APPENDIX C

WELL DEVELOPMENT LOGS

Groundwater Well Development Log

Fort McClellan , Alabama

Project Number: 796887
Form Completed by: Nick Muloshi
Well Developed by (person/firm): Nick Muloshi / Leslie O'Hare

Parcel No.: 127Q
Well No.: HR - 127Q - MW01
Date started: 01/18/01

Monitoring Well Information

Development Method: PURGE & SURGE
Development Equipment: WHALER PUMP

Casing Diameter: 2" diameter

Beginning Measurments
Depth to Water (ft): 15.68'
Total depth of Well (ft): 26'

Time 24hr	Purge Volume (gal)	Water Level (ft) (TOC)	pH (std units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved oxygen (mg/L)	Temperature (°C)	Clarity (color)	Comments (Date if different from start date) (Purge Rate, Pump Position, Misc.)
14 : 45	0	15.68							
15 : 00	7	23.14	6.51 ~~7.43~~ NC	.743	96	5.50	19.1	Cloudy Gray	Pump @ 24' from TOC Pump rate 0.7 gpm
15 : 15	9	24.8	6.60 ~~7.53~~ NC	.753	84	9.97	19.3	cloudy gray	Pump rate 0.13
15 : 30	11								well purged dry.
16 : 30	11	19.17							Recharged @ 0.093 feet/min will let it recharge overnight
:			01/19/01						
09 : 45	11	15.42							≈ 100 % recharge. Pump @ 21' from TOC. Resumed pumping.

TD - DTW = WC x 2'/4' well = One PV x 5 = Min PV + H20 to install well = Minimum H20 to remove

26.00 - 15.68 = 10.32 x 0.163 = 1.682 x 5 = 8.41 + 0 = 8.41 gallons.

Parcel No.: 127 Q
Well ID: HR-127Q-MW01
Date: 08/19/01

Time 24hr	Purge Volume (gal)	Water Level (ft) (TOC)	pH (std units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved oxygen (mg/L)	Temperature (°C)	Clarity (color)	Comments (Date if different from start date)
10 : 00	13	17.67	6.49	.800	28	9.40	15.8	clear	Pump rate = 0.1 gpm
10 : 15	15	20.14	6.47	.801	16	5.70	15.8	"	"
10 : 25	17.5	20.08	6.65	.780	6	7.89	15.7	"	"
10 : 30	20	20.04	6.78	.777	4	7.13	15.7	"	"
10 : 35	20.5	20.04	6.74	.777	6	7.18	15.7	"	Collected Photographic Sample
:									
:									
:									
:									
:									
:									
:									

Nick Malachi
01/19/01

Groundwater Well Development Log

Fort McClellan , Alabama

Project Number: 796887
Form Completed by: Nick Muloski / ~~L. O'Hara~~
Well Developed by (person/firm): Nick Muloski / L. O'Hara

Parcel No.: 127 Q Skeet Range
Well No.: HA - 127Q - MW02
Date started: 01/17/01

Monitoring Well Information

Development Method: Surge block + Submersable Pump
Development Equipment: Whaler Pump

Casing Diameter: 2" PVC

Beginning Measurments
Depth to Water (ft): ~~11.1~~ 11.1' TOC
Total depth of Well (ft): 28.0'

Time 24hr	Purge Volume (gal)	Water Level (ft) (TOC)	pH (std units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved oxygen (mg/L)	Temperature (°C)	Clarity (color)	Comments (Date if different from start date) (Purge Rate, Pump Position, Misc.)
09 : 45	0.5	11.10	5.78	.777	>1000	5.81	17.2	dark gray	Pump Set @ 27'
10 : 00	7.5	15.82	6.15	.805	>1000	5.20	17.2	"	0.5 gpm pump rate
10 : 15	15.0	19.05	6.11	.801	>1000	4.50	16.9	"	0.5 gpm pump rate
10 : 30	22.0	20.22	6.25	.762	>1000	7.21	17.7	"	"
10 : 45	28.0	16.62	6.29	.742	>1000	10.09	17.3	"	Raised pump 3' to 24' bgs 0.2gpm pump rate
11 : 00	31.0	14.68	6.31	.731	667	6.94	17.4	"	0.2 gpm pump rate
11 : 15	34.5	14.15	6.40	.735	430	3.10	17.3	"	"

TD - DTW = WC x 2'/4' well = One PV x 5 = Min PV + H20 to install well = Minimum H20 to remove

28 - 11.1 = 16.9 x .163 = 2.75 x 5 = 13.77 + 0 = 13.77 gallons

Parcel No.: 127
Well ID: HR-127Q-MW02
Date: 1/17/01

Time 24hr	Purge Volume (gal)	Water Level (ft) (TOC)	pH (std units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved oxygen (mg/L)	Temperature (°C)	Clarity (color)	Comments (Date if different from start date)
11:30	37.0	14.20	6.37	.730	420	3.08 ~~2.81~~	17.0	cloudy gray	"
11:45	40.0	13.95	6.45	.735	372	4.93 ~~5.20~~	16.9	"	"
12:00	45.0	13.80	6.42	.742	328	16.2 ~~4.50~~	17.2	light gray	"
12:15	48.0	14.00	6.49	.739	140	1.30 ~~7.21~~	17.2	clear	"
12:30	51.0	14.10	6.43	.744	45.4	2.87 ~~10.09~~	17.4	clear	"
12:45	54.0	14.05	6.59	.743	30.7	2.85 ~~6.94~~	17.1	"	"
13:00	57.0	14.10	6.45	.739	33.7	2.80 ~~3.10~~	17.6	"	"
13:15	60.0	14.20	6.40	.730	28.1	2.78 ~~3.08~~	17.4	"	"
13:30	63.0	14.10	6.40	.735	21.7	2.75 ~~4.93~~	17.2	"	0.2 gpm pump rate
13:45	66.0	14.50	6.50	.740	18.5	2.70 ~~10.2~~	17.3	"	"
14:00	69.0	14.60	6.31	.739	14.3	2.73 ~~1.50~~	17.3	"	"
14:15	72.0	14.69	6.35	.737	9.5	2.74 ~~2.8~~	17.2	"	"
14 30	75.0	15.01	6.40	.740	8.1	2.75	17.2		collected sample

Groundwater Well Development Log

Fort McClellan , Alabama

Project Number: 796887
Form Completed by: L. O'Hare
Well Developed by (person/firm): L.O'Hare/N. Muloshi/IT Group

Parcel No.: 127Q
Well No.: HR-127Q-MW03
Date started: 1/18/01

Monitoring Well Information

Development Method: surge block + submersable pump
Development Equipment: whale pump

Casing Diameter: 2" PVC

Beginning Measurments
Depth to Water (ft): 8.0'
Total depth of Well (ft): 21.6'

Time 24hr	Purge Volume (gal)	Water Level (ft) (TOC)	pH (std units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved oxygen (mg/L)	Temperature (°C)	Clarity (color)	Comments (Date if different from start date) (Purge Rate, Pump Position, Misc.)
09 :30	0	11.31							0.6gpm pump rate
10 :00	9	19.49	6.20	.747	420	3.82	16.4	cloudy gray	"
10 :15	10	18.18	6.57	.703	467	8.49	16.4	"	"
10 :30	11	18.96	6.68	.564	240	7.11	16.9	"	"
10 :45	12	17.30	6.69	.563	133	8.48	16.5	"	"
11 :00	13	15.47	6.70	.561	88.3	10.93	16.5	"	"
11 :15	14.5	14.94	6.69	.566	43.2	10.88	16.5	"	0.11 gpm pump rate

TD - DTW = WC x 2'/4' well = One PV x 5 = Min PV + H20 to install well = Minimum H20 to remove

21.6 8 13.6 x .163 = 2.2 x 5 = 11.08 + 0 = 11 gal

Parcel No.: 127Q
Well ID: HR-127Q-MW03
Date: 1/18/01

Time 24hr	Purge Volume (gal)	Water Level (ft) (TOC)	pH (std units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved oxygen (mg/L)	Temperature (°C)	Clarity (color)	Comments (Date if different from start date)
11:30	16	14.63	6.65	.569	26.0	10.82	16.6	cloudy	0.1 gpm pump rate
11:45	17.5	14.52	6.65	.574	17.7	9.94	16.8	clear	"
12:00	18	14.4	6.65	.579	10.9	9.27	16.8	clear	"
12:15	19.5	14.36	6.65	.592	9.8	9.19	17.8	"	"
12:30	21	14.29	6.65	.592	7.7	9.15	17.8	"	"
12:32	21.2	14.29	6.65	.596	7.2	9.07	17.8	"	"
12:39	21.9	14.29	6.65	.596	6.6	9.05	17.8	"	"
:									
:									
:									
:									
:									

Cover Page (m) Log Book (m)

Parcel No.: HP-127Q
Well ID: MW04
Date: ~~2/~~ 3/1/01

Note: This is a continuation of previous purging.

Time 24hr	Purge Volume (gal)	Water Level (ft) (TOC)	pH (std units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved oxygen (mg/L)	Temperature (°C)	Clarity (color)	Comments (Date if different from start date)
09:45	—	10.87'	6.68	1.20	>1000	10.76	14.4	gray	pump 1' off bottom pump rate: 0.125 gpm
10:00	3.75	14.95'	6.69	1.28	>1000	10.39	15.2	clearing gray	pump rate: 0.25 gpm
10:15	7.5	15.66	6.68	1.44	205	10.36	15.4	light gray	
10:30	11.25	14.22	6.71	1.29	550	10.14	15.8	dark gray	
10:45	15.0	13.81	6.72	1.29	342	9.86	16.4	dark gray	
11:00	18.75	14.7	6.73	1.29	98	9.56	17.0	Cloudy	
11:15	22.5	14.3	6.72	1.29	73	9.41	17.3	cloudy	moved pump up 4 ft @ 127
11:30	26.25	14.47	6.73	1.29	397	9.40	17.3	gray cloudy	
11:45	30.0	14.6	6.73	1.29	117	9.54	17.1	cloudy	
12:00	33.75	14.62	6.73	1.30	68	9.71	16.7	slightly cloudy	
12:15	37.50	14.75	6.74	1.30	28	9.72	16.7	clear	
12:30	41.25	14.86	6.71	1.30	17.7	9.61	16.9	clear	

Parcel No.: HR-127Q
Well ID: MW04
Date: 3/1/01

Time 24hr	Purge Volume (gal)	Water Level (ft) (TOC)	pH (std units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved oxygen (mg/L)	Temperature (°C)	Clarity (color)	Comments (Date if different from start date)
12:45	45.00	14.96	6.71	1.29	251	9.50	17.1	Cloudy light gray	Moved pump up 3ft @1244
13:00	48.75	14.74	6.74	1.30	65	9.37	17.4	Cloudy (slightly)	
13:15	52.50	14.71	6.72	1.30	32	9.41	17.3	clear	
13:30	56.25	14.80	6.71	1.30	18.3	9.29	17.5	clear	
13:45	60	14.78	6.72	1.30	11.5	9.36	17.4	clear	
14:00	63.75	14.70	6.73	1.30	8.7	9.37	17.4	clear	
14:15	67.50	14.75	6.73	1.31	4.7	9.37	17.4	clear	
14:24	69.75	14.76	6.74	1.31	4.9	9.30	17.5	clear	took sample for photography
:									
:									
:									
:									