGMW-3A, SGMW-3B, SG-04-PZ, SG-05, and SG-07 were abandoned during the SGVLF development. These sites are not discussed in this update.

4.2.2. Amendment 11 Impacts to Squaw Gulch

No new activities are proposed in Squaw Gulch under A-11, as such, A-11 will not impact existing monitor stations in the Squaw Gulch drainage.

4.2.3. Surface Water

4.2.3.1. Monitoring Program

Surface water conditions in Squaw Gulch are assessed at one location before the confluence of the Squaw Gulch and Cripple Creek. The site is designated SG-10. The monitor location is shown on Figure 2-1. SG-10 is located over the granites adjacent to the Diatreme.

Field parameters and water quality samples are collected quarterly at SG-10 and analyzed for the surface water parameters listed in Table 2-1.

4.2.3.2. Data

The period of record and compiled field measurements and water quality data (number of measurements, less than detection events, maximum value, minimum value, average value, standard deviation, and median value) for the sample station SG-10 is provided in Table 4-2. Time series plots of selected parameters (flow and pH, nitrate, and sulfate) are provided in Figures 4-2 and 4-3, respectively.

4.2.3.3. Discussion

Surface water flows in Squaw Gulch are seasonal and generally low (0 to 164 gpm). Flow, when it occurs, is typically in the 2nd quarter due to snowmelt and runoff. Occasional late 3rd and early 4th quarter flows due to seasonal rains also are observed. The median (non-zero) flow at SG-10 is 29.2 gpm. Flow data for SG-10 are shown in Figure 4-2. Since 2007, there has been one recorded flow at SG-10. The flow was in May of 2010.

The surface waters in Squaw Gulch are characterized as calcium-sulfate waters. Water quality data show that the median field pH value is 6.15 SU at SG-10. The median nitrate value is 3.06 mg/L as N. The median sulfate value is 616 mg/l. Time series plots for pH, nitrate, and sulfate are shown in Figure 4-3. Water quality data are provided in Table 4-2.

Compiled data and statistics for other aluminum, manganese, and zinc, which are common geochemical indicators in the Diatrema, are provided in Table 4-2. The water quality data indicate elevated but relatively stable concentrations for aluminum, manganese, and zinc for SG-10 since 1998. Other trace metals are analyzed as part of the monitoring program. Median values for arsenic, chromium, lead, mercury, selenium, and silver in the surface waters at SG-10 were less than the analytical detection limits. Median concentrations of cadmium, copper, and nickel were above the analytical detection limits, but low at SG-10. Trace metal data also are provided in Table 4-2.

4.2.3.4. A-11 Impacts to Squaw Gulch Surface Waters

No impacts are anticipated to the surface water resources in the Squaw Gulch drainage due to A-11.

The SGVLF construction and operation in the middle reaches of the Squaw Gulch drainage (Figure 1-1) will continue to capture precipitation and is therefore likely to reduce surface runoff and flows in lower reaches of the Squaw Gulch drainage. Periodic flow at SG-10 is expected to continue due to snow melt and runoff in the spring and from precipitation and runoff in the summer and fall in the lower reaches of the Squaw Gulch drainage; however the quantity of water is expected to be reduced. The future water quality constituent concentrations at SG-10 are expected to be similar to the current conditions. The removal of historic mine features and other materials that was done during construction of the SGVLF in the middle reaches of Squaw Gulch may improve water quality in the long-term.

4.2.4. Ground Water

4.2.4.1. Monitoring Program

Ground water conditions in Squaw Gulch are assessed by one existing monitor well (SGMW-5) four recently installed monitor wells (Figure 2-1). The new monitor wells are designated SGMW-6A (bedrock), GVMW-6B (alluvium), GVMW-7A (bedrock), and GVMW-7B (alluvium). SGMW-6A/B and SGMW-7A/B are co-located to allow assessment of vertical conditions of water level and water quality in the adjacent granites.

Field parameters and water quality samples are collected quarterly at SGMW-5, SGMW-6A, SGMW-6B, SGMW-7A, and SGMW-7B are analyzed for the ground water parameters listed in Table 2-1.

4.2.4.2. Data

The period of record and compiled field and water quality data (number of measurements, less than detection events, maximum value, minimum value, average value, standard deviation, and median value) for monitor wells SGMW-5, SGMW-6A, SGMW-6B, SGMW-7A, and SGMW-7B are provided in Tables 4-3, 4-4, 4-5, 4-6, and 4-7, respectively. Time series plots of water levels and selected parameters (pH, nitrate, and sulfate) are provided in Figures 4-4, 4-5, and 4-6, respectively. SGMW-5, SGMW-6A, and SGMW-7A are dry and have no water quality data.

4.2.4.3. Discussion

Ground water levels in SGMW-6A (granite) and SGMW-7A (granite) have shown dry conditions since installation in 2014. Ground water levels in SGMW-5 (granite) have shown dry conditions since installation in 2002. Water levels are shown in Figures 4-4 and 4-5.

Ground water levels in SGMW-6B and SGMW-7B vary from 18.12 to 37.02 feet bmp and 43.62 to 60.4 feet bmp, respectively. Water levels are shown in Figures 4-4 and 4-5. The timing and magnitude of the peaks for the shallow monitor wells are related to the melting and infiltration of the snow in the spring months and the precipitation events in the summer and fall months. The variably saturated conditions in the shallow monitor wells (SGMW-6B and SGMW-7B) and the dry conditions in the co-located deeper monitor wells (SGMW-6A and SGMW-7A) suggest a downward gradient and that the shallow bedrock ground water is captured by the granites (and adjacent Diatreme) at this location.

Water quality conditions for SGMW-6B and SGMW-7B are provided in Tables 4-5 and 4-7. The shallow bedrock (SGMW-6B and SGMW-7B) ground waters in Squaw Gulch are characterized as calcium-sulfate water. Data in Tables 4-5 and 4-7 show a median pH value of 6.58 SU in SGMW-6B and a median pH value of 6.61 SU in SGMW-7B. Median nitrate values are <0.05 mg/L as N in the GVMW-6B and 9.17 mg/L as N in GVMW-7B. Median sulfate values are 904 mg/L in GVMW-6B and 953.5 mg/L in GVMW-7B. Time series plots of the pH, nitrate, and sulfate data are provided in Figure 4-6.

Compiled data and statistics for aluminum, manganese, and zinc, which are common geochemical indicators in the Diatreme, are provided in Tables 4-5 and 4-7. The water quality data indicate relatively stable concentrations for aluminum, manganese, and zinc. Deeper ground water quality data in the granite (SGMW-6A and SGMW-7A) are absent due to the dry conditions created by the Diatreme drainage. Other trace metals are analyzed as part of the monitoring program. Median values for arsenic, chromium, lead,

mercury, selenium, and silver in the ground waters were less than the analytical detection limits. Trace metal data also are provided in Tables 4-5 and 4-7.

4.2.4.4. A-11 Impacts to Squaw Gulch Ground Waters

No impacts are anticipated to the ground water resources in the Squaw Gulch drainage due to A-11.

The SGVLF construction and operation in the middle reaches of the Squaw Gulch drainage (Figure 1-1) will continue to capture precipitation and SGVLF will limit infiltration of precipitation to, and saturation of the shallow alluvium in the middle reaches of the Squaw Gulch drainage.

The drainage of ground water in the shallow alluvium in the middle and lower reaches of Squaw Gulch into the granite bedrock and into the Diatreme will continue. Near-term water quality conditions in the shallow alluvium and bedrock are expected to be similar to the current conditions. The selective removal of historic mine facilities in the middle reaches of Squaw Gulch during SGVLF development may improve the ground water quality in the long-term.

4.3 Gold Run Gulch

4.3.1. Current Conditions

The Gold Run drainage and the permit boundary are shown on Figure 1-1. Gold Run is a southwest oriented dry drainage. The Gold Run drainage intersects Cripple Creek approximately 6,000 feet southwest of where SH 67 crosses the drainage.

The current Cresson Project disturbance in the Gold Run drainage consists of the AGVLF. The limits of the AGVLF are shown on Figure 1-1. The existing EMPs that collect and dissipate storm water runoff are shown on Figure 1-1.

4.3.2. Amendment 11 Impacts to Gold Run

The activities associated with A-11 do not propose to construct any new or expand any existing facilities in the Gold Run drainage. The EMPs will continue to operate as designed and constructed.

A-11 will not impact existing monitor stations in the Gold Run drainage.

4.3.3. Surface Water

There are no surface water resources in the Gold Run drainage.

4.3.4. Ground water

4.3.4.1. Monitoring Program

Ground water conditions in Gold Run are assessed by three monitor wells (Figure 2-1), GRMW-1A, GRMW-2A, and GRMW-3A. All three wells are completed in the granites adjacent to the Diatrema.

Field parameters and water quality samples were collected periodically at GRMW-1A, GRMW-2A, and GRMW-3A through 2001, 2004, and 2001, respectively. One sample event was conducted in 2011 to update ground water quality conditions. The water samples were analyzed for the ground water parameters listed in Table 2-1.

4.3.4.2. Data

The period of record and compiled field and water quality data (number of measurements, less than detection events, maximum value, minimum value, average value, standard deviation, and median value) for GRMW-1A, GRMW-2A, and GRMW-3A are provided in Tables 4-8, 4-9, and 4-10, respectively. Figure 4-7 shows the water level measurements. Time series plots of selected parameters (pH, nitrate, and sulfate) for GRMW-1A, GRMW-2A, and GRMW-3A are provided in Figure 4-8.

4.3.4.3. Discussion

Ground water levels in GRMW-1A, GRMW-2A, and GRMW-3A are shown on Figure 4-7. The ground water levels in GRMW-1A, GRMW-2A, and GRMW-3A vary from 144 to 149.34 feet bmp, 54.1 to 76.98 feet bmp, and 139.21 to 158.78 feet bmp, respectively. The water level data for GRMW-2A show up to two water level peaks per year. The timing and magnitude of the peaks for the shallow monitor well is likely related to the melting and infiltration of the snow in the spring months and the precipitation events in the summer and fall months. The water level measurements for the deeper monitor wells GRMW-1A and GRMW-3A show relatively stable water level conditions.

Field and water quality conditions for GRMW-1A, GRMW-2A, and GRMW-3A are provided in Tables 4-8, 4-9, and 4-10. Time series plots for pH, nitrate, and sulfate are provided in Figure 4-8. Shallow bedrock and deeper bedrock ground waters in Gold Run drainage at GRMW-1A and GRMW-2A are characterized as calcium-sulfate waters. Deeper bedrock ground water at GRMW-3A is characterized as calcium-bicarbonate waters. Data in Tables 4-8, 4-9, and 4-10 show median pH values of 6.84 SU, 7.01 SU, and 7.41 SU for GRMW-1A, GRMW-2A, and GRMW-3A, respectively. Median nitrate values were <0.05 mg/l as N for all three monitor wells. Median sulfate values were 691

mg/l, 1,726 mg/l, and 184 mg/l for GRMW-1A, GRMW-2A, and GRMW-3A, respectively. Figure 4-8 shows relatively stable conditions for all three parameters.

Compiled data and statistics for aluminum, manganese, and zinc, which are common geochemical indicators in the Diatreme, are provided in Tables 4-8, 4-9, and 4-10. The water quality data indicate relatively stable and low concentrations for aluminum and zinc at all three locations. Manganese concentrations are low at GRMW-1A and elevated at GRMW-2A and GRMW-3A. Other trace metals are analyzed as part of the monitoring program. Median values for arsenic (except GRMW-1A), cadmium, chromium, copper, lead, mercury, nickel, selenium, and silver in the ground waters at GRMW-1A, GRMW-2A, and GRMW-3A were less than the analytical detection limits. The median concentration of arsenic at GRMW-1A was above the analytical detection limit, but low. Trace metal data also are provided in Tables 4-8, 4-9, and 4-10.

The capture of precipitation by the impermeable liner of the AGVLF in the upper reaches of the Gold Run drainage is decreasing the infiltration and the saturation of the shallow bedrock. This has decreased the ground water recharge in the upper part of Gold Run drainage which has impacted the shallow bedrock (GRMW-2A). The sulfide oxidation in the exposed spent materials beneath the liner and the transport of the oxidation products has likely caused the elevated sulfate and manganese in the shallow bedrock (GRMW-2A). Concentrations of sulfate and other parameters in the future are expected to be similar to the current conditions.

4.3.4.4. A-11 Impacts to Gold Run Ground Waters

No impacts are anticipated to the ground water resources in the Gold Run drainage due to A-11. Water level and water quality conditions at GRMW-1A, GRMW-2A, and GRMW-3A are expected to remain consistent with historic measurements.

The ground water levels and water quality conditions in the Gold Run drainage will continue to be monitored by GRMW-1A, GRMW-2A, and GRMW-3A.

4.4 Arequa Gulch

4.4.1. Current Conditions

The Arequa Gulch drainage and the A-11 permit boundary are shown on Figure 1-1. Arequa Gulch is a west-oriented, ephemeral drainage. Arequa Gulch drains into Cripple Creek approximately 5,250 feet west of the AGVLF. Arequa Gulch is a use protected stream segment that is classified as recreation (Class N), agriculture, and as a Class 2 cold water aquatic stream. Standards exist for pH, dissolved oxygen, E. Coli, chlorine, cyanide, nutrients of ammonia, nitrites and sulfide, as well as the trace metals (aluminum,

arsenic, boron, cadmium, chromium, copper, iron, lead, manganese, mercury, molybdenum, nickel, selenium, silver, and zinc).

The current Cresson Project disturbance in the Arequa Gulch drainage consists of the AGVLF, the AGADR, and other infrastructure. Operation of the AGVLF will continue through approximately 2032. The existing EMPs that collect and dissipate storm water runoff are shown on Figure 1-1.

4.4.2. Amendment 11 Impacts to Arequa Gulch

The activities associated with A-11 include increasing the final stacking height of AGVLF to 10,400 feet although this modification is not expected to impact surface or ground water systems in Arequa Gulch. The EMPs will continue to operate as designed and constructed. The disturbance limits and the proposed facilities for A-11 across the Cresson Project are shown on Figure 1-1.

4.4.3. Surface Water

4.4.3.1. Monitoring Program

Surface water conditions in Arequa Gulch are assessed at three locations between the VLF and the confluence of the Arequa Gulch and Cripple Creek. The sample station designations are: AG-1.0, AG-1.5, and AG-2.0. Sample stations are shown on Figure 2-1. The surface stations are located over the granites that are adjacent to the Diatrema.

Field parameters and water quality samples are collected quarterly at AG-1.0, AG-1.5, and AG-2.0 and analyzed for the surface water parameters listed in Table 2-1.

4.4.3.2. Data

The period of record and compiled field measurements and water quality data (number of measurements, less than detection events, maximum value, minimum value, average value, standard deviation, and median value) for the sample stations AG-1.0, AG-1.5, and AG-2.0 are provided in Tables 4-11, 4-12, and 4-13. Time series plots of selected parameters (flow and pH, nitrate, and sulfate) are provided in Figures 4-9 and 4-10.

4.4.3.3. Discussion

Flow at AG-1.0 is nearly continuous, but low. Surface water flows at AG-1.5 are seasonal and variable (0 to 700 gpm). Flow at AG-1.5, when it occurs, is most frequently in May through October due to snowmelt and runoff and seasonal rains. AG 2.0 had a recorded flow in 2003 and no flow through 2012. Flow has been observed in 2013-2015. Median measured (non-zero) flows are 0.53 gpm, 12.8 gpm, and 80 gpm for AG 1.0, AG 1.5, and

AG-2.0 respectively. Flow data for AG-1.0, AG-1.5, and AG-2.0 are shown in Figure 4-9.

The surface waters in Arequa Gulch are characterized as calcium-sulfate waters. Water quality data show the median field pH value is 4.3 SU at AG-1.0, 6.06 SU at AG-1.5, and 7.54 SU at AG-2.0. Median nitrate values surface water quality in were 16.9, 14.2, and 0.1 mg/l as N at AG-1.0, AG-1.5, and AG-2.0 respectively. Median sulfate values were 729, 666, and 34.6 mg/L at AG-1.0, AG-1.5, and AG-2.0, respectively. Time series plots for pH, nitrate, and sulfate are shown in Figure 4-10. Water quality data are provided in Tables 4-11, 4-12, and 4-13.

Compiled data and statistics for aluminum, manganese, and zinc, which are elevated in the district background, are provided in Tables 4-11, 4-12, and 4-13. The water quality data for AG-1.0 and AG-1.5 indicate relatively stable and low concentrations for zinc. Manganese and aluminum concentrations for AG-1.0 and AG-1.5 are elevated and show seasonal fluctuations. The median manganese, aluminum, and zinc concentrations at AG-2.0 are at or below detection limits. Other trace metals are analyzed as part of the monitoring program. Median values for arsenic, lead, mercury, and silver in the surface waters at AG-1.0 and AG-1.5 were less than the analytical detection limits. Median concentrations of arsenic, cadmium, chrome, copper, nickel, and selenium at AG-1.0 and cadmium, copper, and nickel at AG-1.5 were above the analytical detection limits, but low. For metals above the detection limit, the median concentrations decreased from AG-1.0 to AG-1.5. The median concentrations of these metals at AG-2.0 are at or below detection limits. Trace metal data also are provided in Tables 4-11, 4-12, and 4-13.

The capture of precipitation by the impermeable liner of the AGVLF in the upper reaches of Arequa Gulch is decreasing the infiltration and the saturation of the alluvium and the shallow bedrock. This has decreased the surface water flows in the middle reaches of the Arequa Gulch drainage (AG-1.0 and AG-1.5). The flows observed at AG-2.0 in 2013-2015 may be related to elevated precipitation in the recent years. The decreased infiltration also has lowered the water table in the upper reaches of Arequa Gulch.

As a result, the spent materials⁴ beneath the liner are now being exposed to oxygen during low flow periods (late fall through winter), which is increasing the sulfide oxidation in those exposed spent materials. The transport of these oxidation products is likely the cause of the gradual increase in sulfate and the spikes of sulfate and other metals at AG-1.0. Concentrations of sulfate and other parameters at AG-1.0 may continue to spike seasonally and rise overall due to the sulfide oxidation under the AGVLF in the upper

⁴ See footnote no. 2 for discussion of these spent materials.

reaches of Arequa Gulch. For most other parameters at AG-1.0 and AG-1.5, water quality conditions are expected to be similar to or slight elevated from the current conditions.

4.4.3.4. A-11 Impacts to Arequa Gulch Surface Waters

On-going reductions in flow and variable water quality conditions are expected at AG-1.0, AG-1.5, and AG-2.0 due to the AGVLF. The implementation of A-11 will have no impact to surface water resources of Arequa Gulch drainage.

The flow and water quality conditions in the surface waters of Arequa Gulch will continue to be monitored by AG-1.0, AG-1.5, and AG-2.0.

4.4.4. Ground Water

4.4.4.1. Monitoring Program

Ground water conditions in Arequa Gulch are assessed by seven monitor wells (Figure 2-1), designated ESPMW-1 (bedrock), CRMW-3A (bedrock), CRMW-3B (alluvium/shallow bedrock), CRMW-5A (bedrock), CRMW-5B, CRMW-5C, and CRMW-5D. All the monitor wells are located in the granite adjacent to the Diatreme. CRMW-3A-B and CRMW-5A-D are co-located to allow assessment of vertical conditions of water level and water quality in the granites adjacent to the Diatreme.

Field parameters and water quality samples are collected periodically at ESPMW-1, CRMW-3A, CRMW-3B, CRMW-5A, CRMW-5B, CRMW-5C, and CRMW-5D and analyzed for the parameters listed in Table 2-1.

4.4.4.2. Data

The period of record and compiled field and water quality data (number of measurements, less than detection events, maximum value, minimum value, average value, standard deviation, and median value) for ESPMW-1, CRMW-3A, CRMW-3B, CRMW-5A, CRMW-5B, CRMW-5C, and CRMW-5D are provided in Tables 4-14 through 4-20, respectively. Figure 4-11 shows the water level measurements for ESPMW-1, CRMW-3A, and CRMW-3B and Figure 4-12 shows the water level measurements for CRMW-5A, CRMW-5B, CRMW-5C, and CRMW-5D. Time series plots of selected parameters (pH, nitrate, and sulfate) are provided in Figures 4-13 and 4-14.

4.4.4.3. Discussion

Ground water levels in ESPMW-1, CRMW-3A, CRMW-3B, CRMW-5A, CRMW-5B, CRMW-5C, and CRMW-5D are shown in Figures 4-11 and 4-12. The discontinuities in water levels for CRMW-3A and CRMW-3B in 1995 are due a shift in the monitor well

collar elevations by construction in the area. The discontinuities in water levels for ESPMW-1 in 2001 through early 2006 are likely due the development of the AGVLF and the reduction in infiltration and recharge to the local ground water aquifer. The water level trends at CRMW-5B, CRMW-5C, and CRMW-5D are relatively stable. The water level trend at CRMW-5A appears influenced by well development and may not have stabilized.

The timing and magnitude of the water levels peaks for monitor wells in the alluvium shallow bedrock appear related to the melting and infiltration of the snow in the spring months and the precipitation events in the summer and fall months.

Water quality conditions for in ESPMW-1, CRMW-3A, CRMW-3B, CRMW-5A, CRMW-5B, CRMW-5C, and CRMW-5D are provided in Tables 4-14 through 4-20. Ground waters at ESPMW-1, CRMW-5A, and CRMW-5D are characterized as calcium-bicarbonate water. Ground waters at CRMW-3A, CRMW-3B, CRMW-5B, and CRMW-5C are characterized as calcium-sulfate water. Data in Tables 4-14 through 4-20 show median pH values for all wells to range from 6.24 SU to 7.82 SU. Median nitrate values for all wells (except CRMW-3A) range from <0.05 mg/L as N to 0.112 mg/l as N. The median nitrate value for CRMW-3A was 10.6 mg/l-N. Median sulfate values range from are 38.2 mg/L to 222 mg/l for ESPMW-1, CRMW-5A, CRMW-5B, CRMW-5C, and CRMW-5D. The median sulfate concentrations for CRMW-3A and CRMW-3B are 742.5 mg/l and 742 mg/l, respectively. The sulfate values for CRMW-3A and CRMW-3B show an upward trend since approximately 2006. Time series plots for pH, nitrate, and sulfate are provided in Figures 4-13 and 4-14.

Compiled data and statistics for aluminum, manganese, and zinc, which are elevated in the Diatrema, are provided in Tables 4-14 through 4-20. The water quality data indicate relatively stable concentrations for aluminum for all locations (except CRMW-3A), manganese (except CRMW-3B and CRMW-5A), and zinc. Aluminum concentrations were elevated at CRMW-3A from 1996 until 2003 but have declined to low and stable concentrations. Manganese concentrations at CRMW-3B are elevated, but stable. Other trace metals are analyzed as part of the monitoring program. Median values for arsenic, cadmium, chromium, lead, mercury, selenium, and silver in the ground waters at CRMW-3A, CRMW-3B, and ESPMW-1 were less than the analytical detection limits. Median concentrations of nickel at CRMW-3A and CRMW-3B and copper at ESPMW-1 were above the analytical detection limits, but low. Trace metal data for CRMW-5A, CRMW-5B, CRMW-5C, and CRMW-5D are at or below detection. Trace metal data also are provided in Tables 4-14 through 4-20.

The continued capture of precipitation by the AGVLF in the upper reaches of Arequa Gulch also has impacted the alluvium (CRMW-3B) and the shallow bedrock (CRMW-

3A) ground water quality in the middle reaches of the Arequa Gulch drainage. The sulfide oxidation in the exposed spent materials beneath the liner and the transport of the oxidation products likely is causing the gradual increase in sulfate and the spikes of sulfate and other metals in the alluvium (CRMW-3B) and shallow bedrock (CRMW-3A). Concentrations of sulfate and other parameters may continue to spike seasonally and rise overall due to the sulfide oxidation under the AGVLF in the upper reaches of Arequa Gulch. For most other parameters at CRMW-3B and CRMW-3A, water quality conditions in the alluvium and shallow bedrock are expected to be similar to or slight elevated from the current conditions.

4.4.4.4. A-11 Impacts to Arequa Gulch Ground Waters

On-going reductions in ground water saturation and variable water quality conditions due to the AGVLF are expected at CRMW-3A and CRMW-3B.

The implementation of A-11 will have minimal impact to the ground water resources of Arequa Gulch drainage.

The water level and water quality conditions in the granites adjacent to the Diatreme will continue to be monitored by ESPMW-1, CRMW-3B, CRMW-3A, CRMW-5A, CRMW-5B, CRMW-5C, and CRMW-5D.

4.5 Cripple Creek

4.5.1. Current Conditions

The Cripple Creek drainage and the A-11 permit boundary are shown on Figure 1-1. Cripple Creek is a south to southwest oriented drainage. Cripple Creek flows southwest and south where it has a confluence with Four Mile Creek approximately six miles southwest from the Town of Victor. Cripple Creek has use classifications for recreation (Class E), agriculture, and as a Class 2 cold water aquatic stream. Standards exist for pH, dissolved oxygen, E. Coli, minor anions including chlorine, sulfide, and cyanide, nutrients of ammonia and nitrite, as well as some trace metals (arsenic, boron, cadmium, chromium, copper, iron, lead, manganese, molybdenum, mercury, nickel, selenium, silver, and zinc). The Cripple Creek drainage has two significant contributing creeks from the Cresson Mine Project area: Squaw Gulch Creek and Arequa Gulch Creek. These drainages are shown on Figure 1-1.

There is no A-11 disturbance in the Cripple Creek drainage. A-11 disturbances in the Poverty Gulch, Squaw Gulch, and Arequa Gulch drainages are discussed in their respective sections. The limits of these mine components are shown on Figure 1-1. The existing EMPs that collect and dissipate storm water runoff are shown on Figure 1-1.

The Cripple Creek drainage lies outside the Diatreme as is shown on Figure 1-1

4.5.2. Amendment 11 Impacts to Cripple Creek

The activities associated with A-11 do not propose to construct new or expand existing facilities in the Cripple Creek drainage. The EMPs will continue to operate as designed and constructed.

A-11 will not impact any of the existing monitor stations in the Cripple Creek drainage.

4.5.3. Surface Water

4.5.3.1. Monitoring Program

Surface water conditions in the Cripple Creek drainage are assessed at four locations. These stations are CC-01, CC-02, CC-03, and CC-04. Surface water station locations are shown on Figure 2-1. All surface stations are located over the granites adjacent to the Diatreme.

Field parameters and water quality samples are collected quarterly at CC-01, CC-02, CC-03, and CC-04 and analyzed for the surface water parameters listed in Table 2-1.

4.5.3.2. Data

The period of record and compiled field measurements and water quality data (number of measurements, less than detection events, maximum value, minimum value, average value, standard deviation, and median value) for the sample stations CC-01, CC-02, CC-03, and CC-04 are provided in Tables 4-21 through 4-24, respectively. Time series plots of selected parameters (flow and pH, nitrate, and sulfate) are provided in Figures 4-15 and 4-16, respectively.

4.5.3.3. Discussion

Surface water flows in the Cripple Creek drainage range from low flows of <10 to 65 gpm to high flows of 1,560 to 2,369 gpm. Minimum flows in the upper reaches are in part due to the discharges from the City of Cripple Creek Wastewater Municipal Treatment Plant. Flows peak in the spring due to snowmelt runoff or in the summer due to seasonal rains and runoff. Flow data are shown in Figure 4-15. Flow rates (when reported for the same day) can increase or decrease in a downstream direction (CC-01 to CC-02 to CC-03 to CC-04).

The surface waters in Cripple Creek at CC-01, CC-02, and CC-03 are characterized as sodium-bicarbonate water. CC-04 is characterized as calcium-sulfate water. Water

quality data provided in Tables 4-21 through 4-24 show median field pH values range from 8.0 SU to 8.23 SU. Median nitrate values are elevated and decline downstream from 13.45 mg/l as N at CC-01, to 12.8 mg/l as N at CC-02, to 11.3 mg/l as N at CC-03, and to 7.19 mg/l as N at CC-04. The elevated nitrate values at CC-01 and downstream may be due to the City of Cripple Creek waste water treatment plant discharges above CC-01. Median sulfate values increase in the downstream direction from 72 mg/l at CC-01, to 78.1 mg/l at CC-02, to 101.1 mg/l CC-03, and to 167 mg/l at CC-04. Time series plots of these parameters (pH, nitrate, and sulfate) are provided in Figure 4-16.

Compiled data and statistics for aluminum, manganese, and zinc, which are common geochemical indicators in the Diatreme, are provided in Tables 4-21 through 4-24. The water quality data indicate that aluminum and zinc concentrations have been low and relatively stable (with occasional spikes) for the individual stations C-01 to CC-02 to CC-03 to CC-04 since 1985, 1996, 1996, and 1994, respectively. Manganese concentrations have been low and stable since 2006. Other trace metals are analyzed as part of the monitoring program. Median values for arsenic, cadmium, chromium, lead, mercury, selenium, and silver in the ground waters at CC-01, CC-02, CC-03, and CC-04 were less than the analytical detection limits. Median concentrations of copper at all four locations and nickel at CC-02 were above the analytical detection limits, but low. Trace metal data also are provided in Tables 4-21 through 4-24.

4.5.3.4. A-11 Impacts to Cripple Creek Surface Waters

No significant impacts are anticipated to the surface water resources in the Cripple Creek drainage at CC-01 due to A-11. Water quality conditions in Cripple Creek are expected to remain consistent with the historic measurements.

The flow and water quality conditions in the surface waters of Cripple Creek will continue to be monitored by CC-01, CC-02, CC-03, and CC-04.

4.5.4. Groundwater

There are no ground water monitor wells in the Cripple Creek drainage.

4.6 Grassy Valley

4.6.1. Current Conditions

The Grassy Valley drainage and A-11 permit boundary are shown on Figure 1-1. Grassy Valley is a southeast to east oriented drainage. Grassy Valley merges with Beaver Creek approximately 2,500 feet east of where Teller County Road 81 crosses the Grassy Valley drainage. Grassy Valley has use classifications for recreation (Class E), water supply,

agriculture, and as a Class 1 cold water aquatic stream. Standards exist for pH, dissolved oxygen, E. Coli, minor anions including chlorine, sulfide, and cyanide, nutrients of ammonia and nitrite, as well as some trace metals (arsenic, boron, cadmium, chromium, copper, iron, lead, manganese, mercury, molybdenum, nickel, selenium, silver, and zinc).

The mine disturbance in the Grassy Valley drainage consists of the Wildhorse surface mine, the clay borrow source and the storage stockpile, the ECOSA, and associated surface facilities in the upper reaches of the Grassy Valley drainage. The existing EMPs that collect and dissipate storm water runoff are shown on Figure 1-1.

4.6.2. Amendment 11

The proposed A-11 activities in Grassy Valley include increasing the final crest elevation of ECOSA to 10,960 ft amsl. The footprint of ECOSA will not change.

4.6.3. Surface Water

4.6.3.1. Monitoring Program

Surface water conditions in the Grassy Valley drainage are assessed at three locations. These stations (in the downstream direction) are GV-01, GV-02, and GV-03. Surface water stations are shown on Figure 2-1. GV-03 is located within the Diatreme; surface stations GV-01 and GV-02 are located over the granites adjacent to the Diatreme.

Field parameters and water quality samples are collected quarterly at GV-01, GV-02, and GV-03 and analyzed for the surface water parameters listed in Table 2-1.

4.6.3.2. Data

The period of record and compiled field measurements and water quality data (number of measurements, less than detection events, maximum value, minimum value, average value, standard deviation, and median value) for the sample stations GV-01, GV-02, and GV-03 are provided in Tables 4-25, 4-26, and 4-27, respectively. Time series plots of selected parameters (flow and pH, nitrate, and sulfate) are provided in Figures 4-17 and 4-18, respectively.

4.6.3.3. Discussion

Surface water flows in the Grassy Valley are seasonal and generally low. Flow, when it occurs, is typically in the 2nd quarter due to snowmelt and runoff. Occasional 3rd and 4th quarter flows due to seasonal rains also are observed. Median (non-zero) flows are 15, 18, and 26 gpm for GV-01, GV-02, and GV-03, respectively. Flow data are shown in

Figure 4-17. Flow rates (when reported for the same day) increase into a downstream direction from GV-01 to GV-02, but often decrease from GV-02 to GV-03.

The surface waters in the Grassy Valley (GV-01 to GV-02 to GV-03) are characterized as sodium-bicarbonate to calcium-sulfate waters. Water quality data provided in Tables 4-25, 4-26, and 4-27 show median field pH values that are circum-neutral and stable at 7.29 SU at GV-01, 6.64 SU at GV-02, and 6.80 SU at GV-03. Median nitrate values decrease from GV-01 (0.55 mg/L as N) to less than detection values (<0.05 mg/l as N) at GV-02 and GV-03. Median sulfate values increase in the downstream direction from 41.6 mg/l at GV-01, to 335 mg/l at GV-02, and then decrease to 296 mg/l at GV-03. Time series plots of selected parameters (pH, nitrate, and sulfate) are provided in Figure 4-18. The downgradient increase in sulfate between GV-01 and GV-02 potentially is attributable to the historic mine features (e.g., Cameron workings) in Grassy Valley at and above GV-02.

Compiled data and statistics for aluminum, manganese, and zinc, which are common geochemical indicators in the Diatreme, are provided in Tables 4-25, 4-26, and 4-27. The water quality data indicate that aluminum and zinc concentrations have been low and stable for the individual stations GV-01, GV-02, and GV-03 since 1997, 1996, and 1996, respectively. Manganese concentrations have been low and stable for GV-01, but elevated and variable for GV-02 and GV-03 since 1997, 1996, and 1996, respectively. Other trace metals are analyzed as part of the monitoring program. Median values for arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, and silver in the ground waters at GV-01, GV-02, and GV-03 were less than or very close to the analytical detection limits. Trace metal data also are provided in Tables 4-25, 4-26, and 4-27.

4.6.3.4. A-11 Impacts to Surface Waters

The progressive development of the WHEX surface mine has captured an increasing portion of the precipitation (snow and rain) in the upper reaches of Grassy Valley. Most of this captured precipitation has infiltrated to the Diatreme. GV-01 has had no recorded flows since 2009 and is likely to remain dry due to the loss of the upgradient stream drainage. Future flows at GV-01 (or just below GV-01) may occur due to discharges from storm water management on the east margin of the WHEX surface mine. Seasonal flows at the downstream surface stations GV-02 and GV-03 are less frequent with the development of the WHEX surface mine. The above average precipitation in 2013 and 2015 however has generated surface water flows.

The proposed raise for the ECOSA in the middle reaches of Grassy Valley (Figure 1-1) is likely to have no additional impact on the surface water resources in middle and lower reaches of Grassy Valley. The ECOSA facility after the raise will continue to manage and capture snowmelt and precipitation runoff during operation to prevent erosion and sediment transport. Any infiltration from the ECOSA will be captured by the Diatreme drainage system. After closure, the ECOSA cover system will manage runoff to minimize erosion and sediment transport. The runoff volumes will be similar to pre-ECOSA conditions. The snowmelt or precipitation that infiltrates the ECOSA cover system after the A-11 raise also will be captured by the Diatreme drainage system, similar to the pre-ECOSA conditions.

The water quality at GV-01, GV-02, and GV-03 is expected to be stable and perhaps improve with removal of historic mine features in the upper and middle reaches of Grassy Valley. The flow and water quality conditions in the surface waters of Grassy Valley will continue to be monitored by GV-01, GV-02, and GV-03.

4.6.4. Ground Water

4.6.4.1. Monitoring Program

Ground water conditions in the Grassy Valley drainage are assessed by four monitor wells. The monitor locations are shown on Figure 2-1. Several monitor wells and boreholes are co-located to allow assessment of vertical conditions of water level and water quality between the alluvium, shallow bedrock and deeper bedrock in the Diatreme and the adjacent granites. The co-located monitor wells and boreholes also are shown on Figure 2-1. Numerous monitor locations have been plugged and abandoned due to development of the Cresson Project and other factors. These well as not addressed in this report.

The monitor program for Grassy valley since 2012 has focused on water level measurements in nine monitor wells and compliance monitoring (water quality parameters) in four wells. The ground water sample parameters are shown in Table 2-1.

4.6.4.2. Data

The period of record and compiled field and water quality data (number of measurements, less than detection events, maximum value, minimum value, average value, standard deviation, and median value) for the monitor wells in Grassy Valley are provided in Tables 4-28 through 4-31. Figures 4-19, 4-20, 4-21 and to 4-22 show the water level and the time series plots of selected parameters (water level and pH, nitrate, and sulfate).

4.6.4.3. Discussion

Ground water levels in GVMW-8A, GVMW-8B, GVMW-22A, and GVMW-22B are shown in Figures 4-19 and 4-20. The water level trends at GVMW-8A, GVMW-8B, GVMW-22A, and GVMW-22B are relatively stable.

The timing and magnitude of the peaks in water level in the monitor wells in the middle and lower reaches appear to be related to the melting and infiltration of the snow in the spring months and the precipitation events in the summer and fall months.

Water quality conditions for monitor wells in the middle and lower reaches of Grassy Valley are provided in Tables 4-28 through 4-31. Time series plots for pH, nitrate, and sulfate are provided in Figures 4-21 and 4-22. The ground water at GVMW-8A and GVMW-8B is generally characterized as a calcium-sulfate water. The ground water at GVMW-22A and GVMW-22B is generally characterized as a calcium-bicarbonate water.

Data in Tables 4-28 through 4-31 show median field pH values in the monitor wells to range from 6.71 SU to 7.97 SU. Median nitrate values to range from <0.05 mg/l as N to 1.55 mg/l as N. Median sulfate values to range from 51.1 mg/l to 78.3 mg/l. Time series plots are provided in Figures 4-21 to 4-22.

Compiled data and statistics for aluminum, manganese, zinc, which are common geochemical indicators in the Diatrema, also are provided in Tables 4-28 through 4-31. The water quality data indicate that median concentrations of aluminum and manganese concentrations have been low and stable for the monitor wells. The median zinc concentrations are less than detection. Other trace metals are analyzed as part of the monitoring program. Median values for arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, and silver in the ground waters in the monitor wells were less than or very close to the analytical detection limits. Trace metal data also are provided in Tables 4-28 through 4-31.

4.6.4.4. A-11 Impacts to Ground Waters

The continued development of the WHEX surface mine has captured an increased portion of the precipitation (snow and rain) in the upper reaches of Grassy Valley. Most of this captured precipitation has infiltrated to the Diatrema. The surface mine development has not impacted the ground water quality in the Grassy Valley at and below the surface mine.

The proposed raise for the ECOSA in the middle reaches of Grassy Valley (Figure 1-1) is likely to have no additional impact on the ground water resources in lower reaches of

Grassy Valley. The ECOSA facility before and after the raise will manage and capture snowmelt and precipitation runoff during operation to prevent erosion and sediment transport. Any infiltration from the ECOSA will be captured by the Diatreme drainage system. After closure, the ECOSA cover system will manage runoff to minimize erosion and sediment transport. The runoff volumes will be similar to pre-ECOSA conditions. The snowmelt or precipitation that infiltrates the ECOSA cover system after the A-11 raise also will be captured by the Diatreme drainage system, similar to the pre-ECOSA conditions.

The water quality at GVMW-8A, GWMW-8B, GVMW-22A, and GVMW-22B are expected to be stable. The water level and water quality conditions in Grassy Valley will continue to be monitored by GVMW-8A, GWMW-8B, GVMW-22A, and GVMW-22B.

5. SUMMARY AND CONCLUSIONS

Surface water data (flows and water quality) have been updated through 2015. Surface water flows in the major drainages of the District are generally low and dominated by seasonal runoff from snowmelt and precipitation. Flows in Cripple Creek and Wilson Creek also are sustained by waste water treatment discharges from the towns of Cripple Creek and Victor, respectively. The low surface flows in the District are due to the normal water balance processes (e.g., precipitation, evapotranspiration) and the vertical drainage within the Diatreme created by the drainage tunnels installed in the early half of the 20th century. These tunnels (represented by the Carlton Tunnel) have lowered the ground water table and in turn, the surface water flows⁵. Surface flows in Arequa Gulch and Squaw Gulch also have declined due to the phased implementation of the AGVLF and SGVLF, which have captured most of the precipitation in the upper reaches of the drainage. Water quality conditions of the surface waters in the District have remained relatively stable over the monitoring record for most of the monitor locations. The presence of historic mine features in many of the drainages continue to influence the current surface water quality. These features are notable in Squaw Gulch, Arequa Gulch, Wilson Creek, and Grassy Valley. Sulfate concentrations in the surface waters of Arequa Gulch below the AGVLF have increased since 2003. The increase in sulfate concentrations appears related to the oxidation of spent materials under the AGVLF liner coupled with reduced infiltration and a declining water table.

Ground water data (levels and water quality) have been updated through 2015. Ground water levels have remained relatively constant in the district since 2008. Seasonal water level fluctuations due to the infiltration of snowmelt and precipitation are observed in the shallower monitor wells and boreholes. A dominant control on the ground water resources is the strong vertical gradient and drainage of the Diatreme in the District. The dewatering by the drainage tunnels has created widespread dry conditions in at least the upper 750 feet of the diatreme and the adjacent granites in portions of Grassy Valley. The ground water drainage also is widespread in Poverty Gulch, Squaw Gulch, and Vindicator Valley due to the occurrence of Diatreme in these drainages. Water quality conditions have remained generally stable across the District for the monitoring record, except for the monitor locations noted in Arequa Gulch and Bateman Creek. The presence of historic mine features in many of the drainages continue to influence the current ground water quality. These features are notable in Squaw Gulch, Arequa Gulch, Wilson Creek, and Grassy Valley. The Arequa Gulch monitor wells (CRMW-3A and CRMW-3B) and WCMW-2 in Bateman Creek show increased in concentrations in sulfate. The increase in sulfate concentrations appears related to the oxidation of spent

⁵ "Amendment 11 Hydrogeochemistry" dated December 2015 and prepared by Adrian Brown Consultants, Inc.

materials under the AGVLF liner combined with reduced infiltration and a declining water table.

A-11 Impacts

The activities associated with A-11 are not expected to impact surface or ground water conditions in Wilson, Vindicator, Gold Run, Cripple Creek, Areqa, and Squaw drainages. The Chicago Tunnel underground development in Poverty Gulch also is expected to have no impact on the surface water or ground water resources in that drainage. The underground workings that will be accessed by the Chicago Tunnel lie within the Diatreme and have been dewatered by the historic drainage tunnels.

Potential impacts from A-11 activities to Grassy Valley also are expected to be minimal. The raise to the ECOSA does not increase the footprint. The infiltration through the ECOSA during and after operation will be captured by the Diatreme as discussed in “Amendment 11 Hydrogeochemistry” and “Cresson Project East Cresson Overburden Storage Area Evaluation” both dated February 2012 and updated in December 2015 as prepared by Adrian Brown Consultants, Inc.

TABLES

TABLE 2-1
WATER QUALITY MONITORING PARAMETERS

Surface Water	Ground Water
Alkalinity, Bicarbonate (mg/l as CaCO ₃)	Alkalinity, Bicarbonate (mg/l as CaCO ₃)
Alkalinity, Carbonate (mg/l as CaCO ₃)	Alkalinity, Carbonate (mg/l as CaCO ₃)
Alkalinity, Total (mg/l as CaCO ₃)	Alkalinity, Total (mg/l as CaCO ₃)
Aluminum, Dissolved (mg/l as Al)	Aluminum, Dissolved (mg/l as Al)
Arsenic, Dissolved (mg/l as As)	Arsenic, Dissolved (mg/l as As)
Arsenic, Total Recoverable in Water as As mg/l	
Cadmium, Dissolved (mg/l as Cd)	Cadmium, Dissolved (mg/l as Cd)
Calcium, Total (mg/l as Ca)	Calcium, Total (mg/l as Ca)
Chloride, Total in Water mg/l	Chloride, Total in Water mg/l
Chromium, Dissolved (mg/l as Cr)	Chromium, Dissolved (mg/l as Cr)
Chromium, Total Recoverable in Water as Cr mg/l	
Copper, Dissolved (mg/l as Cu)	Copper, Dissolved (mg/l as Cu)
Cyanide Free, mg/l	Cyanide Free, mg/l
Cyanide, Total (mg/l as CN)	Cyanide, Total (mg/l as CN)
Fluoride, Total (mg/l as F)	Fluoride, Total (mg/l as F)
Flow, in Conduit or Thru a Treatment Plant MGD	
Flow, Rate Gallons/Min	
	Ground Water Level Elevation, ft above msl
Hardness, Total (mg/l as CaCO ₃)	Hardness, Total (mg/l as CaCO ₃)
Flow, Stream, Instantaneous Cfs	
Iron, Dissolved (mg/l as Fe)	Iron, Dissolved (mg/l as Fe)
Iron, Total Recoverable in Water as Fe mg/l	
Lead, Dissolved (mg/l as Pb)	Lead, Dissolved (mg/l as Pb)
Magnesium, Total (mg/l as Mg)	Magnesium, Total (mg/l as Mg)
Manganese, Dissolved (mg/l as Mn)	Manganese, Dissolved (mg/l as Mn)
Mercury, Total (mg/l as Hg)	Mercury, Total (mg/l as Hg)
Nickel, Dissolved (mg/l as Ni)	Nickel, Dissolved (mg/l as Ni)
Nitrate Nitrogen, Total (mg/l as N)	Nitrate Nitrogen, Total (mg/l as N)
Nitrite Nitrogen, Total (mg/l as N)	Nitrite Nitrogen, Total (mg/l as N)
Nitrogen, Ammonia, Total (mg/l as N)	Nitrogen, Ammonia, Total (mg/l as N)
Oil and Grease Visual (No=0, Yes=1)	Oil and Grease Visual (No=0, Yes=1)
Oxygen, Dissolved mg/L	Oxygen, Dissolved mg/L
pH, Field, Standard Units	pH, Field, Standard Units
pH, Lab, Standard Units	pH, Lab, Standard Units
Potassium, Total mg/l as K)	Potassium, Total mg/l as K)
Selenium, Dissolved (mg/l as Se)	Selenium, Dissolved (mg/l as Se)
Silver, Dissolved (mg/l as Ag)	Silver, Dissolved (mg/l as Ag)
Sodium, Total (mg/l as Na)	Sodium, Total (mg/l as Na)
Phosphorous, total mg/L as P	
Specific Conductance (umhos/cm @ 25C)	Specific Conductance (umhos/cm @ 25C)
Specific Conductance, Field (umhos/cm @ 25C)	Specific Conductance, Field (umhos/cm @ 25C)
Sulfate, Total (mg/l as SO ₄)	Sulfate, Total (mg/l as SO ₄)
Temperature, Water (Degrees Centigrade)	Temperature, Water (Degrees Centigrade)
Temperature, Water (Degrees Fahrenheit)	Temperature, Water (Degrees Fahrenheit)
Total Dissolved Solids, mg/l	Total Dissolved Solids, mg/l
Total Suspend Solids, mg/l	Total Suspend Solids, mg/l
	Water Level, Distance From Measuring Point (Feet)
Weak Acid Dissociable Cyanide, mg/l	Weak Acid Dissociable Cyanide, mg/l
Zinc, Dissolved (mg/l as Zn)	Zinc, Dissolved (mg/l as Zn)

TABLE 3-1
SAMPLE DATA FOR T-1

SAMPLE LOCATION: T-1
DRAINAGE: NORTH FORK WILSON CREEK
PERIOD OF RECORD: 1986-2015

PARAMETER	Number of analyses	Number of non-detect analyses	Maximum value	Minimum value	Average value	Standard deviation	Median value
Acidity, Total (mg/l as CaCO ₃)	28	28	-1	-10	4.7	ND	-10
Alkalinity, Bicarbonate (mg/l as CaCO ₃)	28	0	74.5	25.4	44.6	13.6	40.45
Alkalinity, Carbonate (mg/l as CaCO ₃)	28	0	0	0	0	0	0
Alkalinity, Total (mg/l as CaCO ₃)	20	0	61.1	22	34.5	10.7	30.6
Aluminum, Dissolved (mg/l as Al)	26	9	0.466	-0.1	0.15	0.12	0.1115
Arsenic, Dissolved (mg/l as As)	12	12	-0.005	-0.005	0.0025	ND	-0.005
Arsenic, Total Recoverable in Water as As mg/l	31	29	0.022	-0.005	0.0031	0.0035	-0.005
Barium, Dissolved (mg/l as Ba)	7	2	0.08	-0.05	0.054	0.022	0.06
Cadmium, Dissolved (mg/l as Cd)	35	35	-0.0001	-0.005	0.0008	ND	-0.001
Calcium, Total (mg/l as Ca)	33	0	24	6.9	13.7	4.1	14.6
Chloride, Total in Water mg/l	34	7	14.5	-3	3.01	3.27	2.5
Chromium, Dissolved (mg/l as Cr)	23	22	0.003	-0.005	0.0012	0.0010	-0.001
Chromium, Total Recoverable in Water as Cr mg/l	14	11	0.03	-0.001	0.0039	0.0087	-0.001
Copper, Dissolved (mg/l as Cu)	35	33	0.015	-0.005	0.0031	0.0025	-0.005
Cyanide Free, mg/l	40	39	0.018	-0.05	0.010	0.009	-0.01
Cyanide, Total (mg/l as CN)	43	39	0.034	-0.05	0.007	0.007	-0.01
Flow, in Conduit or Thru a Treatment Plant MGD	24	0	0.1728	0	0.020	0.044	0.0023
Flow, Rate Gallons/Min	45	0	1000	0	38.7	149.6	5.76
Fluoride, Total (mg/l as F)	35	1	1.78	-0.05	0.958	0.332	0.9
Hardness, Total (mg/l as CaCO ₃)	30	0	58.4	23.3	43.2	11.8	46.15
Iron, Dissolved (mg/l as Fe)	35	5	1.58	-0.05	0.167	0.259	0.108
Iron, Total Recoverable in Water as Fe mg/l	30	0	25	0.084	1.59	4.49	0.582
Lead, Dissolved (mg/l as Pb)	35	34	0.003	-0.005	0.0010	0.0009	-0.001
Magnesium, Total (mg/l as Mg)	32	0	4.5	1.29	2.53	0.75	2.515
Manganese, Dissolved (mg/l as Mn)	33	14	0.173	-0.05	0.038	0.033	0.014
Mercury, Total (mg/l as Hg)	33	31	0.0009	-0.0002	0.00012	0.00014	-0.0002
Molybdenum, Dissolved (mg/l as Mo)	7	6	0.006	-0.01	0.004	0.002	-0.005
Nickel, Dissolved (mg/l as Ni)	35	35	-0.005	-0.02	0.003	ND	-0.005
Nitrate Nitrogen, Total (mg/l as N)	35	28	0.215	-0.05	0.046	0.048	-0.05
Nitrite Nitrogen, Total (mg/l as N)	30	30	-0.05	-0.05	0.025	ND	-0.05
Nitrogen, Ammonia, Total (mg/l as N)	34	32	0.229	-0.2	0.05	0.04	-0.05
Oil and Grease Visual (No=0, Yes=1)	15	0	0	0	0	0	0
Oxygen, Dissolved mg/L	29	0	11.9	4.3	7.49	1.71	7.6
pH, Field, Standard Units	34	0	8.33	6.43	7.33	1.32	7.585
pH, Lab, Standard Units	14	0	8	6.8	7.42	0.34	7.3
Potassium, Total mg/l as K)	30	1	7.9	-0.5	1.53	1.38	1.095
Selenium, Dissolved (mg/l as Se)	35	35	-0.005	-0.005	0.0025	ND	-0.005
Silver, Dissolved (mg/l as Ag)	34	33	0.0005	-0.001	0.0004	0.0001	-0.001
Sodium, Total (mg/l as Na)	30	0	13	3	8.24	2.12	8.98
Specific Conductance (umhos/cm @ 25C)	21	0	330	76.4	165.6	74.2	160
Specific Conductance, Field (umhos/cm @ 25C)	35	0	1186	75.5	183.2	203.5	130.8
Sulfate, Total (mg/l as SO ₄)	41	10	160	-10	31.1	33.4	20
Temperature, Water (Degrees Centigrade)	35	0	24.1	0.1	10.28	6.97	8.9
Temperature, Water (Degrees Fahrenheit)	12	0	75.4	34.9	52.2	13.9	49.75
Total Dissolved Solids, mg/l	35	0	186	33	98.4	35.1	94
Total Suspend Solids, mg/l	34	19	3800	-10	154	650	-7.5
Turbidity, Lab Nephelometric Turbidity Units, NTU	6	0	140	0.2	30.28	54.45	6.5
Weak Acid Dissociable Cyanide, mg/l	35	35	-0.005	-0.01	0.005	ND	-0.01
Zinc, Dissolved (mg/l as Zn)	35	30	0.014	-0.05	0.021	0.008	-0.05

ND = Not determined. Applicable in two cases: number of analyses = 1; or all analyses are non-detect.

Non-detect analyses are set at 1/2 the detection limit for average and standard deviation calculations.

Median calculations use the laboratory analyses with less than detection values as negative.

Dissolved chromium was analyzed until 2001. Total recoverable chromium was analyzed in 1986 and from 2002. Both forms are provided to indicate the entire analytical history.

TABLE 3-2
SAMPLE DATA FOR T-2

SAMPLE LOCATION: T-2
DRAINAGE: NORTH FORK WILSON CREEK
PERIOD OF RECORD: 1986-2015

PARAMETER	Number of analyses	Number of non-detect analyses	Maximum value	Minimum value	Average	Standard deviation	Median value
Acidity, Total (mg/l as CaCO ₃)	21	18	16	-10	5.3	3.6	-10
Alkalinity, Bicarbonate (mg/l as CaCO ₃)	17	0	88.9	34.4	56.5	13.9	59
Alkalinity, Carbonate (mg/l as CaCO ₃)	17	0	0	0	0	0	0
Alkalinity, Total (mg/l as CaCO ₃)	17	0	120	26	49.3	22.0	45
Aluminum, Dissolved (mg/l as Al)	24	23	0.133	-0.1	0.04	0.02	-0.05
Arsenic, Dissolved (mg/l as As)	11	11	-0.005	-0.01	0.003	ND	-0.005
Arsenic, Total Recoverable in Water as As mg/l	26	18	0.018	-0.005	0.0041	0.0039	0.0
Barium, Dissolved (mg/l as Ba)	10	5	0.1	-0.05	0.048	0.027	0
Cadmium, Dissolved (mg/l as Cd)	30	29	0.0001	-0.005	0.0011	0.0010	0.00
Calcium, Total (mg/l as Ca)	25	0	170	51.7	99.7	29.1	105.00
Chloride, Total in Water mg/l	27	0	16.8	4	9.9	3.4	9.5
Chromium, Dissolved (mg/l as Cr)	23	23	-0.001	-0.005	0.0015	ND	0.00
Chromium, Total Recoverable in Water as Cr mg/l	13	9	0.016	-0.01	0.004	0.005	-0.001
Copper, Dissolved (mg/l as Cu)	29	26	0.009	-0.005	0.0030	0.0016	-0.005
Copper, Total (mg/l as Cu)	10	7	0.24	-0.005	0.0295	0.0746	-0.01
Cyanide Free, mg/l	41	29	0.31	-0.05	0.038	0.063	0.0
Cyanide, Total (mg/l as CN)	46	15	0.55	-0.05	0.074	0.118	0.019
Flow, in Conduit or Thru a Treatment Plant MGD	54	0	0.1245	0	0.005	0.021	0
Flow, Rate Gallons/Min	71	0	1000	0	25.8	121.7	0.0
Flow, Stream, Instantaneous Cfs	31	0	0.0451	0	0.002	0.009	0.0
Fluoride, Total (mg/l as F)	28	5	1.2	-0.5	0.69	0.29	0.8
Hardness, Total (mg/l as CaCO ₃)	22	0	580	180	339.3	97.6	372
Iron, Dissolved (mg/l as Fe)	28	12	0.38	-0.05	0.078	0.092	0.0250
Iron, Total Recoverable in Water as Fe mg/l	22	0	5.92	0.052	0.759	1.259	0.2
Lead, Dissolved (mg/l as Pb)	30	30	-0.001	-0.005	0.0014	ND	0
Magnesium, Total (mg/l as Mg)	24	0	39	12.3	24.8	7.3	26.30
Manganese, Dissolved (mg/l as Mn)	27	4	0.8	-0.05	0.241	0.239	0.14
Mercury, Total (mg/l as Hg)	28	25	0.0007	-0.0002	0.00011	0.00012	-0.0002
Molybdenum, Dissolved (mg/l as Mo)	10	8	0.008	-0.01	0.005	0.002	-0.0075
Nickel, Dissolved (mg/l as Ni)	28	25	0.01	-0.05	0.005	0.005	-0.005
Nitrate Nitrogen, Total (mg/l as N)	23	0	13	0.11	4.31	4.15	2.24
Nitrite Nitrogen, Total (mg/l as N)	26	20	5.2	-0.05	0.435	1.241	-0.05
Nitrogen, Ammonia, Total (mg/l as N)	27	22	0.4	-0.2	0.08	0.08	-0.05
Oil and Grease Visual (No=0, Yes=1)	16	0	0	0	0	0	0
Oxygen, Dissolved mg/L	21	0	11.8	2.2	6.65	2.06	6.7
pH, Field, Standard Units	29	0	8.04	6.4	7.18	0.35	7.21
pH, Lab, Standard Units	22	0	8.3	6.6	7.36	0.41	7.3
Potassium, Total mg/l as K)	23	0	7.6	1.71	3.21	1.29	3
Selenium, Dissolved (mg/l as Se)	28	28	-0.005	-0.005	0.0025	ND	-0.005
Silver, Dissolved (mg/l as Ag)	30	27	0.0012	-0.001	0.0004	0.0002	-0.001
Sodium, Total (mg/l as Na)	23	0	78	21.5	44.5	14.3	45.2
Specific Conductance (umhos/cm @ 25C)	16	0	1200	552	793.8	215.4	700
Specific Conductance, Field (umhos/cm @ 25C)	35	0	1440	150	788.6	267.8	844
Strontium, Total (mg/l as Sr)	4	0	0.82	0.54	0.738	0.133	0.795
Sulfate, Total (mg/l as SO ₄)	39	0	540	55	315.8	120.3	288
Temperature, Water (Degrees Centigrade)	30	0	45.1	5	13.4	7.4	12.5
Total Dissolved Solids, mg/l	31	0	1100	253	600.5	198.8	581
Total Suspend Solids, mg/l	28	20	138	-10	12.0	25.9	-5
Turbidity, Lab Nephelometric Turbidity Units, NTU	9	0	6.2	0.3	2.18	2.21	1
Weak Acid Dissociable Cyanide, mg/l	29	16	0.26	-0.1	0.03	0.05	-0.01
Zinc, Dissolved (mg/l as Zn)	31	17	0.156	-0.05	0.027	0.027	-0.05

ND = Not determined. Applicable in two cases: number of analyses = 1; or all analyses are non-detect.

Non-detect analyses are set at 1/2 the detection limit for average and standard deviation calculations.

Median calculations use the laboratory analyses with less than detection values as negative.

Dissolved chromium was analyzed until 2001. Total recoverable chromium was analyzed in 1986-1990 and from 2005. Both forms are provided to indicate the entire analytical history.

TABLE 3-3
SAMPLE DATA FOR T-3

SAMPLE LOCATION: T-3
DRAINAGE: THERESA GULCH (NORTH FORK OF WILSON CREEK)
PERIOD OF RECORD: 1994-2015

PARAMETER	Number of analyses	Number of non-detect analyses	Maximum value	Minimum value	Average value	Standard deviation	Median value
Acidity, Total (mg/l as CaCO ₃)	33	26	34	-10	8.2	7.1	-10
Alkalinity, Bicarbonate (mg/l as CaCO ₃)	35	0	269	38.1	124.4	45.7	127
Alkalinity, Carbonate (mg/l as CaCO ₃)	35	0	0	0	0	0	0
Alkalinity, Total (mg/l as CaCO ₃)	21	0	221	51	115.6	38.5	107
Aluminum, Dissolved (mg/l as Al)	17	13	0.387	-0.05	0.059	0.091	-0.05
Arsenic, Dissolved (mg/l as As)	12	11	0.006	-0.005	0.0028	0.0010	-0.005
Arsenic, Total Recoverable in Water as As mg/l	35	15	0.32	-0.005	0.0698	0.0966	0.008
Cadmium, Dissolved (mg/l as Cd)	35	35	-0.001	-0.001	0.0005	ND	-0.001
Calcium, Total (mg/l as Ca)	35	0	223	63.1	130.5	33.8	125
Chloride, Total in Water mg/l	35	0	24.3	4.5	11.68	4.28	12
Chromium, Dissolved (mg/l as Cr)	15	13	0.001	-0.001	0.0006	0.0002	-0.001
Chromium, Total Recoverable in Water as Cr mg/l	20	18	0.007	-0.001	0.0009	0.0015	-0.001
Copper, Dissolved (mg/l as Cu)	35	34	0.005	-0.005	0.0025	0.0005	-0.005
Cyanide Free, mg/l	36	35	0.06	-0.02	0.007	0.009	-0.01
Cyanide, Total (mg/l as CN)	36	20	0.15	-0.01	0.015	0.025	-0.01
Flow, in Conduit or Thru a Treatment Plant MGD	23	0	0.0734	0	0.0171	0.0184	0.0116
Flow, Rate Gallons/Min	35	0	200	0	32.6	44.6	15.3
Flow, Stream, Instantaneous Cfs	18	0	0.1136	0	0.025	0.028	0.01905
Fluoride, Total (mg/l as F)	35	0	2.18	0.192	1.25	0.33	1.22
Hardness, Total (mg/l as CaCO ₃)	35	0	849	224	518.5	136.4	511
Iron, Dissolved (mg/l as Fe)	35	9	1.96	-0.05	0.177	0.333	0.085
Iron, Total Recoverable in Water as Fe mg/l	35	0	93.2	0.07	9.85	20.06	2.77
Lead, Dissolved (mg/l as Pb)	35	34	0.007	-0.001	0.0007	0.0011	-0.001
Magnesium, Total (mg/l as Mg)	35	0	70.9	16.1	46.8	13.2	48.3
Manganese, Dissolved (mg/l as Mn)	34	0	7.44	0.097	1.80	2.00	0.799
Mercury, Total (mg/l as Hg)	35	30	0.0029	-0.0002	0.0003	0.0006	-0.0002
Nickel, Dissolved (mg/l as Ni)	35	27	0.009	-0.005	0.0035	0.0019	-0.005
Nitrate Nitrogen, Total (mg/l as N)	35	1	7.78	-0.05	1.814	1.326	1.62
Nitrite Nitrogen, Total (mg/l as N)	35	35	-0.05	-0.05	0.025	ND	-0.05
Nitrogen, Ammonia, Total (mg/l as N)	35	22	0.404	-0.05	0.077	0.091	-0.05
Oil and Grease Visual (No=0, Yes=1)	21	0	0	0	0	0	0
Oxygen, Dissolved mg/L	35	0	728	2.9	27.95	121.82	7.19
pH, Field, Standard Units	36	0	8.03	5.07	7.24	0.59	7.27
Potassium, Total mg/l as K)	35	0	47.5	3.56	10.35	7.69	7.98
Selenium, Dissolved (mg/l as Se)	35	33	0.006	-0.005	0.0027	0.0007	-0.005
Silver, Dissolved (mg/l as Ag)	35	35	-0.001	-0.005	0.0006	ND	-0.001
Sodium, Total (mg/l as Na)	35	0	64.8	21	38.8	7.7	38.3
Specific Conductance, Field (umhos/cm @ 25C)	36	0	2210	386	1039.2	329.6	1020
Sulfate, Total (mg/l as SO ₄)	35	0	742	205	467.3	122.9	441
Temperature, Water (Degrees Centigrade)	36	0	18.8	4	9.47	3.15	8.7
Temperature, Water (Degrees Fahrenheit)	20	0	65.8	42.4	49.8	6.1	47.7
Total Dissolved Solids, mg/l	33	0	1200	371	782.3	180.7	786
Total Suspend Solids, mg/l	35	16	2888	-10	417.5	729.3	47
Weak Acid Dissociable Cyanide, mg/l	36	34	0.073	-0.01	0.007	0.012	-0.01
Zinc, Dissolved (mg/l as Zn)	35	34	0.362	-0.05	0.035	0.057	-0.05

ND = Not determined. Applicable in two cases: number of analyses = 1; or all analyses are non-detect.

Non-detect analyses are set at 1/2 the detection limit for average and standard deviation calculations.

Median calculations use the laboratory analyses with less than detection values as negative.

Dissolved chromium was analyzed until 2001. Total recoverable chromium since 2002. Both forms are provided to indicate the entire analytical history.

TABLE 3-4
SAMPLE DATA FOR WCSW

SAMPLE LOCATION: WCSW
DRAINAGE: WILSON CREEK
PERIOD OF RECORD: 1996-2015

PARAMETER	Number of analyses	Number of non-detect analyses	Maximum value	Minimum value	Average value	Standard deviation	Median value
Acidity, Total (mg/l as CaCO3)	48	48	-1	-10	4.8	ND	-10
Alkalinity, Bicarbonate (mg/l as CaCO3)	50	0	166	62.6	100.7	25.2	97.75
Alkalinity, Carbonate (mg/l as CaCO3)	50	0	0	0	0	0	0
Alkalinity, Total (mg/l as CaCO3)	19	0	136	50	90.5	27.4	97.6
Aluminum, Dissolved (mg/l as Al)	42	31	0.39	-0.1	0.05	0.06	-0.05
Arsenic, Total Recoverable in Water as As mg/l	52	36	0.042	-0.005	0.0050	0.0062	-0.005
Cadmium, Dissolved (mg/l as Cd)	52	52	-0.0001	-0.001	0.0005	ND	-0.001
Calcium, Total (mg/l as Ca)	52	0	82.9	39.9	55.7	7.8	56.4
Chloride, Total in Water mg/l	52	0	31.4	5.5	12.31	4.92	10.9
Chromium, Dissolved (mg/l as Cr)	38	38	-0.001	-0.005	0.0006	ND	-0.001
Chromium, Total Recoverable in Water as Cr mg/l	13	12	0.001	-0.001	0.0005	0.0001	-0.001
Copper, Dissolved (mg/l as Cu)	52	49	0.008	-0.005	0.0028	0.0012	-0.005
Cyanide Free, mg/l	51	51	-0.01	-0.05	0.006	ND	-0.01
Cyanide, Total (mg/l as CN)	51	51	-0.005	-0.01	0.005	ND	-0.01
Flow, in Conduit or Thru a Treatment Plant MGD	26	0	1.7841	0	0.3	0.4	0.1591
Flow, Rate Gallons/Min	60	0	1275	0	297.7	353.5	163.1
Flow, Stream, Instantaneous Cfs	17	0	1.6466	0	0.4	0.4	0.3632
Fluoride, Total (mg/l as F)	52	0	1.36	0.6	1.03	0.13	1.03
Hardness, Total (mg/l as CaCO3)	52	0	310	0	195	49	201
Iron, Dissolved (mg/l as Fe)	51	45	0.302	-0.05	0.040	0.050	-0.05
Iron, Total Recoverable in Water as Fe mg/l	52	4	9.77	-0.05	0.838	1.506	0.339
Lead, Dissolved (mg/l as Pb)	52	49	0.002	-0.005	0.0006	0.0005	-0.001
Magnesium, Total (mg/l as Mg)	52	0	24.9	9.1	15.47	2.75	15.55
Manganese, Dissolved (mg/l as Mn)	52	28	0.609	-0.05	0.093	0.131	-0.01
Mercury, Total (mg/l as Hg)	52	52	-0.0001	-0.001	0.0001	ND	-0.0002
Nickel, Dissolved (mg/l as Ni)	52	51	0.006	-0.01	0.003	0.001	-0.005
Nitrate Nitrogen, Total (mg/l as N)	52	2	13.4	-0.5	2.79	2.31	2.26
Nitrite Nitrogen, Total (mg/l as N)	52	51	0.053	-0.5	0.03	0.03	-0.05
Nitrogen, Ammonia, Total (mg/l as N)	52	51	0.068	-0.2	0.03	0.02	-0.05
Oil and Grease Visual (No=0, Yes=1)	18	0	0	0	0	0	0
Oxygen, Dissolved mg/L	51	0	11.5	4	8.61	1.44	8.4
pH, Field, Standard Units	52	0	8.68	6.69	8.00	0.42	8.095
Potassium, Total mg/l as K)	48	0	6.06	0.57	3.89	1.00	3.91
Selenium, Dissolved (mg/l as Se)	52	52	-0.005	-0.005	0.0025	ND	-0.005
Silver, Dissolved (mg/l as Ag)	52	52	-0.0005	-0.001	0.0005	ND	-0.001
Sodium, Total (mg/l as Na)	48	0	78.8	13	30.31	12.32	27.85
Specific Conductance (umhos/cm @ 25C)	11	0	808	446	601.1	110.4	590
Specific Conductance, Field (umhos/cm @ 25C)	52	0	1061	126.2	530.4	161.3	512.5
Sulfate, Total (mg/l as SO4)	52	0	221	97	156.7	25.9	157
Temperature, Water (Degrees Centigrade)	52	3	19.3	-1	7.4	6.0	5.35
Temperature, Water (Degrees Fahrenheit)	13	0	57	34.3	44.57	8.60	40.3
Total Dissolved Solids, mg/l	47	0	501	213	331.5	62.7	331
Total Suspend Solids, mg/l	52	25	283	-10	30.5	53.2	10
Weak Acid Dissociable Cyanide, mg/l	51	51	-0.005	-0.01	0.005	ND	-0.01
Zinc, Dissolved (mg/l as Zn)	52	51	0.02	-0.05	0.024	0.003	-0.05

ND = Not determined. Applicable in two cases: number of analyses = 1; or all analyses are non-detect.

Non-detect analyses are set at 1/2 the detection limit for average and standard deviation calculations.

Median calculations use the laboratory analyses with less than detection values as negative.

Dissolved chromium was analyzed until 2001. Total recoverable chromium was analyzed from 2003. Both forms are provided to indicate the entire analytical history.

TABLE 3-5
SAMPLE DATA FOR BCSW

SAMPLE LOCATION: BCSW
DRAINAGE: WILSON CREEK DRAINAGE
PERIOD OF RECORD: 1997-2015

PARAMETER	Number of Analyses	Number of non-detect analyses	Maximum value	Minimum value	Average value	Standard deviation	Median value
Acidity, Total (mg/l as CaCO ₃)	36	36	-10	-10	5	ND	-10
Alkalinity, Bicarbonate (mg/l as CaCO ₃)	39	0	115	37.6	63.6	17.2	61.3
Alkalinity, Carbonate (mg/l as CaCO ₃)	39	0	5.69	0	0.1	0.9	0
Alkalinity, Total (mg/l as CaCO ₃)	18	0	94.4	31.1	51.1	15.7	47.75
Aluminum, Dissolved (mg/l as Al)	29	21	0.173	-0.05	0.043	0.041	-0.05
Arsenic, Total Recoverable in Water as As mg/l	36	36	-0.005	-0.005	0.0025	ND	-0.005
Cadmium, Dissolved (mg/l as Cd)	40	39	0.001	-0.001	0.0005	0.0001	-0.001
Calcium, Total (mg/l as Ca)	39	0	69.2	14.8	29.8	11.1	28.1
Chloride, Total in Water mg/l	40	0	30.9	0.5	10.24	7.15	8.75
Chromium, Dissolved (mg/l as Cr)	25	25	-0.001	-0.001	0.0005	ND	-0.001
Copper, Dissolved (mg/l as Cu)	40	40	-0.005	-0.005	0.0025	ND	-0.005
Cyanide Free, mg/l	39	39	-0.01	-0.01	0.005	ND	-0.01
Cyanide, Total (mg/l as CN)	39	39	-0.01	-0.01	0.005	ND	-0.01
Flow, Rate Gallons/Min	72	0	229	0	19.8	44.3	0.1
Fluoride, Total (mg/l as F)	40	0	0.857	0.476	0.65	0.08	0.639
Hardness, Total (mg/l as CaCO ₃)	40	0	232	49.1	102.0	36.3	96.95
Iron, Dissolved (mg/l as Fe)	40	28	0.095	-0.05	0.040	0.025	-0.05
Lead, Dissolved (mg/l as Pb)	40	39	0.001	-0.005	0.0006	0.0003	-0.001
Magnesium, Total (mg/l as Mg)	39	0	14.3	2.95	6.87	2.23	6.82
Manganese, Dissolved (mg/l as Mn)	40	32	0.093	-0.05	0.024	0.017	-0.05
Mercury, Total (mg/l as Hg)	39	39	-0.0002	-0.0002	0.0001	ND	-0.0002
Nickel, Dissolved (mg/l as Ni)	40	40	-0.005	-0.005	0.0025	ND	-0.005
Nitrate Nitrogen, Total (mg/l as N)	40	19	1.22	-0.5	0.199	0.256	0.0615
Nitrite Nitrogen, Total (mg/l as N)	40	38	0.322	-0.05	0.035	0.049	-0.05
Nitrogen, Ammonia, Total (mg/l as N)	40	39	0.073	-0.05	0.026	0.008	-0.05
Oil and Grease Visual (No=0, Yes=1)	19	0	0	0	0	0	0
Oxygen, Dissolved mg/L	39	0	11.2	3.4	7.99	2.12	7.75
pH, Field, Standard Units	40	0	9.17	6.61	7.58	0.46	7.55
Potassium, Total mg/l as K	36	0	2.73	0.646	1.65	0.59	1.565
Selenium, Dissolved (mg/l as Se)	40	40	-0.005	-0.005	0.0025	ND	-0.005
Silver, Dissolved (mg/l as Ag)	40	40	-0.001	-0.001	0.0005	ND	-0.001
Sodium, Total (mg/l as Na)	35	0	15.8	5.4	9.76	2.73	9.12
Specific Conductance, Field (umhos/cm @ 25C)	39	0	598	83	270.4	115.0	237
Sulfate, Total (mg/l as SO ₄)	40	0	162	17.6	53.9	26.7	45.15
Temperature, Water (Degrees Centigrade)	40	0	21.3	0.1	8.73	6.14	7.45
Total Dissolved Solids, mg/l	36	0	304	70	148.6	49.3	144
Total Suspend Solids, mg/l	40	39	15	-10	5.3	1.6	-10
Weak Acid Dissociable Cyanide, mg/l	39	38	0.01	-0.01	0.005	0.001	-0.01
Zinc, Dissolved (mg/l as Zn)	40	39	0.05	-0.05	0.026	0.004	-0.05

ND = Not determined. Applicable in two cases: number of analyses = 1; or all analyses are non-detect.

Non-detect analyses are set at 1/2 the detection limit for average and standard deviation calculations.

Median calculations use the laboratory analyses with less than detection values as negative.

Dissolved chromium was analyzed from 1997-2001. Total recoverable chromium was analyzed from 2003. Both forms are provided to indicate the entire analytical history.

TABLE 3-6
SAMPLE DATA FOR WSCW-01

SAMPLE LOCATION: WSCW-01
DRAINAGE: WILSON CREEK DRAINAGE
PERIOD OF RECORD: 2000-2015

PARAMETER	Number of analyses	Number of non-detect analyses	Maximum value	Minimum value	Average value	Standard deviation	Median value
Acidity, Total (mg/l as CaCO ₃)	51	50	0	-10	4.9	0.7	-10
Alkalinity, Bicarbonate (mg/l as CaCO ₃)	62	0	201	67	127.4	36.3	124.5
Alkalinity, Carbonate (mg/l as CaCO ₃)	62	1	2	-5	0.1	0.4	0
Alkalinity, Total (mg/l as CaCO ₃)	49	0	165	59.3	112.7	27.8	116
Aluminum, Dissolved (mg/l as Al)	26	16	0.122	-0.05	0.038	0.029	-0.05
Arsenic, Dissolved (mg/l as As)	12	12	-0.005	-0.005	0.003	ND	-0.005
Arsenic, Total Recoverable in Water as As mg/l	44	38	0.007	-0.005	0.0030	0.0013	-0.005
Cadmium, Dissolved (mg/l as Cd)	62	62	-0.001	-0.001	0.0005	ND	-0.001
Calcium, Total (mg/l as Ca)	61	0	99.6	30.1	58.7	13.5	58.1
Chloride, Total in Water mg/l	62	0	39.6	8	18.54	7.24	17.4
Chromium, Dissolved (mg/l as Cr)	14	14	-0.001	-0.001	0.0005	ND	-0.001
Chromium, Total Recoverable in Water as Cr mg/l	49	48	0.001	-0.001	0.00051	0.00007	-0.001
Copper, Dissolved (mg/l as Cu)	62	47	0.012	-0.005	0.0037	0.0024	-0.005
Cyanide Free, mg/l	62	62	-0.01	-0.01	0.005	ND	-0.01
Cyanide, Total (mg/l as CN)	62	62	-0.01	-0.01	0.005	ND	-0.01
Flow, Rate Gallons/Min	64	0	1304	0	179.9	246.9	91.25
Fluoride, Total (mg/l as F)	62	1	1.52	-1	1.1	0.2	1.12
Hardness, Total (mg/l as CaCO ₃)	62	0	360	0	210.1	56.6	208
Iron, Dissolved (mg/l as Fe)	61	55	14	-0.05	0.282	1.795	-0.05
Iron, Total Recoverable in Water as Fe mg/l	62	14	4.12	-0.05	0.367	0.684	0.1375
Lead, Dissolved (mg/l as Pb)	62	60	0.009	-0.001	0.0006	0.0011	-0.001
Magnesium, Total (mg/l as Mg)	61	0	27	9.35	16.55	4.03	16.1
Manganese, Dissolved (mg/l as Mn)	62	42	0.479	-0.05	0.035	0.070	-0.01
Mercury, Total (mg/l as Hg)	61	61	-0.0002	-0.0002	0.0001	ND	-0.0002
Nickel, Dissolved (mg/l as Ni)	62	56	0.12	-0.005	0.0048	0.0150	-0.005
Nitrate Nitrogen, Total (mg/l as N)	62	0	21.9	0.726	5.63	4.72	3.715
Nitrite Nitrogen, Total (mg/l as N)	62	62	-0.05	-0.5	0.03	ND	-0.05
Nitrogen, Ammonia, Total (mg/l as N)	62	60	0.086	-0.05	0.027	0.009	-0.05
Oil and Grease Visual (No=0, Yes=1)	51	0	0	0	0	0	0
Oxygen, Dissolved mg/L	65	0	11.5	6.3	9.15	1.38	9.2
pH, Field, Standard Units	65	0	8.65	6.89	7.92	0.40	8.01
Potassium, Total mg/l as K)	51	0	7.88	2.9	4.74	1.12	4.79
Selenium, Dissolved (mg/l as Se)	62	62	-0.005	-0.005	0.0025	ND	-0.005
Silver, Dissolved (mg/l as Ag)	62	62	-0.001	-0.001	0.0005	ND	-0.001
Sodium, Total (mg/l as Na)	51	0	89.1	17.9	46.5	20.8	41.2
Specific Conductance, Field (umhos/cm @ 25C)	65	0	940	253	590.9	157.9	594
Sulfate, Total (mg/l as SO ₄)	62	0	298	81.6	152.4	48.1	148
Temperature, Water (Degrees Centigrade)	65	0	17.9	0.1	6.1	5.7	4.2
Total Dissolved Solids, mg/l	62	0	599	239	386.4	81.8	387.5
Total Suspend Solids, mg/l	62	46	204	-10	14.5	29.0	-10
Weak Acid Dissociable Cyanide, mg/l	62	62	-0.01	-0.01	0.005	ND	-0.01
Zinc, Dissolved (mg/l as Zn)	62	61	0.389	-0.05	0.031	0.046	-0.05

ND = Not determined. Applicable in two cases: number of analyses = 1; or all analyses are non-detect.

Non-detect analyses are set at 1/2 the detection limit for average and standard deviation calculations.

Median calculations use the laboratory analyses with less than detection values as negative.

Dissolved chromium was analyzed until 2002. Total recoverable chromium was analyzed from 2002. Both forms are provided to indicate the entire analytical history.

Dissolved arsenic was analyzed since 2011. Total recoverable arsenic was analyzed through 2010. Both forms are provided to indicate the entire analytical history.

TABLE 3-7
SAMPLE DATA FOR WCMW-02

SAMPLE LOCATION: WCMW-02
DRAINAGE: WILSON CREEK
PERIOD OF RECORD: 1992-2015

PARAMETER	Number of analyses	Number of non-detect analyses	Maximum value	Minimum value	Average value	Standard deviation	Median value
Acidity, Total (mg/l as CaCO ₃)	107	102	26	-10	4.6	2.7	-10
Alkalinity, Bicarbonate (mg/l as CaCO ₃)	90	0	80.4	39.2	53.3	10.3	52.1
Alkalinity, Carbonate (mg/l as CaCO ₃)	89	0	0	0	0	0	0
Alkalinity, Total (mg/l as CaCO ₃)	74	0	65.9	33.3	45.6	9.3	44.55
Aluminum, Dissolved (mg/l as Al)	112	81	0.221	-0.1	0.03	0.02	-0.05
Arsenic, Dissolved (mg/l as As)	62	62	-0.005	-0.005	0.0025	ND	-0.005
Arsenic, Total Recoverable in Water as As mg/l	50	50	-0.005	-0.005	0.0025	ND	-0.005
Barium, Dissolved (mg/l as Ba)	7	7	-0.05	-0.05	0.025	ND	-0.05
Cadmium, Dissolved (mg/l as Cd)	112	110	0.0001	-0.005	0.0005	0.0004	-0.001
Calcium, Total (mg/l as Ca)	109	0	329	22	140.0	73.4	153
Chloride, Total in Water mg/l	110	1	475	-3	113.1	100.8	99.2
Chromium, Dissolved (mg/l as Cr)	112	104	0.003	-0.005	0.0009	0.0008	-0.001
Copper, Dissolved (mg/l as Cu)	112	107	0.037	-0.005	0.0031	0.0041	-0.005
Cyanide Free, mg/l	112	107	0.12	-0.1	0.01	0.02	-0.02
Cyanide, Total (mg/l as CN)	112	8	0.57	-0.1	0.17	0.13	0.118
Flow, Rate Gallons/Min	4	0	0.57	0	0.1425	0.285	0
Fluoride, Total (mg/l as F)	111	1	2	-0.5	0.99	0.26	0.888
Hardness, Total (mg/l as CaCO ₃)	109	0	1150	78	493.1	251.0	551
Iron, Dissolved (mg/l as Fe)	112	15	0.344	-0.05	0.081	0.055	0.0695
Lead, Dissolved (mg/l as Pb)	112	112	-0.001	-0.005	0.0009	ND	-0.001
Magnesium, Total (mg/l as Mg)	107	0	79.4	5.6	34.97	17.21	40.1
Manganese, Dissolved (mg/l as Mn)	113	57	0.482	-0.1	0.05	0.07	-0.01
Mercury, Total (mg/l as Hg)	106	99	0.0032	-0.0002	0.0001	0.0003	-0.0002
Molybdenum, Dissolved (mg/l as Mo)	7	6	0.009	-0.01	0.006	0.002	-0.01
Nickel, Dissolved (mg/l as Ni)	112	85	0.024	-0.05	0.005	0.004	-0.005
Nitrate Nitrogen, Total (mg/l as N)	112	0	49.5	0.53	8.486	9.380	5.27
Nitrite Nitrogen, Total (mg/l as N)	110	109	0.05	-0.05	0.025	0.002	-0.05
Nitrogen, Ammonia, Total (mg/l as N)	111	110	0.092	-0.2	0.04	0.03	-0.05
Oil and Grease Visual (No=0, Yes=1)	52	0	0	0	0	0	0
Oxygen, Dissolved mg/L	105	0	67.4	0.27	6.648	9.629	4.7
pH, Field, Standard Units	114	0	7.9	5.99	7.34	0.25	7.345
pH, Lab, Standard Units	48	0	7.8	7.2	7.47	0.13	7.48
Potassium, Total mg/l as K	107	0	3.58	0.6	1.59	0.55	1.6
Selenium, Dissolved (mg/l as Se)	111	84	0.012	-0.025	0.004	0.002	-0.005
Selenium, Total Recoverable in Water as Se mg/l	12	12	-0.005	-0.05	0.004	ND	-0.005
Silver, Dissolved (mg/l as Ag)	111	109	0.002	-0.005	0.0005	0.0004	-0.001
Sodium, Total (mg/l as Na)	107	0	32.5	6.3	17.60	6.42	18.4
Specific Conductance (umhos/cm @ 25C)	45	0	2170	170	1387.0	343.6	1350
Specific Conductance, Field (umhos/cm @ 25C)	112	0	2100	217	1005.4	448.3	1129
Strontium, Total (mg/l as Sr)	3	0	0.09	0.08	0.087	0.006	0.09
Sulfate, Total (mg/l as SO ₄)	111	0	692	28	288.5	174.4	223
Temperature, Water (Degrees Centigrade)	114	0	19.9	6.9	11.02	2.81	10.55
Total Dissolved Solids, mg/l	104	0	1820	130	756.9	403.3	869.5
Total Suspend Solids, mg/l	109	100	525	-10	14.3	56.1	-10
Water Level, Distance From Measuring Point (Feet)	114	0	48.18	24.42	36.54	4.94	36.31
Weak Acid Dissociable Cyanide, mg/l	113	48	0.19	-0.01	0.021	0.029	0.012
Zinc, Dissolved (mg/l as Zn)	113	97	0.124	-0.05	0.022	0.012	-0.05

ND = Not determined. Applicable in two cases: number of analyses = 1; or all analyses are non-detect.

Non-detect analyses are set at 1/2 the detection limit for average and standard deviation calculations.

Median calculations use the laboratory analyses with less than detection values as negative.

Dissolved arsenic was analyzed since 2002. Total recoverable arsenic was analyzed until 2001. Both forms are provided to indicate the entire analytical history.

TABLE 3-8
SAMPLE DATA FOR WCMW-03

SAMPLE LOCATION: WCMW-03
DRAINAGE: WILSON CREEK
PERIOD OF RECORD: 1992-2015

PARAMETER	Number of analyses	Number of non-detect analyses	Maximum value	Minimum value	Average value	Standard deviation	Median value
Acidity, Total (mg/l as CaCO ₃)	121	114	16	-10	4.1	2.4	-10
Alkalinity, Bicarbonate (mg/l as CaCO ₃)	89	0	262	203	249.0	6.6	250
Alkalinity, Carbonate (mg/l as CaCO ₃)	89	0	0	0	0	0	0
Alkalinity, Total (mg/l as CaCO ₃)	92	0	240	150	203.0	8.8	203
Aluminum, Dissolved (mg/l as Al)	127	97	0.136	-0.1	0.03	0.02	-0.05
Arsenic, Dissolved (mg/l as As)	77	77	-0.005	-0.005	0.0025	ND	-0.005
Arsenic, Total Recoverable in Water as As mg/l	53	53	-0.005	-0.005	0.0025	ND	-0.005
Barium Potentially Dissolved mg/l	18	0	0.08	0.06	0.069	0.005	0.07
Barium, Dissolved (mg/l as Ba)	20	0	0.08	0.06	0.069	0.004	0.07
Cadmium, Dissolved (mg/l as Cd)	128	122	0.001	-0.005	0.0005	0.0006	-0.001
Calcium, Total (mg/l as Ca)	126	0	68.1	49.4	57.7	3.8	57.7
Chloride, Total in Water mg/l	125	36	5	-3	1.1	0.7	1
Chromium, Dissolved (mg/l as Cr)	128	127	0.005	-0.005	0.0011	0.0010	-0.001
Copper, Dissolved (mg/l as Cu)	128	124	0.011	-0.005	0.0027	0.0010	-0.005
Cyanide Free, mg/l	128	128	-0.01	-0.1	0.01	ND	-0.01
Cyanide, Total (mg/l as CN)	128	127	0.011	-0.01	0.004	0.001	-0.01
Fluoride, Total (mg/l as F)	124	1	1.1	-0.5	0.83	0.11	0.8295
Hardness, Total (mg/l as CaCO ₃)	122	0	238	160	203.2	11.0	202
Iron, Dissolved (mg/l as Fe)	127	106	0.35	-0.05	0.024	0.031	-0.05
Lead, Dissolved (mg/l as Pb)	128	125	0.001	-0.005	0.0011	0.0009	-0.001
Magnesium, Total (mg/l as Mg)	125	0	17.6	12.7	14.6	0.9	14.5
Manganese, Dissolved (mg/l as Mn)	128	60	0.26	-0.05	0.022	0.024	0.011
Mercury, Total (mg/l as Hg)	108	108	-0.0001	-0.0002	0.00009	ND	-0.0002
Molybdenum, Dissolved (mg/l as Mo)	21	18	0.01	-0.01	0.005	0.002	-0.01
Nickel, Dissolved (mg/l as Ni)	127	126	0.02	-0.05	0.005	0.004	-0.005
Nitrate Nitrogen, Total (mg/l as N)	126	26	0.21	-0.2	0.07	0.03	0.075
Nitrite Nitrogen, Total (mg/l as N)	123	121	0.1	-0.05	0.026	0.007	-0.05
Nitrogen, Ammonia, Total (mg/l as N)	126	126	-0.05	-0.2	0.05	ND	-0.05
Oil and Grease Visual (No=0, Yes=1)	53	0	0	0	0	0	0
Oxygen, Dissolved mg/L	108	0	2.8	0.01	0.408	0.400	0.3
pH, Field, Standard Units	122	0	8.14	6.84	7.68	0.15	7.7
pH, Lab, Standard Units	66	0	8.16	6.8	7.78	0.23	7.8
Potassium, Total mg/l as K)	124	0	3.3	0.86	1.422	0.258	1.4
Selenium, Dissolved (mg/l as Se)	126	119	0.009	-0.01	0.003	0.001	-0.005
Silver, Dissolved (mg/l as Ag)	128	125	0.07	-0.005	0.0010	0.0062	-0.001
Sodium, Total (mg/l as Na)	124	0	21	8.23	9.84	1.52	9.51
Specific Conductance (umhos/cm @ 25C)	49	0	470	340	422.7	14.9	423
Specific Conductance, Field (umhos/cm @ 25C)	122	0	834	226	418.3	66.1	414.5
Strontium, Total (mg/l as Sr)	14	0	0.97	0.82	0.870	0.042	0.86
Sulfate, Total (mg/l as SO ₄)	128	2	44	-10	21.3	5.4	20.25
Temperature, Water (Degrees Centigrade)	123	0	14.83	1.2	9.285	1.397	9.2
Total Dissolved Solids, mg/l	119	0	346	195	234.5	18.8	236
Total Suspend Solids, mg/l	123	116	250	-10	6.8	22.3	-10
Turbidity, Lab Nephelometric Turbidity Units, NTU	20	6	7.2	-0.2	1.01	1.91	0.2
Water Level, Distance From Measuring Point (Feet)	124	0	79.12	54.1	64.1	5.0	63.12
Weak Acid Dissociable Cyanide, mg/l	129	129	-0.005	-0.01	0.004	ND	-0.01
Zinc, Dissolved (mg/l as Zn)	129	103	0.011	-0.05	0.019	0.009	-0.05

ND = Not determined. Applicable in two cases: number of analyses = 1; or all analyses are non-detect.

Non-detect analyses are set at 1/2 the detection limit for average and standard deviation calculations.

Median calculations use the laboratory analyses with less than detection values as negative.

Dissolved arsenic was analyzed from 1992-1995 and since 2002. Total recoverable arsenic was analyzed from 1995-2002. Both forms are provided to indicate the entire analytical history.

TABLE 3-9
SAMPLE DATA FOR WCMW-06

SAMPLE LOCATION: WCMW-06
DRAINAGE: WILSON CREEK
PERIOD OF RECORD: 1993-2015

PARAMETER	Number of Analyses	Number of non-detect analyses	Maximum value	Minimum value	Average value	Standard deviation	Median value
Acidity, Total (mg/l as CaCO ₃)	84	47	24	-10	8.2	5.7	-1
Alkalinity, Bicarbonate (mg/l as CaCO ₃)	73	0	164	151	157.7	2.9	158
Alkalinity, Carbonate (mg/l as CaCO ₃)	73	1	0	-10	0.1	0.6	0
Alkalinity, Total (mg/l as CaCO ₃)	68	0	160	120	129.3	5.7	130
Aluminum, Dissolved (mg/l as Al)	85	53	0.122	-0.1	0.03	0.02	-0.01
Arsenic, Dissolved (mg/l as As)	60	51	0.008	-0.005	0.003	0.001	-0.005
Arsenic, Total Recoverable in Water as As mg/l	28	21	0.009	-0.005	0.004	0.002	-0.005
Barium, Dissolved (mg/l as Ba)	7	7	-0.05	-0.05	0.025	ND	-0.05
Cadmium, Dissolved (mg/l as Cd)	87	85	0.0024	-0.005	0.001	0.0005	-0.001
Calcium, Total (mg/l as Ca)	86	0	52.4	20.3	42.7	4.1	42.65
Chloride, Total in Water mg/l	87	9	4	-3	2.2	0.5	2.25
Chromium, Dissolved (mg/l as Cr)	86	86	-0.001	-0.005	0.001	ND	-0.001
Copper, Dissolved (mg/l as Cu)	87	85	0.006	-0.005	0.003	0.001	-0.005
Cyanide Free, mg/l	87	87	-0.01	-0.05	0.008	ND	-0.01
Cyanide, Total (mg/l as CN)	87	87	-0.005	-0.01	0.005	ND	-0.01
Fluoride, Total (mg/l as F)	87	0	2.7	1.7	2.06	0.11	2.04
Hardness, Total (mg/l as CaCO ₃)	85	0	178	71.9	153.2	13.1	153
Iron, Dissolved (mg/l as Fe)	87	0	6.84	0.01	0.74	0.67	0.67
Lead, Dissolved (mg/l as Pb)	87	87	-0.001	-0.005	0.001	ND	-0.001
Magnesium, Total (mg/l as Mg)	87	0	17	5.15	11.33	1.20	11.2
Manganese, Dissolved (mg/l as Mn)	87	2	0.268	-0.05	0.156	0.027	0.16
Mercury, Total (mg/l as Hg)	80	80	-0.0001	-0.0002	0.0001	ND	-0.0002
Molybdenum, Potentially Dissolved, water mg/l	6	3	0.02	-0.01	0.009	0.006	0.000
Nickel, Dissolved (mg/l as Ni)	87	87	-0.005	-0.05	0.004	ND	-0.005
Nitrate Nitrogen, Total (mg/l as N)	87	84	3.2	-0.05	0.080	0.380	-0.05
Nitrite Nitrogen, Total (mg/l as N)	85	84	0.05	-0.05	0.025	0.003	-0.05
Nitrogen, Ammonia, Total (mg/l as N)	87	86	0.096	-0.2	0.04	0.03	-0.05
Oil and Grease Visual (No=0, Yes=1)	52	0	0	0	0	0	0
Oxygen, Dissolved mg/L	79	0	3.7	0	0.27	0.61	0.1
pH, Field, Standard Units	85	0	7.52	6.7	7.03	0.13	7.01
pH, Lab, Standard Units	43	0	7.77	6.7	7.30	0.20	7.3
Potassium, Total mg/l as K	86	0	5.48	1.16	2.15	0.46	2.1
Selenium, Dissolved (mg/l as Se)	87	87	-0.005	-0.005	0.003	ND	-0.005
Silver, Dissolved (mg/l as Ag)	87	86	0.001	-0.001	0.000	0.000	-0.001
Sodium, Total (mg/l as Na)	86	0	25.2	7.88	17.50	2.13	17.7
Specific Conductance (umhos/cm @ 25C)	44	0	411	340	387.7	13.4	388
Specific Conductance, Field (umhos/cm @ 25C)	84	0	578	236	368.4	42.0	367
Sulfate, Total (mg/l as SO ₄)	87	0	80	38.7	56.6	7.8	56.1
Temperature, Water (Degrees Centigrade)	85	0	11.6	7.4	9.50	0.79	9.5
Total Dissolved Solids, mg/l	85	0	298	177	245.9	20.5	248
Total Suspend Solids, mg/l	85	83	8	-10	4.8	0.9	-10
Water Level, Distance From Measuring Point (Feet)	89	0	7.61	2.95	5.36	1.11	5.5
Weak Acid Dissociable Cyanide, mg/l	87	87	-0.005	-0.01	0.005	ND	-0.01
Zinc, Dissolved (mg/l as Zn)	87	84	0.017	-0.05	0.022	0.008	-0.05

ND = Not determined. Applicable in two cases: number of analyses = 1; or all analyses are non-detect.

Non-detect analyses are set at 1/2 the detection limit for average and standard deviation calculations.

Median calculations use the laboratory analyses with less than detection values as negative.

Dissolved arsenic was analyzed from 1993-1995 and since 2002. Total recoverable arsenic was analyzed from 1993-2002. Both forms are provided to indicate the entire analytical history.

TABLE 3-10**SAMPLE DATA FOR VIN-2A****SAMPLE LOCATION: VIN-2A****DRAINAGE: VINDICATOR****PERIOD OF RECORD: 2004-2015**

PARAMETER	Number of analyses	Number of non-detect analyses	Maximum value	Minimum value	Average value	Standard deviation	Median value
Acidity, Total (mg/l as CaCO ₃)	8	1	14	-10	11.1	2.7	12
Alkalinity, Bicarbonate (mg/l as CaCO ₃)	8	0	132	126	128.1	1.9	127.5
Alkalinity, Carbonate (mg/l as CaCO ₃)	8	0	0	0	0	0	0
Alkalinity, Total (mg/l as CaCO ₃)	8	0	108	103	104.8	1.5	104.5
Aluminum, Dissolved (mg/l as Al)	8	6	0.011	-0.01	0.007	0.003	-0.01
Arsenic, Dissolved (mg/l as As)	8	8	-0.005	-0.005	0.0025	ND	-0.005
Cadmium, Dissolved (mg/l as Cd)	8	8	-0.001	-0.001	0.0005	ND	-0.001
Calcium, Total (mg/l as Ca)	8	0	242	216	224.8	10.5	220.5
Chloride, Total in Water mg/l	8	0	7.62	5.84	6.47	0.66	6.245
Chromium, Dissolved (mg/l as Cr)	8	8	-0.001	-0.001	0.0005	ND	-0.001
Copper, Dissolved (mg/l as Cu)	8	8	-0.005	-0.005	0.0025	ND	-0.005
Cyanide Free, mg/l	8	8	-0.01	-0.01	0.005	ND	-0.01
Cyanide, Total (mg/l as CN)	8	8	-0.01	-0.01	0.005	ND	-0.01
Fluoride, Total (mg/l as F)	8	0	0.265	0.221	0.24	0.02	0.2405
Hardness, Total (mg/l as CaCO ₃)	8	0	836	762	789	28	777.5
Iron, Dissolved (mg/l as Fe)	8	6	0.188	-0.05	0.051	0.057	-0.05
Lead, Dissolved (mg/l as Pb)	8	7	0.001	-0.001	0.0006	0.0002	-0.001
Magnesium, Total (mg/l as Mg)	8	0	57.1	53.4	55.2	1.3	55.2
Manganese, Dissolved (mg/l as Mn)	8	0	0.051	0.021	0.033	0.008	0.0325
Mercury, Total (mg/l as Hg)	8	8	-0.0002	-0.0002	0.0001	ND	-0.0002
Nickel, Dissolved (mg/l as Ni)	8	0	0.01	0.005	0.008	0.002	0.0085
Nitrate Nitrogen, Total (mg/l as N)	8	7	0.05	-0.05	0.028	0.009	-0.05
Nitrite Nitrogen, Total (mg/l as N)	8	8	-0.05	-0.05	0.025	ND	-0.05
Nitrogen, Ammonia, Total (mg/l as N)	8	8	-0.05	-0.05	0.025	ND	-0.05
Oil and Grease Visual (No=0, Yes=1)	46	0	0	0	0	0	0
Oxygen, Dissolved mg/L	49	0	4.2	0.07	1.46	0.92	1.1
pH, Field, Standard Units	50	0	7.5	7	7.2	0.1	7.17
Potassium, Total mg/l as K)	8	0	2.53	1.9	2.21	0.22	2.205
Selenium, Dissolved (mg/l as Se)	8	7	0.006	-0.005	0.0029	0.0012	-0.005
Silver, Dissolved (mg/l as Ag)	8	8	-0.001	-0.001	0.0005	ND	-0.001
Sodium, Total (mg/l as Na)	8	0	25.6	22.7	24.2	1.0	24.25
Specific Conductance, Field (umhos/cm @ 25C)	50	0	1454	674	1252	168	1242
Sulfate, Total (mg/l as SO ₄)	8	0	760	680	717	25	708
Total Dissolved Solids, mg/l	8	0	1110	1070	1095	14	1100
Total Suspend Solids, mg/l	8	0	46	12	30.0	12.9	31
Water Level, Distance From Measuring Point (Feet)	70	0	263.5	232.15	248.27	6.67	248.96
Weak Acid Dissociable Cyanide, mg/l	8	8	-0.01	-0.01	0.005	ND	-0.01
Zinc, Dissolved (mg/l as Zn)	8	3	0.079	-0.05	0.047	0.020	0.053

ND = Not determined. Applicable in two cases: number of analyses = 1; or all analyses are non-detect.

Non-detect analyses are set at 1/2 the detection limit for average and standard deviation calculations.

Median calculations use the laboratory analyses with less than detection values as negative.

TABLE 3-11**SAMPLE DATA FOR VIN-2B****SAMPLE LOCATION: VIN-2B****DRAINAGE: VINDICATOR****PERIOD OF RECORD: 2004-2015**

PARAMETER	Number of analyses	Number of non-detect analyses	Maximum value	Minimum value	Average value	Standard deviation	Median value
Acidity, Total (mg/l as CaCO ₃)	51	41	14	-10	6.2	2.5	-10
Alkalinity, Bicarbonate (mg/l as CaCO ₃)	51	0	82.9	74.7	78.9	1.8	79
Alkalinity, Carbonate (mg/l as CaCO ₃)	50	0	0	0	0	0	0
Alkalinity, Total (mg/l as CaCO ₃)	51	0	68	61.2	64.7	1.4	64.8
Aluminum, Dissolved (mg/l as Al)	51	24	0.034	-0.01	0.011	0.007	0.01
Arsenic, Dissolved (mg/l as As)	51	51	-0.005	-0.005	0.0025	ND	-0.005
Cadmium, Dissolved (mg/l as Cd)	51	50	0.001	-0.001	0.0005	0.0001	-0.001
Calcium, Total (mg/l as Ca)	51	0	240	153	209	21	213
Chloride, Total in Water mg/l	51	0	10	7	8.4	0.8	8.27
Chromium, Dissolved (mg/l as Cr)	51	47	0.002	-0.001	0.0006	0.0002	-0.001
Copper, Dissolved (mg/l as Cu)	51	51	-0.005	-0.005	0.0025	ND	-0.005
Cyanide Free, mg/l	51	51	-0.01	-0.02	0.005	ND	-0.01
Cyanide, Total (mg/l as CN)	51	51	-0.01	-0.01	0.005	ND	-0.01
Fluoride, Total (mg/l as F)	51	1	0.559	-0.05	0.198	0.074	0.186
Hardness, Total (mg/l as CaCO ₃)	51	0	830	577	743	59	753
Iron, Dissolved (mg/l as Fe)	51	20	0.744	-0.05	0.142	0.180	0.078
Lead, Dissolved (mg/l as Pb)	51	51	-0.001	-0.001	0.0005	ND	-0.001
Magnesium, Total (mg/l as Mg)	51	0	61.3	47.4	54.1	2.9	53.8
Manganese, Dissolved (mg/l as Mn)	51	0	3.45	0.781	2.68	0.54	2.74
Mercury, Total (mg/l as Hg)	51	51	-0.0002	-0.0002	0.0001	ND	-0.0002
Nickel, Dissolved (mg/l as Ni)	51	19	0.013	-0.005	0.0053	0.0026	0.005
Nitrate Nitrogen, Total (mg/l as N)	51	50	0.07	-0.05	0.026	0.006	-0.05
Nitrite Nitrogen, Total (mg/l as N)	51	51	-0.05	-0.05	0.025	ND	-0.05
Nitrogen, Ammonia, Total (mg/l as N)	51	51	-0.05	-0.05	0.025	ND	-0.05
Oil and Grease Visual (No=0, Yes=1)	85	0	0	0	0	0	0
Oxygen, Dissolved mg/L	91	0	8.08	0.09	2.21	2.10	1.4
pH, Field, Standard Units	91	0	7.56	6.94	7.19	0.11	7.18
Potassium, Total mg/l as K)	51	0	2.36	1.65	2.09	0.18	2.11
Selenium, Dissolved (mg/l as Se)	51	50	0.005	-0.005	0.0025	0.0004	-0.005
Silver, Dissolved (mg/l as Ag)	51	50	0.001	-0.001	0.0005	0.0001	-0.001
Sodium, Total (mg/l as Na)	51	0	38.8	21.4	28.7	3.8	28.9
Specific Conductance, Field (umhos/cm @ 25C)	90	0	1450	1040	1321	99	1325
Sulfate, Total (mg/l as SO ₄)	51	0	792	548	716	57	728
Total Dissolved Solids, mg/l	51	0	1200	948	1117	48	1120
Total Suspend Solids, mg/l	51	44	28	-10	6.9	5.4	-10
Water Level, Distance From Measuring Point (Feet)	91	0	113.5	85.75	97.12	7.47	97.4
Weak Acid Dissociable Cyanide, mg/l	51	51	-0.01	-0.01	0.005	ND	-0.01
Zinc, Dissolved (mg/l as Zn)	51	51	-0.05	-0.05	0.025	ND	-0.05

ND = Not determined. Applicable in two cases: number of analyses = 1; or all analyses are non-detect.

Non-detect analyses are set at 1/2 the detection limit for average and standard deviation calculations.

Median calculations use the laboratory analyses with less than detection values as negative.

TABLE 4-1
SAMPLE DATA FOR PGMW-2

SAMPLE LOCATION: PGMW-2
DRAINAGE: SQUAW GULCH
PERIOD OF RECORD: 2001-2015

PARAMETER	Number of analyses	Number of non-detect analyses	Maximum value	Minimum value	Average value	Standard deviation	Median value
Water Level,Distance From Measuring Point (Feet)	41	0	218.3	217.45	218.1	0.2	218.2
Acidity, Total (mg/l as CaCO3)	0	NA	NA	NA	NA	NA	NA
Alkalinity, Bicarbonate (mg/l as CaCO3)	0	NA	NA	NA	NA	NA	NA
Alkalinity, Carbonate (mg/l as CaCO3)	0	NA	NA	NA	NA	NA	NA
Alkalinity, Total (mg/l as CaCO3)	0	NA	NA	NA	NA	NA	NA
Aluminum, Dissolved (mg/l as Al)	0	NA	NA	NA	NA	NA	NA
Arsenic, Dissolved (mg/l as As)	0	NA	NA	NA	NA	NA	NA
Cadmium, Dissolved (mg/l as Cd)	0	NA	NA	NA	NA	NA	NA
Calcium, Total (mg/l as Ca)	0	NA	NA	NA	NA	NA	NA
Chloride,Total in Water mg/l	0	NA	NA	NA	NA	NA	NA
Chromium, Dissolved (mg/l as Cr)	0	NA	NA	NA	NA	NA	NA
Copper, Dissolved (mg/l as Cu)	0	NA	NA	NA	NA	NA	NA
Cyanide Free, mg/l	0	NA	NA	NA	NA	NA	NA
Cyanide, Total (mg/l as CN)	0	NA	NA	NA	NA	NA	NA
Fluoride, Total (mg/l as F)	0	NA	NA	NA	NA	NA	NA
Hardness, Total (mg/l as CaCO3)	0	NA	NA	NA	NA	NA	NA
Iron, Dissolved (mg/l as Fe)	0	NA	NA	NA	NA	NA	NA
Lead, Dissolved (mg/l as Pb)	0	NA	NA	NA	NA	NA	NA
Magnesium, Total (mg/l as Mg)	0	NA	NA	NA	NA	NA	NA
Manganese, Dissolved (mg/l as Mn)	0	NA	NA	NA	NA	NA	NA
Mercury, Total (mg/l as Hg)	0	NA	NA	NA	NA	NA	NA
Nickel, Dissolved (mg/l as Ni)	0	NA	NA	NA	NA	NA	NA
Nitrate Nitrogen, Total (mg/l as N)	0	NA	NA	NA	NA	NA	NA
Nitrite Nitrogen, Total (mg/l as N)	0	NA	NA	NA	NA	NA	NA
Nitrite plus Nitrate, mg/l as Nitrogen	0	NA	NA	NA	NA	NA	NA
Nitrogen, Ammonia, Total (mg/l as N)	0	NA	NA	NA	NA	NA	NA
Oil and Grease Visual (No=0, Yes=1)	0	NA	NA	NA	NA	NA	NA
Oxygen, Dissolved mg/L	0	NA	NA	NA	NA	NA	NA
pH, Field, Standard Units	0	NA	NA	NA	NA	NA	NA
Potassium, Total mg/l as K)	0	NA	NA	NA	NA	NA	NA
Selenium, Dissolved (mg/l as Se)	0	NA	NA	NA	NA	NA	NA
Silver, Dissolved (mg/l as Ag)	0	NA	NA	NA	NA	NA	NA
Sodium, Total (mg/l as Na)	0	NA	NA	NA	NA	NA	NA
Specific Conductance,Field (umhos/cm @ 25C)	0	NA	NA	NA	NA	NA	NA
Sulfate, Total (mg/l as SO4)	0	NA	NA	NA	NA	NA	NA
Temperature, Water (Degrees Centigrade)	0	NA	NA	NA	NA	NA	NA
Total Dissolved Solids, mg/l	0	NA	NA	NA	NA	NA	NA
Total Suspend Solids, mg/l	0	NA	NA	NA	NA	NA	NA
Weak Acid Dissociable Cyanide, mg/l	0	NA	NA	NA	NA	NA	NA
Zinc, Dissolved (mg/l as Zn)	0	NA	NA	NA	NA	NA	NA

NA = Not applicable

TABLE 4-2
SAMPLE DATA FOR SG-10

SAMPLE LOCATION: SG-10
DRAINAGE: SQUAW GULCH
PERIOD OF RECORD: 1998-2015

PARAMETER	Number of analyses	Number of non-detect analyses	Maximum value	Minimum value	Average value	Standard deviation	Median value
Acidity, Total (mg/l as CaCO ₃)	8	1	36	<10	21.9	9.5	20
Alkalinity, Bicarbonate (mg/l as CaCO ₃)	8	7	39.8	<10	9.4	12.3	<10
Alkalinity, Carbonate (mg/l as CaCO ₃)	7	0	0	0	0	0	0
Alkalinity, Total (mg/l as CaCO ₃)	3	2	32.7	<10	14.2	16.0	<10
Aluminum, Dissolved (mg/l as Al)	7	0	5.64	1.43	3.09	1.41	2.41
Arsenic, Dissolved (mg/l as As)	2	2	<0.005	<0.005	0.0025	ND	<0.005
Arsenic, Total Recoverable in Water as As mg/l	6	5	0.007	<0.005	0.003	0.002	<0.005
Cadmium, Dissolved (mg/l as Cd)	8	5	0.002	<0.001	0.001	0.001	<0.001
Calcium, Total (mg/l as Ca)	8	0	293	141	201	47	189.5
Chloride, Total in Water mg/l	8	0	95	34	60	25	59
Chromium, Dissolved (mg/l as Cr)	7	6	0.003	<0.001	0.001	0.001	<0.001
Chromium, Total Recoverable in Water as Cr mg/l	1	1	<0.001	<0.001	0.001	ND	ND
Copper, Dissolved (mg/l as Cu)	8	8	<0.005	<0.005	0.0025	ND	<0.005
Cyanide Free, mg/l	8	8	<0.01	<0.01	0.005	ND	<0.01
Cyanide, Total (mg/l as CN)	8	8	<0.01	<0.01	0.005	ND	<0.01
Flow, Rate Gallons/Min	87	0	163.6	0	4.6	20.5	0
Fluoride, Total (mg/l as F)	8	0	8.41	4.84	6.45	1.24	6.145
Hardness, Total (mg/l as CaCO ₃)	8	0	907	497	689	121	669
Iron, Dissolved (mg/l as Fe)	8	8	<0.05	<0.05	0.025	ND	<0.05
Iron, Total Recoverable in Water as Fe mg/l	6	5	0.196	<0.05	0.054	0.070	<0.05
Lead, Dissolved (mg/l as Pb)	8	8	<0.001	<0.001	0.0005	ND	<0.001
Magnesium, Total (mg/l as Mg)	8	0	53.4	35.1	45.5	5.9	44.9
Manganese, Dissolved (mg/l as Mn)	8	1	2.26	<0.01	0.71	0.78	0.419
Mercury, Total (mg/l as Hg)	8	8	<0.0002	<0.0002	0.0001	ND	<0.0002
Nickel, Dissolved (mg/l as Ni)	8	0	0.039	0.005	0.019	0.012	0.016
Nitrate Nitrogen, Total (mg/l as N)	8	0	5.84	0.608	2.83	1.81	3.055
Nitrite Nitrogen, Total (mg/l as N)	8	8	<0.05	<0.05	0.025	ND	<0.05
Nitrite plus Nitrate, mg/l as Nitrogen	4	0	5.84	0.824	3.50	2.08	3.665
Nitrogen, Ammonia, Total (mg/l as N)	8	8	<0.05	<0.05	0.025	ND	<0.05
Oil and Grease Visual (No=0, Yes=1)	4	0	0	0	0	0	0
Oxygen, Dissolved mg/L	8	0	8	4.8	6.3	1.2	6.15
pH, Field, Standard Units	8	0	6.92	5.81	6.25	0.38	6.1
Potassium, Total mg/l as K)	8	0	5.1	3.59	4.5	0.60	4.775
Selenium, Dissolved (mg/l as Se)	8	7	0.007	<0.005	0.003	0.002	<0.005
Silver, Dissolved (mg/l as Ag)	8	8	<0.001	<0.001	0.0005	ND	<0.001
Sodium, Total (mg/l as Na)	8	0	38.2	16.4	27.0	8.2	25.55
Specific Conductance, Field (umhos/cm @ 25C)	8	0	1630	934	1310	207	1337
Sulfate, Total (mg/l as SO ₄)	8	0	810	471	628	100	615.5
Temperature, Water (Degrees Centigrade)	8	0	16.7	9.7	14.2	2.7	15.15
Total Dissolved Solids, mg/l	8	0	1450	912	1140	160	1128.5
Total Suspend Solids, mg/l	8	8	<10	<10	5	ND	<10
Weak Acid Dissociable Cyanide, mg/l	8	8	<0.01	<0.01	0.005	ND	<0.01
Zinc, Dissolved (mg/l as Zn)	8	0	0.877	0.054	0.382	0.263	0.289

ND = Not determined. Applicable in two cases: number of analyses = 1; or all analyses are non-detect.

Non-detect analyses are set at 1/2 the detection limit for average and standard deviation calculations.

Median calculations use the laboratory analyses with less than detection values as negative.

Dissolved arsenic was analyzed until 2007. Total recoverable arsenic was analyzed from 1998-2001 and since 2010. Both forms are provided to indicate the entire analytical history.

Dissolved chromium was analyzed from 1998-2007. Total recoverable chromium was analyzed since 2007. Both forms are provided to indicate the entire analytical history.

TABLE 4-3
SAMPLE DATA FOR SGMW-5

SAMPLE LOCATION: SGMW-5
DRAINAGE: SQUAW GULCH
PERIOD OF RECORD: 2002-2015

PARAMETER	Number of analyses	Number of non-detect analyses	Maximum value	Minimum value	Average	Standard deviation	Median value
Water Level,Distance From Measuring Point (Feet)	54	0	256.6	256	256.3	0.1	256.4

TABLE 4-4**SAMPLE DATA FOR SGMW-6A****SAMPLE LOCATION: SGMW-6A****DRAINAGE: SQUAW GULCH****PERIOD OF RECORD: 2012-2015**

PARAMETER	Number of analyses	Number of non-detect analyses	Maximum value	Minimum value	Average value	Standard deviation	Median value
Water Level,Distance From Measuring Point (Feet)	12	0	407.15	385.1	404.9	6.3	406.9

TABLE 4-5
SAMPLE DATA SGMW-6B

SAMPLE LOCATION: SGMW-6B
DRAINAGE: SQUAW GULCH
PERIOD OF RECORD: 2012-2015

PARAMETER	Number of analyses	Number of non-detect analyses	Maximum value	Minimum value	Average value	Standard deviation	Median value
Acidity, Total (mg/l as CaCO ₃)	5	0	70	36	58.0	13.3	64
Alkalinity, Bicarbonate (mg/l as CaCO ₃)	5	0	169	114	146	25	161
Alkalinity, Carbonate (mg/l as CaCO ₃)	5	0	0	0	0	0	0
Alkalinity, Total (mg/l as CaCO ₃)	5	0	139	93.1	119.6	20.6	132
Aluminum, Dissolved (mg/l as Al)	5	0	1.63	0.014	0.516	0.723	0.048
Arsenic, Dissolved (mg/l as As)	5	5	-0.005	-0.005	0.0025	ND	-0.005
Cadmium, Dissolved (mg/l as Cd)	5	3	0.002	-0.001	0.0009	0.0007	-0.001
Calcium, Total (mg/l as Ca)	5	0	441	390	412	19	408
Chloride, Total in Water mg/l	5	0	150	125	135	10	130
Chromium, Dissolved (mg/l as Cr)	5	3	0.002	-0.001	0.0011	0.0008	-0.001
Copper, Dissolved (mg/l as Cu)	5	5	-0.005	-0.005	0.0025	ND	-0.005
Cyanide Free, mg/l	5	5	-0.01	-0.01	0.005	ND	-0.01
Cyanide, Total (mg/l as CN)	5	5	-0.01	-0.01	0.005	ND	-0.01
Fluoride, Total (mg/l as F)	5	0	6.36	3.34	5.13	1.16	5.6
Hardness, Total (mg/l as CaCO ₃)	5	0	1300	1090	1176	81	1140
Iron, Dissolved (mg/l as Fe)	5	0	9.54	3.94	6.04	2.19	5.81
Lead, Dissolved (mg/l as Pb)	5	4	0.001	-0.001	0.0006	0.0002	-0.001
Magnesium, Total (mg/l as Mg)	5	0	47.8	27.3	36.2	10.5	30.4
Manganese, Dissolved (mg/l as Mn)	5	0	5.94	2.78	4.10	1.61	3.21
Mercury, Total (mg/l as Hg)	5	3	0.0003	-0.0002	0.00018	0.00011	-0.0002
Nickel, Dissolved (mg/l as Ni)	5	0	0.042	0.011	0.025	0.015	0.016
Nitrate Nitrogen, Total (mg/l as N)	5	4	1.19	-0.05	0.258	0.521	-0.05
Nitrite Nitrogen, Total (mg/l as N)	5	5	-0.05	-0.05	0.025	ND	-0.05
Nitrogen, Ammonia, Total (mg/l as N)	5	4	0.085	-0.05	0.037	0.027	-0.05
Oil and Grease Visual (No=0, Yes=1)	9	0	0	0	0	0	0
Oxygen, Dissolved mg/L	9	0	3.85	0.21	2.36	1.11	2.38
pH, Field, Standard Units	9	0	6.83	6.36	6.59	0.15	6.58
pH, Lab, Standard Units	5	0	6.97	6.32	6.67	0.23	6.7
Potassium, Total mg/l as K)	5	0	6.19	5.24	5.61	0.44	5.33
Selenium, Dissolved (mg/l as Se)	5	4	0.007	-0.005	0.0034	0.0020	-0.005
Silver, Dissolved (mg/l as Ag)	5	5	-0.001	-0.001	0.0005	ND	-0.001
Sodium, Total (mg/l as Na)	5	0	48	31.1	37.2	6.9	34.4
Specific Conductance (umhos/cm @ 25C)	5	0	2330	2020	2144	134	2110
Specific Conductance, Field (umhos/cm @ 25C)	9	0	2280	1790	1987	161	2010
Sulfate, Total (mg/l as SO ₄)	5	0	1140	873	970	116	904
Temperature, Water (Degrees Centigrade)	9	0	13.8	9.1	10.9	1.4	10.7
Temperature, Water (Degrees Fahrenheit)	9	0	56.8	48.4	51.6	2.6	51.3
Total Dissolved Solids, mg/l	5	0	2030	1660	1798	174	1680
Total Suspend Solids, mg/l	5	2	27	-10	12.6	9.0	12
Water Level, Distance From Measuring Point (Feet)	14	0	37.02	18.12	28.31	5.49	29.465
Weak Acid Dissociable Cyanide, mg/l	5	5	-0.01	-0.01	0.005	ND	-0.01
Zinc, Dissolved (mg/l as Zn)	5	1	0.561	-0.05	0.315	0.200	0.341

ND = Not determined. Applicable in two cases: number of analyses = 1; or all analyses are non-detect.

Non-detect analyses are set at 1/2 the detection limit for average and standard deviation calculations.

Median calculations use the laboratory analyses with less than detection values as negative.

TABLE 4-6**SAMPLE DATA FOR SGMW-7A****SAMPLE LOCATION: SGMW-7A****DRAINAGE: SQUAW GULCH****PERIOD OF RECORD: 2012-2015**

PARAMETER	Number of analyses	Number of non-detect analyses	Maximum value	Minimum value	Average value	Standard deviation	Median value
Water Level,Distance From Measuring Point (Feet)	12	0	405.5	395.1	400.6	3.8	401.9

TABLE 4-7
SAMPLE DATA FOR SGMW-7B

SAMPLE LOCATION: SGMW-7B
DRAINAGE: SQUAW GULCH
PERIOD OF RECORD: 2012-2015

PARAMETER	Number of analyses	Number of non-detect analyses	Maximum value	Minimum value	Average value	Standard deviation	Median value
Acidity, Total (mg/l as CaCO ₃)	2	1	12	-10	8.5	4.9	1
Alkalinity, Bicarbonate (mg/l as CaCO ₃)	2	0	39.5	35.4	37.5	2.9	37.45
Alkalinity, Carbonate (mg/l as CaCO ₃)	2	0	0	0	0	0	0
Alkalinity, Total (mg/l as CaCO ₃)	2	0	32.4	29	30.7	2.4	30.7
Aluminum, Dissolved (mg/l as Al)	2	0	0.178	0.078	0.1280	0.0707	0.128
Arsenic, Dissolved (mg/l as As)	2	2	-0.005	-0.005	0.0025	ND	-0.005
Cadmium, Dissolved (mg/l as Cd)	2	2	-0.001	-0.001	0.0005	ND	-0.001
Calcium, Total (mg/l as Ca)	2	0	355	351	353	3	353
Chloride, Total in Water mg/l	2	0	63.4	61.8	62.6	1.1	62.6
Chromium, Dissolved (mg/l as Cr)	2	0	0.002	0.002	0.0020	0.0000	0.002
Copper, Dissolved (mg/l as Cu)	2	0	0.009	0.007	0.0080	0.0014	0.008
Cyanide Free, mg/l	2	2	-0.01	-0.01	0.005	ND	-0.01
Cyanide, Total (mg/l as CN)	2	2	-0.01	-0.01	0.005	ND	-0.01
Fluoride, Total (mg/l as F)	2	0	2.44	2.41	2.43	0.02	2.425
Hardness, Total (mg/l as CaCO ₃)	2	0	1050	1040	1045	7	1045
Iron, Dissolved (mg/l as Fe)	2	1	0.06	-0.05	0.043	0.025	0.005
Lead, Dissolved (mg/l as Pb)	2	2	-0.001	-0.001	0.0005	ND	-0.001
Magnesium, Total (mg/l as Mg)	2	0	40.4	39.6	40.0	0.6	40
Manganese, Dissolved (mg/l as Mn)	2	0	0.083	0.032	0.0575	0.0361	0.0575
Mercury, Total (mg/l as Hg)	2	1	0	-0.0002	0.00005	0.00007	-0.0001
Nickel, Dissolved (mg/l as Ni)	2	0	0.01	0.009	0.0095	0.0007	0.0095
Nitrate Nitrogen, Total (mg/l as N)	2	0	10.8	7.54	9.17	2.31	9.17
Nitrite Nitrogen, Total (mg/l as N)	2	2	-0.05	-0.05	0.025	ND	-0.05
Nitrogen, Ammonia, Total (mg/l as N)	2	2	-0.05	-0.05	0.025	ND	-0.05
Oil and Grease Visual (No=0, Yes=1)	4	0	0	0	0	0	0
Oxygen, Dissolved mg/L	4	0	7.9	4.35	6.35	1.47	6.58
pH, Field, Standard Units	4	0	6.84	6.42	6.62	0.19	6.61
pH, Lab, Standard Units	2	0	6.71	6.43	6.57	0.20	6.57
Potassium, Total mg/l as K)	2	0	5.71	5.57	5.64	0.10	5.64
Selenium, Dissolved (mg/l as Se)	2	1	0.005	-0.005	0.0038	0.0018	0
Silver, Dissolved (mg/l as Ag)	2	2	-0.001	-0.001	0.0005	ND	-0.001
Sodium, Total (mg/l as Na)	2	0	30.9	29.2	30.1	1.2	30.05
Specific Conductance (umhos/cm @ 25C)	2	0	1860	1820	1840	28	1840
Specific Conductance, Field (umhos/cm @ 25C)	4	0	1678	1246	1419	183	1375
Sulfate, Total (mg/l as SO ₄)	2	0	966	941	954	18	953.5
Temperature, Water (Degrees Centigrade)	4	0	10.8	8.8	9.6	0.9	9.35
Temperature, Water (Degrees Fahrenheit)	4	0	51.4	47.8	49.2	1.6	48.85
Total Dissolved Solids, mg/l	2	0	1570	1520	1545	35	1545
Total Suspended Solids, mg/l	2	2	-10	-10	5	ND	-10
Water Level, Distance From Measuring Point (Feet)	15	0	60.4	43.62	55.66	5.27	57.95
Weak Acid Dissociable Cyanide, mg/l	2	2	-0.01	-0.01	0.005	ND	-0.01
Zinc, Dissolved (mg/l as Zn)	2	2	-0.05	-0.05	0.025	ND	-0.05

ND = Not determined. Applicable in two cases: number of analyses = 1; or all analyses are non-detect.

Non-detect analyses are set at 1/2 the detection limit for average and standard deviation calculations.

Median calculations use the laboratory analyses with less than detection values as negative.

TABLE 4-8
SAMPLE DATA FOR GRMW-1A

SAMPLE LOCATION: GRMW-1A
DRAINAGE: GOLD RUN CREEK
PERIOD OF RECORD: 1998-2015

PARAMETER	Number of analyses	Number of non-detect analyses	Maximum value	Minimum value	Average value	Standard deviation	Median value
Acidity, Total (mg/l as CaCO ₃)	15	1	42	-10	25.0	8.1	26
Alkalinity, Bicarbonate (mg/l as CaCO ₃)	15	0	417	192	372	53	382
Alkalinity, Carbonate (mg/l as CaCO ₃)	15	0	0	0	0	0	0
Aluminum, Dissolved (mg/l as Al)	15	8	11.2	-0.05	0.790	2.880	-0.05
Arsenic, Total Recoverable in Water as As mg/l	15	2	0.078	-0.005	0.0196	0.0189	0.013
Cadmium, Dissolved (mg/l as Cd)	15	12	0.001	-0.001	0.0006	0.0002	-0.001
Calcium, Total (mg/l as Ca)	15	0	661	267	367	90	340
Chloride, Total in Water mg/l	15	0	10	3.5	5.1	2.1	4.5
Chromium, Dissolved (mg/l as Cr)	15	12	0.027	-0.001	0.0024	0.0068	-0.001
Copper, Dissolved (mg/l as Cu)	15	11	0.009	-0.005	0.0039	0.0025	-0.005
Cyanide Free, mg/l	16	16	-0.01	-0.01	0.005	ND	-0.01
Cyanide, Total (mg/l as CN)	16	16	-0.01	-0.01	0.005	ND	-0.01
Fluoride, Total (mg/l as F)	15	0	3.48	1.83	2.70	0.35	2.68
Hardness, Total (mg/l as CaCO ₃)	15	0	1930	748	1003	275	919
Iron, Dissolved (mg/l as Fe)	15	10	7.61	-0.05	0.590	1.952	-0.05
Lead, Dissolved (mg/l as Pb)	15	14	0.015	-0.001	0.0015	0.0037	-0.001
Magnesium, Total (mg/l as Mg)	15	0	67.9	16.3	21.2	13.2	17.3
Manganese, Dissolved (mg/l as Mn)	14	4	1.59	-0.05	0.271	0.445	0.1015
Mercury, Total (mg/l as Hg)	15	15	-0.0002	-0.0002	0.0001	ND	-0.0002
Nickel, Dissolved (mg/l as Ni)	15	8	0.025	-0.005	0.0072	0.0076	-0.005
Nitrate Nitrogen, Total (mg/l as N)	15	14	0.105	-0.05	0.030	0.021	-0.05
Nitrite Nitrogen, Total (mg/l as N)	15	15	-0.05	-0.05	0.025	ND	-0.05
Nitrogen, Ammonia, Total (mg/l as N)	15	15	-0.05	-0.05	0.025	ND	-0.05
Oxygen, Dissolved mg/L	26	0	10.5	1.5	5.6	2.0	5.3
pH, Field, Standard Units	27	0	7.52	6.33	6.9	0.3	6.84
Potassium, Total mg/l as K)	15	0	77.2	4.85	12.1	18.2	6.21
Selenium, Dissolved (mg/l as Se)	15	12	0.007	-0.005	0.0034	0.0019	-0.005
Silver, Dissolved (mg/l as Ag)	15	15	-0.001	-0.005	0.0006	ND	-0.001
Sodium, Total (mg/l as Na)	15	0	72.3	45	53.8	7.1	51.7
Specific Conductance, Field (umhos/cm @ 25C)	27	0	2200	308	1511	412	1650
Sulfate, Total (mg/l as SO ₄)	15	0	892	654	709	65	691
Temperature, Water (Degrees Centigrade)	27	0	15.9	5.9	9.6	2.7	9.1
Total Dissolved Solids, mg/l	15	0	1599	1240	1414	80	1421
Total Suspend Solids, mg/l	15	0	38526	19	2790	9889	130
Water Level, Distance From Measuring Point (Feet)	29	0	149.34	144	144.98	0.95	144.66
Weak Acid Dissociable Cyanide, mg/l	16	16	-0.01	-0.01	0.005	ND	-0.01
Zinc, Dissolved (mg/l as Zn)	15	6	0.312	-0.05	0.067	0.072	0.055

ND = Not determined. Applicable in two cases: number of analyses = 1; or all analyses are non-detect.

Non-detect analyses are set at 1/2 the detection limit for average and standard deviation calculations.

Median calculations use the laboratory analyses with less than detection values as negative.

TABLE 4-9
SAMPLE DATA FOR GRMW-2A

SAMPLE LOCATION: GRMW-2A
DRAINAGE: GOLD RUN CREEK
PERIOD OF RECORD: 1998-2015

PARAMETER	Number of analyses	Number of non-detect analyses	Maximum value	Minimum value	Average value	Standard deviation	Median value
Acidity, Total (mg/l as CaCO ₃)	31	0	18	10	12.2	1.7	12
Alkalinity, Bicarbonate (mg/l as CaCO ₃)	31	0	124	94.7	102.3	5.5	102
Alkalinity, Carbonate (mg/l as CaCO ₃)	31	0	0	0	0	0	0
Alkalinity, Total (mg/l as CaCO ₃)	11	0	102	80.7	86.6	5.8	85.3
Aluminum, Dissolved (mg/l as Al)	31	26	0.182	-0.05	0.032	0.031	-0.05
Arsenic, Dissolved (mg/l as As)	11	11	-0.005	-0.005	0.0025	ND	-0.005
Arsenic, Total Recoverable in Water as As mg/l	20	20	-0.005	-0.005	0.0025	ND	-0.005
Cadmium, Dissolved (mg/l as Cd)	31	31	-0.001	-0.001	0.0005	ND	-0.001
Calcium, Total (mg/l as Ca)	31	0	672	499	574	37	576
Chloride, Total in Water mg/l	31	0	49.6	4.5	11.45	8.90	7
Chromium, Dissolved (mg/l as Cr)	31	26	0.003	-0.001	0.0008	0.0008	-0.001
Copper, Dissolved (mg/l as Cu)	31	21	0.012	-0.005	0.0037	0.0021	-0.005
Cyanide Free, mg/l	31	31	-0.01	-0.01	0.005	ND	-0.01
Cyanide, Total (mg/l as CN)	31	31	-0.01	-0.01	0.005	ND	-0.01
Fluoride, Total (mg/l as F)	31	0	4.15	3.4	3.77	0.20	3.78
Hardness, Total (mg/l as CaCO ₃)	31	0	1930	1597	1794	87	1806
Iron, Dissolved (mg/l as Fe)	31	1	1.48	-0.05	0.954	0.378	0.972
Lead, Dissolved (mg/l as Pb)	31	22	0.003	-0.001	0.0009	0.0007	-0.001
Magnesium, Total (mg/l as Mg)	31	0	106	71.1	88.7	8.5	87.7
Manganese, Dissolved (mg/l as Mn)	31	1	4.69	-0.05	3.258	0.832	3.39
Mercury, Total (mg/l as Hg)	31	31	-0.0002	-0.0002	0.0001	ND	-0.0002
Nickel, Dissolved (mg/l as Ni)	31	23	0.018	-0.005	0.0046	0.0044	-0.005
Nitrate Nitrogen, Total (mg/l as N)	31	25	0.137	-0.05	0.037	0.028	-0.05
Nitrite Nitrogen, Total (mg/l as N)	31	31	-0.05	-0.05	0.025	ND	-0.05
Nitrogen, Ammonia, Total (mg/l as N)	31	31	-0.05	-0.05	0.025	ND	-0.05
Oil and Grease Visual (No=0, Yes=1)	10	0	0	0	0	0	0
Oxygen, Dissolved mg/L	27	0	4.2	0.09	0.56	1.01	0.2
pH, Field, Standard Units	31	0	7.57	6.81	7.05	0.14	7.01
Potassium, Total mg/l as K)	31	0	4.89	3.61	4.27	0.33	4.35
Selenium, Dissolved (mg/l as Se)	31	24	0.015	-0.005	0.0041	0.0035	-0.005
Silver, Dissolved (mg/l as Ag)	31	30	0.001	-0.001	0.0005	0.0001	-0.001
Sodium, Total (mg/l as Na)	31	0	45.9	31.5	34.8	3.2	33.9
Specific Conductance, Field (umhos/cm @ 25C)	31	0	3400	351	2430	814	2630
Sulfate, Total (mg/l as SO ₄)	31	0	1903	1504	1723	85	1726
Temperature, Water (Degrees Centigrade)	31	0	11.7	7.3	9.5	0.9	9.3
Total Dissolved Solids, mg/l	29	0	2787	2557	2677	60	2669
Total Suspend Solids, mg/l	31	18	64	-10	11.6	12.0	-10
Water Level, Distance From Measuring Point (Feet)	32	0	76.98	54.1	66.0	6.0	64.87
Weak Acid Dissociable Cyanide, mg/l	31	31	-0.01	-0.01	0.005	ND	-0.01
Zinc, Dissolved (mg/l as Zn)	31	26	0.138	-0.05	0.033	0.023	-0.05

ND = Not determined. Applicable in two cases: number of analyses = 1; or all analyses are non-detect.

Non-detect analyses are set at 1/2 the detection limit for average and standard deviation calculations.

Median calculations use the laboratory analyses with less than detection values as negative.

Dissolved arsenic was analyzed from 2002. Total recoverable arsenic was analyzed until 2002. Both forms are provided to indicate the entire analytical history.

TABLE 4-10**SAMPLE DATA FOR GRMW-3A****SAMPLE LOCATION: GRMW-3A****DRAINAGE: GOLD RUN CREEK****PERIOD OF RECORD: 1998-2015**

PARAMETER	Number of analyses	Number of non-detect analyses	Maximum value	Minimum value	Average value	Standard deviation	Median value
Acidity, Total (mg/l as CaCO ₃)	17	15	22	-10	6.3	4.2	-10
Alkalinity, Bicarbonate (mg/l as CaCO ₃)	17	0	215	199	207	4	207
Alkalinity, Carbonate (mg/l as CaCO ₃)	17	0	0	0	0	0	0
Aluminum, Dissolved (mg/l as Al)	17	14	0.115	-0.05	0.033	0.025	-0.05
Arsenic, Total Recoverable in Water as As mg/l	16	15	0.006	-0.005	0.003	0.001	-0.005
Cadmium, Dissolved (mg/l as Cd)	17	16	0.003	-0.001	0.0006	0.0006	-0.001
Calcium, Total (mg/l as Ca)	17	0	132	96.5	112.3	10.5	111
Chloride, Total in Water mg/l	17	0	4	1.5	2.32	0.61	2.5
Chromium, Dissolved (mg/l as Cr)	17	13	0.002	-0.001	0.0007	0.0005	-0.001
Copper, Dissolved (mg/l as Cu)	17	17	-0.005	-0.005	0.0025	ND	-0.005
Cyanide Free, mg/l	18	18	-0.01	-0.01	0.005	ND	-0.01
Cyanide, Total (mg/l as CN)	18	18	-0.01	-0.01	0.005	ND	-0.01
Fluoride, Total (mg/l as F)	17	0	4.6	4.03	4.34	0.18	4.33
Hardness, Total (mg/l as CaCO ₃)	17	0	362	286	323	25	316
Iron, Dissolved (mg/l as Fe)	17	9	0.342	-0.05	0.088	0.087	-0.05
Lead, Dissolved (mg/l as Pb)	17	17	-0.001	-0.001	0.0005	ND	-0.001
Magnesium, Total (mg/l as Mg)	17	0	11.7	9.51	10.6	0.7	10.7
Manganese, Dissolved (mg/l as Mn)	17	0	0.762	0.106	0.575	0.170	0.617
Mercury, Total (mg/l as Hg)	17	17	-0.0002	-0.0002	0.0001	ND	-0.0002
Nickel, Dissolved (mg/l as Ni)	17	16	0.008	-0.005	0.0028	0.0013	-0.005
Nitrate Nitrogen, Total (mg/l as N)	17	17	-0.05	-0.05	0.025	ND	-0.05
Nitrite Nitrogen, Total (mg/l as N)	17	17	-0.05	-0.05	0.025	ND	-0.05
Nitrogen, Ammonia, Total (mg/l as N)	17	17	-0.05	-0.05	0.025	ND	-0.05
Oxygen, Dissolved mg/L	18	0	4.5	0.1	1.18	1.31	0.6
pH, Field, Standard Units	19	0	7.68	6.95	7.36	0.19	7.41
Potassium, Total mg/l as K)	17	0	5.53	2.74	3.61	0.86	3.29
Selenium, Dissolved (mg/l as Se)	17	17	-0.005	-0.005	0.0025	ND	-0.005
Silver, Dissolved (mg/l as Ag)	17	17	-0.001	-0.001	0.0005	ND	-0.001
Sodium, Total (mg/l as Na)	17	0	30	21	23.7	2.6	23
Specific Conductance, Field (umhos/cm @ 25C)	19	0	795	463	677	92	700
Sulfate, Total (mg/l as SO ₄)	17	0	215	151	185	18	184
Temperature, Water (Degrees Centigrade)	19	0	15.6	7.8	10.2	1.9	9.7
Total Dissolved Solids, mg/l	15	0	674	439	498	54	489
Total Suspend Solids, mg/l	17	2	686	-10	101.6	177.7	39
Water Level, Distance From Measuring Point (Feet)	19	0	158.78	139.21	148.58	5.94	149.98
Weak Acid Dissociable Cyanide, mg/l	18	18	-0.01	-0.01	0.005	ND	-0.01
Zinc, Dissolved (mg/l as Zn)	17	17	-0.05	-0.05	0.025	ND	-0.05

ND = Not determined. Applicable in two cases: number of analyses = 1; or all analyses are non-detect.

Non-detect analyses are set at 1/2 the detection limit for average and standard deviation calculations.

Median calculations use the laboratory analyses with less than detection values as negative.

TABLE 4-11
SAMPLE DATA FOR AG-1.0

SAMPLE LOCATION: AG-1.0
DRAINAGE: AREQUA GULCH
PERIOD OF RECORD: 1995-2015

PARAMETER	Number of analyses	Number of non-detect analyses	Maximum value	Minimum value	Average value	Standard deviation	Median value
Acidity, Total (mg/l as CaCO ₃)	168	0	952	1.24564	177	178	152
Alkalinity, Bicarbonate (mg/l as CaCO ₃)	178	16	0	-10	0.4	1.4	0
Alkalinity, Carbonate (mg/l as CaCO ₃)	178	1	0	-5	0.0	0.2	0
Alkalinity, Total (mg/l as CaCO ₃)	148	47	0	-10	1.4	2.1	0
Aluminum, Dissolved (mg/l as Al)	190	0	159	0.177	36.67	25.33	29.4
Arsenic, Dissolved (mg/l as As)	82	76	0.007	-0.01	0.003	0.001	-0.005
Arsenic, Total Recoverable in Water as As mg/l	111	93	0.061	-0.1	0.006	0.009	-0.005
Barium, Total (mg/l as Ba)	5	0	0.06	0.01	0.03	0.02	0.02
Beryllium, Total (mg/l as Be)	6	0	0.008	0.003	0.005	0.002	0.005
Cadmium, Dissolved (mg/l as Cd)	193	1	0.058	-0.001	0.0223	0.0099	0.02
Calcium, Total (mg/l as Ca)	187	0	420	29.9	208.2	80.4	190
Chloride, Total in Water mg/l	197	0	317	6.5	81.3	61.4	67.5
Chromium, Dissolved (mg/l as Cr)	154	31	0.01	-0.01	0.002	0.001	0.002
Copper, Dissolved (mg/l as Cu)	194	2	0.66	-0.1	0.207	0.111	0.1855
Cyanide Free, mg/l	1299	1292	0.01	-0.2	0.005	0.004	-0.01
Cyanide, Total (mg/l as CN)	1300	11	0.47	-0.01	0.042	0.023	0.039
Flow, in Conduit or Thru a Treatment Plant MGD	106	0	0.0074	0	0.00085	0.00111	0.00035
Flow, Rate Gallons/Min	2749	0	99	0	3.1433312	9.632047	0.33
Flow, Stream, Instantaneous Cfs	107	0	0.0115	0	0.0013	0.0017	0.0005
Fluoride, Total (mg/l as F)	191	0	59	0.064	9.02	8.86	8.19
Hardness, Total (mg/l as CaCO ₃)	190	0	1360	246	755	280	677.5
Iron, Dissolved (mg/l as Fe)	187	1	0.91	-0.05	0.259	0.165	0.222
Iron, Total Recoverable in Water as Fe mg/l	116	4	1.85	-0.1	0.267	0.215	0.2195
Lead, Dissolved (mg/l as Pb)	189	179	0.004	-0.005	0.0007	0.0006	-0.001
Magnesium, Total (mg/l as Mg)	187	0	113	20.6	58.5	21.2	53.2
Manganese, Dissolved (mg/l as Mn)	195	0	30.9	0.334	8.09	5.10	6.77
Mercury, Total (mg/l as Hg)	192	184	0.0025	-0.0002	0.00013	0.00027	-0.0002
Molybdenum, Dissolved (mg/l as Mo)	15	0	0.22	0.006	0.060	0.072	0.021
Nickel, Dissolved (mg/l as Ni)	190	0	0.206	0.012	0.077	0.031	0.074
Nitrate Nitrogen, Total (mg/l as N)	193	0	39.3	1.9	17.4	10.3	16.9
Nitrite Nitrogen, Total (mg/l as N)	192	191	0.062	-0.5	0.026	0.016	-0.05
Nitrogen, Ammonia, Total (mg/l as N)	195	63	0.422	-0.2	0.081	0.062	0.061
Oil and Grease Visual (No=0, Yes=1)	1883	0	0	0	0	0	0
Oxygen, Dissolved mg/L	1426	0	15.6	0.2	6.12	2.07	6.35
pH, Field, Standard Units	1698	0	7.2	3.43	4.33	0.33	4.3
pH, Lab, Standard Units	78	0	5.22	3.7	4.24	0.25	4.28
Potassium, Dissolved (mg/l as K)	11	0	4.71	3	3.88	0.54	3.97
Potassium, Total mg/l as K)	160	0	15.4	2.35	6.70	2.53	6.395
Selenium, Dissolved (mg/l as Se)	187	78	0.032	-0.04	0.009	0.007	0.007
Silver, Dissolved (mg/l as Ag)	189	164	0.011	-0.005	0.0007	0.0010	-0.001
Sodium, Total (mg/l as Na)	160	0	86.2	11.2	41.4	12.5	41.7
Specific Conductance (umhos/cm @ 25C)	93	0	2880	1510	2135	309	2220
Specific Conductance, Field (umhos/cm @ 25C)	1416	0	2710	171	1489	439	1400
Sulfate, Total (mg/l as SO ₄)	197	0	1610	268	826	280	729
Temperature, Water (Degrees Centigrade)	1691	0	53.28	0.1	8.19	2.82	7.7
Temperature, Water (Degrees Fahrenheit)	106	0	66.2	32.5	49.2	6.1	50
Total Dissolved Solids, mg/l	193	0	2770	541	1419	424	1320
Total Suspend Solids, mg/l	193	187	18	-10	5.0	1.3	-10
Weak Acid Dissociable Cyanide, mg/l	1300	1272	0.02	-0.02	0.005	0.001	-0.01
Zinc, Dissolved (mg/l as Zn)	196	0	4.95	0.073	1.42	0.79	1.245

ND = Not determined. Applicable in two cases: number of analyses = 1; or all analyses are non-detect.

Non-detect analyses are set at 1/2 the detection limit for average and standard deviation calculations.

Median calculations use the laboratory analyses with less than detection values as negative.

TABLE 4-12
SAMPLE DATA FOR AG-1.5

SAMPLE LOCATION: AG-1.5
DRAINAGE: AREQUA GULCH
PERIOD OF RECORD: 1996-2015

PARAMETER	Number of Analyses	Number of non-detect analyses	Maximum value	Minimum value	Average value	Standard deviation	Median value
Acidity, Total (mg/l as CaCO ₃)	42	2	78	-10	25.2	15.4	20
Alkalinity, Bicarbonate (mg/l as CaCO ₃)	41	18	50.4	-10	12.9	10.6	10.8
Alkalinity, Carbonate (mg/l as CaCO ₃)	41	0	0	0	0	0	0
Alkalinity, Total (mg/l as CaCO ₃)	42	19	41.3	-10	10.8	8.3	8.78
Aluminum, Dissolved (mg/l as Al)	47	0	18.8	0.235	3.824	3.606	2.49
Aluminum, Potentially Dissolved (mg/l as Al)	119	0	18.8	0.17	4.633	2.897	4.02
Arsenic, Total Recoverable in Water as As mg/l	41	40	0.025	-0.005	0.0030	0.0035	-0.005
Cadmium, Dissolved (mg/l as Cd)	48	11	0.01	-0.001	0.0032	0.0024	0.003
Cadmium, Potentially Dissolved (mg/l as Cd)	119	10	2.71	-0.001	0.0266	0.2481	0.004
Calcium, Total (mg/l as Ca)	114	0	421	125	211	40	211.5
Chloride, Total in Water mg/l	42	0	433	12.5	87.3	76.1	60
Chromium, Dissolved (mg/l as Cr)	41	36	0.004	-0.001	0.0007	0.0007	-0.001
Copper, Dissolved (mg/l as Cu)	46	19	0.055	-0.005	0.0111	0.0121	0.007
Cyanide Free, mg/l	372	347	0.049	-0.05	0.008	0.006	-0.01
Cyanide, Total (mg/l as CN)	372	8	0.094	-0.01	0.034	0.018	0.029
Flow, in Conduit or Thru a Treatment Plant MGD	1217	0	0.0161	0	0.00001	0.00046	0
Flow, Rate Gallons/Min	2146	0	700	0	13.5	50.0	0
Flow, Stream, Instantaneous Cfs	1215	0	0	0	0	0	0
Fluoride, Total (mg/l as F)	42	0	12.9	0.798	6.242	2.599	5.585
Hardness, Total (mg/l as CaCO ₃)	122	0	1380	0	707	136	711.5
Iron, Total Recoverable in Water as Fe mg/l	121	77	4.06	-0.05	0.101	0.381	-0.05
Lead, Dissolved (mg/l as Pb)	42	40	0.002	-0.001	0.0005	0.0002	-0.001
Magnesium, Total (mg/l as Mg)	114	0	78.8	28.2	44.5	7.8	43.45
Manganese, Dissolved (mg/l as Mn)	48	1	5.62	-0.01	2.075	1.640	1.69
Mercury, Total (mg/l as Hg)	43	42	0.0000055	-0.0002	0.00008	0.00003	-0.0002
Molybdenum, Dissolved (mg/l as Mo)	40	0	0.046	0.003	0.018	0.008	0.017
Nickel, Dissolved (mg/l as Ni)	44	4	0.043	-0.005	0.0224	0.0125	0.0235
Nitrate Nitrogen, Total (mg/l as N)	69	0	19.5	1.45	13.14	3.80	14.2
Nitrite Nitrogen, Total (mg/l as N)	44	44	-0.05	-0.05	0.025	ND	-0.05
Nitrogen, Ammonia, Total (mg/l as N)	123	118	0.221	-0.2	0.03	0.02	-0.05
Oil and Grease Visual (No=0, Yes=1)	461	0	0	0	0	0	0
Oxygen, Dissolved mg/L	213	0	12.3	2.4	7.72	1.25	7.9
pH, Field, Standard Units	549	0	7.09	5.23	6.02	0.37	6.06
pH, Lab, Standard Units	123	0	7.13	4.84	5.95	0.39	6.01
Potassium, Total mg/l as K)	42	0	11.6	5.26	7.89	1.42	8.055
Selenium, Dissolved (mg/l as Se)	42	34	0.013	-0.005	0.0033	0.0020	-0.005
Silver, Dissolved (mg/l as Ag)	42	40	0.002	-0.001	0.0006	0.0003	-0.001
Sodium, Total (mg/l as Na)	42	0	94.7	26.8	64.0	15.2	65.45
Specific Conductance, Field (umhos/cm @ 25C)	213	0	2780	822	1403	292	1397
Strontium, Dissolved (mg/l as Sr)	2	0	9.82	5.21	7.52	3.26	7.515
Sulfate, Total (mg/l as SO ₄)	42	0	943	395	665	92	666
Temperature, Water (Degrees Centigrade)	550	5	32.1	-0.2	7.32	4.11	7.95
Temperature, Water (Degrees Fahrenheit)	4	0	50.4	4.4	24.73	20.69	22.05
Total Dissolved Solids, mg/l	64	0	2170	884	1257	182	1260
Total Suspend Solids, mg/l	125	87	87	-10	9.0	9.4	-10
Weak Acid Dissociable Cyanide, mg/l	372	203	0.068	-0.013	0.012	0.010	-0.01
Zinc, Dissolved (mg/l as Zn)	46	2	0.802	-0.05	0.316	0.193	0.3155
Zinc, Total (mg/l as Zn)	115	0	0.914	0.091	0.425	0.186	0.405

ND = Not determined. Applicable in two cases: number of analyses = 1; or all analyses are non-detect.

Non-detect analyses are set at 1/2 the detection limit for average and standard deviation calculations.

Median calculations use the laboratory analyses with less than detection values as negative.

Potentially dissolved analyses for Al and Cd are included due to their extensive analytical record. Since 2001 all analyses are for the dissolved form.

TABLE 4-13**SAMPLE DATA FOR AG-2.0****SAMPLE LOCATION: AG-2.0****DRAINAGE: AREQUA GULCH****PERIOD OF RECORD: 2003-2015**

PARAMETER	Number of Analyses	Number of non-detect analyses	Maximum value	Minimum value	Average value	Standard deviation	Median value
Acidity, Total (mg/l as CaCO ₃)	9	9	-10	-10	5	ND	-10
Alkalinity, Bicarbonate (mg/l as CaCO ₃)	9	0	31.5	21.4	24.8	3.2	23.5
Alkalinity, Carbonate (mg/l as CaCO ₃)	9	0	0	0	0	0	0
Alkalinity, Total (mg/l as CaCO ₃)	9	0	25.8	17.5	20.3	2.6	19.3
Arsenic, Total Recoverable in Water as As mg/l	7	7	-0.005	-0.005	0.0025	ND	-0.005
Cadmium, Dissolved (mg/l as Cd)	9	9	-0.001	-0.001	0.0005	ND	-0.001
Calcium, Total (mg/l as Ca)	9	0	45.1	16.3	27.0	11.4	20.5
Chloride, Total in Water mg/l	9	0	29.2	10.4	18.5	7.2	15.2
Chromium, Total Recoverable in Water as Cr mg/l	7	7	-0.001	-0.001	0.0005	ND	-0.001
Copper, Dissolved (mg/l as Cu)	9	9	-0.005	-0.005	0.0025	ND	-0.005
Cyanide Free, mg/l	9	9	-0.01	-0.01	0.005	ND	-0.01
Cyanide, Total (mg/l as CN)	9	9	-0.01	-0.01	0.005	ND	-0.01
Flow, in Conduit or Thru a Treatment Plant MGD	46	0	0.1656	0	0.0155	0.0416	0
Flow, Rate Gallons/Min	47	0	152.4	0	13.8	35.2	0
Flow, Stream, Instantaneous Cfs	29	0	0.0033	0	0.00011	0.00061	0
Fluoride, Total (mg/l as F)	9	0	5.66	2.5	3.84	1.11	3.75
Hardness, Total (mg/l as CaCO ₃)	9	0	149	53.4	88.9	37.5	67.3
Iron, Dissolved (mg/l as Fe)	9	4	0.219	-0.05	0.07	0.06	0.056
Iron, Total Recoverable in Water as Fe mg/l	7	2	3.05	-0.05	0.89	1.03	0.715
Lead, Dissolved (mg/l as Pb)	9	9	-0.001	-0.001	0.0005	ND	-0.001
Magnesium, Total (mg/l as Mg)	9	0	8.74	3.07	5.20	2.23	3.9
Manganese, Dissolved (mg/l as Mn)	9	5	0.05	-0.01	0.01	0.02	-0.01
Mercury, Total (mg/l as Hg)	9	9	-0.0002	-0.0002	0.0001	ND	-0.0002
Nickel, Dissolved (mg/l as Ni)	9	8	0.006	-0.005	0.003	0.001	-0.005
Nitrate Nitrogen, Total (mg/l as N)	9	2	0.253	-0.05	0.12	0.08	0.1
Nitrite Nitrogen, Total (mg/l as N)	9	9	-0.05	-0.05	0.025	ND	-0.05
Nitrogen, Ammonia, Total (mg/l as N)	9	9	-0.05	-0.05	0.025	ND	-0.05
Oil and Grease Visual (No=0, Yes=1)	14	0	0	0	0	0	0
Oxygen, Dissolved mg/L	10	0	11.28	6.57	8.77	1.66	8.915
pH, Field, Standard Units	10	0	7.81	6.77	7.49	0.29	7.535
Potassium, Total mg/l as K)	9	0	5.26	2.04	3.19	1.28	2.39
Selenium, Dissolved (mg/l as Se)	9	9	-0.005	-0.005	0.0025	ND	-0.005
Silver, Dissolved (mg/l as Ag)	9	9	-0.001	-0.001	0.0005	ND	-0.001
Sodium, Total (mg/l as Na)	9	0	14.7	7.07	9.6	2.9	8.06
Specific Conductance, Field (umhos/cm @ 25C)	10	0	1176	150	330.9	307.9	225.5
Sulfate, Total (mg/l as SO ₄)	9	0	101	22.3	50.3	29.7	34.6
Temperature, Water (Degrees Centigrade)	10	0	17.3	1.46	3.78	4.83	2.115
Temperature, Water (Degrees Fahrenheit)	10	0	63.1	0.01	16.65	17.84	16.4
Total Dissolved Solids, mg/l	9	0	231	77	137.4	57.2	109
Total Suspend Solids, mg/l	9	3	177	-10	38.1	55.6	17
Weak Acid Dissociable Cyanide, mg/l	9	9	-0.01	-0.01	0.005	ND	-0.01
Zinc, Dissolved (mg/l as Zn)	10	10	-0.05	-0.05	0.025	ND	-0.05

ND = Not determined. Applicable in two cases: number of analyses = 1; or all analyses are non-detect.

Non-detect analyses are set at 1/2 the detection limit for average and standard deviation calculations.

Median calculations use the laboratory analyses with less than detection values as negative.

TABLE 4-14
SAMPLE DATA FOR ESPMW-1

SAMPLE LOCATION: ESPMW-1
DRAINAGE: AREQUA GULCH
PERIOD OF RECORD: 2001-2015

PARAMETER	Number of analyses	Number of non-detect analyses	Maximum value	Minimum value	Average value	Standard deviation	Median value
Acidity, Total (mg/l as CaCO ₃)	33	32	14	-10	5.3	1.6	-10
Alkalinity, Bicarbonate (mg/l as CaCO ₃)	33	0	279	127	136.6	25.7	132
Alkalinity, Carbonate (mg/l as CaCO ₃)	33	33	0	0	0	ID	0
Alkalinity, Total (mg/l as CaCO ₃)	25	0	229	104	113.5	24.2	108
Aluminum, Dissolved (mg/l as Al)	32	29	0.136	-0.05	0.03	0.02	-0.05
Arsenic, Dissolved (mg/l as As)	24	24	-0.005	-0.005	0.003	ID	-0.005
Arsenic, Total Recoverable in Water as As mg/l	8	8	-0.005	-0.005	0.003	ID	-0.005
Bicarbonate (mg/l as HCO ₃ ion)	5	0	131	129	130.4	0.9	131
Cadmium, Dissolved (mg/l as Cd)	32	32	-0.001	-0.001	0.001	ID	-0.001
Calcium, Total (mg/l as Ca)	32	0	40.3	33.7	36.9	1.7	36.85
Carbonate (mg/l as CO ₃ ion)	5	3	0	-10	3.0	2.7	-10
Chloride, Total in Water mg/l	32	2	3.25	-1	1.3	0.6	1.25
Chromium, Dissolved (mg/l as Cr)	32	32	-0.001	-0.001	0.001	ID	-0.001
Copper, Dissolved (mg/l as Cu)	32	7	0.021	-0.005	0.009	0.005	0.0085
Cyanide Free, mg/l	72	72	-0.01	-0.01	0.01	ID	-0.01
Cyanide, Total (mg/l as CN)	73	73	-0.005	-0.01	0.00	ID	-0.01
Fluoride, Total (mg/l as F)	32	0	1.41	1.25	1.32	0.04	1.32
Hardness, Total (mg/l as CaCO ₃)	32	0	142	120	130.7	5.6	130.32
Iron, Dissolved (mg/l as Fe)	32	27	0.091	-0.05	0.03	0.02	-0.05
Iron, Total Recoverable in Water as Fe mg/l	8	6	0.655	-0.05	0.11	0.22	-0.05
Lead, Dissolved (mg/l as Pb)	32	28	0.001	-0.001	0.001	0.0002	-0.001
Magnesium, Total (mg/l as Mg)	32	0	11.2	8.42	9.34	0.59	9.16
Manganese, Dissolved (mg/l as Mn)	32	27	0.103	-0.05	0.03	0.02	-0.05
Mercury, Total (mg/l as Hg)	32	32	-0.0002	-0.0002	0.0001	ID	-0.0002
Nickel, Dissolved (mg/l as Ni)	32	31	0.006	-0.005	0.003	0.001	-0.005
Nitrate Nitrogen, Total (mg/l as N)	33	30	0.114	-0.05	0.03	0.02	-0.05
Nitrite Nitrogen, Total (mg/l as N)	33	33	-0.05	-0.05	0.03	ID	-0.05
Nitrite plus Nitrate, mg/l as Nitrogen	4	2	0.0998	-0.05	0.06	0.04	0.0249
Nitrogen, Ammonia, Total (mg/l as N)	33	29	5.7	-0.05	0.27	1.01	-0.05
Oil and Grease Visual (No=0, Yes=1)	64	0	0	0	0	0	0
Oxygen, Dissolved mg/L	82	0	10	0.09	3.40	3.08	3.175
pH, Field, Standard Units	84	0	8.29	7.06	7.70	0.30	7.72
Potassium, Total mg/l as K)	32	0	1.77	0.62	1.08	0.23	1.055
Selenium, Dissolved (mg/l as Se)	32	31	0.005	-0.005	0.003	0.000	-0.005
Selenium, Total Recoverable in Water as Se mg/l	8	8	-0.005	-0.005	0.003	ID	-0.005
Silver, Dissolved (mg/l as Ag)	32	32	-0.001	-0.001	0.001	ID	-0.001
Sodium, Total (mg/l as Na)	31	0	15.5	7.88	10.77	2.26	10.1
Specific Conductance, Field (umhos/cm @ 25C)	84	0	870	190	348.8	96.8	309.5
Sulfate, Total (mg/l as SO ₄)	34	1	47.1	-10	39.5	7.1	41.2
Temperature, Water (Degrees Centigrade)	84	0	10.3	6	7.16	0.72	7
Total Dissolved Solids, mg/l	32	0	287	141	181.6	22.8	180
Total Suspend Solids, mg/l	32	13	252	-10	37.0	54.2	26.5
Water Level, Distance From Measuring Point (Feet)	93	0	196.1	26.03	107.70	70.30	64.75
Weak Acid Dissociable Cyanide, mg/l	72	72	-0.01	-0.01	0.01	ID	-0.01
Well Purging Volume, gallons	63	0	93.9	1.8	35.98	34.84	9.5
Zinc, Dissolved (mg/l as Zn)	32	4	0.577	-0.1	0.19	0.12	0.164

ND = Not determined. Applicable in two cases: number of analyses = 1; or all analyses are non-detect.

Non-detect analyses are set at 1/2 the detection limit for average and standard deviation calculations.

Median calculations use the laboratory analyses with less than detection values as negative.

Dissolved arsenic was analyzed since 2002. Total recoverable arsenic was analyzed from 2001-2002. Both forms are provided to indicate the entire analytical history.

TABLE 4-15
SAMPLE DATA FOR CRMW-3A

SAMPLE LOCATION: CRMW-3A
DRAINAGE: AREQUA GULCH
PERIOD OF RECORD: 1993-2015

PARAMETER	Number of analyses	Number of non-detect analyses	Maximum value	Minimum value	Average value	Standard deviation	Median value
Acidity, Total (mg/l as CaCO ₃)	117	23	90	-6	22.4	16.2	22
Alkalinity, Bicarbonate (mg/l as CaCO ₃)	86	0	120	19.5	66.5	27.4	63.2
Alkalinity, Carbonate (mg/l as CaCO ₃)	85	0	0	0	0	0	0
Alkalinity, Total (mg/l as CaCO ₃)	74	0	100	26	64.3	19.4	65.5
Aluminum, Dissolved (mg/l as Al)	120	2	5.07	-0.1	1.33	1.06	1.065
Arsenic, Dissolved (mg/l as As)	61	61	-0.005	-0.005	0.003	ID	-0.005
Arsenic, Total Recoverable in Water as As mg/l	59	57	0.02	-0.005	0.003	0.002	-0.005
Barium, Dissolved (mg/l as Ba)	19	19	-0.05	-0.05	0.025	ID	-0.05
Cadmium, Dissolved (mg/l as Cd)	119	93	0.0022	-0.01	0.001	0.001	-0.001
Calcium, Total (mg/l as Ca)	116	0	550	135	255.7	78.3	241
Chloride, Total in Water mg/l	118	0	606	8	94.8	128.1	43.5
Chromium, Dissolved (mg/l as Cr)	119	97	0.013	-0.005	0.001	0.002	-0.001
Copper, Dissolved (mg/l as Cu)	118	96	0.01	-0.005	0.003	0.002	-0.005
Cyanide Free, mg/l	119	119	-0.01	-0.05	0.010	ID	-0.01
Cyanide, Total (mg/l as CN)	119	0	0.323	0.011	0.055	0.046	0.044
Fluoride, Total (mg/l as F)	119	0	12.2	3.07	5.68	2.00	5.28
Hardness, Total (mg/l as CaCO ₃)	118	0	1880	420	846.0	271.1	811.5
Iron, Dissolved (mg/l as Fe)	118	78	0.12	-0.5	0.03	0.03	-0.05
Lead, Dissolved (mg/l as Pb)	119	117	0.001	-0.005	0.001	0.001	-0.001
Magnesium, Total (mg/l as Mg)	116	0	123	21	49.9	19.6	46
Manganese, Dissolved (mg/l as Mn)	121	37	2.06	-0.1	0.31	0.42	0.16
Mercury, Total (mg/l as Hg)	99	96	0.0013	-0.0002	0.0001	0.0001	-0.0002
Molybdenum, Dissolved (mg/l as Mo)	20	1	0.05	-0.01	0.032	0.011	0.032
Nickel, Dissolved (mg/l as Ni)	119	50	0.024	-0.05	0.009	0.006	0.007
Nitrate Nitrogen, Total (mg/l as N)	119	0	24.1	0.23	9.38	5.01	10.6
Nitrite Nitrogen, Total (mg/l as N)	118	116	0.08	-0.05	0.026	0.006	-0.05
Nitrogen, Ammonia, Total (mg/l as N)	119	118	0.066	-0.5	0.05	0.04	-0.05
Oil and Grease Visual (No=0, Yes=1)	46	0	0	0	0	0	0
Oxygen, Dissolved mg/L	99	0	14.82	0.2	3.07	2.52	2.4
pH, Field, Standard Units	123	0	6.88	5.25	6.26	0.20	6.24
pH, Lab, Standard Units	45	0	6.81	6.13	6.47	0.20	6.45
Potassium, Total mg/l as K)	116	0	21	5.23	11.31	3.58	10.1
Selenium, Dissolved (mg/l as Se)	117	103	0.012	-0.05	0.005	0.005	-0.005
Silver, Dissolved (mg/l as Ag)	119	119	-0.0001	-0.005	0.000	ID	-0.001
Sodium, Total (mg/l as Na)	116	0	130	21	64.7	23.9	65.45
Specific Conductance, Field (umhos/cm @ 25C)	120	0	3480	777	1671.9	515.3	1618.5
Strontium, Total (mg/l as Sr)	18	0	7.4	3.4	5.64	1.18	5.6
Sulfate, Total (mg/l as SO ₄)	120	0	1260	424	766.6	184.1	742.5
Temperature, Water (Degrees Centigrade)	124	0	14.8	3.9	8.81	2.56	8.7
Total Dissolved Solids, mg/l	117	0	2680	700	1387.1	392.8	1326
Total Suspend Solids, mg/l	118	97	70	-10	6.9	8.1	-10
Turbidity, Lab Nephelometric Turbidity Units, NTU	19	0	87	0.2	8.5	20.2	2.5
Water Level, Distance From Measuring Point (Feet)	124	0	35	10.3	23.3	6.3	25.2
Weak Acid Dissociable Cyanide, mg/l	119	87	0.088	-0.01	0.009	0.010	-0.01
Zinc, Dissolved (mg/l as Zn)	121	40	0.313	-0.1	0.07	0.06	0.049

ND = Not determined. Applicable in two cases: number of analyses = 1; or all analyses are non-detect.

Non-detect analyses are set at 1/2 the detection limit for average and standard deviation calculations.

Median calculations use the laboratory analyses with less than detection values as negative.

Dissolved arsenic was analyzed from 1993-1995 and since 2002. Total recoverable arsenic was analyzed from 1993-2002. Both forms are provided to indicate the entire analytical history.

TABLE 4-16
SAMPLE DATA FOR CRMW-3B
SAMPLE LOCATION: CRMW-3B
DRAINAGE: AREQUA GULCH
PERIOD OF RECORD: 1993-2015

PARAMETER	Number of analyses	Number of non-detect analyses	Maximum value	Minimum value	Average value	Standard deviation	Median value
Acidity, Total (mg/l as CaCO ₃)	133	30	60	-10	16.5	12.9	16
Alkalinity, Bicarbonate (mg/l as CaCO ₃)	102	0	173	87.2	143.4	17.8	140
Alkalinity, Carbonate (mg/l as CaCO ₃)	101	0	0	0	0	0	0
Alkalinity, Total (mg/l as CaCO ₃)	88	0	142	65	116.9	17.5	118
Aluminum, Dissolved (mg/l as Al)	136	31	1.43	-0.1	0.12	0.18	0.0685
Arsenic, Dissolved (mg/l as As)	76	74	0.006	-0.005	0.0026	0.0005	-0.005
Arsenic, Total Recoverable in Water as As mg/l	60	58	0.015	-0.005	0.0028	0.0018	-0.005
Barium, Dissolved (mg/l as Ba)	18	18	-0.05	-0.05	0.025	ND	-0.05
Cadmium, Dissolved (mg/l as Cd)	135	85	0.002	-0.01	0.001	0.001	-0.001
Calcium, Total (mg/l as Ca)	131	0	545	177	293.1	88.6	260
Chloride, Total in Water mg/l	134	1	689	-3	123.6	164.7	41
Chromium, Dissolved (mg/l as Cr)	134	118	0.01	-0.005	0.0013	0.0016	-0.001
Copper, Dissolved (mg/l as Cu)	135	129	0.008	-0.05	0.003	0.002	-0.005
Cyanide Free, mg/l	135	135	-0.01	-0.05	0.010	ND	-0.01
Cyanide, Total (mg/l as CN)	135	1	0.11	-0.01	0.030	0.017	0.024
Fluoride, Total (mg/l as F)	135	0	9.9	2.79	4.11	0.93	3.98
Hardness, Total (mg/l as CaCO ₃)	134	0	1750	520	935.9	299.1	821.5
Iron, Dissolved (mg/l as Fe)	135	96	1.4	-0.05	0.139	0.332	-0.05
Lead, Dissolved (mg/l as Pb)	134	126	0.002	-0.005	0.0010	0.0008	-0.001
Magnesium, Total (mg/l as Mg)	131	0	107	1.36	49.85	20.87	42
Manganese, Dissolved (mg/l as Mn)	136	0	10.4	0.068	4.64	1.41	4.7
Mercury, Total (mg/l as Hg)	116	116	-0.0001	-0.0002	0.00009	ND	-0.0002
Molybdenum, Dissolved (mg/l as Mo)	18	12	0.02	-0.01	0.007	0.004	-0.01
Nickel, Dissolved (mg/l as Ni)	135	50	0.041	-0.05	0.011	0.007	0.007
Nitrate Nitrogen, Total (mg/l as N)	134	12	9.65	-0.05	2.952	1.992	2.785
Nitrite Nitrogen, Total (mg/l as N)	133	133	-0.05	-0.05	0.025	ND	-0.05
Nitrogen, Ammonia, Total (mg/l as N)	134	133	0.2	-0.2	0.04	0.03	-0.05
Oil and Grease Visual (No=0, Yes=1)	63	0	0	0	0	0	0
Oxygen, Dissolved mg/L	109	0	3.8	0.04	0.49	0.79	0.1
pH, Field, Standard Units	134	0	7.09	6.13	6.7	0.2	6.72
pH, Lab, Standard Units	61	0	7.3	6.4	6.9	0.2	6.95
Potassium, Total mg/l as K)	131	0	18	7.28	11.3	1.8	11
Selenium, Dissolved (mg/l as Se)	132	103	0.025	-0.05	0.006	0.006	-0.005
Silver, Dissolved (mg/l as Ag)	135	135	-0.0001	-0.005	0.0005	ND	-0.001
Sodium, Total (mg/l as Na)	131	0	118	6.1	62.1	23.2	57.7
Specific Conductance (umhos/cm @ 25C)	46	0	3260	1400	2470.9	518.7	2505
Specific Conductance, Field (umhos/cm @ 25C)	131	0	3370	1040	1810.1	594.9	1646
Strontium, Total (mg/l as Sr)	16	0	6.4	4.4	5.6	0.6	5.85
Sulfate, Total (mg/l as SO ₄)	135	0	1130	200	778.8	143.1	742
Temperature, Water (Degrees Centigrade)	134	0	55.3	5.4	10.3	5.6	8.75
Total Dissolved Solids, mg/l	133	0	2890	800	1484.0	443.6	1300
Total Suspend Solids, mg/l	134	116	170	-10	6.5	14.5	-10
Turbidity, Lab Nephelometric Turbidity Units, NTU	18	0	47	0.2	6.19	10.63	4
Water Level, Distance From Measuring Point (Feet)	131	0	49.94	3.6	25.11	9.21	26.61
Weak Acid Dissociable Cyanide, mg/l	135	111	0.016	-0.01	0.006	0.002	-0.01
Zinc, Dissolved (mg/l as Zn)	136	24	0.401	-0.05	0.067	0.042	0.059

ND = Not determined. Applicable in two cases: number of analyses = 1; or all analyses are non-detect.

Non-detect analyses are set at 1/2 the detection limit for average and standard deviation calculations.

Median calculations use the laboratory analyses with less than detection values as negative.

Dissolved arsenic was analyzed from 1993-1995 and since 2001. Total recoverable arsenic was analyzed from 1993-2002. Both forms are provided to indicate the entire analytical history.

TABLE 4-17
SAMPLE DATA FOR CRMW-5A

SAMPLE LOCATION: CRMW-5A
DRAINAGE: AREQUA GULCH
PERIOD OF RECORD: 2012-2015

PARAMETER	Number of analyses	Number of non-detect analyses	Maximum value	Minimum value	Average value	Standard deviation	Median value
Acidity, Total (mg/l as CaCO ₃)	1	1	-10	-10	5	ND	ND
Alkalinity, Bicarbonate (mg/l as CaCO ₃)	1	0	173	173	173	ND	ND
Alkalinity, Carbonate (mg/l as CaCO ₃)	1	0	0	0	0	ND	ND
Alkalinity, Total (mg/l as CaCO ₃)	1	0	142	142	142	ND	ND
Aluminum, Dissolved (mg/l as Al)	1	0	0.015	0.015	0.015	ND	ND
Arsenic, Dissolved (mg/l as As)	1	1	-0.005	-0.005	0.0025	ND	ND
Cadmium, Dissolved (mg/l as Cd)	1	1	-0.001	-0.001	0.0005	ND	ND
Calcium, Total (mg/l as Ca)	1	0	95.3	95.3	95.3	ND	ND
Chloride, Total in Water mg/l	1	0	24.8	24.8	24.8	ND	ND
Chromium, Dissolved (mg/l as Cr)	1	1	-0.001	-0.001	0.0005	ND	ND
Copper, Dissolved (mg/l as Cu)	1	1	-0.005	-0.005	0.0025	ND	ND
Cyanide Free, mg/l	1	1	-0.01	-0.01	0.005	ND	ND
Cyanide, Total (mg/l as CN)	1	1	-0.01	-0.01	0.005	ND	ND
Fluoride, Total (mg/l as F)	1	0	1.9	1.9	1.9	ND	ND
Hardness, Total (mg/l as CaCO ₃)	1	0	310	310	310	ND	ND
Iron, Dissolved (mg/l as Fe)	1	1	-0.05	-0.05	0.025	ND	ND
Lead, Dissolved (mg/l as Pb)	1	1	-0.001	-0.001	0.0005	ND	ND
Magnesium, Total (mg/l as Mg)	1	0	17.4	17.4	17.4	ND	ND
Manganese, Dissolved (mg/l as Mn)	1	0	1.11	1.11	1.11	ND	ND
Mercury, Total (mg/l as Hg)	1	1	-0.0002	-0.0002	0.0001	ND	ND
Nickel, Dissolved (mg/l as Ni)	1	1	-0.005	-0.005	0.0025	ND	ND
Nitrate Nitrogen, Total (mg/l as N)	1	1	-0.05	-0.05	0.025	ND	ND
Nitrite Nitrogen, Total (mg/l as N)	1	1	-0.05	-0.05	0.025	ND	ND
Nitrogen, Ammonia, Total (mg/l as N)	1	1	-0.05	-0.05	0.025	ND	ND
Oil and Grease Visual (No=0, Yes=1)	4	0	0	0	0	0	0
Oxygen, Dissolved mg/L	4	0	7.5	0.2	2.7	3.4	1.635
pH, Field, Standard Units	4	0	7.71	7.36	7.59	0.15	7.635
pH, Lab, Standard Units	1	0	8.02	8.02	8.02	ND	ND
Potassium, Total mg/l as K	1	0	5.81	5.81	5.81	ND	ND
Selenium, Dissolved (mg/l as Se)	1	1	-0.005	-0.005	0.0025	ND	ND
Silver, Dissolved (mg/l as Ag)	1	1	-0.001	-0.001	0.0005	ND	ND
Sodium, Total (mg/l as Na)	1	0	39.1	39.1	39.1	ND	ND
Specific Conductance (umhos/cm @ 25C)	1	0	765	765	765	ND	ND
Specific Conductance, Field (umhos/cm @ 25C)	4	0	778	718	750.8	26.4	753.5
Sulfate, Total (mg/l as SO ₄)	1	0	222	222	222	ND	ND
Temperature, Water (Degrees Centigrade)	4	0	11.9	6.9	9.43	2.07	9.45
Temperature, Water (Degrees Fahrenheit)	4	0	53.4	44.4	49.0	3.7	49
Total Dissolved Solids, mg/l	1	0	496	496	496	ND	ND
Total Suspend Solids, mg/l	1	0	20	20	20	ND	ND
Water Level, Distance From Measuring Point (Feet)	9	0	192.45	44.58	129.67	50.57	150.1
Weak Acid Dissociable Cyanide, mg/l	1	1	-0.01	-0.01	0.005	ND	ND
Zinc, Dissolved (mg/l as Zn)	1	1	-0.05	-0.05	0.025	ND	ND

ND = Not determined. Applicable in two cases: number of analyses = 1; or all analyses are non-detect.

Non-detect analyses are set at 1/2 the detection limit for average and standard deviation calculations.

Median calculations use the laboratory analyses with less than detection values as negative.

TABLE 4-18
SAMPLE DATA FOR CRMW-5B

SAMPLE LOCATION: CRMW-5B
DRAINAGE: AREQUA GULCH
PERIOD OF RECORD: 2012-2015

PARAMETER	Number of analyses	Number of non-detect analyses	Maximum value	Minimum value	Average value	Standard deviation	Median value
Acidity, Total (mg/l as CaCO ₃)	6	6	-10	-10	5	ID	-10
Alkalinity, Bicarbonate (mg/l as CaCO ₃)	6	0	170	95	122.0	26.6	113.5
Alkalinity, Carbonate (mg/l as CaCO ₃)	6	0	0	0	0	0	0
Alkalinity, Total (mg/l as CaCO ₃)	6	0	139	77.9	100.0	21.6	93.2
Aluminum, Dissolved (mg/l as Al)	6	2	0.016	-0.01	0.011	0.005	0.012
Arsenic, Dissolved (mg/l as As)	6	6	-0.005	-0.005	0.0025	ID	-0.005
Cadmium, Dissolved (mg/l as Cd)	6	6	-0.001	-0.001	0.0005	ID	-0.001
Calcium, Total (mg/l as Ca)	6	0	119	47.1	70.6	31.7	53.95
Chloride, Total in Water mg/l	6	0	27.1	8.8	17.02	6.86	14.65
Chromium, Dissolved (mg/l as Cr)	6	6	-0.001	-0.001	0.0005	ID	-0.001
Copper, Dissolved (mg/l as Cu)	6	5	0.005	-0.005	0.0029	0.0010	-0.005
Cyanide Free, mg/l	6	6	-0.01	-0.01	0.005	ID	-0.01
Cyanide, Total (mg/l as CN)	6	6	-0.01	-0.01	0.005	ID	-0.01
Fluoride, Total (mg/l as F)	6	0	3.71	0.529	2.828	1.311	3.535
Hardness, Total (mg/l as CaCO ₃)	6	0	375	149	223.0	99.7	170
Iron, Dissolved (mg/l as Fe)	6	6	-0.05	-0.05	0.025	ID	-0.05
Lead, Dissolved (mg/l as Pb)	6	6	-0.001	-0.001	0.0005	ID	-0.001
Magnesium, Total (mg/l as Mg)	6	0	18.8	7.4	11.39	4.99	8.615
Manganese, Dissolved (mg/l as Mn)	6	3	0.667	-0.01	0.136	0.264	0.0015
Mercury, Total (mg/l as Hg)	6	6	-0.0002	-0.0002	0.0001	ID	-0.0002
Nickel, Dissolved (mg/l as Ni)	6	6	-0.005	-0.005	0.0025	ID	-0.005
Nitrate Nitrogen, Total (mg/l as N)	6	0	0.203	0.05	0.101	0.053	0.0895
Nitrite Nitrogen, Total (mg/l as N)	6	6	-0.05	-0.05	0.025	ID	-0.05
Nitrogen, Ammonia, Total (mg/l as N)	6	6	-0.05	-0.05	0.025	ID	-0.05
Oil and Grease Visual (No=0, Yes=1)	7	0	0	0	0	0	0
Oxygen, Dissolved mg/L	7	0	6.57	0.3	1.727	2.168	0.9
pH, Field, Standard Units	7	0	8	7.35	7.70	0.25	7.82
pH, Lab, Standard Units	6	0	7.93	7.66	7.85	0.10	7.88
Potassium, Total mg/l as K)	6	0	3.68	2.96	3.138	0.279	3.015
Selenium, Dissolved (mg/l as Se)	6	6	-0.005	-0.005	0.0025	ID	-0.005
Silver, Dissolved (mg/l as Ag)	6	6	-0.001	-0.001	0.0005	ID	-0.001
Sodium, Total (mg/l as Na)	6	0	29.6	12	18.12	7.02	14.9
Specific Conductance (umhos/cm @ 25C)	6	0	799	354	506.3	194.2	412
Specific Conductance, Field (umhos/cm @ 25C)	7	0	810	243	530.9	230.4	429
Sulfate, Total (mg/l as SO ₄)	6	0	241	57.2	125.4	78.2	92.8
Temperature, Water (Degrees Centigrade)	7	0	8.5	7.4	7.87	0.35	7.8
Temperature, Water (Degrees Fahrenheit)	7	0	47.3	45.3	46.2	0.6	46
Total Dissolved Solids, mg/l	6	0	518	183	306.5	139.4	246
Total Suspend Solids, mg/l	6	6	-10	-10	5	ID	-10
Water Level, Distance From Measuring Point (Feet)	12	0	43.08	25.75	32.98	6.53	29.805
Weak Acid Dissociable Cyanide, mg/l	6	6	-0.01	-0.01	0.005	ID	-0.01
Zinc, Dissolved (mg/l as Zn)	6	6	-0.05	-0.05	0.025	ID	-0.05

ND = Not determined. Applicable in two cases: number of analyses = 1; or all analyses are non-detect.

Non-detect analyses are set at 1/2 the detection limit for average and standard deviation calculations.

Median calculations use the laboratory analyses with less than detection values as negative.

TABLE 4-19
SAMPLE DATA FOR CRMW-5C

SAMPLE LOCATION: CRMW-5C
DRAINAGE: AREQUA GULCH
PERIOD OF RECORD: 2012-2015

PARAMETER	Number of analyses	Number of non-detect analyses	Maximum value	Minimum value	Average value	Standard deviation	Median value
Acidity, Total (mg/l as CaCO ₃)	9	5	14	-10	8.1	3.8	-10
Alkalinity, Bicarbonate (mg/l as CaCO ₃)	9	0	120	55.8	71.7	19.7	63.4
Alkalinity, Carbonate (mg/l as CaCO ₃)	9	0	0	0	0	0	0
Alkalinity, Total (mg/l as CaCO ₃)	9	0	98.6	45.7	58.8	16.2	52
Aluminum, Dissolved (mg/l as Al)	9	0	0.08	0.012	0.031	0.022	0.025
Arsenic, Dissolved (mg/l as As)	9	9	-0.005	-0.005	0.0025	ND	-0.005
Cadmium, Dissolved (mg/l as Cd)	9	9	-0.001	-0.001	0.0005	ND	-0.001
Calcium, Total (mg/l as Ca)	9	0	108	33.9	54.4	27.6	39.8
Chloride, Total in Water mg/l	9	0	28.2	10.3	17.12	5.74	15.1
Chromium, Dissolved (mg/l as Cr)	9	9	-0.001	-0.001	0.0005	ND	-0.001
Copper, Dissolved (mg/l as Cu)	9	9	-0.005	-0.005	0.0025	ND	-0.005
Cyanide Free, mg/l	9	9	-0.01	-0.01	0.005	ND	-0.01
Cyanide, Total (mg/l as CN)	9	9	-0.01	-0.01	0.005	ND	-0.01
Fluoride, Total (mg/l as F)	9	0	4.88	2.24	3.43	0.79	3.62
Hardness, Total (mg/l as CaCO ₃)	9	0	334	109	173.2	84.5	128
Iron, Dissolved (mg/l as Fe)	9	8	0.146	-0.05	0.038	0.040	-0.05
Lead, Dissolved (mg/l as Pb)	9	9	-0.001	-0.001	0.0005	ND	-0.001
Magnesium, Total (mg/l as Mg)	9	0	15.7	5.84	9.12	3.87	7.09
Manganese, Dissolved (mg/l as Mn)	9	6	0.13	-0.01	0.022	0.041	-0.01
Mercury, Total (mg/l as Hg)	9	9	-0.0002	-0.0002	0.0001	ND	-0.0002
Nickel, Dissolved (mg/l as Ni)	9	9	-0.005	-0.005	0.0025	ND	-0.005
Nitrate Nitrogen, Total (mg/l as N)	9	0	0.267	0.054	0.114	0.071	0.076
Nitrite Nitrogen, Total (mg/l as N)	9	9	-0.05	-0.05	0.025	ND	-0.05
Nitrogen, Ammonia, Total (mg/l as N)	9	9	-0.05	-0.05	0.025	ND	-0.05
Oil and Grease Visual (No=0, Yes=1)	9	0	0	0	0	0	0
Oxygen, Dissolved mg/L	10	0	3.68	2.05	2.89	0.58	2.795
pH, Field, Standard Units	10	0	7.04	6.25	6.88	0.23	6.935
pH, Lab, Standard Units	9	0	7.59	6.96	7.25	0.18	7.28
Potassium, Total mg/l as K	9	0	4.67	2.79	3.62	0.63	3.39
Selenium, Dissolved (mg/l as Se)	9	9	-0.005	-0.005	0.0025	ND	-0.005
Silver, Dissolved (mg/l as Ag)	9	9	-0.001	-0.001	0.0005	ND	-0.001
Sodium, Total (mg/l as Na)	9	0	23.6	13	16.23	3.93	14.1
Specific Conductance (umhos/cm @ 25C)	9	0	717	285	424.7	159.4	345
Specific Conductance, Field (umhos/cm @ 25C)	10	0	749	187	438.7	201.8	367.5
Sulfate, Total (mg/l as SO ₄)	9	0	239	59.8	114.1	65.6	83
Temperature, Water (Degrees Centigrade)	10	0	8.4	6.5	7.74	0.57	7.9
Temperature, Water (Degrees Fahrenheit)	10	0	47.1	43.7	45.9	1.0	46.2
Total Dissolved Solids, mg/l	9	0	445	145	246.8	100.3	200
Total Suspend Solids, mg/l	9	9	-10	-10	5	ND	-10
Water Level, Distance From Measuring Point (Feet)	16	0	60.2	25.91	32.18	9.16	28.85
Weak Acid Dissociable Cyanide, mg/l	9	9	-0.01	-0.01	0.005	ND	-0.01
Zinc, Dissolved (mg/l as Zn)	9	8	0.119	-0.05	0.035	0.031	-0.05

ND = Not determined. Applicable in two cases: number of analyses = 1; or all analyses are non-detect.

Non-detect analyses are set at 1/2 the detection limit for average and standard deviation calculations.

Median calculations use the laboratory analyses with less than detection values as negative.

TABLE 4-20
SAMPLE DATA FOR CRMW-5D

SAMPLE LOCATION: CRMW-5D
DRAINAGE: AREQUA GULCH
PERIOD OF RECORD: 2012-2015

PARAMETER	Number of analyses	Number of non-detect analyses	Maximum value	Minimum value	Average value	Standard deviation	Median value
Acidity, Total (mg/l as CaCO ₃)	5	4	12	-10	6.4	3.1	-10
Alkalinity, Bicarbonate (mg/l as CaCO ₃)	5	0	60.4	26.4	41.1	13.1	42.6
Alkalinity, Carbonate (mg/l as CaCO ₃)	5	0	0	0	0	0	0
Alkalinity, Total (mg/l as CaCO ₃)	5	0	49.5	21.7	33.66	10.75	34.9
Aluminum, Dissolved (mg/l as Al)	5	0	0.37	0.066	0.167	0.121	0.149
Arsenic, Dissolved (mg/l as As)	5	5	-0.005	-0.005	0.0025	ND	-0.005
Cadmium, Dissolved (mg/l as Cd)	5	5	-0.001	-0.001	0.0005	ND	-0.001
Calcium, Total (mg/l as Ca)	5	0	27.7	23	24.98	1.74	25
Chloride, Total in Water mg/l	5	0	19.8	8.79	12.44	4.28	10.8
Chromium, Dissolved (mg/l as Cr)	5	4	0.002	-0.001	0.0008	0.0007	-0.001
Copper, Dissolved (mg/l as Cu)	5	5	-0.005	-0.005	0.0025	ND	-0.005
Cyanide Free, mg/l	5	5	-0.01	-0.01	0.005	ND	-0.01
Cyanide, Total (mg/l as CN)	5	5	-0.01	-0.01	0.005	ND	-0.01
Fluoride, Total (mg/l as F)	5	0	4.89	3.42	4.322	0.550	4.37
Hardness, Total (mg/l as CaCO ₃)	5	0	92	75.1	82.7	6.6	82.2
Iron, Dissolved (mg/l as Fe)	5	2	0.26	-0.05	0.094	0.097	0.08
Lead, Dissolved (mg/l as Pb)	5	4	0.001	-0.001	0.0006	0.0002	-0.001
Magnesium, Total (mg/l as Mg)	5	0	5.69	4.29	4.93	0.64	4.73
Manganese, Dissolved (mg/l as Mn)	5	5	-0.01	-0.01	0.005	ND	-0.01
Mercury, Total (mg/l as Hg)	5	5	-0.0002	-0.0002	0.0001	ND	-0.0002
Nickel, Dissolved (mg/l as Ni)	5	5	-0.005	-0.005	0.0025	ND	-0.005
Nitrate Nitrogen, Total (mg/l as N)	5	0	0.308	0.064	0.146	0.096	0.112
Nitrite Nitrogen, Total (mg/l as N)	5	5	-0.05	-0.05	0.025	ND	-0.05
Nitrogen, Ammonia, Total (mg/l as N)	5	5	-0.05	-0.05	0.025	ND	-0.05
Oil and Grease Visual (No=0, Yes=1)	7	0	0	0	0	0	0
Oxygen, Dissolved mg/L	6	0	9.9	4.02	7.05	2.30	6.64
pH, Field, Standard Units	6	0	6.85	6.62	6.76	0.09	6.795
pH, Lab, Standard Units	5	0	7.04	6.78	6.97	0.11	7.01
Potassium, Total mg/l as K)	5	0	4.21	2.85	3.462	0.571	3.44
Selenium, Dissolved (mg/l as Se)	5	5	-0.005	-0.005	0.0025	ND	-0.005
Silver, Dissolved (mg/l as Ag)	5	5	-0.001	-0.001	0.0005	ND	-0.001
Sodium, Total (mg/l as Na)	5	0	10.7	8.4	9.43	0.88	9.38
Specific Conductance (umhos/cm @ 25C)	5	0	253	210	226.8	15.8	224
Specific Conductance, Field (umhos/cm @ 25C)	6	0	416	170	247.3	86.6	219.5
Sulfate, Total (mg/l as SO ₄)	5	0	49.5	30.1	39.3	7.6	38.2
Temperature, Water (Degrees Centigrade)	6	0	14.9	4	9.483	4.440	10.95
Temperature, Water (Degrees Fahrenheit)	6	0	58.8	39.2	49.1	8.0	51.75
Total Dissolved Solids, mg/l	5	0	120	113	116.0	3.7	114
Total Suspend Solids, mg/l	5	4	14	-10	6.8	4.0	-10
Water Level, Distance From Measuring Point (Feet)	16	0	26.87	15.42	19.84	4.46	17.96
Weak Acid Dissociable Cyanide, mg/l	5	5	-0.01	-0.01	0.005	ND	-0.01
Zinc, Dissolved (mg/l as Zn)	5	4	0.418	-0.05	0.104	0.176	-0.05

ND = Not determined. Applicable in two cases: number of analyses = 1; or all analyses are non-detect.

Non-detect analyses are set at 1/2 the detection limit for average and standard deviation calculations.

Median calculations use the laboratory analyses with less than detection values as negative.

TABLE 4-21
SAMPLE DATA FOR CC-01

SAMPLE LOCATION: CC-01
DRAINAGE: CRIPPLE CREEK
PERIOD OF RECORD: 1985-2015

PARAMETER	Number of analyses	Number of non-detect analyses	Maximum value	Minimum value	Average value	Standard deviation	Median value
Acidity, Total (mg/l as CaCO ₃)	90	87	144	-10	6.1	14.8	-10
Alkalinity, Bicarbonate (mg/l as CaCO ₃)	91	0	323	0	141	62	140
Alkalinity, Carbonate (mg/l as CaCO ₃)	91	1	0	-5	0.03	0.26	0
Alkalinity, Total (mg/l as CaCO ₃)	60	0	265	21.6	121.9	59.2	125
Aluminum, Dissolved (mg/l as Al)	83	39	25	-0.3	0.6	2.9	0.032
Arsenic, Dissolved (mg/l as As)	12	10	0.002	-0.005	0.0006	0.0008	-0.0004
Arsenic, Total Recoverable in Water as As mg/l	100	98	0.013	-0.005	0.0026	0.0011	-0.005
Boron, Dissolved (mg/l as B)	11	3	0.16	-0.03	0.070	0.047	0.08
Cadmium, Dissolved (mg/l as Cd)	142	114	0.014	-0.01	0.001	0.002	-0.001
Calcium, Total (mg/l as Ca)	110	0	127	7.7	44.9	23.8	41.45
Chloride, Total in Water mg/l	111	0	367	6	80.7	64.1	56
Chromium, Dissolved (mg/l as Cr)	80	74	0.03	-0.04	0.002	0.004	-0.001
Chromium, Total Recoverable in Water as Cr mg/l	40	38	0.001	-0.001	0.001	0.0001	-0.001
Copper, Dissolved (mg/l as Cu)	142	18	0.374	-0.01	0.014	0.032	0.008
Cyanide Free, mg/l	99	98	0.01	-0.05	0.007	0.005	-0.01
Cyanide, Total (mg/l as CN)	100	98	0.012	-0.01	0.005	0.001	-0.01
Flow, in Conduit or Thru a Treatment Plant MGD	39	0	1.5466	0.1168	0.402	0.257	0.33
Flow, Rate Gallons/Min	80	0	1560	65.93	292.7	211.2	236.8
Flow, Stream, Instantaneous Cfs	26	0	2.393	0.1807	0.673	0.449	0.605
Fluoride, Total (mg/l as F)	111	0	2.9	0.831	2.18	0.41	2.2
Hardness, Total (mg/l as CaCO ₃)	111	0	408	24	149.4	82.1	135
Iron, Dissolved (mg/l as Fe)	111	81	1.24	-0.05	0.045	0.119	-0.05
Iron, Total Recoverable in Water as Fe mg/l	111	4	37.5	-1	0.9	3.8	0.209
Lead, Dissolved (mg/l as Pb)	140	120	0.06	-0.1	0.00	0.01	-0.001
Magnesium, Total (mg/l as Mg)	110	0	26.1	1.1	9.04	5.46	8.315
Manganese, Dissolved (mg/l as Mn)	111	16	15.4	-0.05	1.427	2.677	0.28
Mercury, Total (mg/l as Hg)	104	101	0.0004	-0.001	0.0001	0.0001	-0.0002
Molybdenum, Dissolved (mg/l as Mo)	11	11	-0.006	-0.04	0.013	ND	-0.03
Nickel, Dissolved (mg/l as Ni)	100	65	0.098	-0.01	0.009	0.014	-0.005
Nitrate Nitrogen, Total (mg/l as N)	110	0	23.5	0.8	12.46	5.22	13.45
Nitrite Nitrogen, Total (mg/l as N)	99	94	2.51	-0.05	0.052	0.250	-0.05
Nitrogen, Ammonia, Total (mg/l as N)	100	64	4.19	-0.2	0.14	0.49	-0.05
Oil and Grease Visual (No=0, Yes=1)	49	0	0	0	0	0	0
Oxygen, Dissolved mg/L	113	0	11.1	0.3	8.09	1.68	8.1
pH, Field, Standard Units	132	0	8.74	3.81	7.88	0.57	8
pH, Lab, Standard Units	42	0	8.3	1.3	7.32	1.02	7.4
Potassium, Total mg/l as K)	100	0	14.2	1.66	7.72	2.22	8.21
Selenium, Dissolved (mg/l as Se)	111	108	0.006	-0.005	0.0024	0.0008	-0.005
Silver, Dissolved (mg/l as Ag)	141	127	0.008	-0.01	0.001	0.001	-0.001
Sodium, Total (mg/l as Na)	100	0	178	11	88.7	41.4	85
Specific Conductance (umhos/cm @ 25C)	59	0	2300	340	830	330	777
Specific Conductance, Field (umhos/cm @ 25C)	119	0	1530	213	753	228	721
Sulfate, Total (mg/l as SO ₄)	125	3	1200	-10	109.4	132.0	72
Temperature, Water (Degrees Centigrade)	123	0	21.3	0.1	11.71	5.06	11.5
Temperature, Water (Degrees Fahrenheit)	36	0	69.8	40.8	54.8	9.2	55.5
Total Dissolved Solids, mg/l	112	0	882	53	439.1	132.2	431
Total Suspend Solids, mg/l	130	56	2060	-10	32.1	181.1	10
Turbidity, Lab Nephelometric Turbidity Units, NTU	11	0	43.9	0.37	10.22	15.75	2.1
Weak Acid Dissociable Cyanide, mg/l	99	98	0.01	-0.01	0.005	0.001	-0.01
Zinc, Dissolved (mg/l as Zn)	143	48	1.81	-0.05	0.106	0.208	0.039

ND = Not determined. Applicable in two cases: number of analyses = 1; or all analyses are non-detect.

Non-detect analyses are set at 1/2 the detection limit for average and standard deviation calculations.

Median calculations use the laboratory analyses with less than detection values as negative.

Dissolved chromium was analyzed until 2002. Total recoverable chromium since 2002. Both forms are provided to indicate the entire analytical history.

TABLE 4-22
SAMPLE DATA FOR CC-02

SAMPLE LOCATION: CC-02
DRAINAGE: CRIPPLE CREEK
PERIOD OF RECORD: 1996-2015

PARAMETER	Number of analyses	Number of non-detect analyses	Maximum value	Minimum value	Average value	Standard deviation	Median value
Acidity, Total (mg/l as CaCO ₃)	89	73	124	-10	5	13	-10
Alkalinity, Bicarbonate (mg/l as CaCO ₃)	90	0	267	0	121.9	56.7	116
Alkalinity, Carbonate (mg/l as CaCO ₃)	90	13	6.77	-5	0.6	1.4	0
Alkalinity, Total (mg/l as CaCO ₃)	49	0	219	35.4	125	40	123
Aluminum, Dissolved (mg/l as Al)	72	9	21.4	-0.1	0.55	2.56	0.1005
Arsenic, Total Recoverable in Water as As mg/l	99	96	0.025	-0.005	0.0028	0.0023	-0.005
Cadmium, Dissolved (mg/l as Cd)	99	73	0.01	-0.001	0.0009	0.0013	-0.001
Calcium, Total (mg/l as Ca)	98	0	139	10	49.4	26.1	46.7
Chloride, Total in Water mg/l	99	0	368	19	91	68	62
Chromium, Dissolved (mg/l as Cr)	60	59	0.001	-0.01	0.001	0.001	-0.001
Chromium, Total Recoverable in Water as Cr mg/l	39	35	0.001	-0.001	0.0006	0.0002	-0.001
Copper, Dissolved (mg/l as Cu)	99	1	0.26	-0.005	0.0138	0.0258	0.01
Cyanide Free, mg/l	98	97	0.01	-0.05	0.007	0.006	-0.01
Cyanide, Total (mg/l as CN)	99	97	0.01	-0.01	0.005	0.001	-0.01
Flow, in Conduit or Thru a Treatment Plant MGD	31	0	0.8868	0.2	0.400	0.161	0.375
Flow, Rate Gallons/Min	68	0	1901.4	17.04	364.4	302.2	287.23
Flow, Stream, Instantaneous Cfs	20	0	0.9725	0.38	0.66	0.20	0.61
Fluoride, Total (mg/l as F)	99	0	4.59	1.43	2.55	0.42	2.6
Hardness, Total (mg/l as CaCO ₃)	99	0	439	31.3	163	90	151
Iron, Dissolved (mg/l as Fe)	99	71	1.54	-0.05	0.063	0.180	-0.05
Iron, Total Recoverable in Water as Fe mg/l	99	1	25.1	-0.05	1.003	2.968	0.34
Lead, Dissolved (mg/l as Pb)	99	86	0.002	-0.01	0.001	0.001	-0.001
Magnesium, Total (mg/l as Mg)	98	0	31.5	1.95	9.91	6.18	9.13
Manganese, Dissolved (mg/l as Mn)	99	14	18	-0.05	1.976	3.331	0.38
Mercury, Total (mg/l as Hg)	86	84	0.0003	-0.001	0.0001	0.0001	-0.0002
Nickel, Dissolved (mg/l as Ni)	99	51	0.094	-0.01	0.011	0.015	-0.005
Nitrate Nitrogen, Total (mg/l as N)	98	0	23	3.94	12.75	3.85	12.8
Nitrite Nitrogen, Total (mg/l as N)	98	96	0.109	-0.05	0.027	0.011	-0.05
Nitrogen, Ammonia, Total (mg/l as N)	99	81	1.55	-0.2	0.07	0.18	-0.05
Oil and Grease Visual (No=0, Yes=1)	48	0	0	0	0	0	0
Oxygen, Dissolved mg/L	109	0	16.7	0.3	8.5	2.2	8.5
pH, Field, Standard Units	116	0	9	3.89	8.08	0.65	8.225
Potassium, Total mg/l as K)	88	0	12.7	4.36	8.02	1.52	7.92
Selenium, Dissolved (mg/l as Se)	99	98	0.005	-0.005	0.0025	0.0003	-0.005
Silver, Dissolved (mg/l as Ag)	99	97	0.001	-0.007	0.0005	0.0004	-0.001
Sodium, Total (mg/l as Na)	88	0	201	6.42	96.5	38.0	86
Specific Conductance (umhos/cm @ 25C)	32	0	1630	671	1040	230	1000
Specific Conductance, Field (umhos/cm @ 25C)	112	0	1610	65	788	261	758
Sulfate, Total (mg/l as SO ₄)	99	1	446	-10	102	81	78.1
Temperature, Water (Degrees Centigrade)	116	2	24.1	-0.1	10.2	7.3	11.1
Temperature, Water (Degrees Fahrenheit)	34	0	70.7	32	51	13	50.25
Total Dissolved Solids, mg/l	98	0	933	194	477	149	469.5
Total Suspend Solids, mg/l	99	39	713	-10	32	84	13
Weak Acid Dissociable Cyanide, mg/l	98	97	0.01	-0.01	0.005	0.001	-0.01
Zinc, Dissolved (mg/l as Zn)	99	50	1.8	-0.05	0.107	0.242	-0.05

ND = Not determined. Applicable in two cases: number of analyses = 1; or all analyses are non-detect.

Non-detect analyses are set at 1/2 the detection limit for average and standard deviation calculations.

Median calculations use the laboratory analyses with less than detection values as negative.

Dissolved chromium was analyzed until 2001. Total recoverable chromium since 2002. Both forms are provided to indicate the entire analytical history.

TABLE 4-23
SAMPLE DATA FOR CC-03

SAMPLE LOCATION: CC-03
DRAINAGE: CRIPPLE CREEK
PERIOD OF RECORD: 1996-2015

PARAMETER	Number of analyses	Number of non-detect analyses	Maximum value	Minimum value	Average value	Standard deviation	Median value
Acidity, Total (mg/l as CaCO ₃)	86	75	86	-10	5.0	9.0	-10
Alkalinity, Bicarbonate (mg/l as CaCO ₃)	87	1	235	-10	108	51	102
Alkalinity, Carbonate (mg/l as CaCO ₃)	87	9	9.72	-5	0.4	1.3	0
Alkalinity, Total (mg/l as CaCO ₃)	44	0	192	38	113	36	110
Aluminum, Dissolved (mg/l as Al)	72	17	15.8	-0.1	0.42	1.92	0.1
Arsenic, Total Recoverable in Water as As mg/l	96	92	0.014	-0.005	0.0028	0.0014	-0.005
Cadmium, Dissolved (mg/l as Cd)	96	70	0.007	-0.001	0.0008	0.0010	-0.001
Calcium, Total (mg/l as Ca)	95	0	123	19	56.0	24.8	54.4
Chloride, Total in Water mg/l	96	0	332	19	86.6	61.3	61.95
Chromium, Dissolved (mg/l as Cr)	61	61	-0.001	-0.01	0.001	ND	-0.001
Chromium, Total Recoverable in Water as Cr mg/l	35	33	0.001	-0.001	0.0005	0.0001	-0.001
Copper, Dissolved (mg/l as Cu)	96	5	0.183	-0.01	0.012	0.019	0.009
Cyanide Free, mg/l	97	96	0.01	-0.05	0.007	0.006	-0.01
Cyanide, Total (mg/l as CN)	98	95	0.01	-0.01	0.005	0.001	-0.01
Flow, in Conduit or Thru a Treatment Plant MGD	30	0	0.5535	0	0.2876	0.1499	0.2905
Flow, Rate Gallons/Min	81	0	1939	0	318	337	219.91
Flow, Stream, Instantaneous Cfs	19	0	0.8565	0	0.4966	0.2555	0.53
Fluoride, Total (mg/l as F)	96	0	4.5	1.48	2.71	0.45	2.7
Hardness, Total (mg/l as CaCO ₃)	96	0	392	62	183	84	170.5
Iron, Dissolved (mg/l as Fe)	96	80	1.96	-0.5	0.06	0.21	-0.05
Iron, Total Recoverable in Water as Fe mg/l	96	4	26.1	-0.05	1.114	3.145	0.3225
Lead, Dissolved (mg/l as Pb)	96	88	0.002	-0.01	0.001	0.001	-0.001
Magnesium, Total (mg/l as Mg)	95	0	27.6	3.08	10.81	5.65	9.4
Manganese, Dissolved (mg/l as Mn)	96	16	15.1	-0.05	1.611	2.766	0.1865
Mercury, Total (mg/l as Hg)	84	82	0.0002	-0.001	0.0001	0.00005	-0.0002
Mercury, Total Recoverable in Water as Hg mg/l	14	14	-0.0002	-0.0002	0.0001	ND	-0.0002
Nickel, Dissolved (mg/l as Ni)	96	54	0.076	-0.01	0.009	0.012	-0.005
Nitrate Nitrogen, Total (mg/l as N)	95	0	19.2	3.94	11.50	3.58	11.3
Nitrite Nitrogen, Total (mg/l as N)	95	93	0.068	-0.05	0.026	0.005	-0.05
Nitrogen, Ammonia, Total (mg/l as N)	95	85	1.1	-0.2	0.05	0.12	-0.05
Oil and Grease Visual (No=0, Yes=1)	45	0	0	0	0	0	0
Oxygen, Dissolved mg/L	106	0	12.2	0.4	8.41	1.92	8.3
pH, Field, Standard Units	113	0	9.34	4.39	7.99	0.60	8.04
Potassium, Total mg/l as K)	85	0	10.5	4.92	7.54	1.20	7.43
Selenium, Dissolved (mg/l as Se)	96	94	0.006	-0.005	0.0026	0.0004	-0.005
Selenium, Total Recoverable in Water as Se mg/l	42	42	-0.005	-0.005	0.0025	ND	-0.005
Silver, Dissolved (mg/l as Ag)	96	95	0.001	-0.007	0.0005	0.0004	-0.001
Sodium, Total (mg/l as Na)	85	0	175	32.6	88.1	32.6	77.4
Specific Conductance (umhos/cm @ 25C)	29	0	1510	709	993	192	958
Specific Conductance, Field (umhos/cm @ 25C)	108	0	1490	343	792	219	776
Sulfate, Total (mg/l as SO ₄)	96	0	411	27.7	124.9	84.8	101.1
Temperature, Water (Degrees Centigrade)	113	1	22.3	-0.2	10.3	7.4	11.8
Temperature, Water (Degrees Fahrenheit)	32	0	71.6	32.1	51.7	13.3	55.25
Total Dissolved Solids, mg/l	95	0	822	220	477	129	481
Total Suspend Solids, mg/l	96	40	790	-10	34	89	11
Weak Acid Dissociable Cyanide, mg/l	97	96	0.01	-0.01	0.005	0.001	-0.01
Zinc, Dissolved (mg/l as Zn)	96	49	1.35	-0.05	0.093	0.179	-0.05

ND = Not determined. Applicable in two cases: number of analyses = 1; or all analyses are non-detect.

Non-detect analyses are set at 1/2 the detection limit for average and standard deviation calculations.

Median calculations use the laboratory analyses with less than detection values as negative.

Dissolved chromium was analyzed until 2001. Total recoverable chromium since 2002. Both forms are provided to indicate the entire analytical history.

TABLE 4-24
SAMPLE DATA FOR CC-04

SAMPLE LOCATION: CC-04
DRAINAGE: CRIPPLE CREEK
PERIOD OF RECORD: 1994-2015

PARAMETER	Number of analyses	Number of non-detect analyses	Maximum value	Minimum value	Average value	Standard deviation	Median value
Acidity, Total (mg/l as CaCO ₃)	112	102	38	-10	4.3	4.8	-10
Alkalinity, Bicarbonate (mg/l as CaCO ₃)	92	1	180	-10	105.2	37.0	98.3
Alkalinity, Carbonate (mg/l as CaCO ₃)	92	92	0	-5	0.1	ND	0
Alkalinity, Total (mg/l as CaCO ₃)	74	0	160	22	87.2	36.1	84.65
Aluminum, Dissolved (mg/l as Al)	95	66	7.01	-0.1	0.2	0.8	-0.05
Arsenic, Dissolved (mg/l as As)	22	22	-0.005	-0.005	0.0025	ND	-0.005
Arsenic, Total Recoverable in Water as As mg/l	104	102	0.005	-0.005	0.0025	0.0003	-0.005
Barium, Dissolved (mg/l as Ba)	18	16	0.07	-0.05	0.029	0.013	-0.05
Cadmium, Dissolved (mg/l as Cd)	124	96	0.005	-0.01	0.001	0.001	-0.001
Calcium, Total (mg/l as Ca)	121	0	112	47	74	15	72.7
Chloride, Total in Water mg/l	123	0	206	13	73.1	54.6	43
Chromium, Dissolved (mg/l as Cr)	84	84	-0.001	-0.005	0.0013	ND	-0.001
Chromium, Total Recoverable in Water as Cr mg/l	40	34	0.003	-0.001	0.0007	0.0005	-0.001
Copper, Dissolved (mg/l as Cu)	124	53	0.091	-0.005	0.0059	0.0082	0.005
Cyanide Free, mg/l	124	123	0.01	-0.05	0.010	0.009	-0.01
Cyanide, Total (mg/l as CN)	124	115	0.05	-0.025	0.006	0.006	-0.01
Flow, in Conduit or Thru a Treatment Plant MGD	37	0	1.066	0.0036	0.3508	0.2347	0.304
Flow, Rate Gallons/Min	102	0	2369	1	421.7	491	293
Flow, Stream, Instantaneous Cfs	24	0	1.65	0.0056	0.6098	0.3981	0.563
Fluoride, Total (mg/l as F)	123	0	6.5	1.93	2.97	0.46	2.9
Hardness, Total (mg/l as CaCO ₃)	124	0	398	150	242	50	233
Iron, Dissolved (mg/l as Fe)	124	100	1.62	-0.05	0.037	0.144	-0.05
Iron, Total Recoverable in Water as Fe mg/l	123	14	57	-0.05	1.481	6.096	0.206
Lead, Dissolved (mg/l as Pb)	124	121	0.018	-0.005	0.0012	0.0018	-0.001
Magnesium, Total (mg/l as Mg)	120	0	28.8	7.67	13.89	3.48	13.35
Manganese, Dissolved (mg/l as Mn)	124	46	5.8	-0.05	0.598	1.209	0.0175
Mercury, Total (mg/l as Hg)	91	90	0.0002	-0.0002	0.00009	0.00002	-0.0002
Molybdenum, Dissolved (mg/l as Mo)	18	18	-0.005	-0.01	0.005	ND	-0.01
Nickel, Dissolved (mg/l as Ni)	123	105	0.04	-0.05	0.006	0.006	-0.005
Nitrate Nitrogen, Total (mg/l as N)	124	0	15.9	1.8	7.26	2.66	7.19
Nitrite Nitrogen, Total (mg/l as N)	124	122	0.07	-0.05	0.026	0.005	-0.05
Nitrogen, Ammonia, Total (mg/l as N)	124	123	0.05	-0.2	0.0	0.0	-0.05
Oil and Grease Visual (No=0, Yes=1)	48	0	0	0	0	0	0
Oxygen, Dissolved mg/L	126	0	13.19	0.41	8.97	1.96	9
pH, Field, Standard Units	140	0	8.98	5.34	8.02	0.40	8.065
pH, Lab, Standard Units	32	0	8.2	6.8	7.56	0.36	7.6
Potassium, Total mg/l as K	110	0	16	2.67	5.99	1.44	5.77
Selenium, Dissolved (mg/l as Se)	124	123	0.005	-0.05	0.003	0.002	-0.005
Silver, Dissolved (mg/l as Ag)	124	123	0.001	-0.005	0.0004	0.0002	-0.001
Sodium, Total (mg/l as Na)	110	0	153	16	69.0	33.2	60.05
Specific Conductance (umhos/cm @ 25C)	33	0	1240	844	1035	105	1030
Specific Conductance, Field (umhos/cm @ 25C)	136	0	1203	237	804	188	804.5
Strontium, Total (mg/l as Sr)	17	0	1.8	0.86	1.35	0.30	1.4
Sulfate, Total (mg/l as SO ₄)	123	0	411	77.7	183	66	167
Temperature, Water (Degrees Centigrade)	141	3	25.6	-0.1	9.3	6.4	9.7
Temperature, Water (Degrees Fahrenheit)	35	0	64.4	32.2	48.6	11.2	50.7
Total Dissolved Solids, mg/l	122	0	728	280	500	103	506.5
Total Suspend Solids, mg/l	124	68	840	-10	30.1	84.6	-5
Turbidity, Lab Nephelometric Turbidity Units, NTU	18	0	460	0.4	39	107	5.2
Weak Acid Dissociable Cyanide, mg/l	124	119	0.013	-0.01	0.005	0.002	-0.01
Zinc, Dissolved (mg/l as Zn)	124	72	0.961	-0.05	0.055	0.110	-0.05

ND = Not determined. Applicable in two cases: number of analyses = 1; or all analyses are non-detect.

Non-detect analyses are set at 1/2 the detection limit for average and standard deviation calculations.

Median calculations use the laboratory analyses with less than detection values as negative.

Dissolved chromium was analyzed until 2001. Total recoverable chromium since 2002. Both forms are provided to indicate the entire analytical history.

TABLE 4-25
SAMPLE DATA FOR GV-01

SAMPLE LOCATION: GV-01
DRAINAGE: GRASSY VALLEY
PERIOD OF RECORD: 1997-2015

PARAMETER	Number of Analyses	Number of non-detect analyses	Maximum value	Minimum value	Average	Standard deviation	Median value
Acidity, Total (mg/l as CaCO ₃)	20	20	-10	-10	5	ND	-10
Alkalinity, Bicarbonate (mg/l as CaCO ₃)	22	0	47.6	11.5	27.5	11.2	22.8
Alkalinity, Carbonate (mg/l as CaCO ₃)	22	0	0	0	0	0	0
Alkalinity, Total (mg/l as CaCO ₃)	7	0	32.8	10.2	20.0	8.6	16.7
Aluminum, Dissolved (mg/l as Al)	20	2	1.09	-0.05	0.41	0.35	0.296
Arsenic, Total Recoverable in Water as As mg/l	22	20	0.009	-0.005	0.003	0.002	-0.005
Cadmium, Dissolved (mg/l as Cd)	22	21	0.001	-0.001	0.001	0.000	-0.001
Calcium, Total (mg/l as Ca)	22	0	18.1	6	12.8	3.0	12.2
Chloride, Total in Water mg/l	22	1	19	-0.5	7.8	5.5	6
Chromium, Dissolved (mg/l as Cr)	19	19	-0.001	-0.001	0.001	ND	-0.001
Copper, Dissolved (mg/l as Cu)	22	20	0.005	-0.005	0.003	0.001	-0.005
Cyanide Free, mg/l	22	22	-0.01	-0.01	0.005	ND	-0.01
Cyanide, Total (mg/l as CN)	22	22	-0.01	-0.01	0.005	ND	-0.01
Flow, in Conduit or Thru a Treatment Plant MGD	58	0	0.0396	0	0.00	0.01	0
Flow, Rate Gallons/Min	78	0	150	0	10.69	28.47	0
Fluoride, Total (mg/l as F)	22	0	1.98	0.664	1.19	0.33	1.14
Hardness, Total (mg/l as CaCO ₃)	22	0	61.4	24.1	44.8	9.6	45.2
Iron, Dissolved (mg/l as Fe)	22	1	1.16	-0.05	0.38	0.28	0.3
Iron, Total Recoverable in Water as Fe mg/l	22	0	14.7	0.18	1.6	3.0	0.9045
Lead, Dissolved (mg/l as Pb)	22	9	0.004	-0.001	0.002	0.001	0.001
Magnesium, Total (mg/l as Mg)	22	0	4.63	2.02	3.1	0.8	3.02
Manganese, Dissolved (mg/l as Mn)	22	12	0.464	-0.05	0.10	0.13	-0.05
Mercury, Total (mg/l as Hg)	22	22	-0.0002	-0.0002	0.000	ND	-0.0002
Nickel, Dissolved (mg/l as Ni)	22	18	0.01	-0.005	0.003	0.002	-0.005
Nitrate Nitrogen, Total (mg/l as N)	22	4	2.38	-0.05	0.64	0.64	0.547
Nitrite Nitrogen, Total (mg/l as N)	22	20	0.064	-0.05	0.03	0.01	-0.05
Nitrogen, Ammonia, Total (mg/l as N)	22	17	0.124	-0.05	0.04	0.03	-0.05
Oil and Grease Visual (No=0, Yes=1)	27	0	0	0	0	0	0
Oxygen, Dissolved mg/L	20	0	11.4	4.4	7.3	1.8	7.2
pH, Field, Standard Units	23	0	9.41	5.96	7.31	0.73	7.29
Potassium, Total mg/l as K)	21	1	7.96	-0.5	3.6	2.2	2.88
Selenium, Dissolved (mg/l as Se)	22	22	-0.005	-0.005	0.003	ND	-0.005
Silver, Dissolved (mg/l as Ag)	22	22	-0.001	-0.001	0.001	ND	-0.001
Sodium, Total (mg/l as Na)	21	0	28.3	4.61	17.7	6.7	18.5
Specific Conductance, Field (umhos/cm @ 25C)	23	0	480	45	209.6	125.0	181.5
Sulfate, Total (mg/l as SO ₄)	22	1	77.9	-10	42.1	17.3	41.55
Temperature, Water (Degrees Centigrade)	23	0	20.7	0.1	11.7	6.0	11
Total Dissolved Solids, mg/l	22	0	200	41	125.5	40.4	128.5
Total Suspend Solids, mg/l	22	15	538	-10	53.0	142.5	-10
Weak Acid Dissociable Cyanide, mg/l	22	22	-0.01	-0.01	0.005	ND	-0.01
Zinc, Dissolved (mg/l as Zn)	22	21	0.079	-0.05	0.03	0.01	-0.05

ND = Not determined. Applicable in two cases: number of analyses = 1; or all analyses are non-detect.

Non-detect analyses are set at 1/2 the detection limit for average and standard deviation calculations.

Median calculations use the laboratory analyses with less than detection values as negative.

TABLE 4-26
SAMPLE DATA FOR GV-02

SAMPLE LOCATION: GV-02
DRAINAGE: GRASSY VALLEY
PERIOD OF RECORD: 1996-2015

PARAMETER	Number of Analyses	Number of non-detect analyses	Maximum value	Minimum value	Average	Standard deviation	Median value
Acidity, Total (mg/l as CaCO ₃)	66	45	112	-10	9	9	-10
Alkalinity, Bicarbonate (mg/l as CaCO ₃)	68	11	166	-10	37	31	30.25
Alkalinity, Carbonate (mg/l as CaCO ₃)	68	0	0	0	0	0	0
Alkalinity, Total (mg/l as CaCO ₃)	45	12	136	-10	27	30	14.5
Aluminum, Dissolved (mg/l as Al)	47	3	9.65	-0.1	1.7	2.6	0.301
Arsenic, Total Recoverable in Water as As mg/l	72	70	0.018	-0.005	0.003	0.002	-0.005
Barium, Dissolved (mg/l as Ba)	2	1	0.104	-0.05	0.06	0.06	0.027
Boron, Dissolved (mg/l as B)	11	7	0.03	-0.001	0.004	0.009	-0.001
Cadmium, Dissolved (mg/l as Cd)	62	40	0.011	-0.001	0.002	0.002	-0.001
Calcium, Total (mg/l as Ca)	73	0	476	16.7	109.8	68.0	83.3
Chloride, Total in Water mg/l	73	5	140	-5	5.7	5.0	5.5
Chromium, Dissolved (mg/l as Cr)	39	36	0.004	-0.005	0.001	0.001	-0.001
Chromium, Total Recoverable in Water as Cr mg/l	34	32	0.002	-0.001	0.001	0.000	-0.001
Copper, Dissolved (mg/l as Cu)	73	64	0.018	-0.05	0.00	0.00	-0.005
Cyanide Free, mg/l	73	73	-0.01	-0.05	0.01	ND	-0.01
Cyanide, Total (mg/l as CN)	73	71	0.071	-0.01	0.01	0.01	-0.01
Flow, in Conduit or Thru a Treatment Plant MGD	75	0	0.2275	0	0.029	0.045	0.013
Flow, Rate Gallons/Min	111	0	158	0	26	36	10.9
Fluoride, Total (mg/l as F)	62	0	19	0.729	4.8	4.0	2.84
Hardness, Total (mg/l as CaCO ₃)	73	0	1650	0	431	302	312
Iron, Dissolved (mg/l as Fe)	73	18	2.99	-0.05	0.12	0.16	0.075
Iron, Total Recoverable in Water as Fe mg/l	72	3	5.6	-0.05	0.48	0.81	0.277
Lead, Dissolved (mg/l as Pb)	73	69	0.002	-0.005	0.001	0.001	-0.001
Magnesium, Total (mg/l as Mg)	73	0	150	4.67	40.3	32.1	27.2
Manganese, Dissolved (mg/l as Mn)	70	0	42.1	0.123	6.1	8.2	2.885
Mercury, Total (mg/l as Hg)	73	71	0.0002	-0.0002	0.000	0.000	-0.0002
Nickel, Dissolved (mg/l as Ni)	73	12	0.949	-0.005	0.034	0.068	0.013
Nitrate Nitrogen, Total (mg/l as N)	73	41	2.5	-0.05	0.24	0.50	-0.05
Nitrite Nitrogen, Total (mg/l as N)	73	73	-0.05	-0.05	0.03	ND	-0.05
Nitrogen, Ammonia, Total (mg/l as N)	73	66	0.4	-0.2	0.0	0.1	-0.05
Oil and Grease Visual (No=0, Yes=1)	54	0	0	0	0	0	0
Oxygen, Dissolved mg/L	69	0	11.9	0.6	6.4	2.5	6.6
pH, Field, Standard Units	72	0	8.18	4.13	6.56	0.64	6.64
pH, Lab, Standard Units	9	0	7.38	4.32	6.65	0.60	6.2
Potassium, Total mg/l as K)	66	0	14.7	1.03	4.4	2.8	4.125
Selenium, Dissolved (mg/l as Se)	73	70	0.007	-0.005	0.003	0.001	-0.005
Silver, Dissolved (mg/l as Ag)	73	69	0.002	-0.005	0.001	0.000	-0.001
Sodium, Total (mg/l as Na)	66	0	518	3.53	62	96	20.75
Specific Conductance (umhos/cm @ 25C)	30	0	2590	237	771	302	725.5
Specific Conductance, Field (umhos/cm @ 25C)	73	0	3510	102	988	728	711
Sulfate, Total (mg/l as SO ₄)	73	0	2462	54.9	527.8	487.1	335
Temperature, Water (Degrees Centigrade)	73	0	22.9	0.1	10.5	6.3	11.3
Total Dissolved Solids, mg/l	72	0	3400	123	833	701	557
Total Suspend Solids, mg/l	73	59	180	-10	11	23	-10
Weak Acid Dissociable Cyanide, mg/l	73	73	-0.005	-0.01	0.00	ND	-0.01
Zinc, Dissolved (mg/l as Zn)	73	21	14.9	-0.05	0.60	1.24	0.137

ND = Not determined. Applicable in two cases: number of analyses = 1; or all analyses are non-detect.

Non-detect analyses are set at 1/2 the detection limit for average and standard deviation calculations.

Median calculations use the laboratory analyses with less than detection values as negative.

TABLE 4-27

SAMPLE DATA FOR GV-03

SAMPLE LOCATION: GV-03

DRAINAGE: GRASSY VALLEY

PERIOD OF RECORD: 1997-2015

PARAMETER	Number of Analyses	Number of non-detect analyses	Maximum value	Minimum value	Average	Standard deviation	Median value
Acidity, Total (mg/l as CaCO ₃)	45	30	36	-10	10.8	9.4	-10
Alkalinity, Bicarbonate (mg/l as CaCO ₃)	48	20	400	-10	65.6	92.8	15.55
Alkalinity, Carbonate (mg/l as CaCO ₃)	48	0	0	0	0	0	0
Alkalinity, Total (mg/l as CaCO ₃)	25	19	38.1	-10	7.8	7.8	-10
Aluminum, Dissolved (mg/l as Al)	31	16	10.9	-0.05	0.97	2.45	-0.05
Arsenic, Total Recoverable in Water as As mg/l	47	47	-0.005	-0.005	0.0025	ND	-0.005
Cadmium, Dissolved (mg/l as Cd)	48	38	0.012	-0.001	0.0011	0.0021	-0.001
Calcium, Total (mg/l as Ca)	48	0	434	4.08	93.2	68.4	77.1
Chloride, Total in Water mg/l	48	8	67	-0.5	9.54	12.90	5.5
Chromium, Dissolved (mg/l as Cr)	28	28	-0.001	-0.001	0.0005	ND	-0.001
Chromium, Total Recoverable in Water as Cr mg/l	20	16	0.003	-0.001	0.0008	0.0006	-0.001
Copper, Dissolved (mg/l as Cu)	48	44	0.007	-0.005	0.0028	0.0011	-0.005
Cyanide Free, mg/l	48	48	-0.01	-0.01	0.005	ND	-0.01
Cyanide, Total (mg/l as CN)	48	48	-0.01	-0.01	0.005	ND	-0.01
Flow, in Conduit or Thru a Treatment Plant MGD	114	0	0.4539	0	0.0287	0.0763	0
Flow, Rate Gallons/Min	143	1	565	-0.5	33.50	83.32	0
Fluoride, Total (mg/l as F)	48	0	12.1	0.358	4.2	2.3	3.83
Hardness, Total (mg/l as CaCO ₃)	47	0	1433	19.8	356.5	245.3	298
Iron, Dissolved (mg/l as Fe)	48	15	1.04	-0.1	0.13	0.18	0.079
Iron, Total Recoverable in Water as Fe mg/l	47	1	4.71	-0.05	0.61	0.82	0.293
Lead, Dissolved (mg/l as Pb)	48	47	0.002	-0.001	0.0005	0.0002	-0.001
Magnesium, Total (mg/l as Mg)	48	0	84.8	2.34	29.8	18.9	24.9
Manganese, Dissolved (mg/l as Mn)	47	0	41.9	0.044	8.1	11.0	3.91
Mercury, Total (mg/l as Hg)	48	48	-0.0002	-0.0002	0.0001	ND	-0.0002
Nickel, Dissolved (mg/l as Ni)	48	19	0.26	-0.005	0.0244	0.0492	0.011
Nitrate Nitrogen, Total (mg/l as N)	48	44	0.269	-0.05	0.04	0.04	-0.05
Nitrite Nitrogen, Total (mg/l as N)	48	47	0.084	-0.05	0.03	0.01	-0.05
Nitrogen, Ammonia, Total (mg/l as N)	48	40	0.453	-0.05	0.05	0.07	-0.05
Oil and Grease Visual (No=0, Yes=1)	66	0	0	0	0	0	0
Oxygen, Dissolved mg/L	48	0	11.9	1.4	6.2	2.3	6.25
pH, Field, Standard Units	49	0	8.1	4.33	6.68	0.90	6.8
Potassium, Total mg/l as K)	45	0	18	0.96	6.6	4.2	5.73
Selenium, Dissolved (mg/l as Se)	48	48	-0.005	-0.005	0.0025	ND	-0.005
Silver, Dissolved (mg/l as Ag)	48	47	0.001	-0.001	0.0005	0.0001	-0.001
Sodium, Total (mg/l as Na)	45	0	160	2.76	40.7	32.7	30.2
Specific Conductance (umhos/cm @ 25C)	19	0	1320	62.4	721.5	318.6	720
Specific Conductance, Field (umhos/cm @ 25C)	49	0	2440	67.5	846.5	583.7	629
Sulfate, Total (mg/l as SO ₄)	48	0	1551	11.3	380.0	312.9	296
Temperature, Water (Degrees Centigrade)	49	0	25.4	0.1	12.2	6.9	13.3
Total Dissolved Solids, mg/l	48	0	2373	107	636.3	436.1	521
Total Suspend Solids, mg/l	48	34	133	-10	13.0	21.5	-10
Weak Acid Dissociable Cyanide, mg/l	48	48	-0.01	-0.01	0.005	ND	-0.01
Zinc, Dissolved (mg/l as Zn)	48	23	5.19	-0.05	0.45	0.93	0.0655

ND = Not determined. Applicable in two cases: number of analyses = 1; or all analyses are non-detect.

Non-detect analyses are set at 1/2 the detection limit for average and standard deviation calculations.

Median calculations use the laboratory analyses with less than detection values as negative.

TABLE 4-28
SAMPLE DATA FOR GVMW-8A

SAMPLE LOCATION: GVMW-8A
DRAINAGE: GRASSY VALLEY
PERIOD OF RECORD: 1998-2015

PARAMETER	Number of Analyses	Number of non-detect analyses	Maximum value	Minimum value	Average value	Standard deviation	Median value
Acidity, Total (mg/l as CaCO ₃)	75	61	14	-20	6.0	2.4	-10
Alkalinity, Bicarbonate (mg/l as CaCO ₃)	75	0	80.7	0	66.24	9.18	67.8
Alkalinity, Carbonate (mg/l as CaCO ₃)	75	0	13.2	0	0.18	1.52	0
Alkalinity, Total (mg/l as CaCO ₃)	57	0	61.1	45.9	54.5	3.6	55.4
Aluminum, Dissolved (mg/l as Al)	75	34	0.18	-0.05	0.023	0.024	0.011
Arsenic, Dissolved (mg/l as As)	55	55	-0.005	-0.005	0.0025	ND	-0.005
Cadmium, Dissolved (mg/l as Cd)	75	75	-0.001	-0.001	0.0005	ND	-0.001
Calcium, Total (mg/l as Ca)	75	0	44.2	24.8	34.9	3.8	34.5
Chloride, Total in Water mg/l	75	0	37.7	2	10.76	8.81	7.75
Chromium, Dissolved (mg/l as Cr)	75	71	0.003	-0.001	0.0006	0.0003	-0.001
Copper, Dissolved (mg/l as Cu)	75	74	0.006	-0.005	0.0025	0.0004	-0.005
Cyanide Free, mg/l	75	75	-0.01	-0.01	0.005	ND	-0.01
Cyanide, Total (mg/l as CN)	75	75	-0.01	-0.01	0.005	ND	-0.01
Fluoride, Total (mg/l as F)	75	0	3.33	2.01	2.72	0.24	2.75
Hardness, Total (mg/l as CaCO ₃)	75	0	161.864	88.700	107	12	104
Iron, Dissolved (mg/l as Fe)	75	71	0.08	-0.05	0.027	0.009	-0.05
Lead, Dissolved (mg/l as Pb)	75	74	0.001	-0.001	0.0005	0.0001	-0.001
Magnesium, Total (mg/l as Mg)	75	0	6.5	1.13	4.49	0.66	4.35
Manganese, Dissolved (mg/l as Mn)	75	3	0.928	-0.05	0.484	0.223	0.465
Mercury, Total (mg/l as Hg)	75	75	-0.0002	-0.0002	0.0001	ND	-0.0002
Nickel, Dissolved (mg/l as Ni)	75	75	-0.005	-0.005	0.0025	ND	-0.005
Nitrate Nitrogen, Total (mg/l as N)	75	4	2.23	-0.05	0.351	0.433	0.197
Nitrite Nitrogen, Total (mg/l as N)	75	75	-0.05	-0.05	0.025	ND	-0.05
Nitrogen, Ammonia, Total (mg/l as N)	75	74	0.064	-0.05	0.026	0.005	-0.05
Oil and Grease Visual (No=0, Yes=1)	56	0	0	0	0	0	0
Oxygen, Dissolved mg/L	76	0	6.5	0.1	0.79	1.25	0.285
pH, Field, Standard Units	80	0	11.82	6.64	7.14	0.86	6.87
pH, Lab, Standard Units	29	0	10.8	6.87	7.34	0.69	7.2
Potassium, Total mg/l as K)	75	0	3.09	0.56	0.85	0.32	0.788
Selenium, Dissolved (mg/l as Se)	75	75	-0.005	-0.005	0.0025	ND	-0.005
Silver, Dissolved (mg/l as Ag)	75	74	0.002	-0.001	0.0005	0.0002	-0.001
Sodium, Total (mg/l as Na)	75	0	24	17.6	20.0	1.5	19.6
Specific Conductance (umhos/cm @ 25C)	45	0	377	303	323	21	315
Specific Conductance, Field (umhos/cm @ 25C)	80	0	441	190	309	41	303
Sulfate, Total (mg/l as SO ₄)	75	0	107	50.8	69.7	7.8	68.4
Temperature, Water (Degrees Centigrade)	80	0	10.6	7.2	8.3	0.7	8.2
Total Dissolved Solids, mg/l	74	0	245	160	199	14	199
Total Suspend Solids, mg/l	75	74	11	-10	5.1	0.7	-10
Water Level, Distance From Measuring Point (Feet)	88	0	183.46	81.04	123.94	27.25	121.95
Weak Acid Dissociable Cyanide, mg/l	75	75	-0.01	-0.01	0.005	ND	-0.01
Zinc, Dissolved (mg/l as Zn)	75	75	-0.05	-0.05	0.025	ND	-0.05

ND = Not determined. Applicable in two cases: number of analyses = 1; or all analyses are non-detect.

Non-detect analyses are set at 1/2 the detection limit for average and standard deviation calculations.

Median calculations use the laboratory analyses with less than detection values as negative.

TABLE 4-29
SAMPLE DATA FOR GVMW-8B

SAMPLE LOCATION: GVMW-8B
DRAINAGE: GRASSY VALLEY
PERIOD OF RECORD: 1998-2015

PARAMETER	Number of Analyses	Number of non-detect analyses	Maximum value	Minimum value	Average value	Standard deviation	Median value
Acidity, Total (mg/l as CaCO ₃)	63	53	14	-50	6.24	3.26	-10
Alkalinity, Bicarbonate (mg/l as CaCO ₃)	63	0	72.6	35.9	53.8	7.2	53
Alkalinity, Carbonate (mg/l as CaCO ₃)	63	0	0	0	0	0	0
Alkalinity, Total (mg/l as CaCO ₃)	47	0	53.1	29.4	41.9	4.6	42.2
Aluminum, Dissolved (mg/l as Al)	63	18	0.505	-0.05	0.047	0.071	0.023
Arsenic, Dissolved (mg/l as As)	45	45	-0.005	-0.005	0.0025	ND	-0.005
Cadmium, Dissolved (mg/l as Cd)	63	63	-0.001	-0.001	0.0005	ND	-0.001
Calcium, Total (mg/l as Ca)	63	0	58.9	26.5	34.0	5.5	33.2
Chloride, Total in Water mg/l	63	0	24.7	2	6.92	4.62	5.25
Chromium, Dissolved (mg/l as Cr)	63	50	0.003	-0.001	0.001	0.001	-0.001
Copper, Dissolved (mg/l as Cu)	63	59	0.009	-0.005	0.003	0.001	-0.005
Cyanide Free, mg/l	63	63	-0.01	-0.01	0.005	ND	-0.01
Cyanide, Total (mg/l as CN)	63	63	-0.01	-0.01	0.005	ND	-0.01
Fluoride, Total (mg/l as F)	63	0	3.38	0.722	2.30	0.53	2.45
Hardness, Total (mg/l as CaCO ₃)	63	0	193	84.4	108.6	17.9	106
Iron, Dissolved (mg/l as Fe)	63	58	0.084	-0.05	0.028	0.012	-0.05
Lead, Dissolved (mg/l as Pb)	63	63	-0.001	-0.001	0.0005	ND	-0.001
Magnesium, Total (mg/l as Mg)	63	0	11.2	2.51	5.64	1.24	5.41
Manganese, Dissolved (mg/l as Mn)	63	49	0.135	-0.05	0.021	0.027	-0.01
Mercury, Total (mg/l as Hg)	63	63	-0.0002	-0.0002	0.0001	ND	-0.0002
Nickel, Dissolved (mg/l as Ni)	63	60	0.059	-0.005	0.004	0.007	-0.005
Nitrate Nitrogen, Total (mg/l as N)	63	0	2.54	0.636	1.55	0.45	1.55
Nitrite Nitrogen, Total (mg/l as N)	63	63	-0.05	-0.05	0.025	ND	-0.05
Nitrogen, Ammonia, Total (mg/l as N)	63	61	0.058	-0.05	0.026	0.005	-0.05
Oil and Grease Visual (No=0, Yes=1)	51	0	0	0	0	0	0
Oxygen, Dissolved mg/L	74	0	9.5	3.2	6.70	1.31	6.85
pH, Field, Standard Units	76	0	8.84	6.44	6.89	0.41	6.79
pH, Lab, Standard Units	19	0	7.45	6.82	7.10	0.15	7.15
Potassium, Total mg/l as K)	63	0	2.61	0.72	1.36	0.34	1.31
Selenium, Dissolved (mg/l as Se)	63	63	-0.005	-0.005	0.0025	ND	-0.005
Silver, Dissolved (mg/l as Ag)	63	63	-0.001	-0.001	0.0005	ND	-0.001
Sodium, Total (mg/l as Na)	63	0	33.1	14.9	22.5	3.0	22.3
Specific Conductance (umhos/cm @ 25C)	36	0	502	302	353	42	340
Specific Conductance, Field (umhos/cm @ 25C)	76	0	543	197	326	52	321
Sulfate, Total (mg/l as SO ₄)	63	0	199	53.1	88.4	25.1	86.2
Temperature, Water (Degrees Centigrade)	75	0	15.6	6.7	9.3	1.9	9
Total Dissolved Solids, mg/l	62	0	368	176	224	40	216
Total Suspend Solids, mg/l	63	46	191	-10	13.0	25.8	-10
Water Level, Distance From Measuring Point (Feet)	92	0	49.2	10.05	33.6	9.1	35.035
Weak Acid Dissociable Cyanide, mg/l	63	63	-0.01	-0.01	0.005	ND	-0.01
Zinc, Dissolved (mg/l as Zn)	63	63	-0.05	-0.05	0.025	ND	-0.05

ND = Not determined. Applicable in two cases: number of analyses = 1; or all analyses are non-detect.

Non-detect analyses are set at 1/2 the detection limit for average and standard deviation calculations.

Median calculations use the laboratory analyses with less than detection values as negative.

TABLE 4-30
SAMPLE DATA FOR GVMW-22A

SAMPLE LOCATION: GVMW-22A
DRAINAGE: GRASSY VALLEY
PERIOD OF RECORD: 2007-2015

PARAMETER	Number of Analyses	Number of non-detect analyses	Maximum value	Minimum value	Average value	Standard deviation	Median value
Acidity, Total (mg/l as CaCO ₃)	15	13	0	-10	7.7	3.7	-10
Alkalinity, Bicarbonate (mg/l as CaCO ₃)	15	0	217	176	189	11	187
Alkalinity, Carbonate (mg/l as CaCO ₃)	15	0	13.5	0	0.9	3.5	0
Alkalinity, Total (mg/l as CaCO ₃)	15	0	200	144	156	14	153
Aluminum, Dissolved (mg/l as Al)	15	5	0.787	-0.01	0.124	0.248	0.019
Arsenic, Dissolved (mg/l as As)	15	14	0.011	-0.005	0.0047	0.0021	-0.005
Cadmium, Dissolved (mg/l as Cd)	15	15	-0.001	-0.001	0.0008	ND	-0.001
Calcium, Total (mg/l as Ca)	15	0	38.8	13.6	30.8	8.6	33.6
Chloride, Total in Water mg/l	15	0	6.5	4.16	5.12	0.63	5.03
Chromium, Dissolved (mg/l as Cr)	15	15	-0.001	-0.001	0.0008	ND	-0.001
Copper, Dissolved (mg/l as Cu)	15	14	0.075	-0.005	0.0090	0.0183	-0.005
Cyanide Free, mg/l	15	15	-0.01	-0.01	0.008	ND	-0.01
Cyanide, Total (mg/l as CN)	15	15	-0.01	-0.01	0.008	ND	-0.01
Fluoride, Total (mg/l as F)	15	0	3.03	1.74	2.06	0.29	1.98
Hardness, Total (mg/l as CaCO ₃)	15	0	203	62.6	133.7	33.4	140
Iron, Dissolved (mg/l as Fe)	15	12	0.653	-0.05	0.111	0.173	-0.05
Lead, Dissolved (mg/l as Pb)	15	12	0.003	-0.001	0.0011	0.0006	-0.001
Magnesium, Total (mg/l as Mg)	15	0	14.4	6.96	11.99	2.16	12.7
Manganese, Dissolved (mg/l as Mn)	15	2	0.105	-0.01	0.038	0.023	0.032
Mercury, Total (mg/l as Hg)	15	15	-0.0002	-0.0002	0.00017	ND	-0.0002
Nickel, Dissolved (mg/l as Ni)	15	14	0.005	-0.005	0.0043	0.0011	-0.005
Nitrate Nitrogen, Total (mg/l as N)	15	14	0.177	-0.05	0.052	0.036	-0.05
Nitrite Nitrogen, Total (mg/l as N)	15	14	0.05	-0.05	0.043	0.011	-0.05
Nitrogen, Ammonia, Total (mg/l as N)	15	13	0.281	-0.05	0.062	0.062	-0.05
Oil and Grease Visual (No=0, Yes=1)	24	0	0	0	0	0	0
Oxygen, Dissolved mg/L	20	0	7.6	0.6	2.64	1.71	2.15
pH, Field, Standard Units	22	0	8.29	7.4	7.92	0.21	7.965
pH, Lab, Standard Units	14	0	8.18	7.76	7.98	0.12	7.98
Potassium, Total mg/l as K)	15	0	7.87	1.13	2.24	1.96	1.51
Selenium, Dissolved (mg/l as Se)	15	15	-0.005	-0.005	0.0042	ND	-0.005
Silver, Dissolved (mg/l as Ag)	15	15	-0.001	-0.001	0.0008	ND	-0.001
Sodium, Total (mg/l as Na)	15	0	149	32.6	49.1	29.5	36.8
Specific Conductance (umhos/cm @ 25C)	15	0	799	406	441	101	409
Specific Conductance, Field (umhos/cm @ 25C)	22	0	480	87	387	87	408.5
Sulfate, Total (mg/l as SO ₄)	15	0	161	42.8	57.2	29.0	51.1
Temperature, Water (Degrees Centigrade)	22	0	13.6	5.2	8.30	1.66	8.05
Total Dissolved Solids, mg/l	15	0	924	199	273	181	224
Total Suspended Solids, mg/l	15	11	124	-10	21.3	30.3	-10
Water Level, Distance From Measuring Point (Feet)	25	0	3.78	1.81	2.93	0.45	3.05
Weak Acid Dissociable Cyanide, mg/l	15	15	-0.01	-0.01	0.008	ND	-0.01
Zinc, Dissolved (mg/l as Zn)	15	15	-0.05	-0.05	0.042	ND	-0.05

ND = Not determined. Applicable in two cases: number of analyses = 1; or all analyses are non-detect.

Non-detect analyses are set at 1/2 the detection limit for average and standard deviation calculations.

Median calculations use the laboratory analyses with less than detection values as negative.

TABLE 4-31
SAMPLE DATA FOR GVMW-22B

SAMPLE LOCATION: GVMW-22B
DRAINAGE: GRASSY VALLEY
PERIOD OF RECORD: 2007-2015

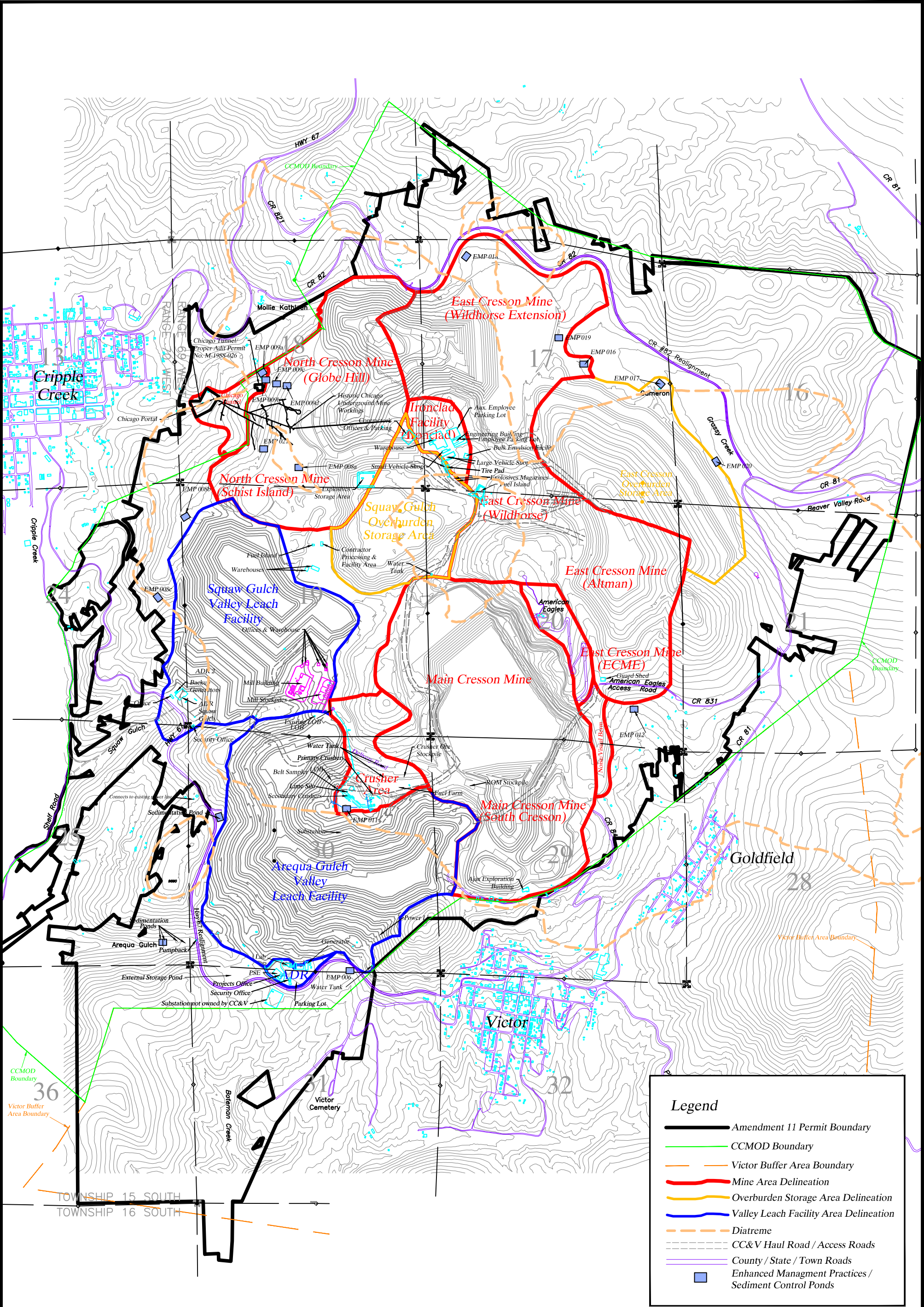
PARAMETER	Number of Analyses	Number of non-detect analyses	Maximum value	Minimum value	Average value	Standard deviation	Median value
Acidity, Total (mg/l as CaCO ₃)	15	8	28	-10	13.3	7.2	-10
Alkalinity, Bicarbonate (mg/l as CaCO ₃)	15	0	134	84.3	102.4	12.4	99.7
Alkalinity, Carbonate (mg/l as CaCO ₃)	15	0	0	0	0	0	0
Alkalinity, Total (mg/l as CaCO ₃)	15	0	110	69.1	83.9	10.2	81.7
Aluminum, Dissolved (mg/l as Al)	15	6	0.054	-0.01	0.022	0.015	0.016
Arsenic, Dissolved (mg/l as As)	15	15	-0.005	-0.005	0.0042	ND	-0.005
Cadmium, Dissolved (mg/l as Cd)	15	15	-0.001	-0.001	0.0008	ND	-0.001
Calcium, Total (mg/l as Ca)	15	0	42.3	25.8	35.8	3.6	36.3
Chloride, Total in Water mg/l	15	0	13.1	5.43	7.27	1.82	6.73
Chromium, Dissolved (mg/l as Cr)	15	15	-0.001	-0.001	0.0008	ND	-0.001
Copper, Dissolved (mg/l as Cu)	15	15	-0.005	-0.005	0.0042	ND	-0.005
Cyanide Free, mg/l	15	15	-0.01	-0.01	0.008	ND	-0.01
Cyanide, Total (mg/l as CN)	15	15	-0.01	-0.01	0.008	ND	-0.01
Fluoride, Total (mg/l as F)	15	0	0.456	0.375	0.416	0.019	0.419
Hardness, Total (mg/l as CaCO ₃)	15	0	146	87.9	128.9	13.1	131
Iron, Dissolved (mg/l as Fe)	15	14	0.118	-0.05	0.048	0.022	-0.05
Lead, Dissolved (mg/l as Pb)	15	15	-0.001	-0.001	0.0008	ND	-0.001
Magnesium, Total (mg/l as Mg)	15	0	11.9	5.69	9.56	1.30	9.63
Manganese, Dissolved (mg/l as Mn)	15	0	0.384	0.014	0.124	0.101	0.099
Mercury, Total (mg/l as Hg)	15	15	-0.0002	-0.0002	0.00017	ND	-0.0002
Nickel, Dissolved (mg/l as Ni)	15	14	0.006	-0.005	0.0044	0.0012	-0.005
Nitrate Nitrogen, Total (mg/l as N)	15	0	0.673	0.12	0.409	0.187	0.405
Nitrite Nitrogen, Total (mg/l as N)	15	15	-0.05	-0.05	0.042	ND	-0.05
Nitrogen, Ammonia, Total (mg/l as N)	15	15	-0.05	-0.05	0.042	ND	-0.05
Oil and Grease Visual (No=0, Yes=1)	17	0	0	0	0	0	0
Oxygen, Dissolved mg/L	14	0	4.52	0.6	1.48	1.01	1.3
pH, Field, Standard Units	15	0	7.17	6.31	6.74	0.20	6.71
pH, Lab, Standard Units	14	0	7.33	6.8	7.03	0.17	6.97
Potassium, Total mg/l as K)	15	0	3.36	1.46	1.91	0.49	1.69
Selenium, Dissolved (mg/l as Se)	15	15	-0.005	-0.005	0.0042	ND	-0.005
Silver, Dissolved (mg/l as Ag)	15	15	-0.001	-0.001	0.0008	ND	-0.001
Sodium, Total (mg/l as Na)	15	0	28	11.5	20.6	4.0	21.1
Specific Conductance (umhos/cm @ 25C)	15	0	411	225	349	43	350
Specific Conductance, Field (umhos/cm @ 25C)	15	0	376	87.3	321.5	82.6	350
Sulfate, Total (mg/l as SO ₄)	15	0	101	27.1	74.2	17.4	78.3
Temperature, Water (Degrees Centigrade)	15	0	9.7	4.6	7.55	1.26	7.3
Total Dissolved Solids, mg/l	15	0	232	94	196	31	198
Total Suspend Solids, mg/l	15	12	32	-10	11.6	6.5	-10
Water Level, Distance From Measuring Point (Feet)	19	0	5.4	1.7	4.55	0.78	4.72
Weak Acid Dissociable Cyanide, mg/l	15	15	-0.01	-0.01	0.008	ND	-0.01
Zinc, Dissolved (mg/l as Zn)	15	15	-0.05	-0.05	0.042	ND	-0.05

ND = Not determined. Applicable in two cases: number of analyses = 1; or all analyses are non-detect.

Non-detect analyses are set at 1/2 the detection limit for average and standard deviation calculations.

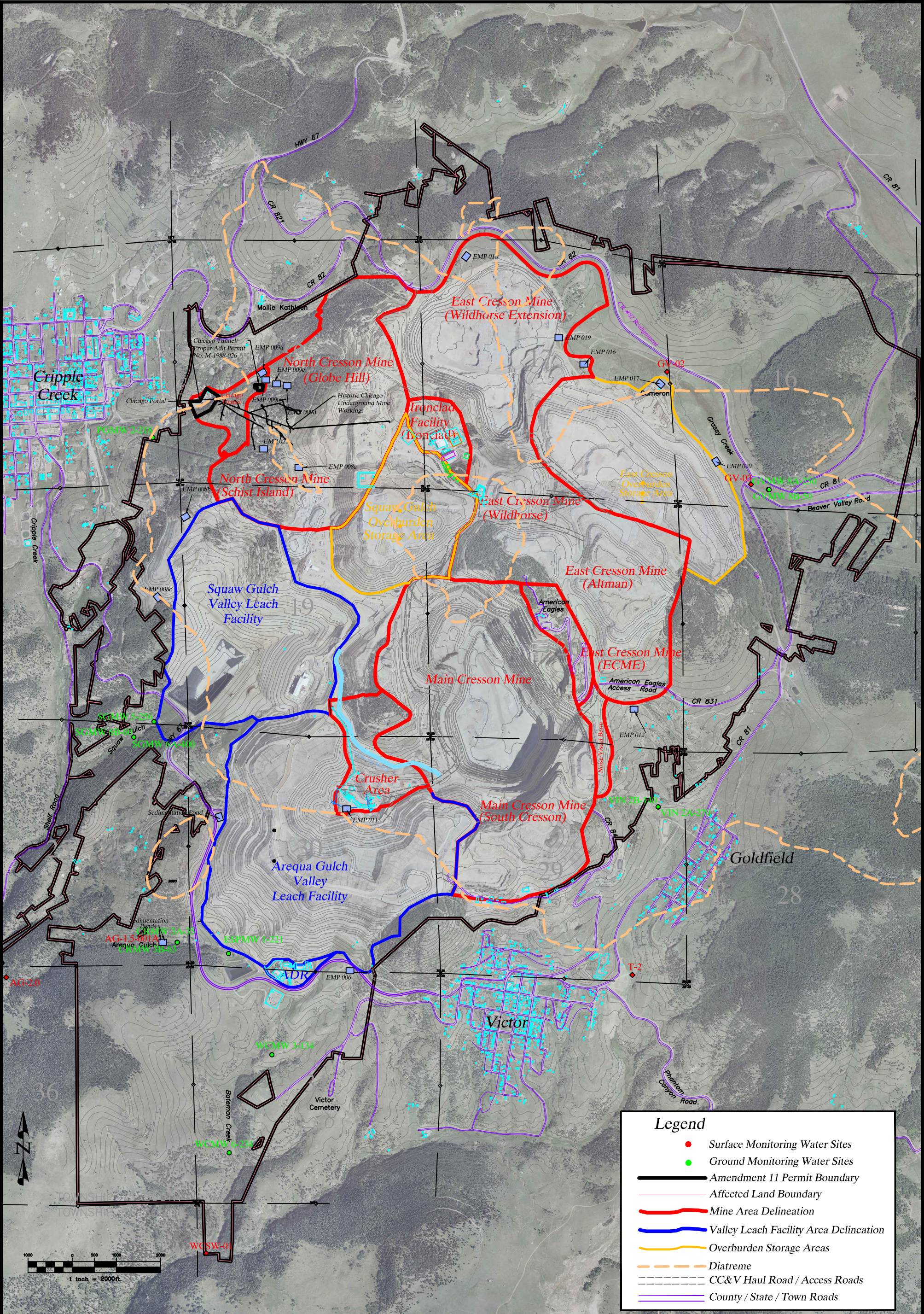
Median calculations use the laboratory analyses with less than detection values as negative.

FIGURES



Cripple Creek & Victor Gold Mining Company

Figure 1-1
Extent of Permitted Activities



Cripple Creek & Victor Gold Mining Company

Figure 2-1
Surface Water and Groundwater Monitoring Locations

Date: 12-15-2015

Scale: 1" = 2000'

A11 Fig2-2 Monitor Locs.dwg

REV:

Figure 3-1
FLOWS IN WILSON CREEK DRAINAGE

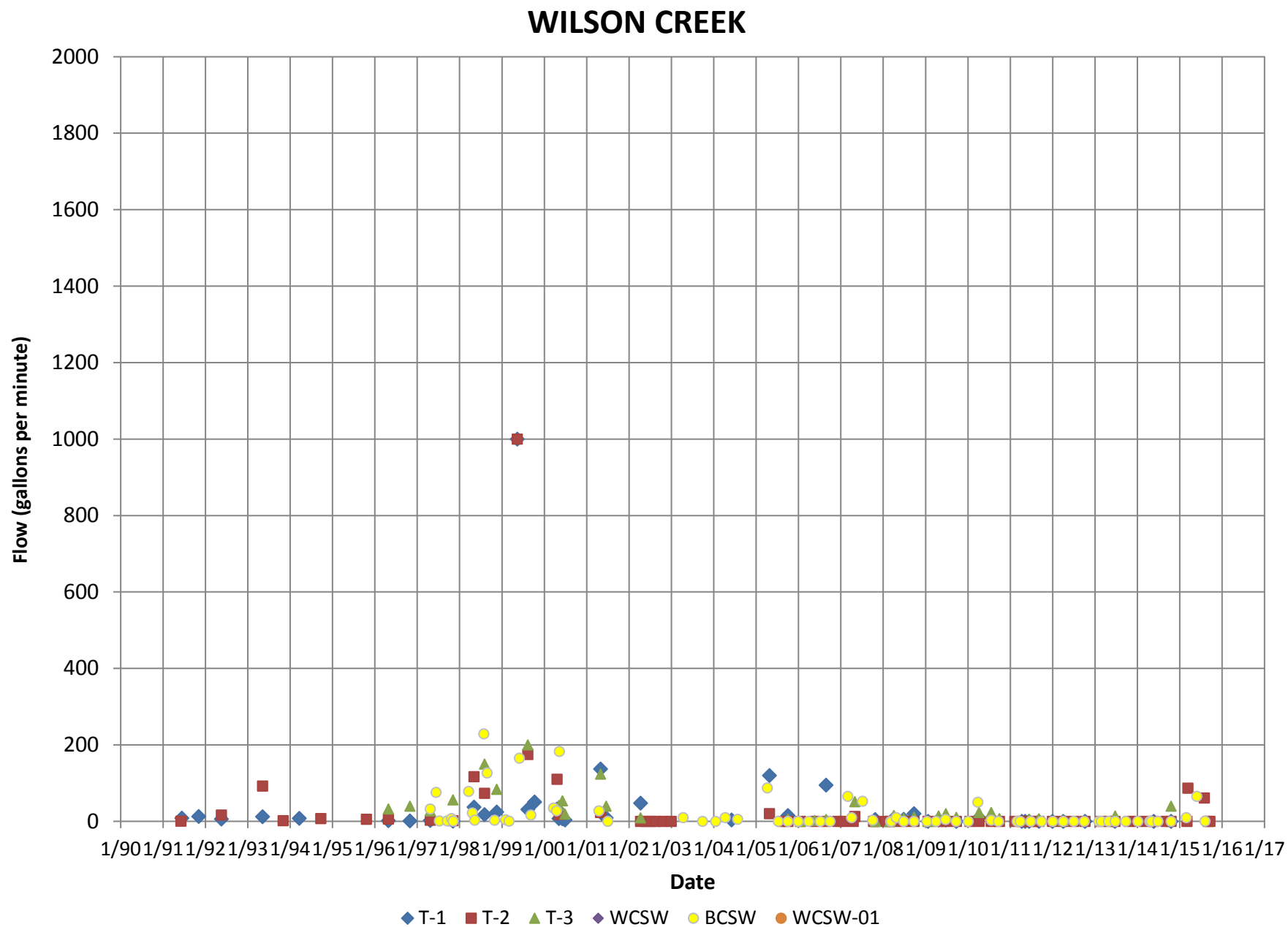


Figure 3-2
SURFACE WATER QUALITY IN WILSON CREEK

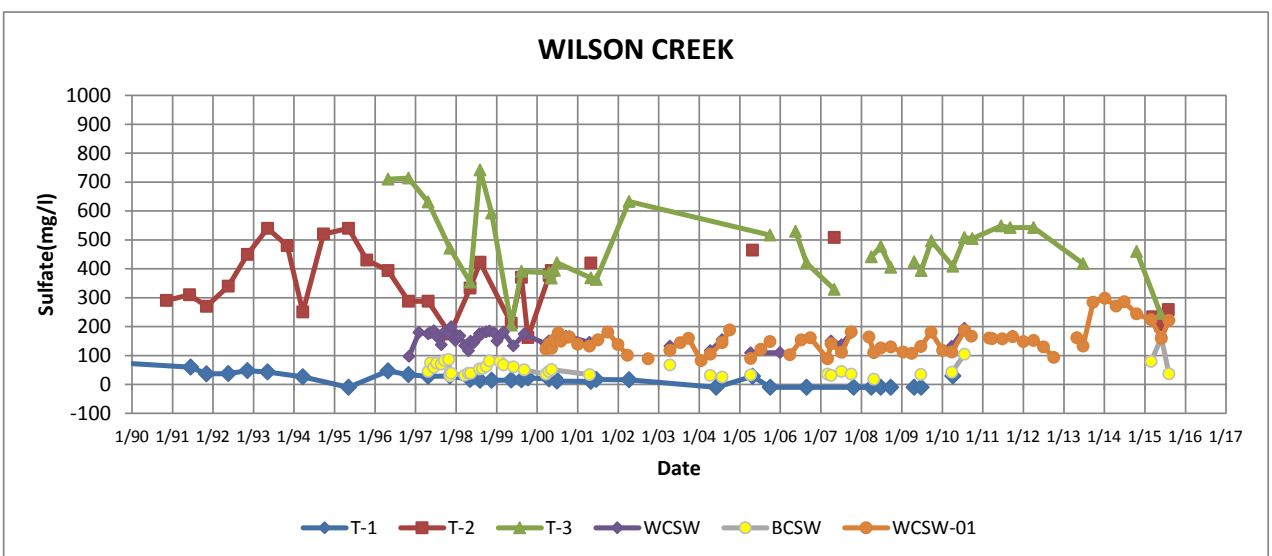
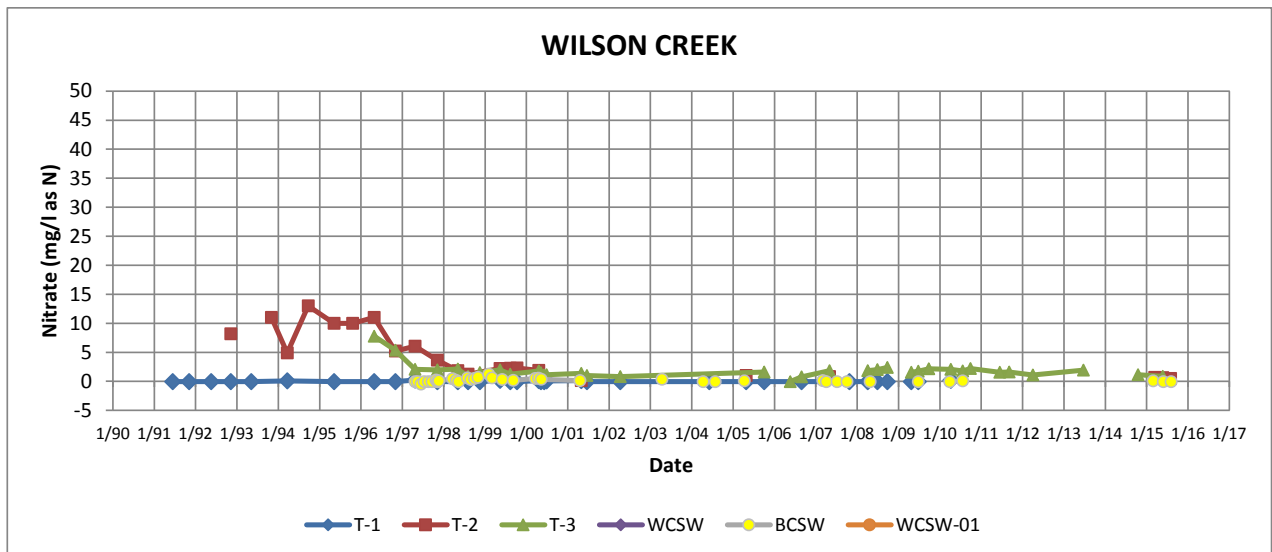
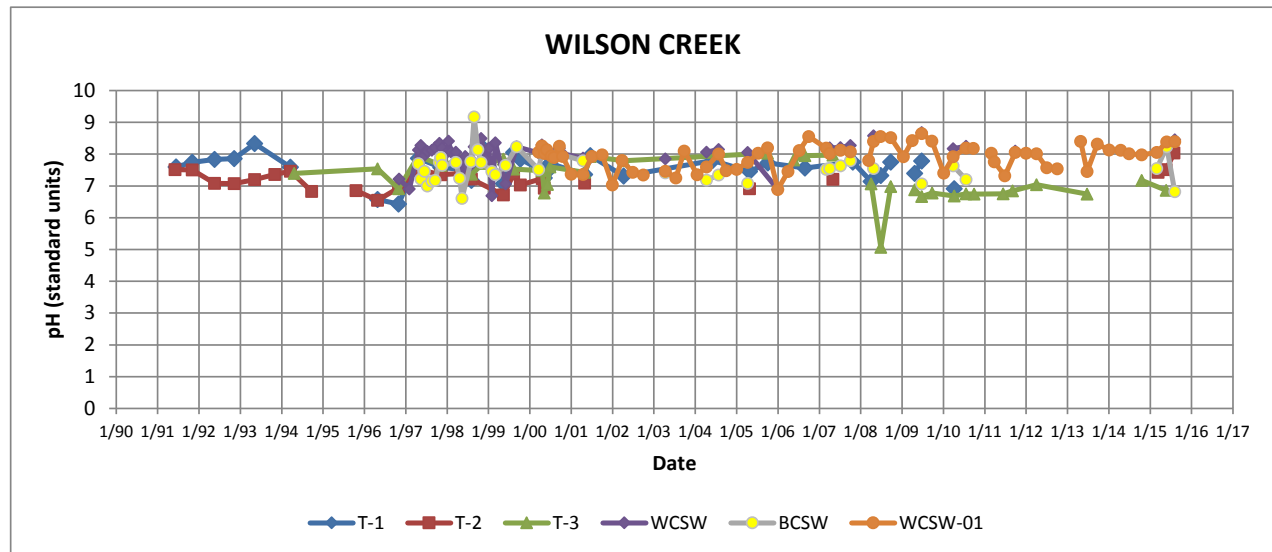


Figure 3-3
DEPTH TO GROUND WATER IN WILSON CREEK MONITORING WELLS

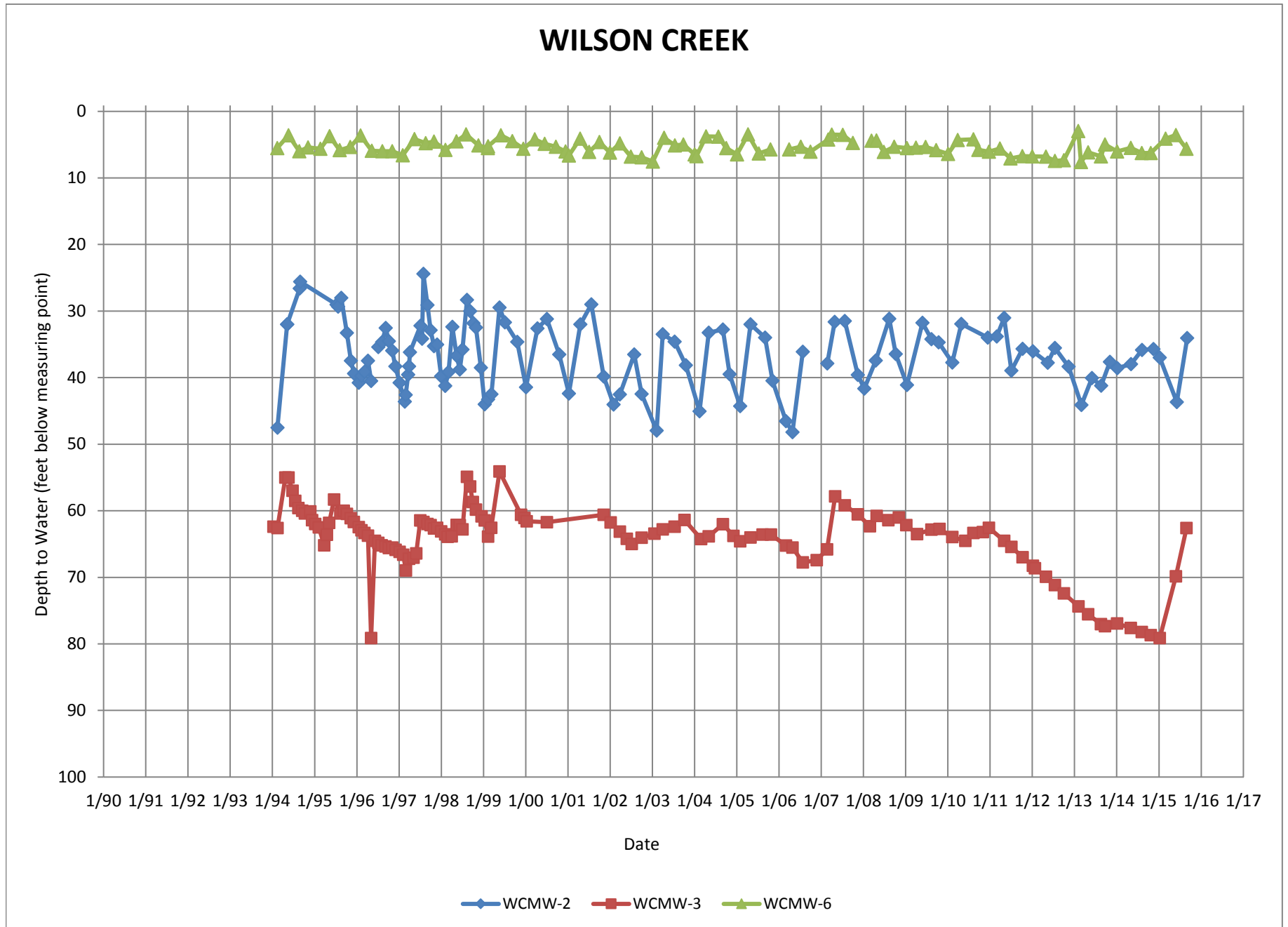


Figure 3-4
GROUND WATER QUALITY IN WILSON CREEK

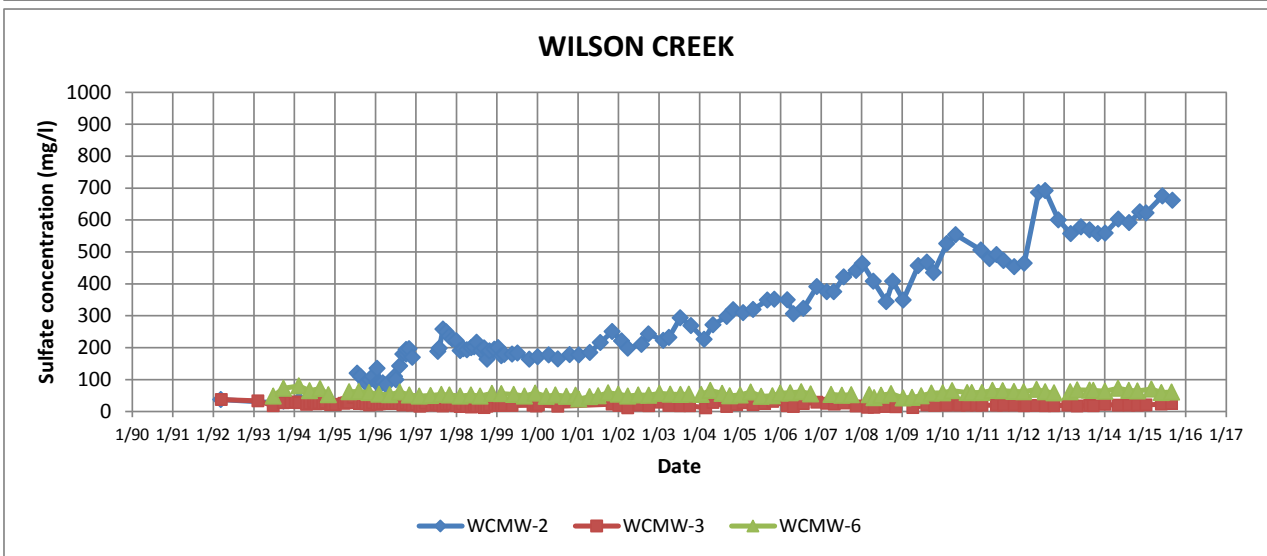
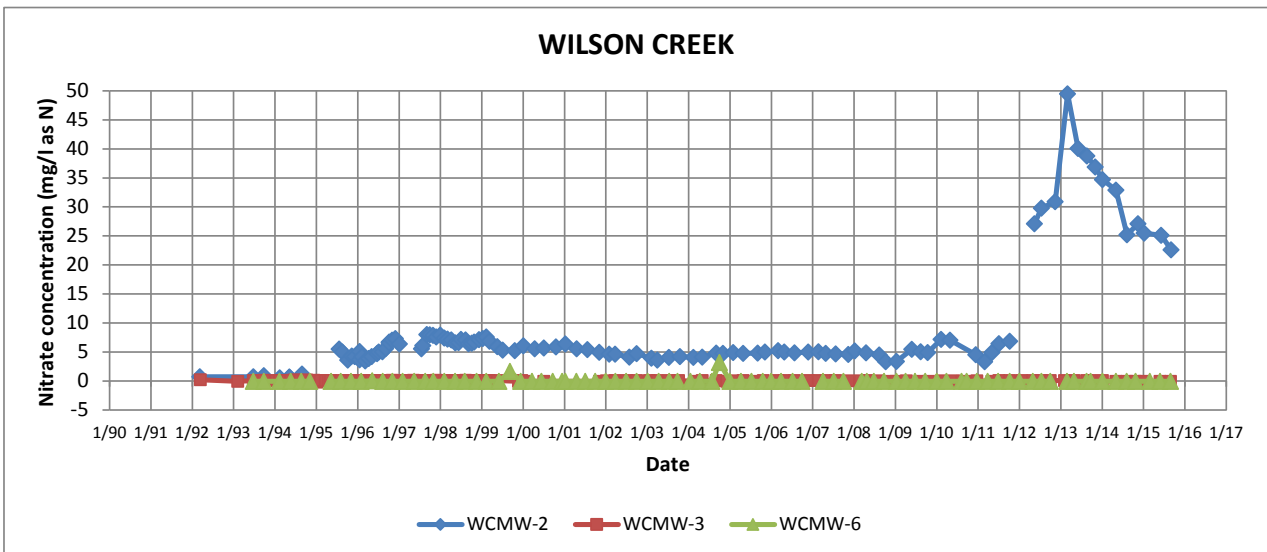
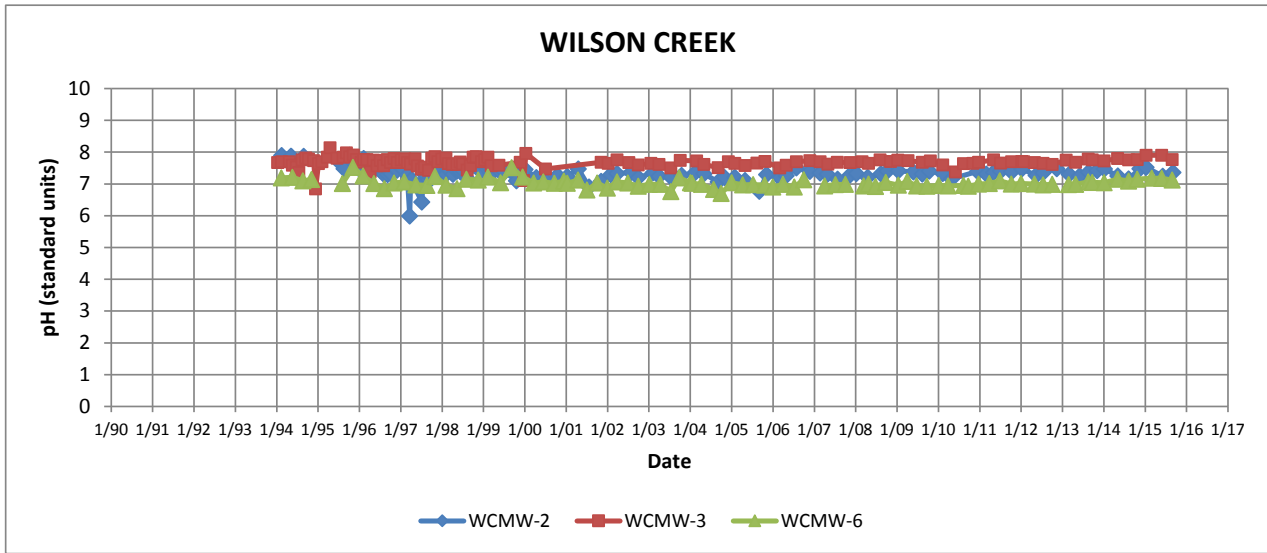


Figure 3-5
DEPTH TO GROUND WATER IN VINDICATOR VALLEY MONITORING WELLS

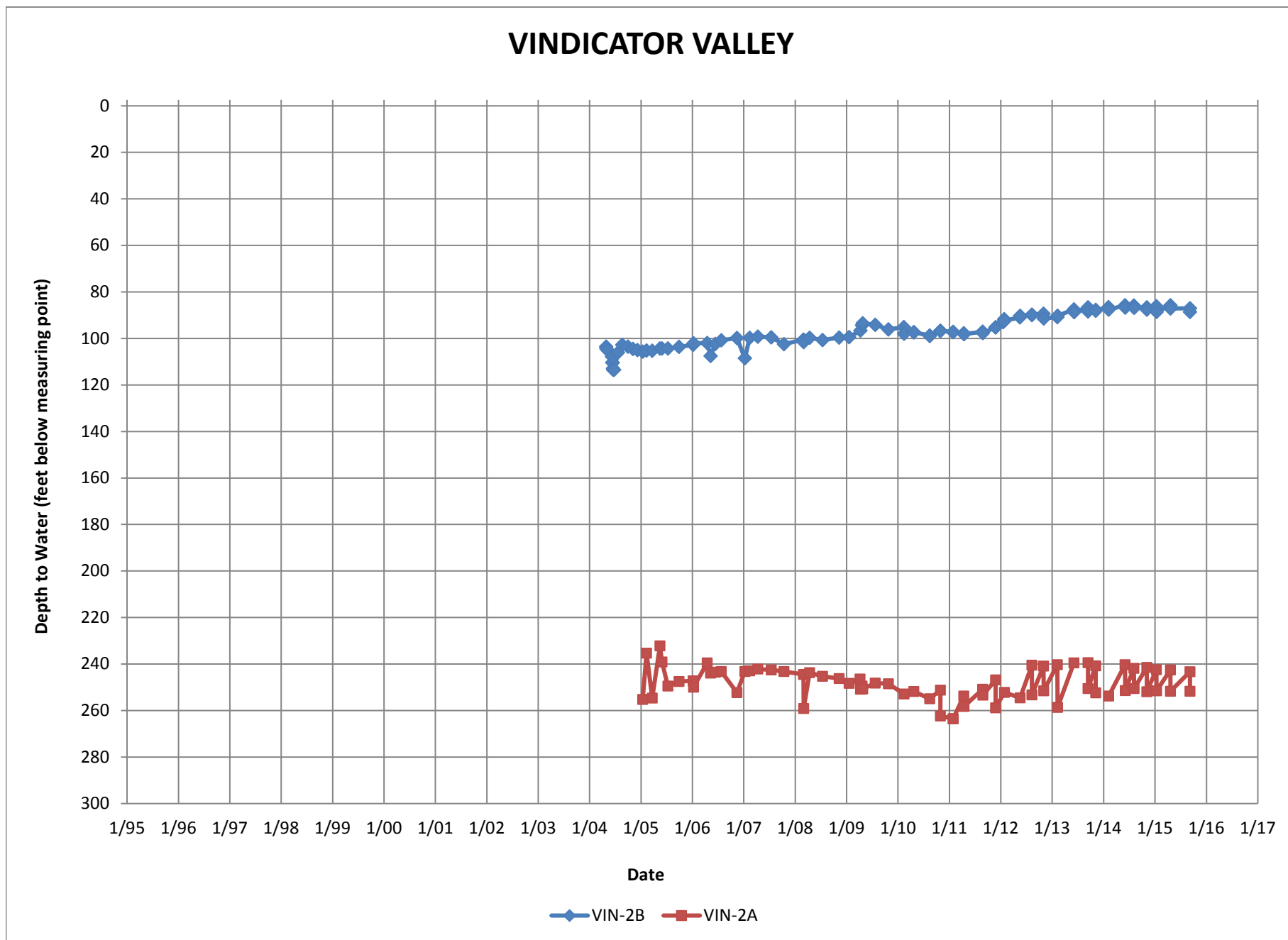


Figure 3-6
GROUND WATER QUALITY IN VINDICATOR VALLEY

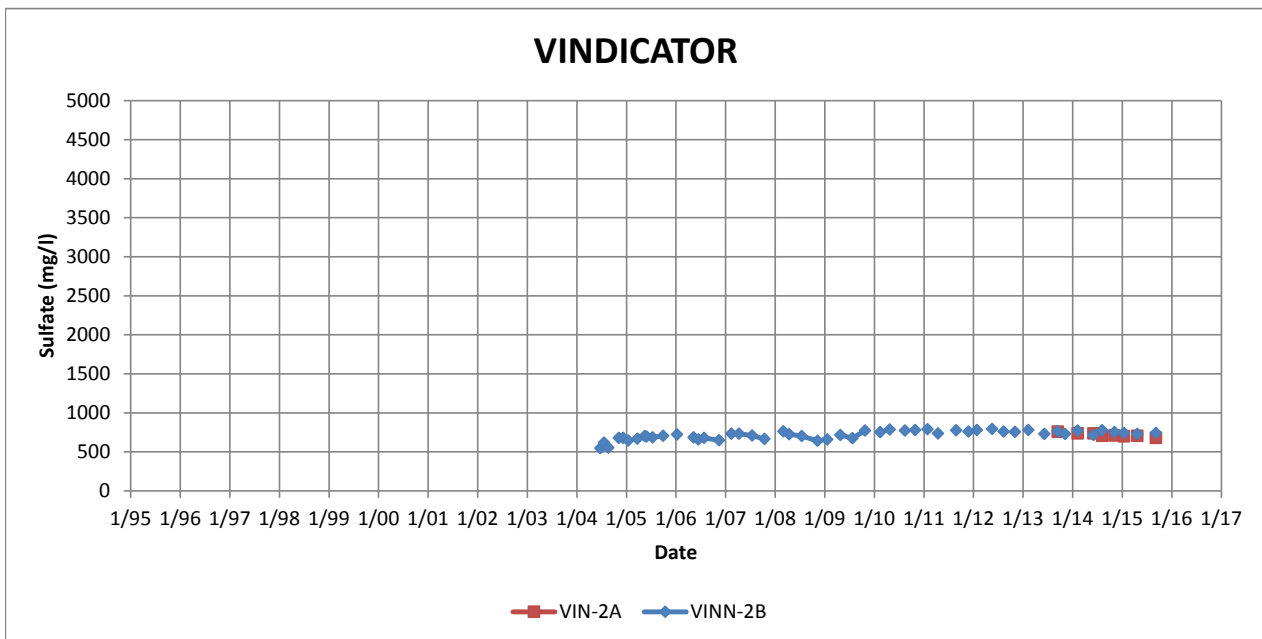
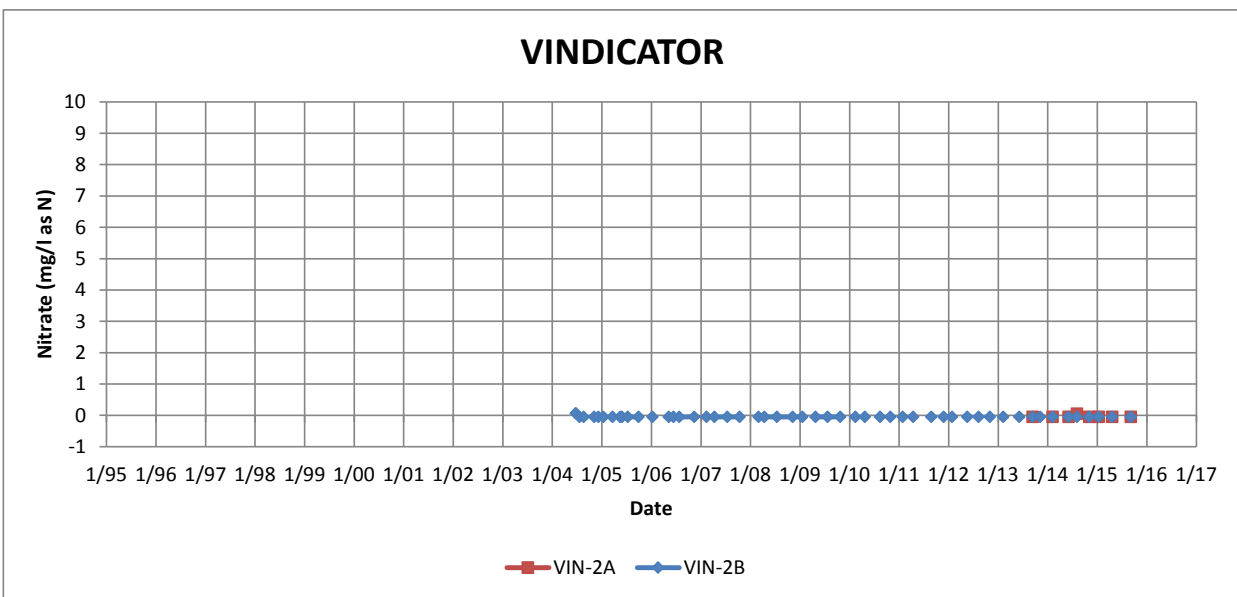
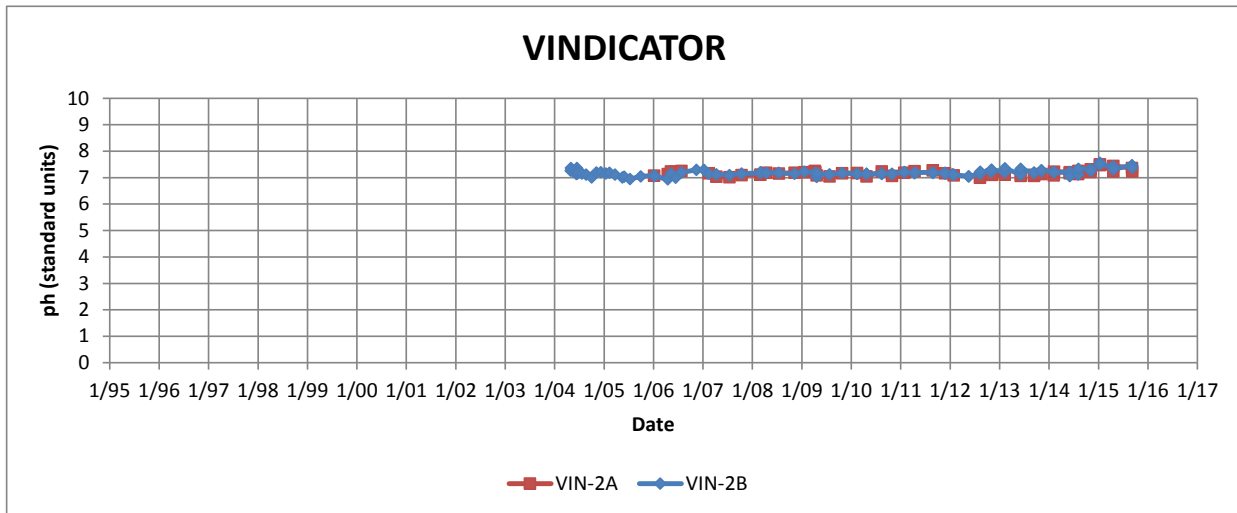


Figure 4-1
DEPTH TO GROUND WATER IN POVERTY GULCH

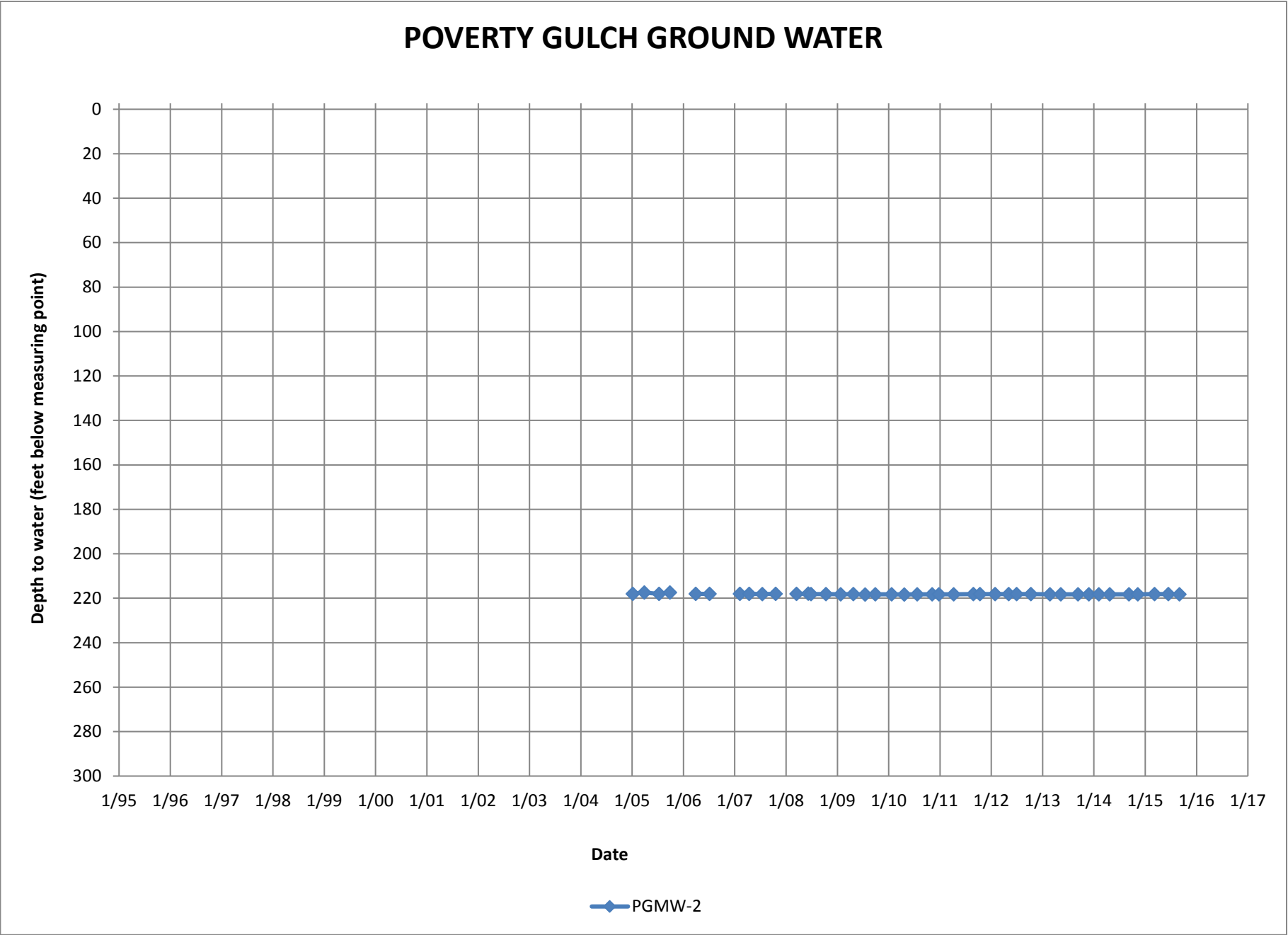


Figure 4-2
FLOWS IN SQUAW GULCH

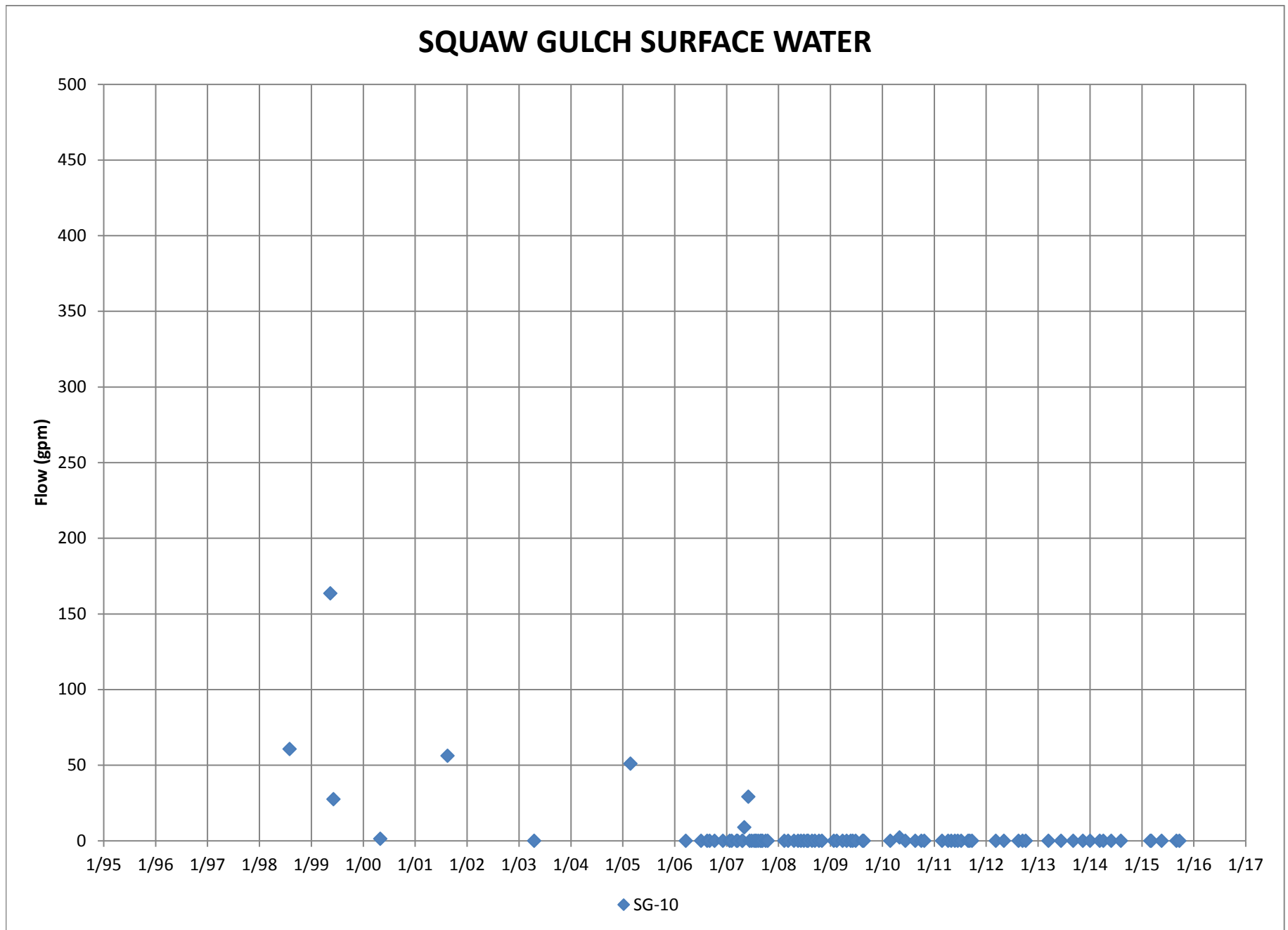


Figure 4-3
SURFACE WATER QUALITY IN SQUAW GULCH

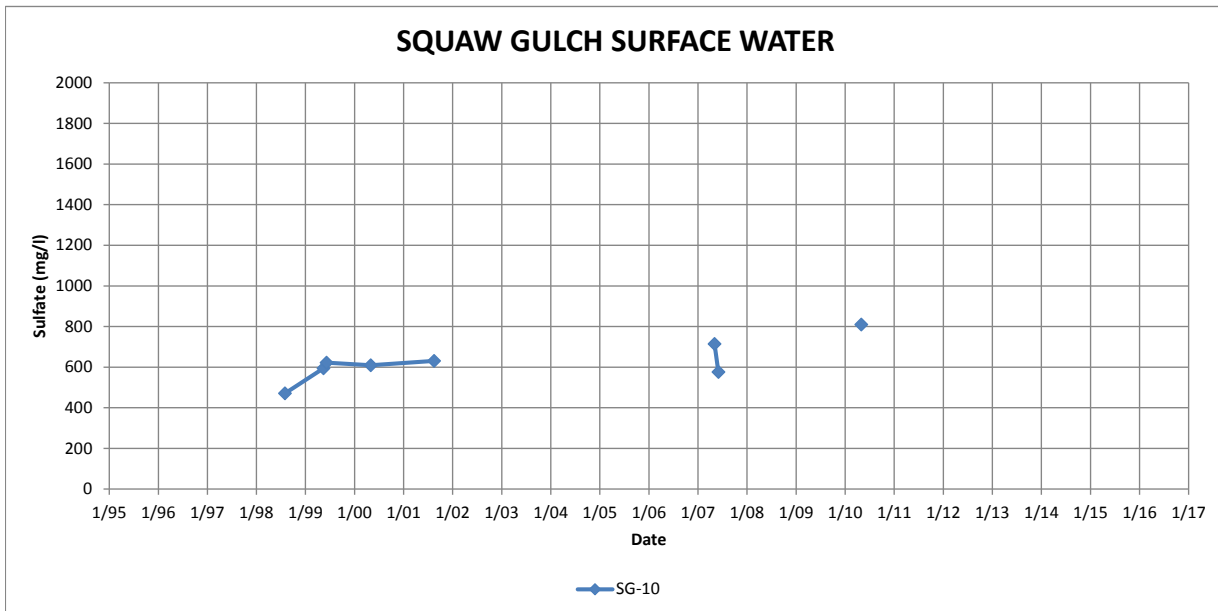
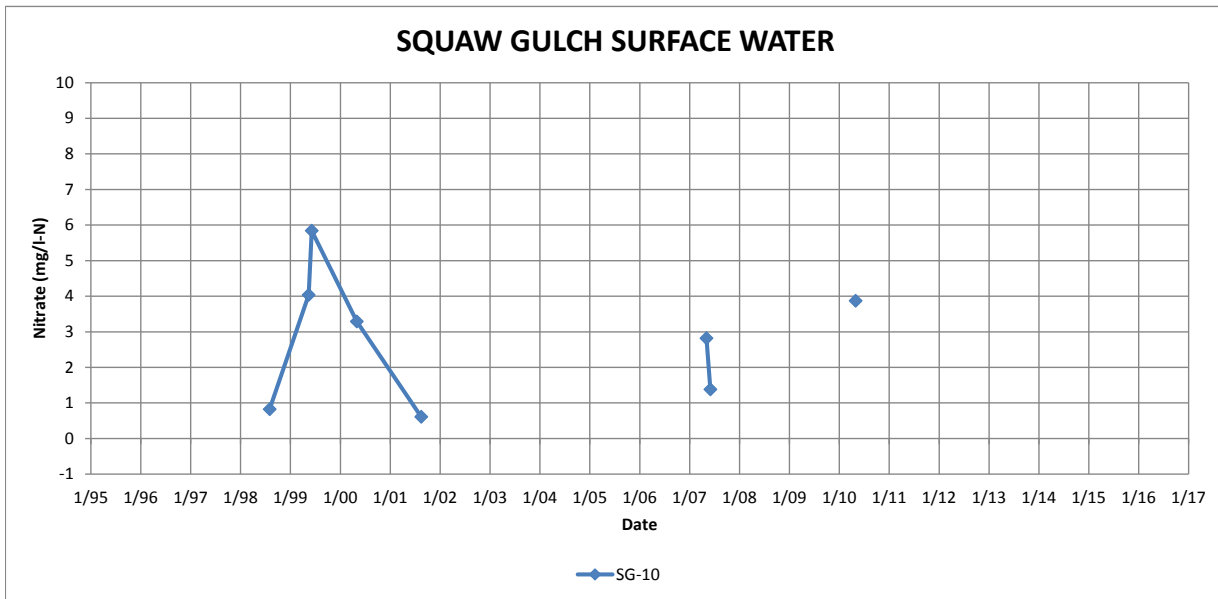
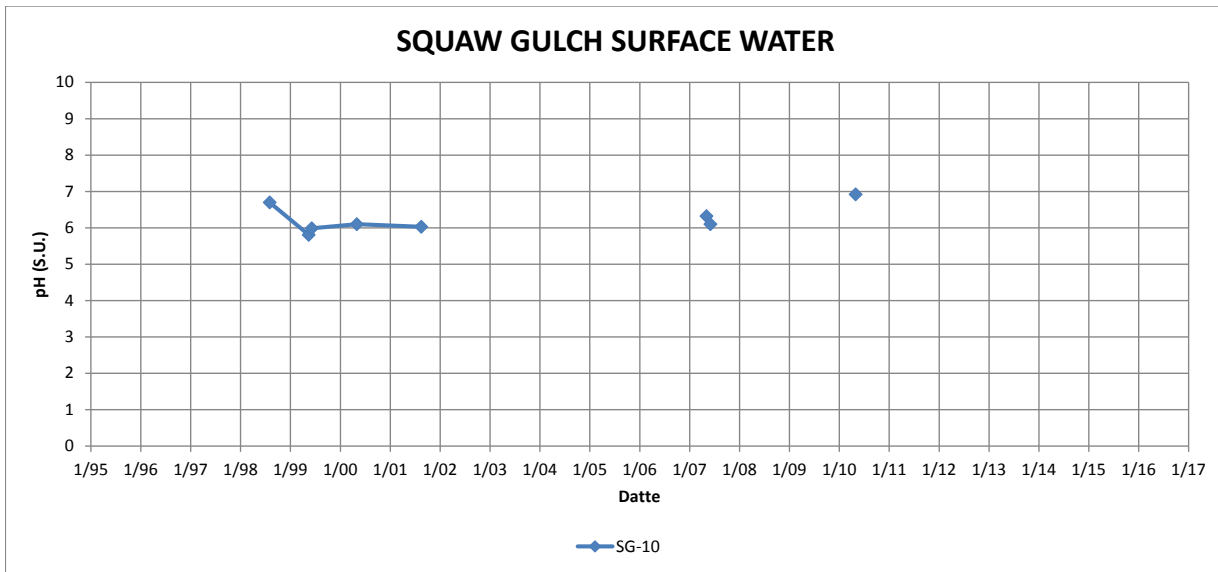


Figure 4-4
DEPTH TO GROUND WATER IN SQUAW GULCH MONITORING WELLS (SGMW-5, SGMW-6A, SGMW-6B)

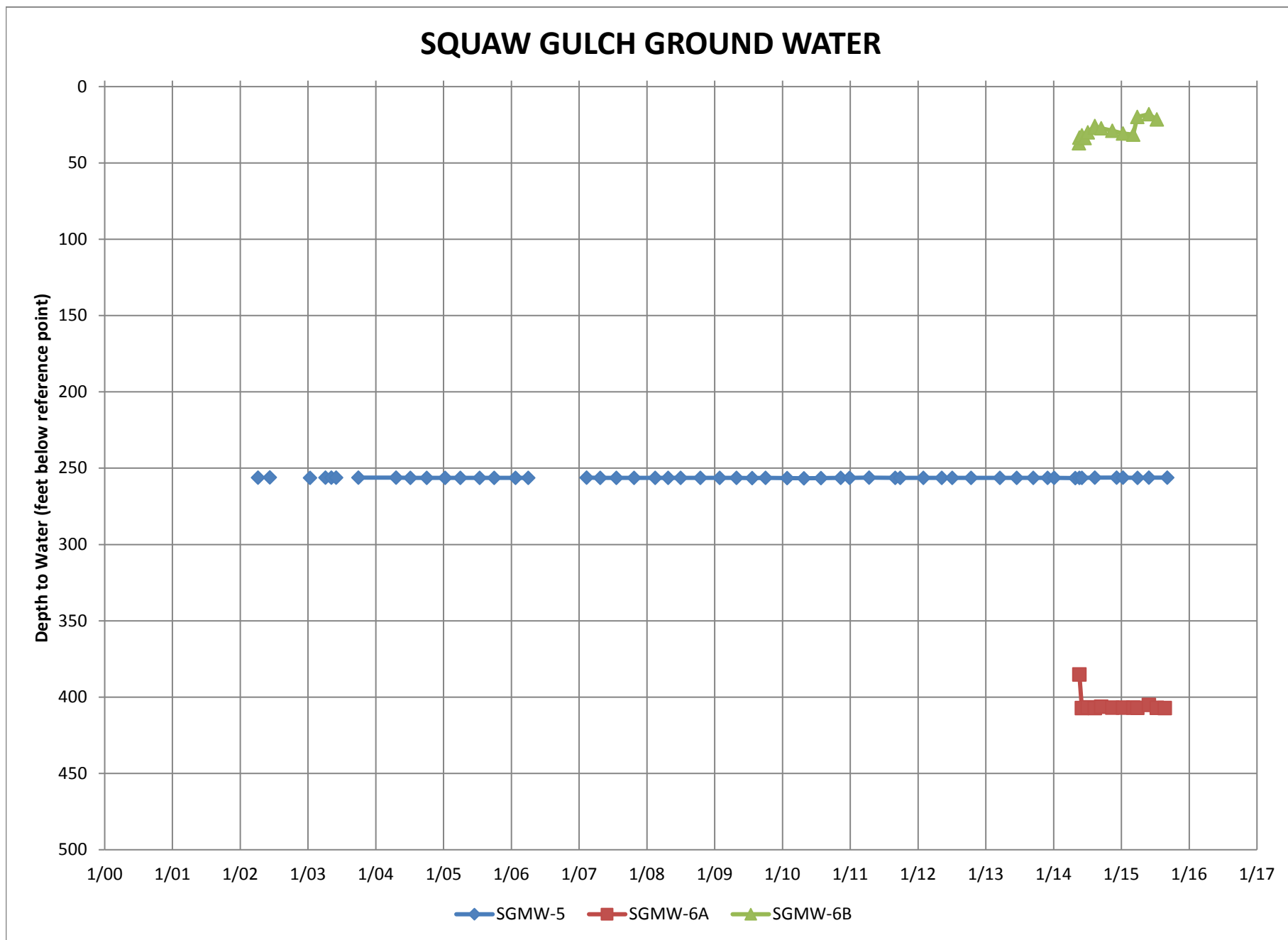


Figure 4-5
DEPTH TO GROUND WATER IN SQUAW GULCH MONITORING WELLS (SGMW-7 AND SGMW-7B)

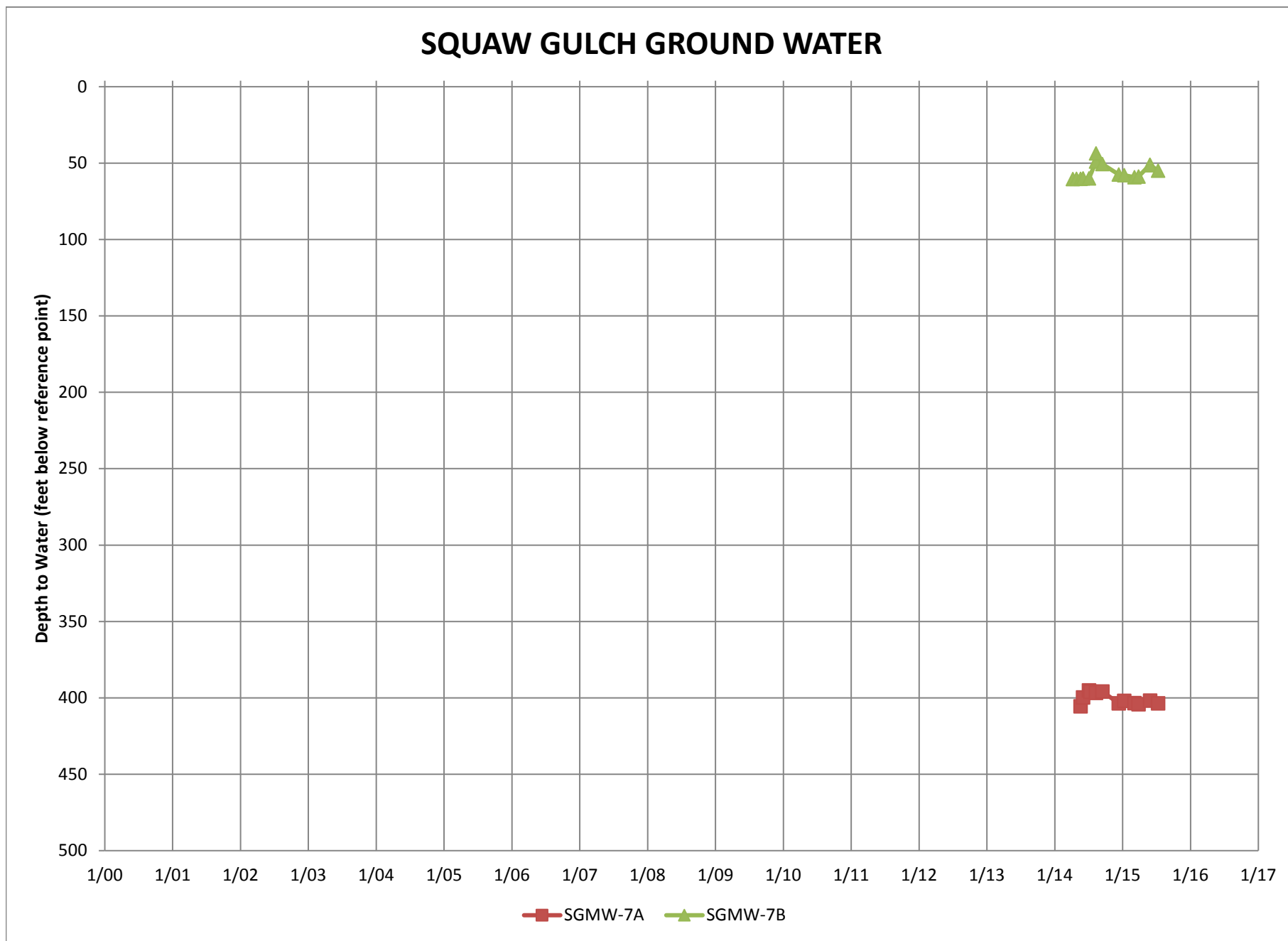


Figure 4-6
GROUND WATER QUALITY IN SQUAW GULCH

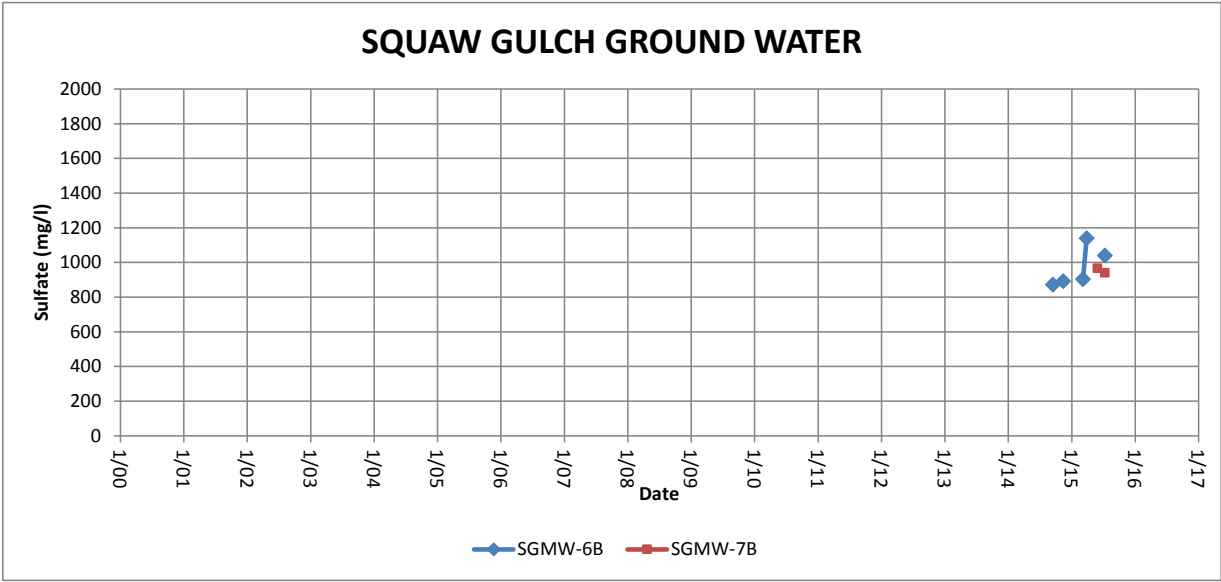
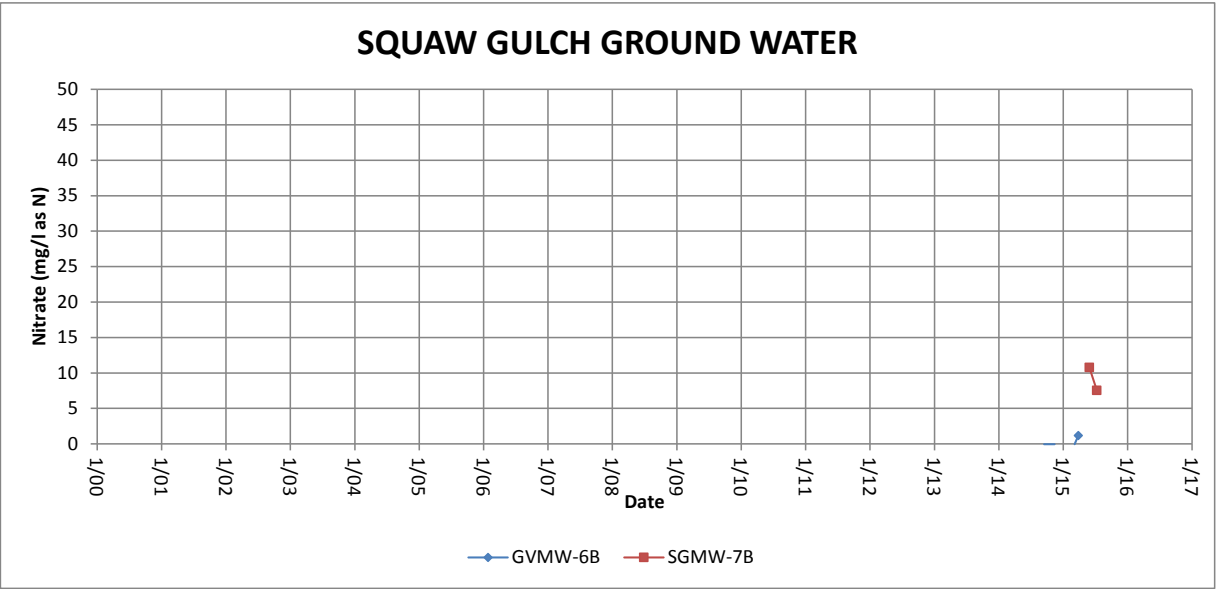
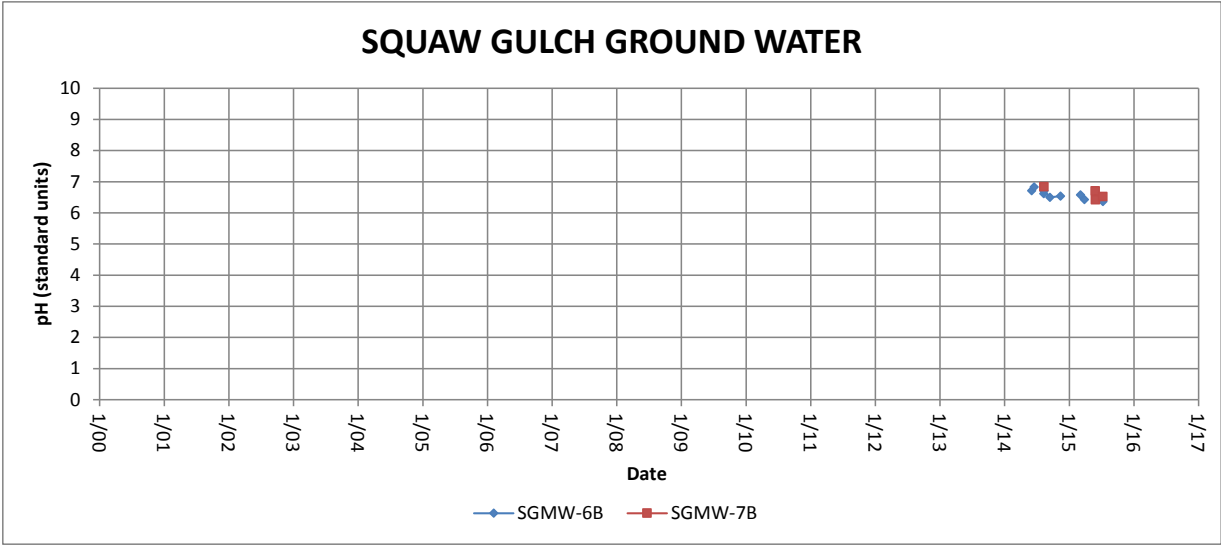


Figure 4-7
DEPTH TO GROUND WATER IN GOLD RUN

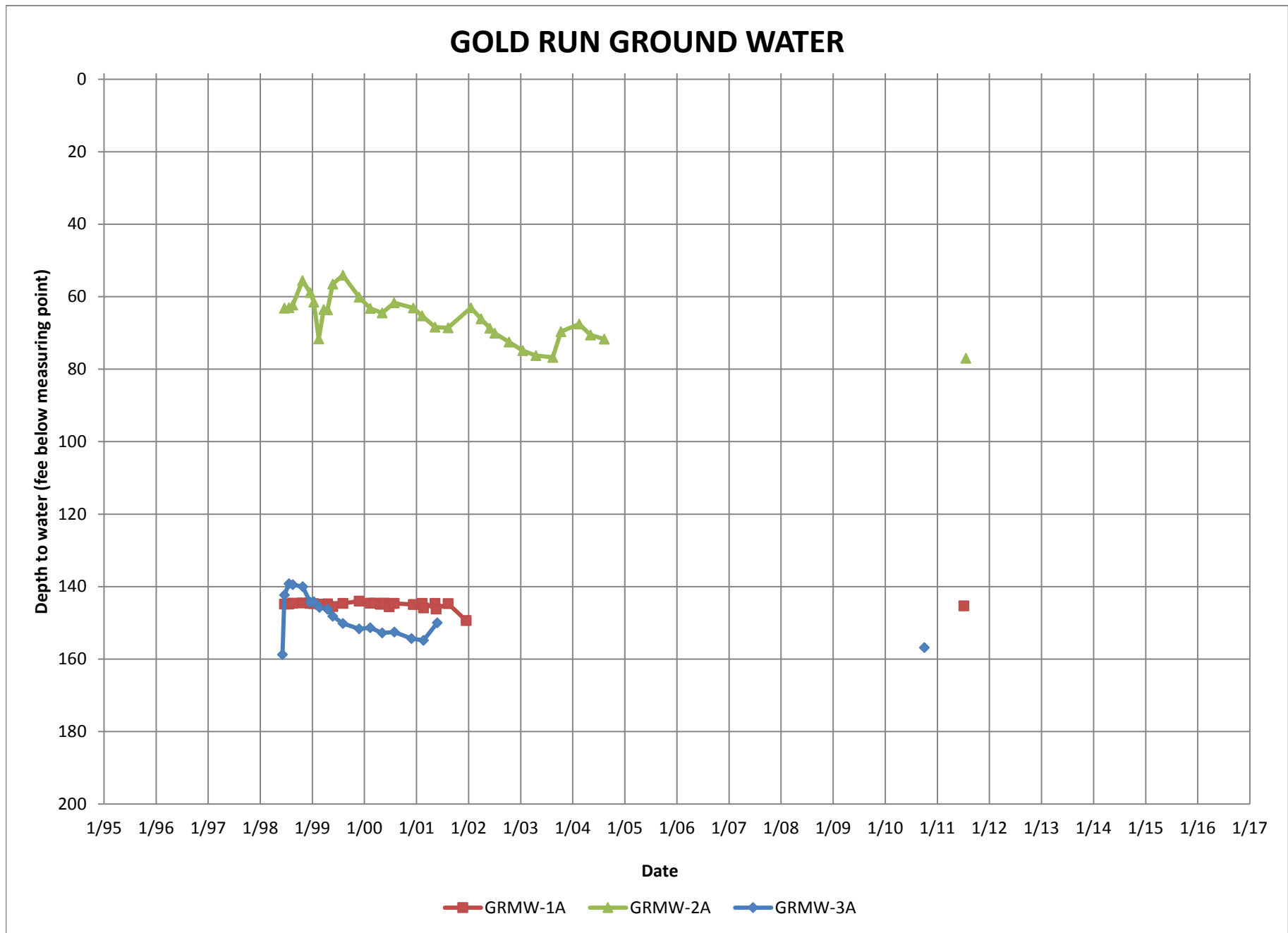


Figure 4-8
GROUND WATER QUALITY IN GOLD RUN

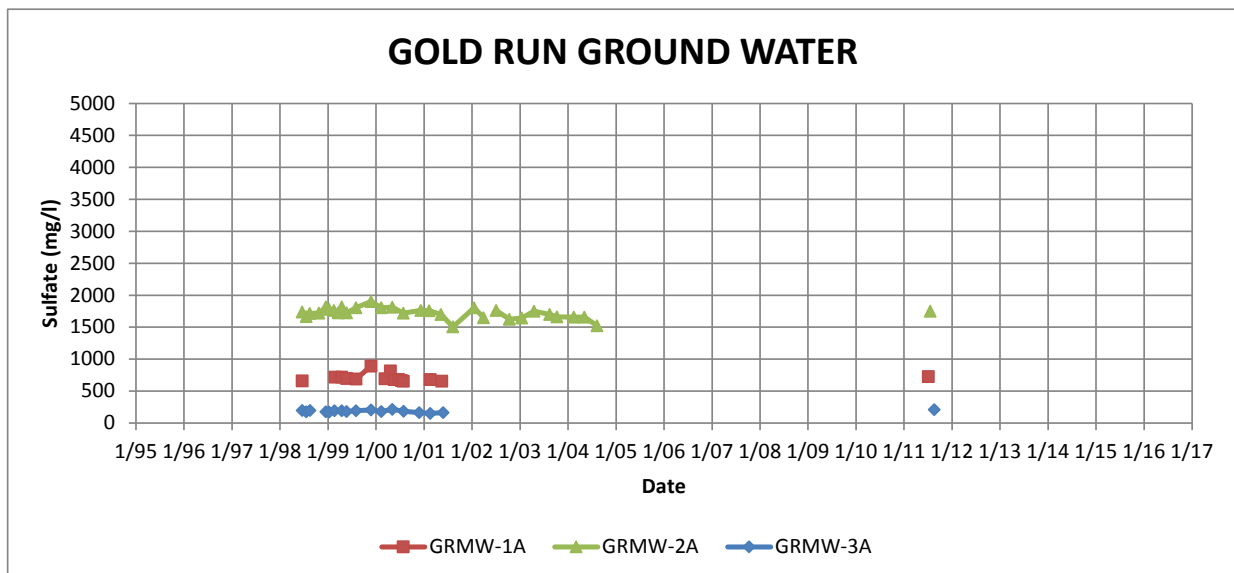
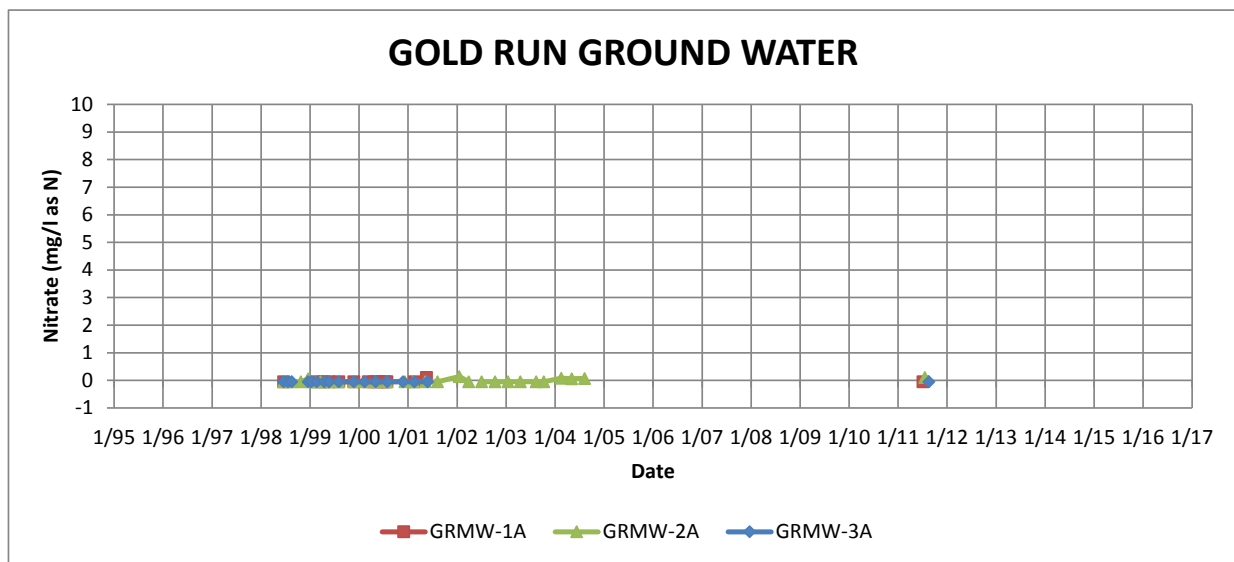
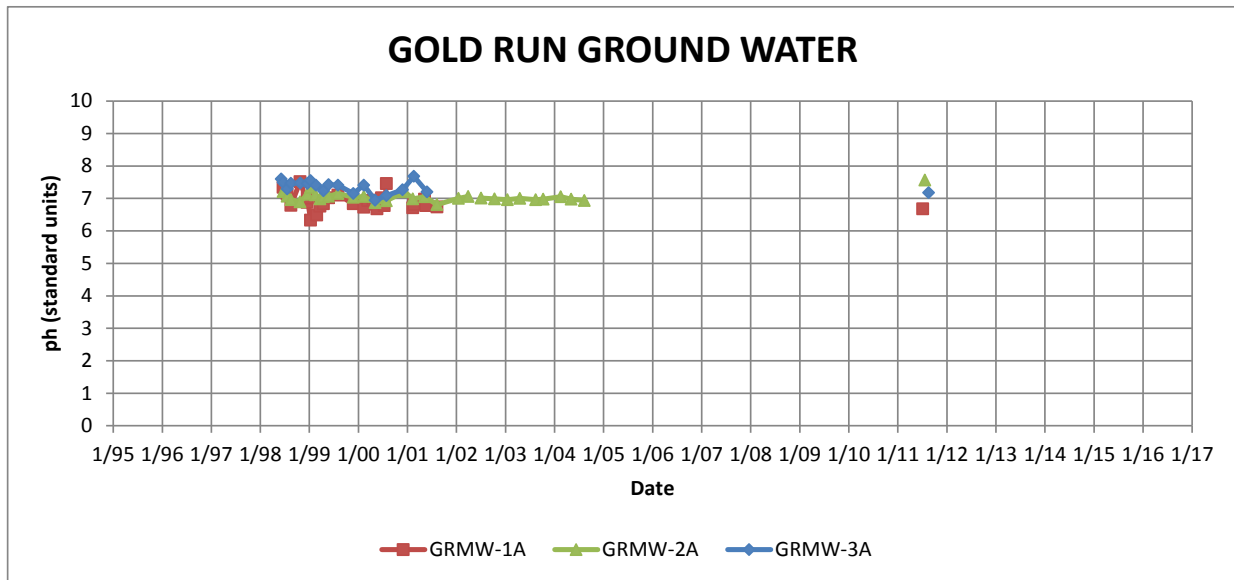


Figure 4-9
FLOWS IN AREQUA GULCH

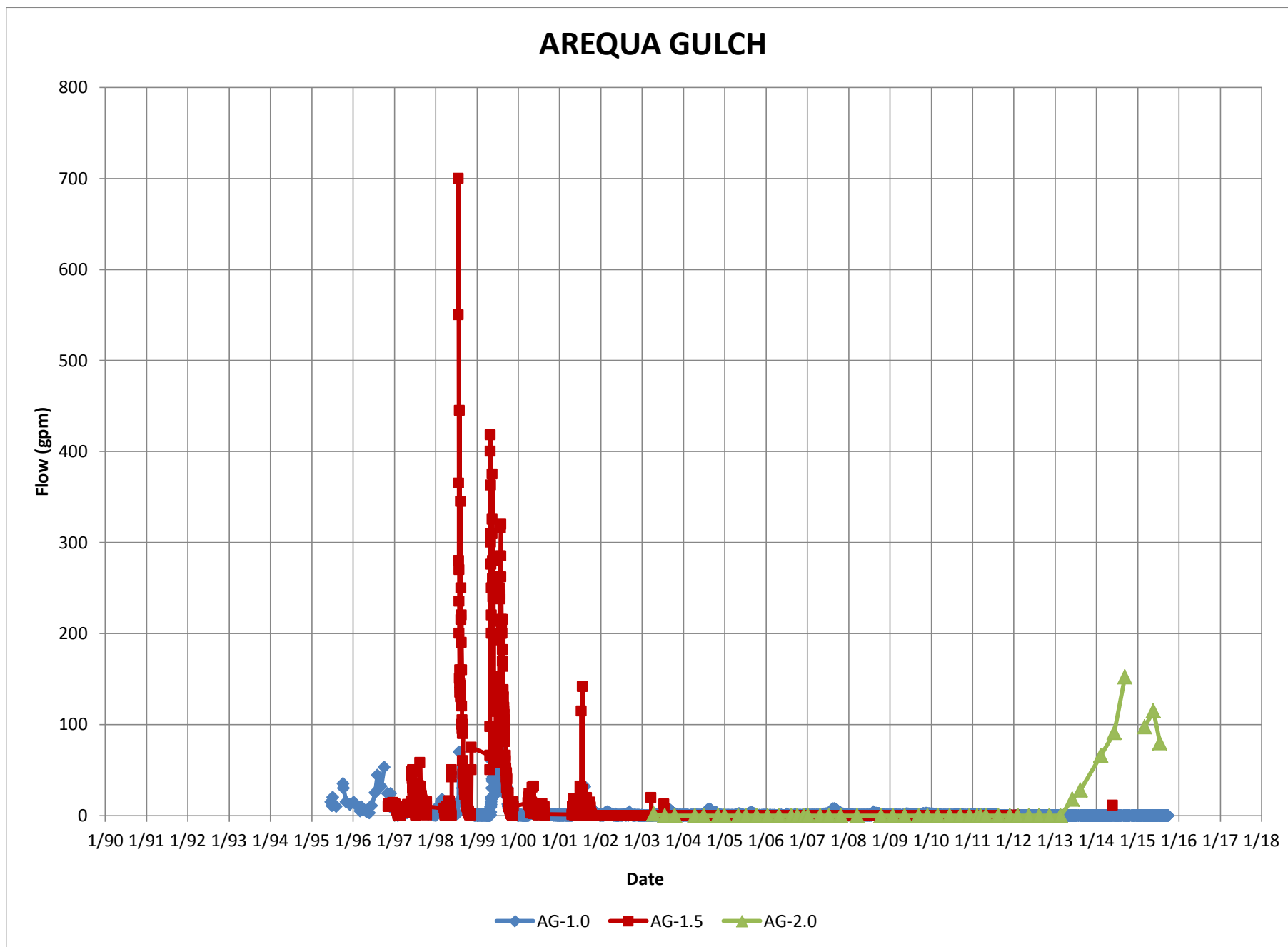


Figure 4-10
SURFACE WATER QUALITY IN AREQUA GULCH

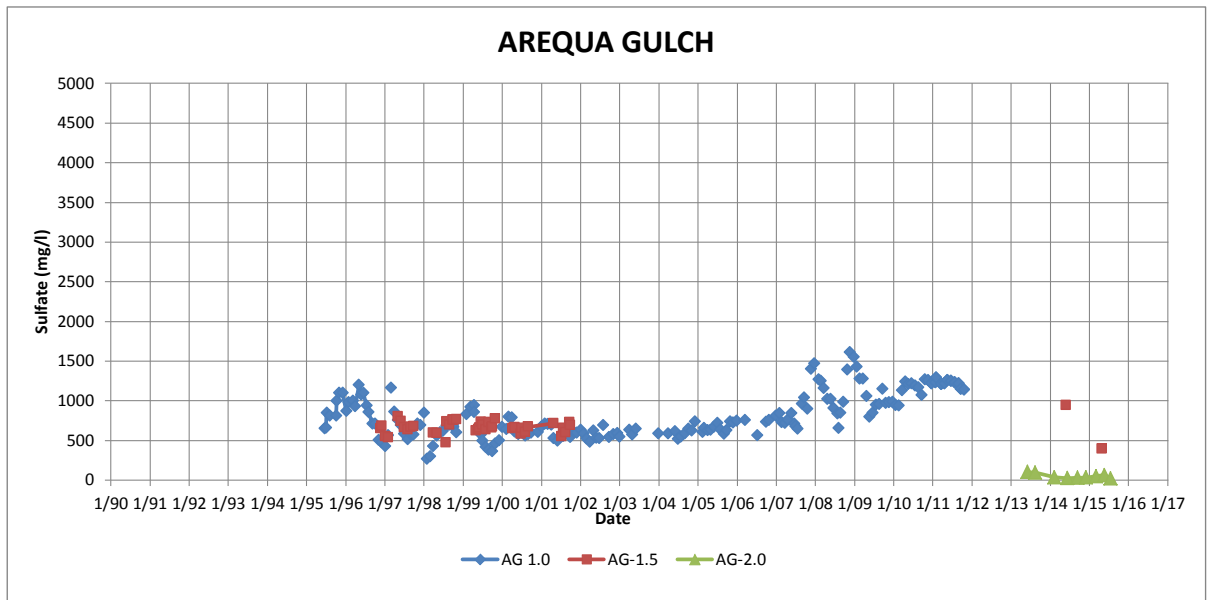
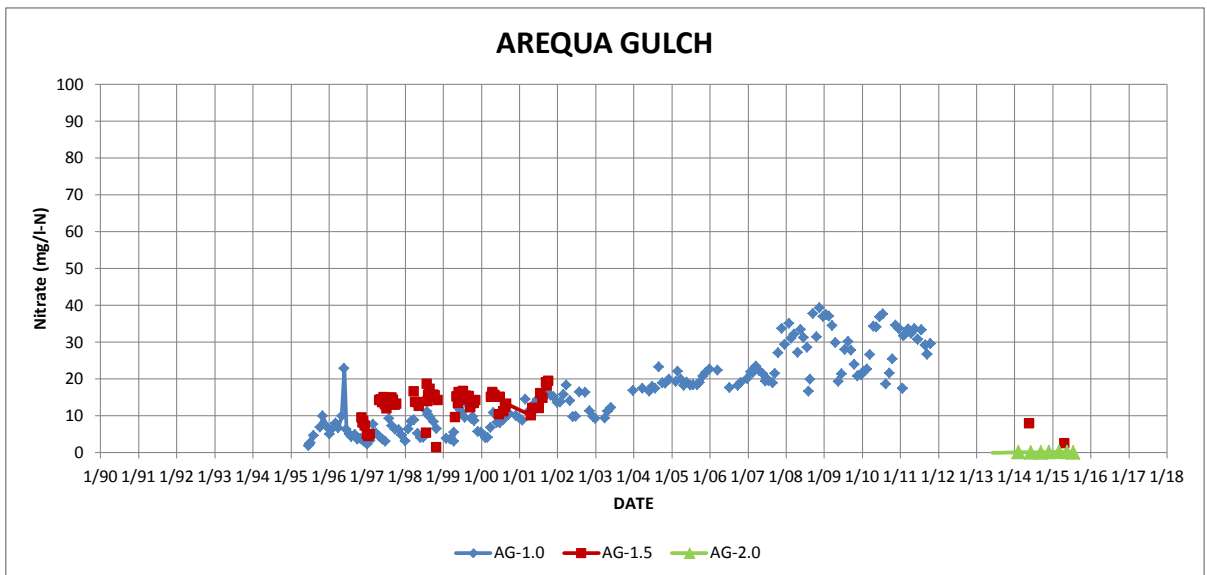
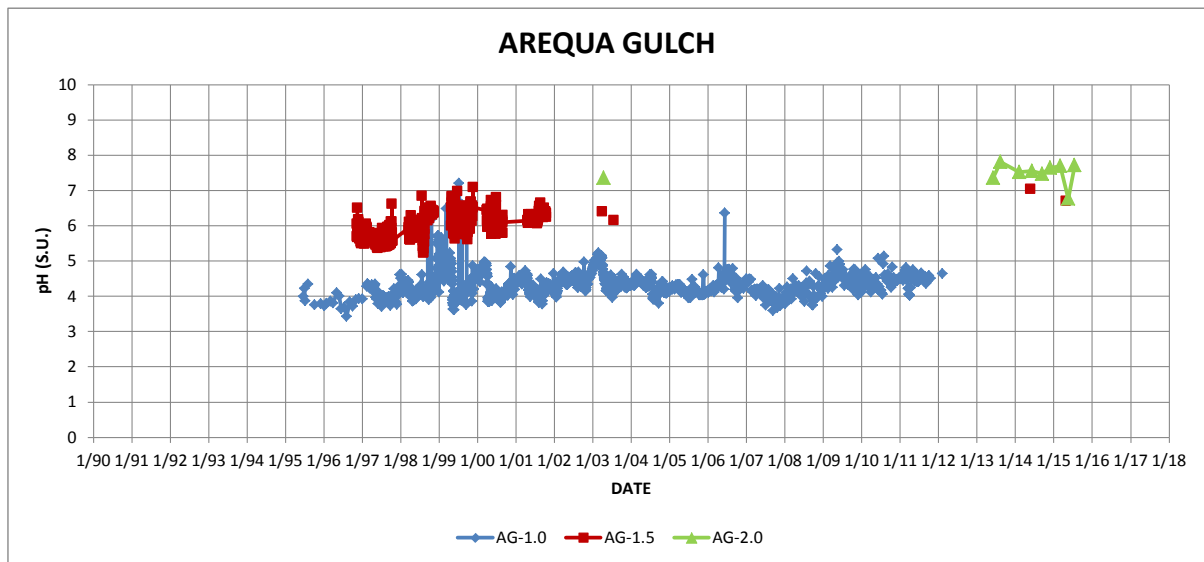


Figure 4-11
DEPTH TO GROUND WATER IN AREQUA GULCH (CRMW-3A, CRMW-3B, ESPMW-1)

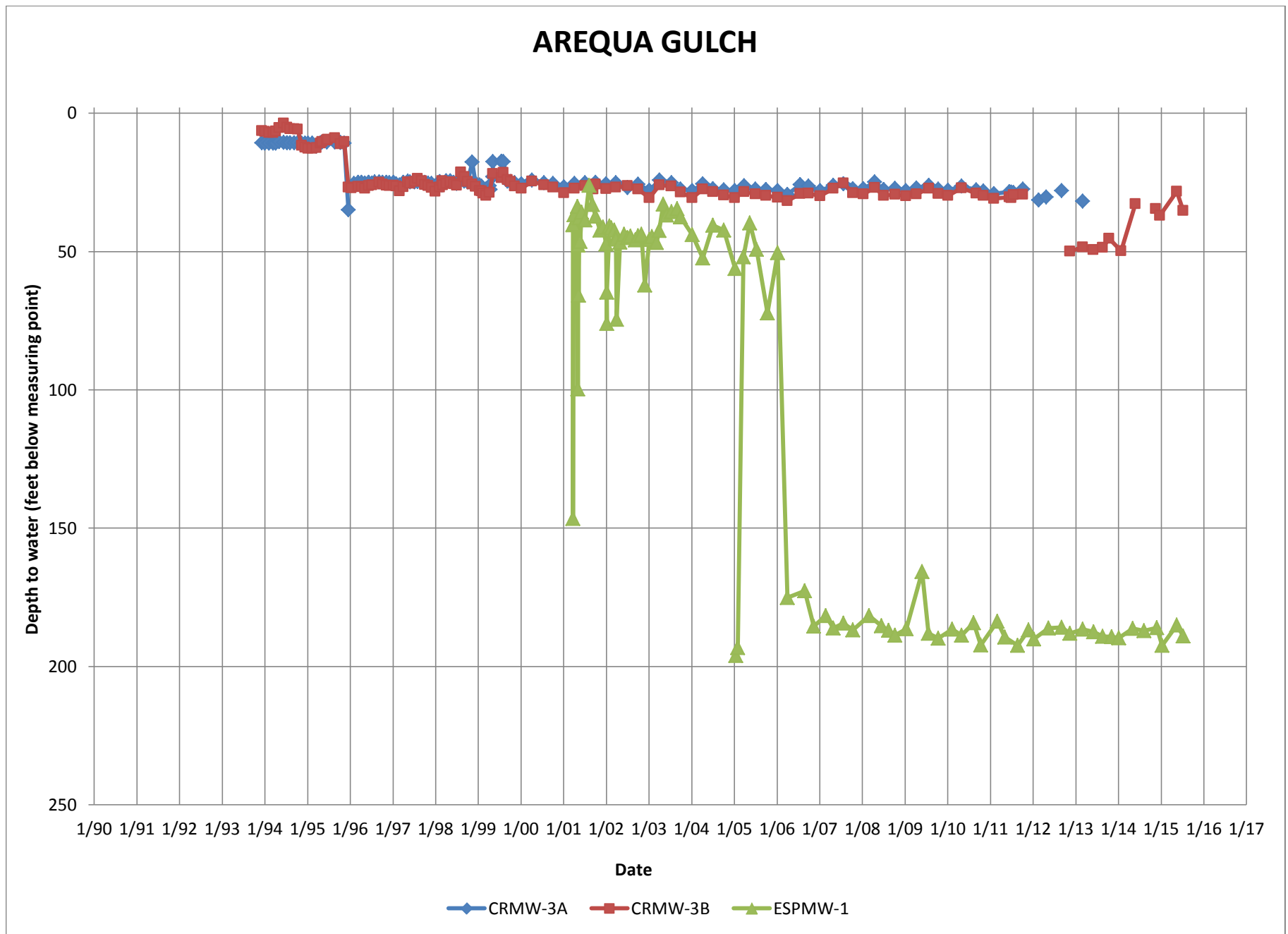


Figure 4-12
DEPTH TO GROUND WATER IN AREQUA GULCH (CRMW-5A, CRMW-5B, CRMW-5C, CRMW-D)

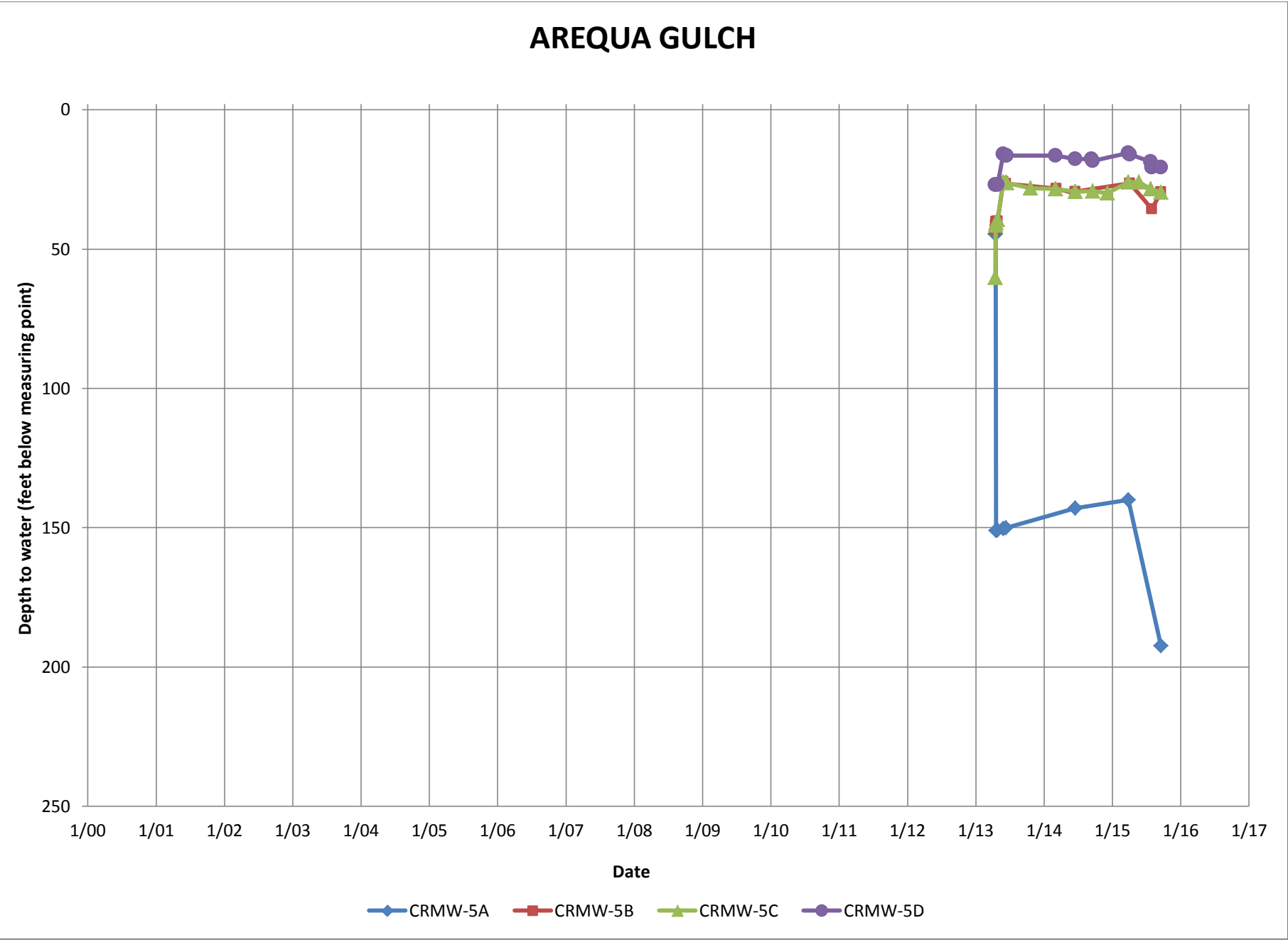


Figure 4-13
GROUND WATER QUALITY IN AREQUA GULCH (CRMW-3A, CRMW-3B, ESPMW-1)

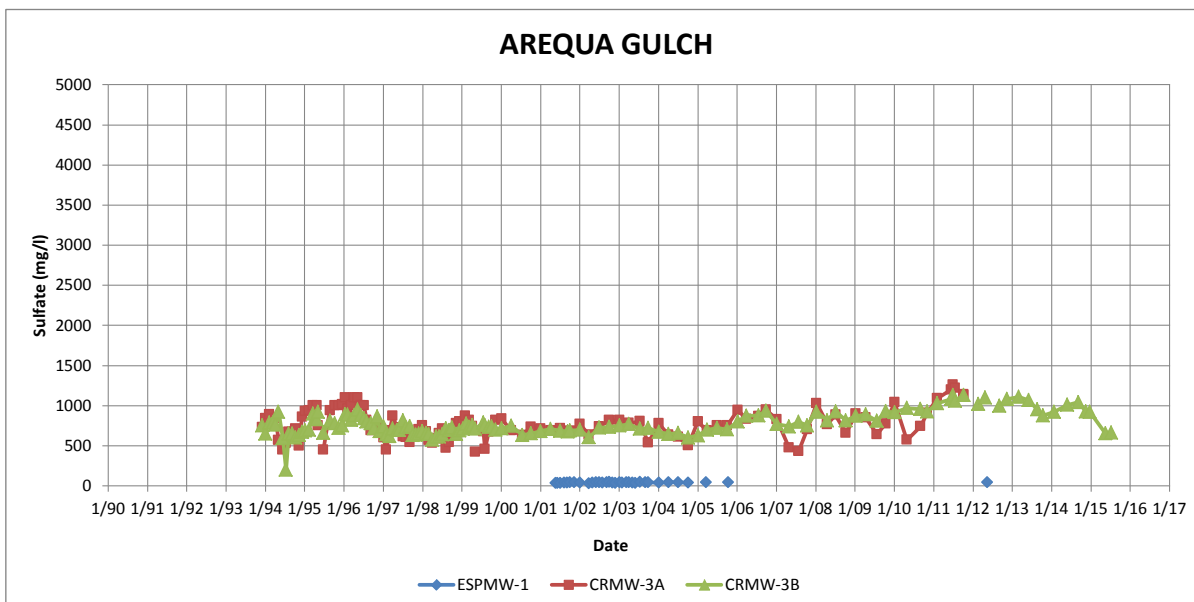
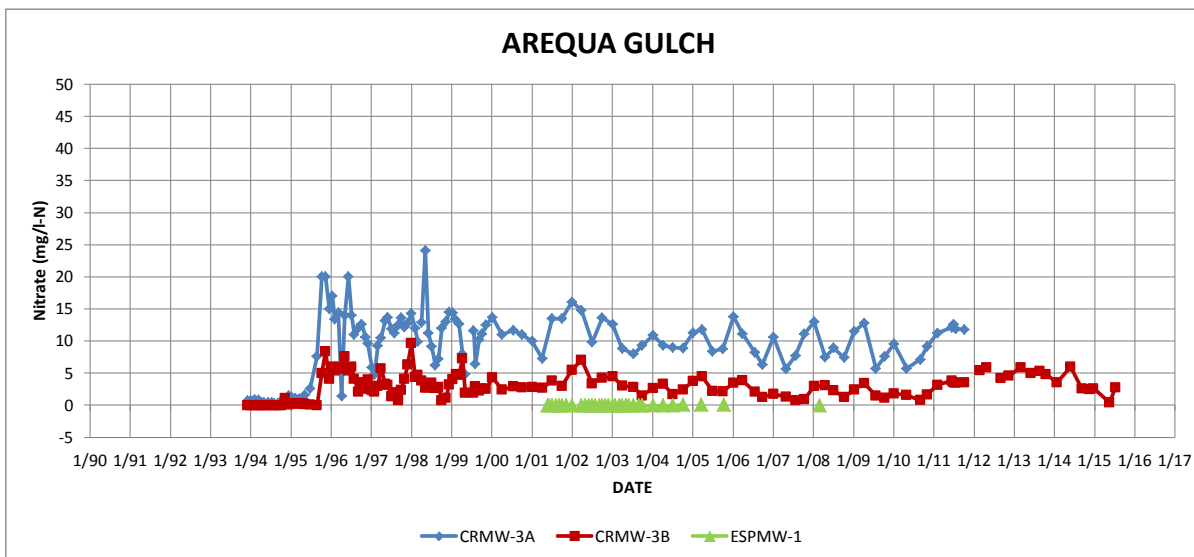
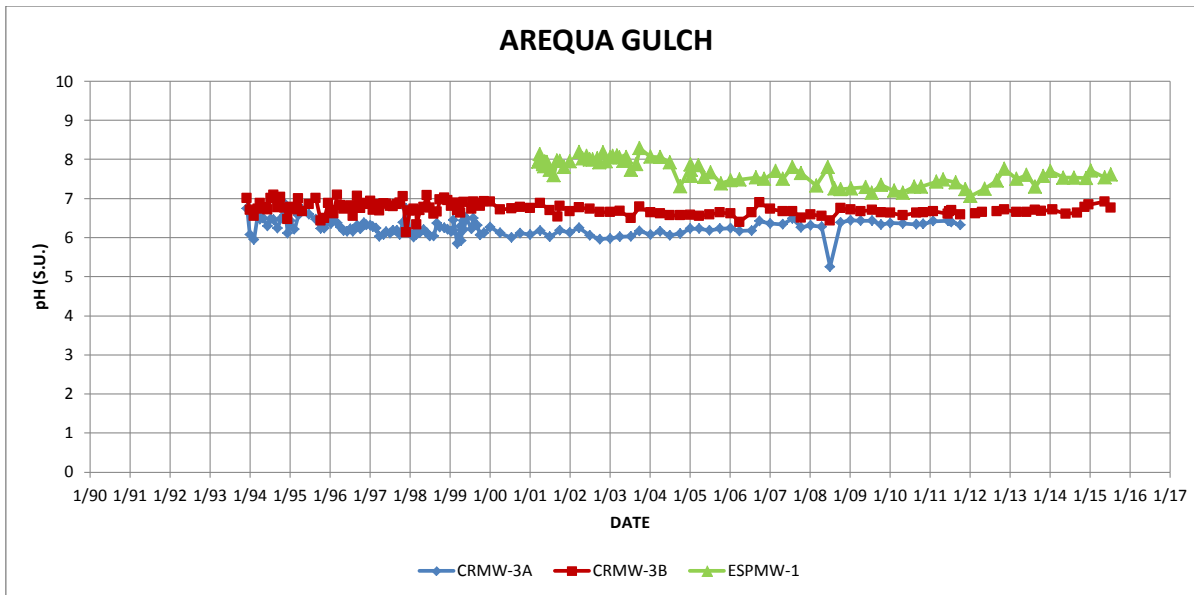


Figure 4-14
GROUND WATER QUALITY IN AREQUA GULCH (CRMW-5A, CRMW-5B, CRMW-5C, CRMW-D)

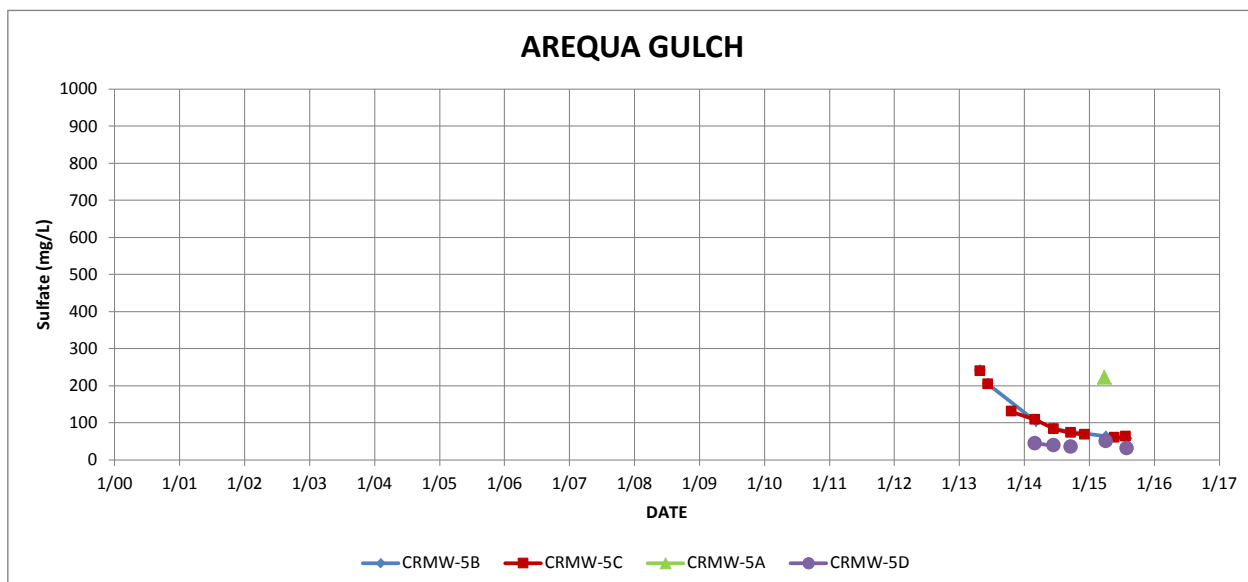
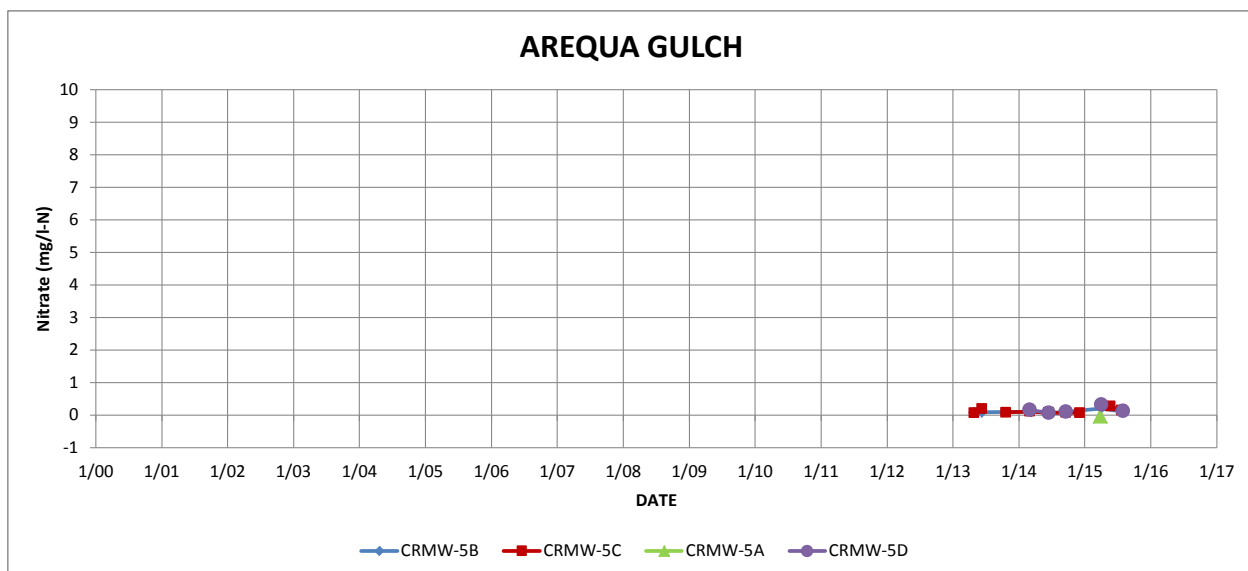
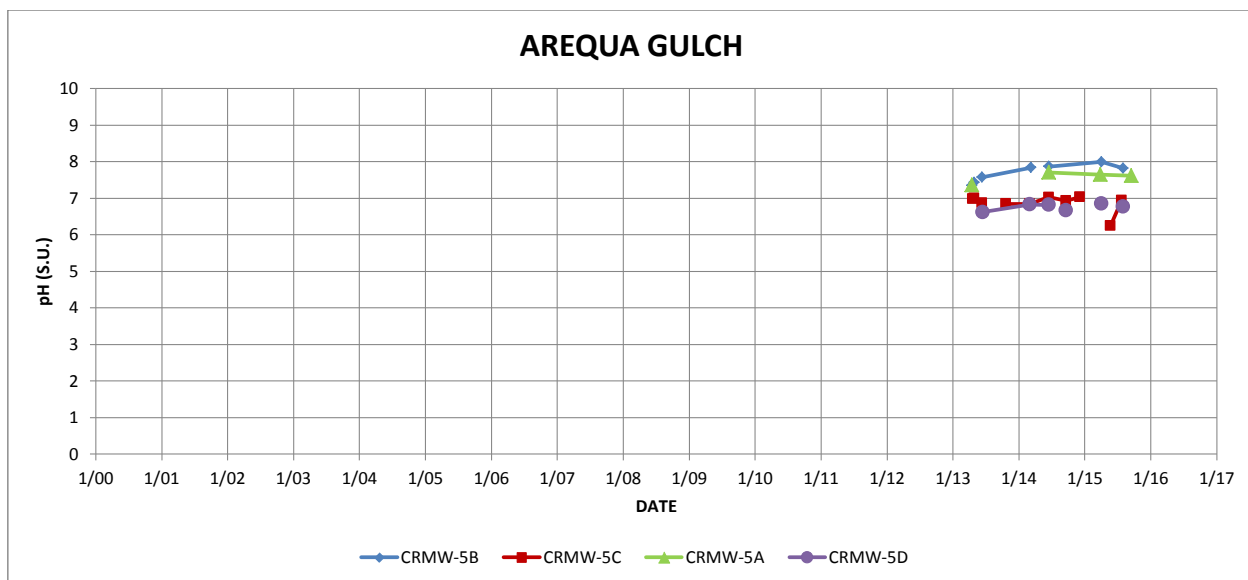


Figure 4-15
FLOWS IN CRIPPLE CREEK

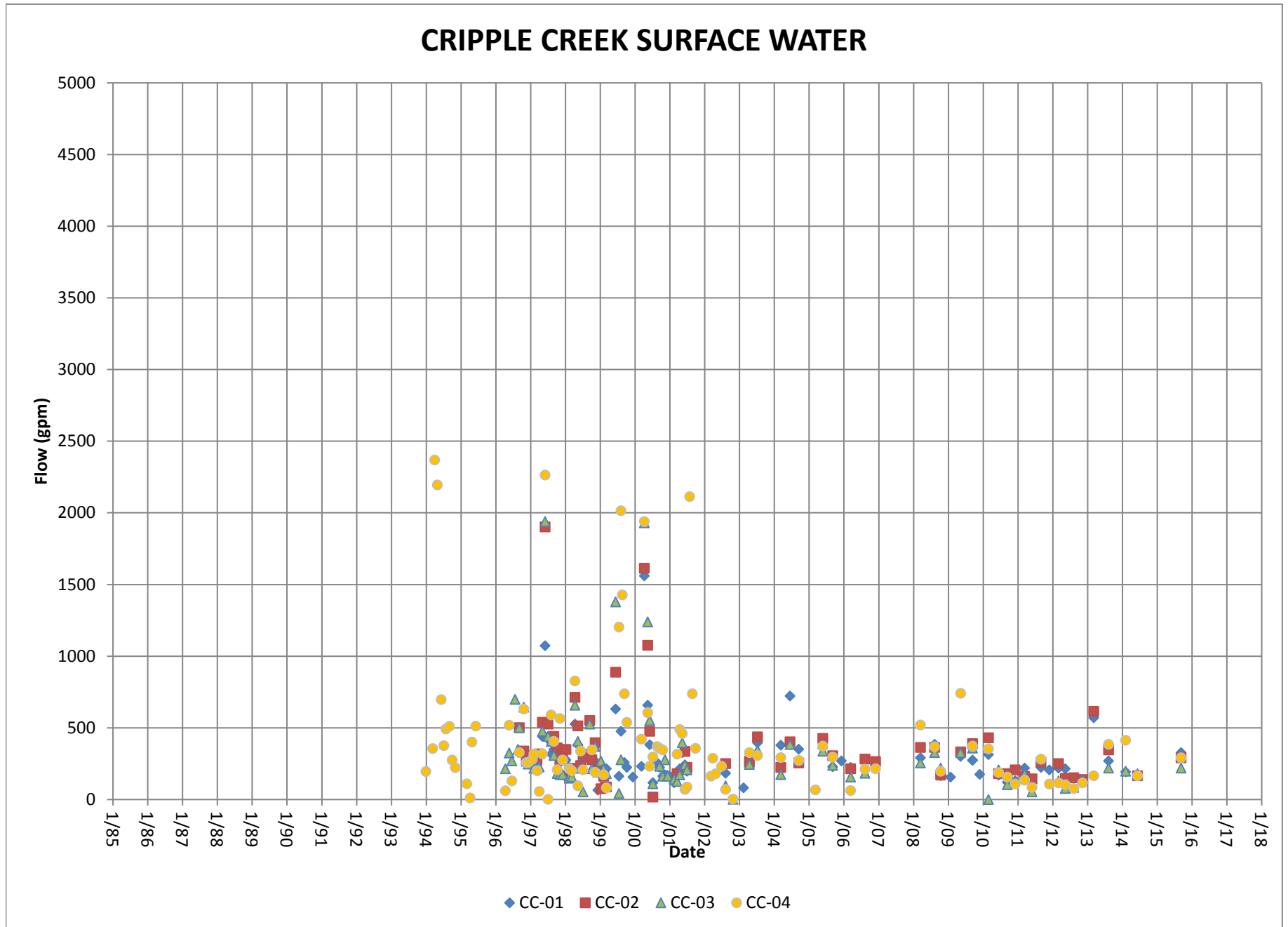


Figure 4-16
SURFACE WATER QUALITY IN CRIPPLE CREEK

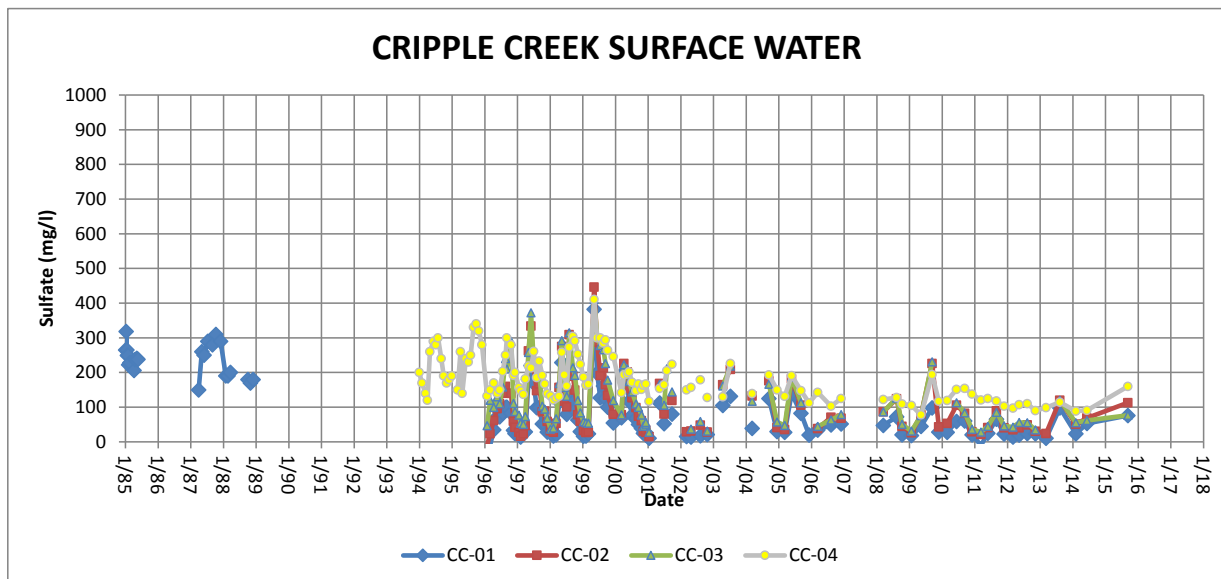
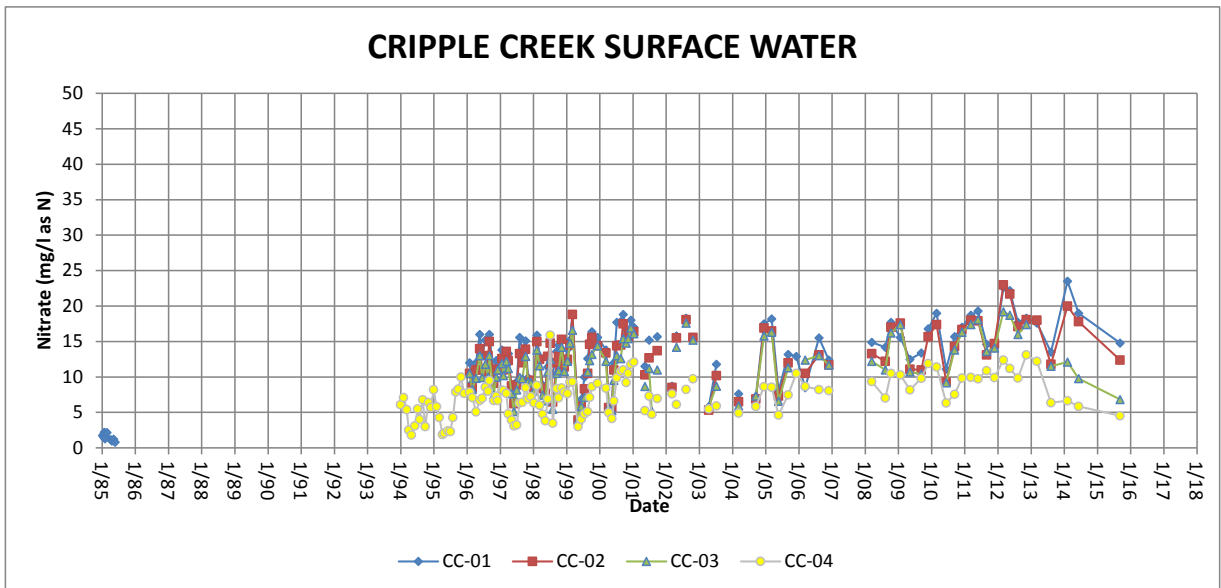
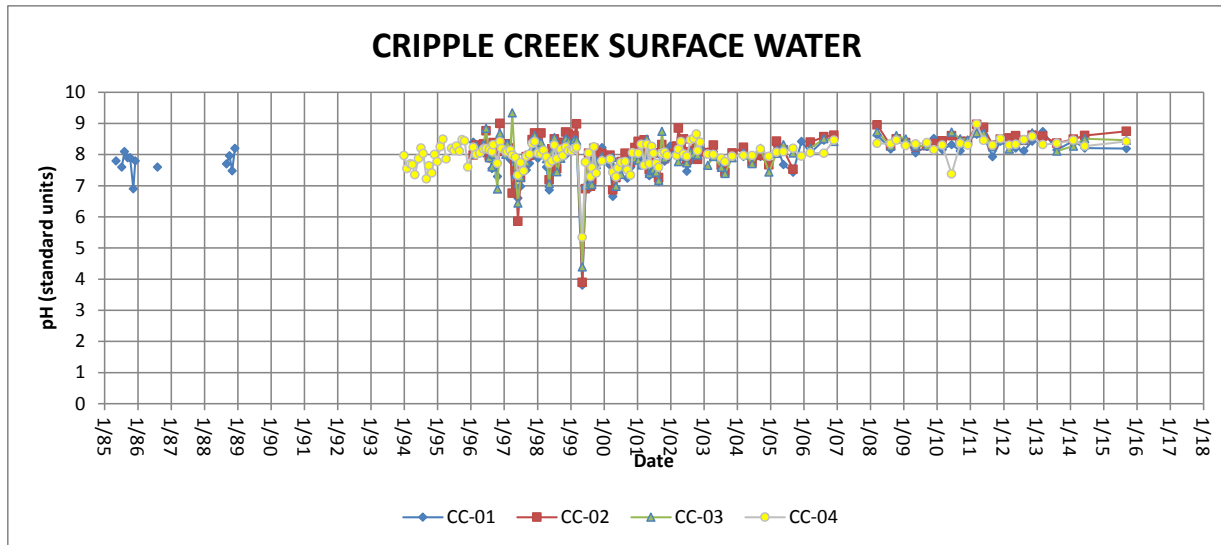


Figure 4-17
FLOWS IN GRASSY VALLEY

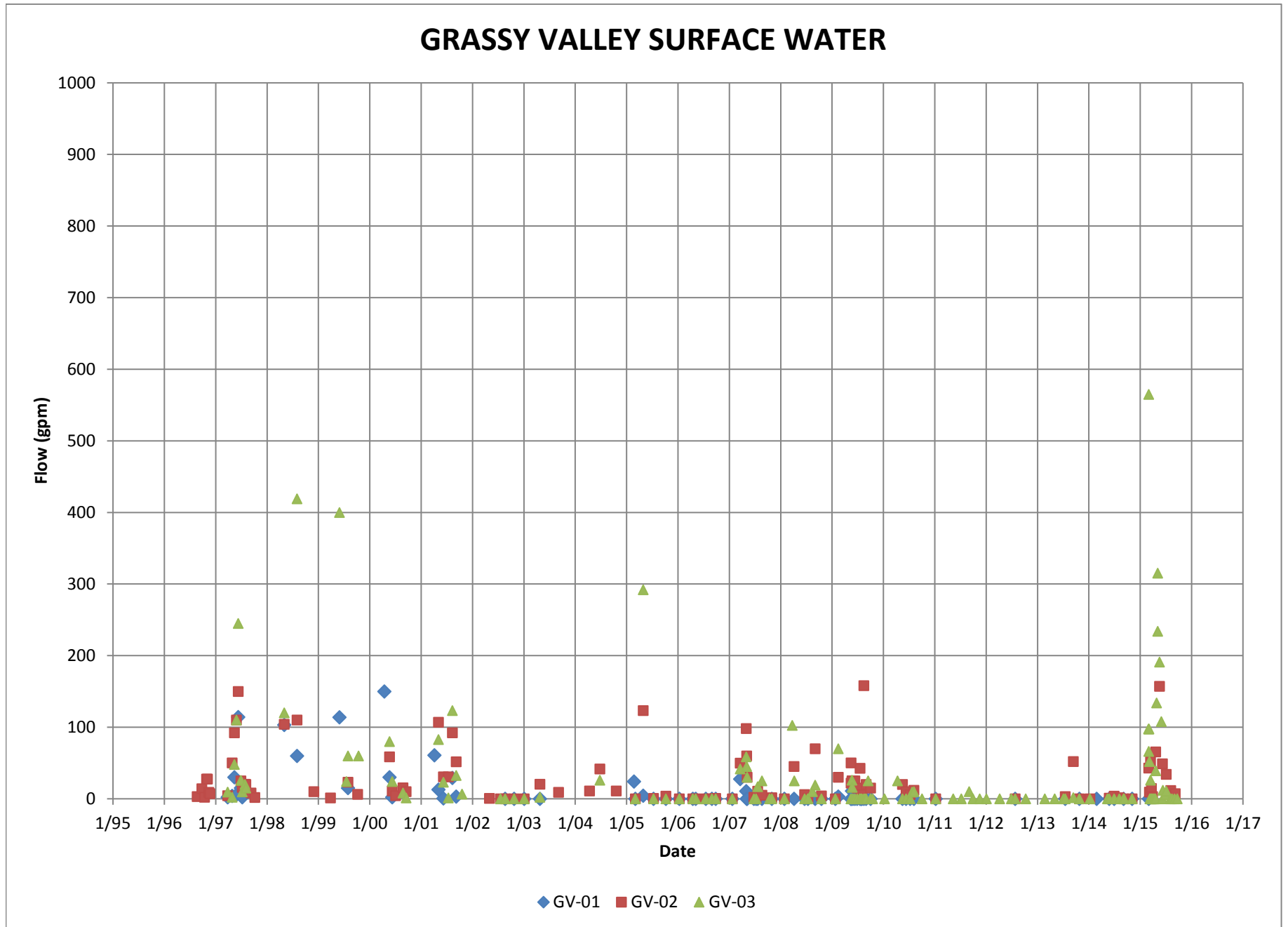


Figure 4-18
SURFACE WATER QUALITY IN GRASSY VALLEY

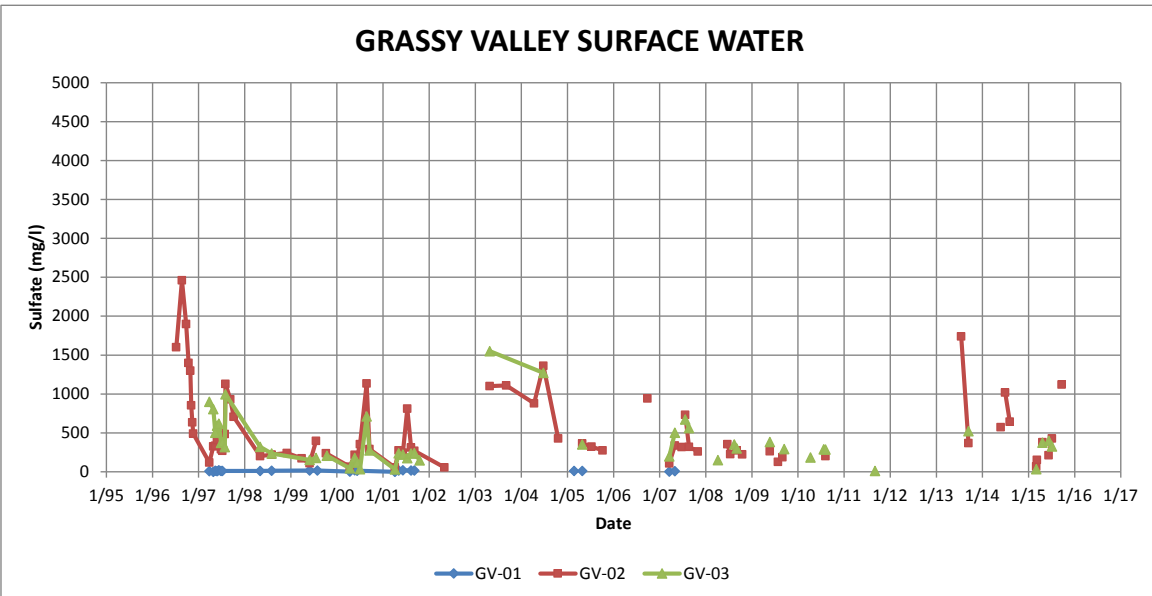
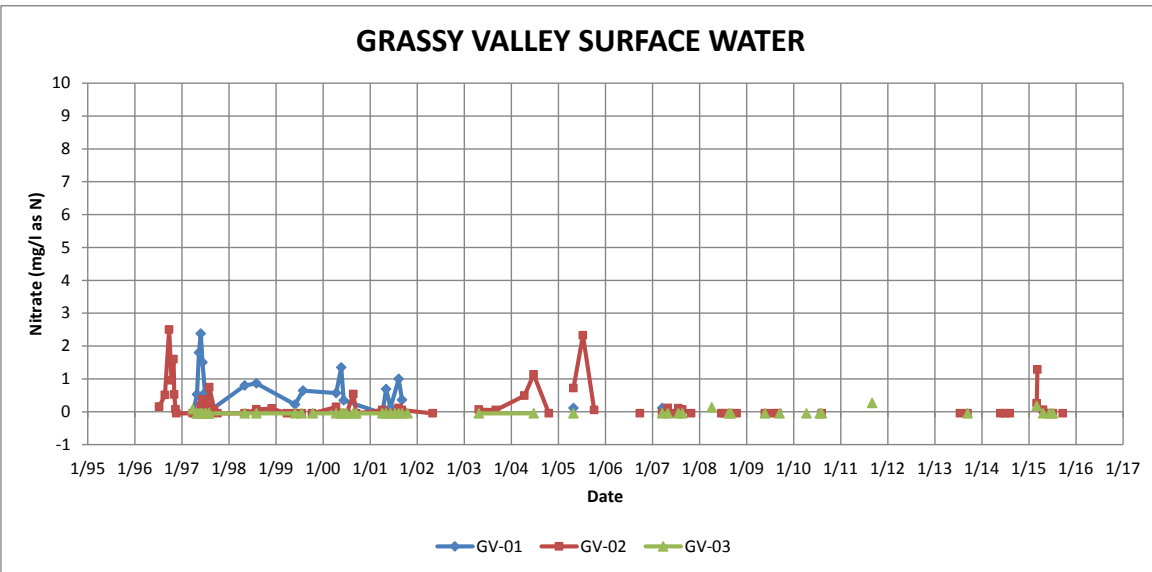
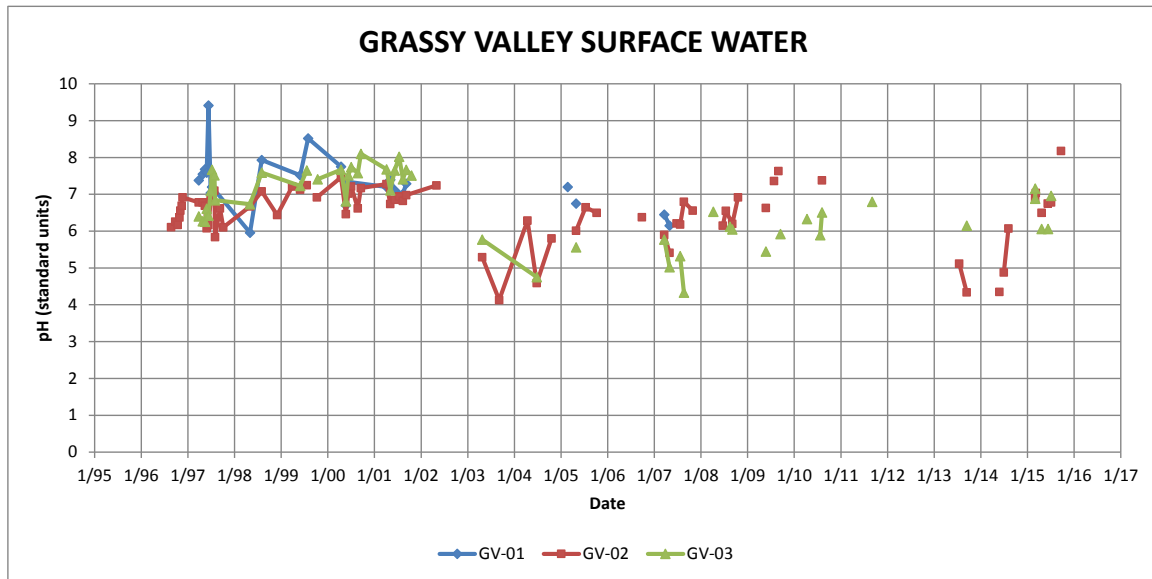


Figure 4-19
DEPTH TO GROUND WATER IN GRASSY VALLEY (GVMW-8)

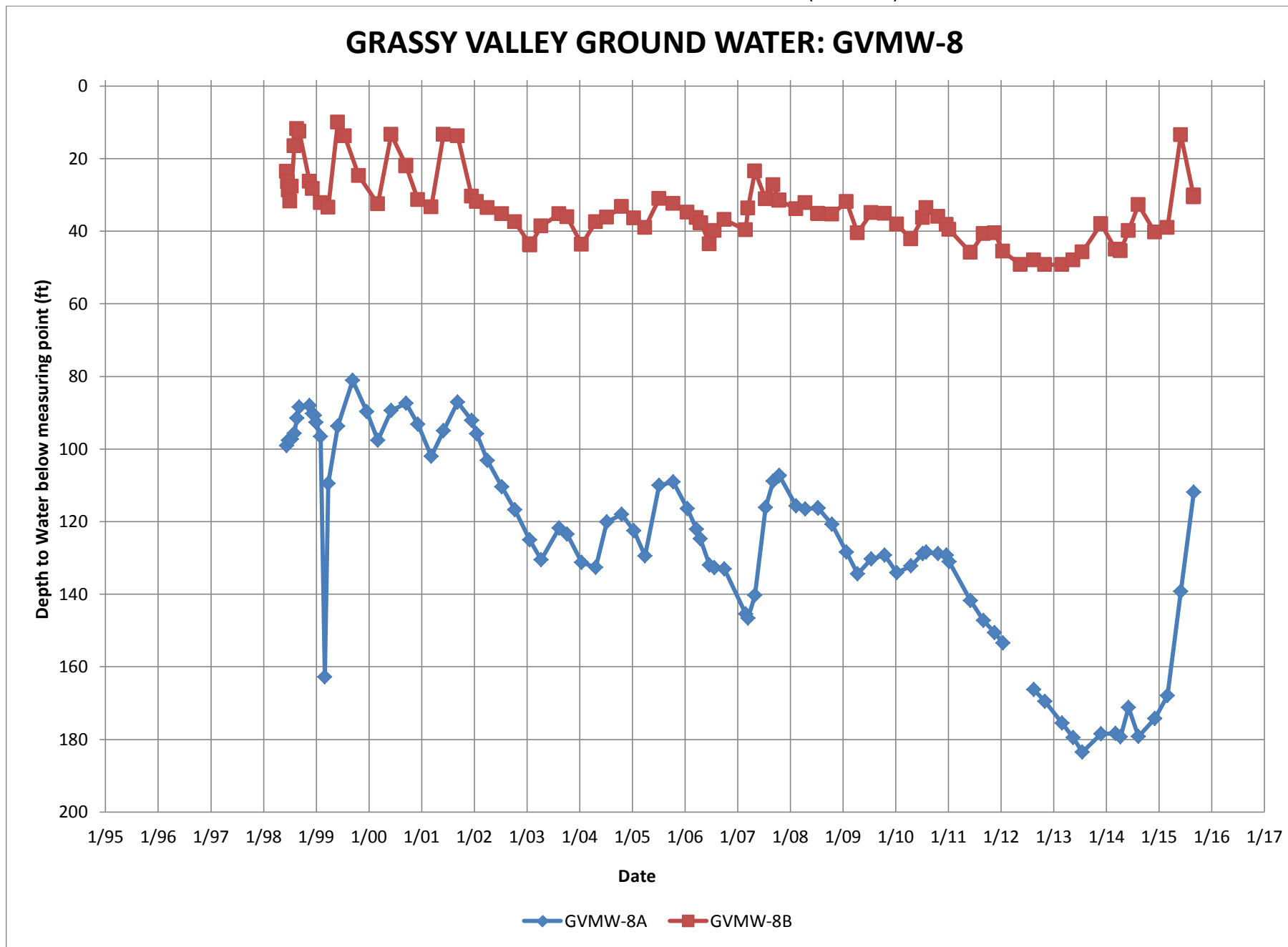


Figure 4-20
DEPTH TO GROUND WATER IN GRASSY VALLEY (GVMW-22)

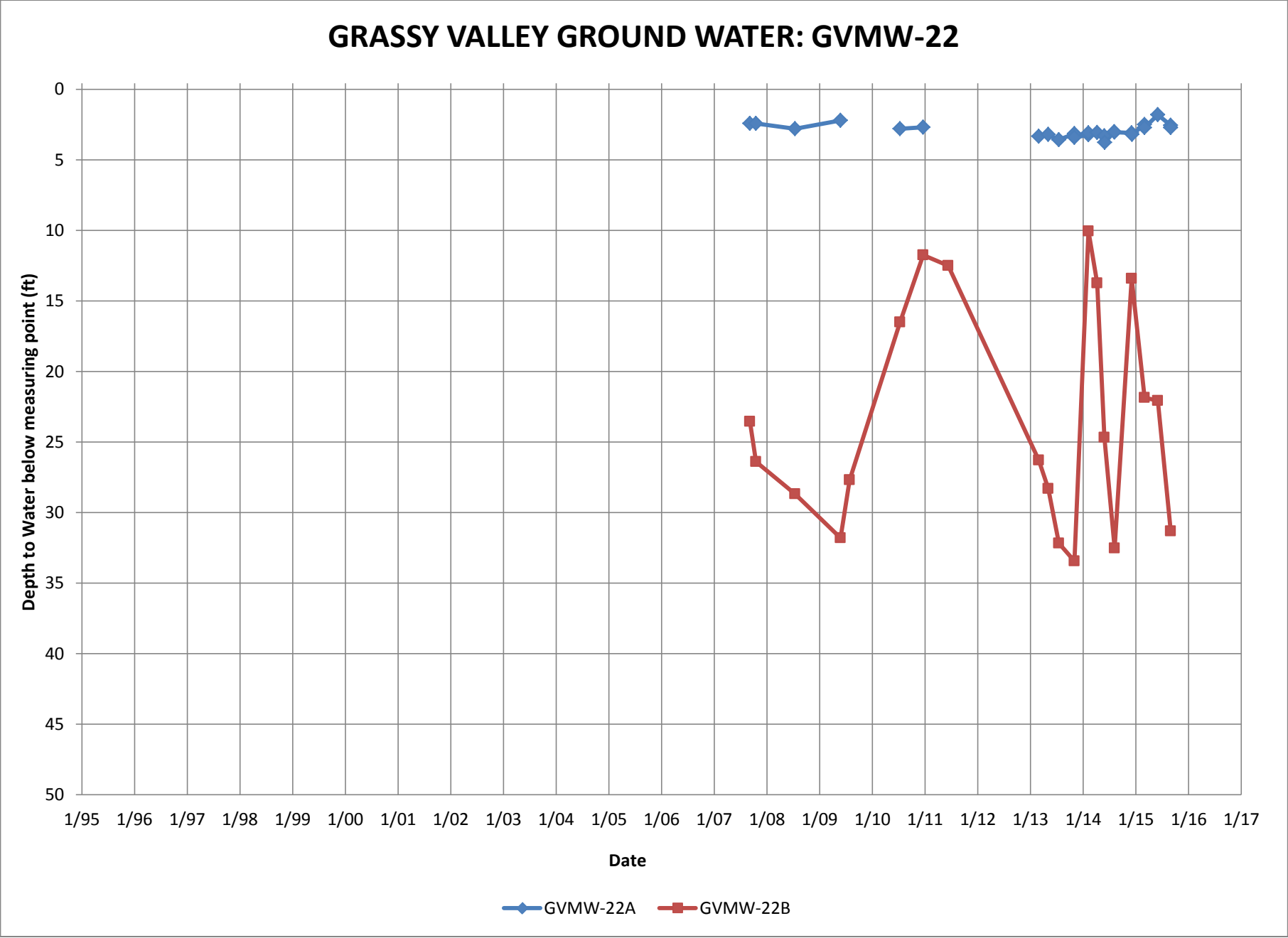


Figure 4-21
GROUND WATER QUALITY IN GRASSY VALLEY (GVMW-8)

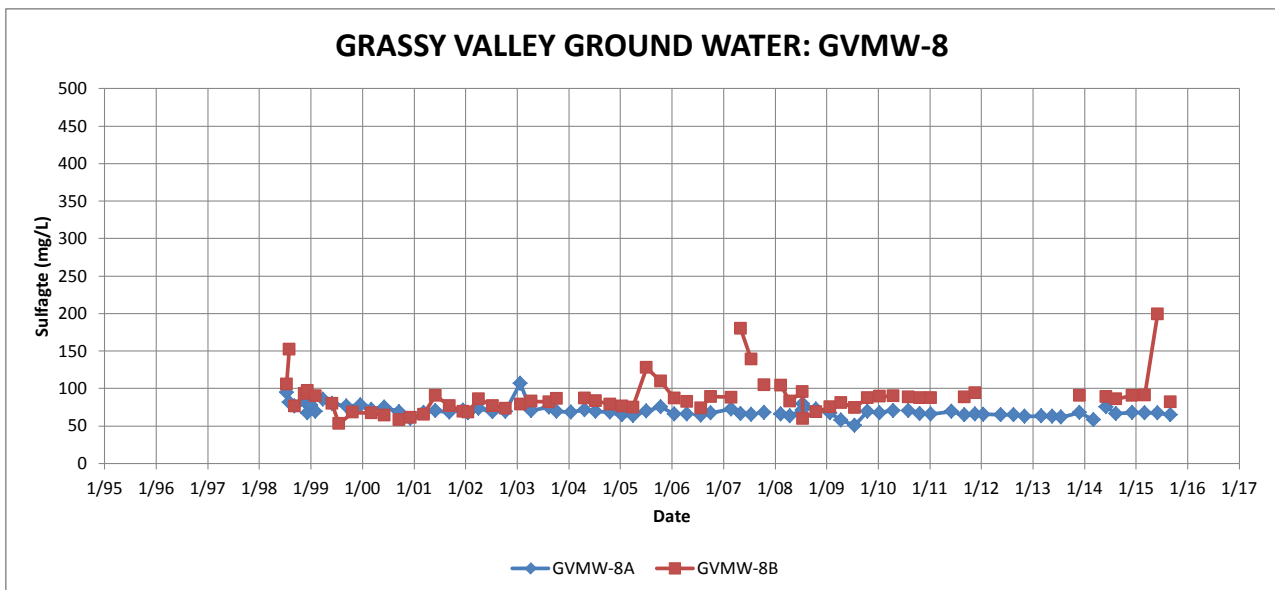
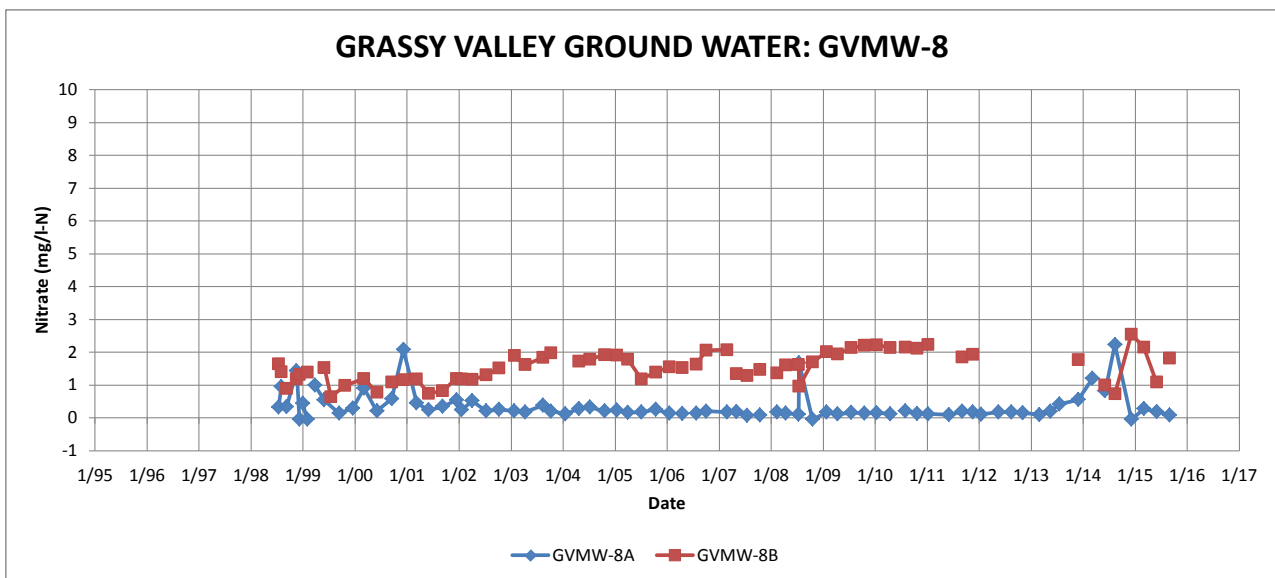
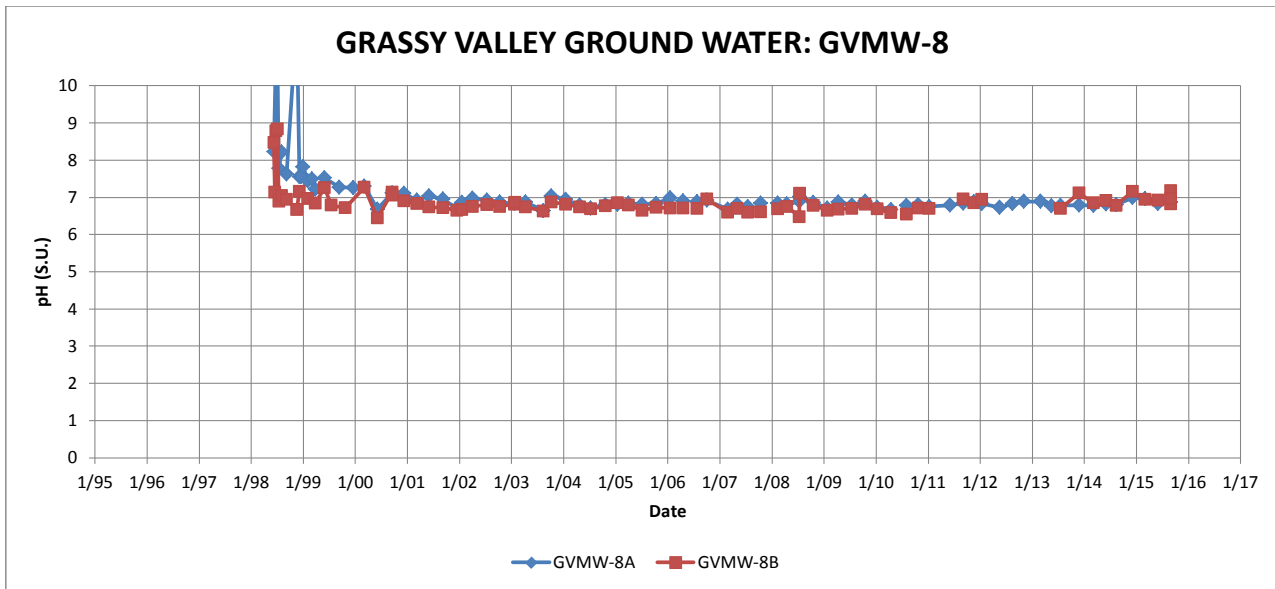


Figure 4-22
GROUND WATER QUALITY IN GRASSY VALLEY (GVMW-22)

