

APPENDIX A

Well Sampling Field Sheets



GROUNDWATER SAMPLING FIELD DATA SHEET

Well No. MW-6		Purge Equipment <input type="checkbox"/> Disposable Bailer <input type="checkbox"/> Bladder Pump <input checked="" type="checkbox"/> Grundfos Pump Other: _____		Analytical Equipment pH meter (temp): <input checked="" type="checkbox"/> WTW 3400i Other: _____ Comments: _____			Sampler's Initials JWF/AM/DR		Time 1552MST		Date 4/28/09	
Casing Diameter (in.) 4		Comments: _____		Cond. Meter (temp): <input checked="" type="checkbox"/> WTW 3400i Other: _____ Comments: _____			Meter Calibration Time: 1421mst Date: 4/28/2009 Auto. Calibrations? _____ pH <input checked="" type="checkbox"/> Cond. <input checked="" type="checkbox"/> D.O. <input checked="" type="checkbox"/> ORP <input checked="" type="checkbox"/>					
Total Well Depth (ft.) 484.49		Sample Equipment <input type="checkbox"/> Disposable Bailer <input type="checkbox"/> Bladder Pump <input checked="" type="checkbox"/> Grundfos Pump Other: _____		DO Meter: <input checked="" type="checkbox"/> WTW 3400i Other: _____ Comments: _____			pH pH std. # 1 = 4.01 at 22.7 °C Calibration Evaluation pH std. # 2 = 7.00 at 22.7 °C 3 Bars Slope = _____ mV/pH Asymmetry = _____ mV					
Static Water Level (ft.) 407.77		Comments: _____		ORP Meter: <input checked="" type="checkbox"/> WTW 3400i Other: _____ Comments: _____			Specific Conductance Cell Constant = 0.466 /cm Calibration Evaluation 2 Bars					
Water Thickness (ft.) 76.72		Filtration Equipment: 0.45 micron filter		Turbidity Meter: _____ WTW Other: _____ Comments: _____			Dissolved Oxygen Relative Slope = 0.74 at 20.9 °C Calibration Evaluation 3 Bars					
Casing Volume (gal.) 49.87		Water Level Meter: <input checked="" type="checkbox"/> Keck Other: _____ Comments: _____		Comments: _____			Oxygen-Reduction Potential Conductance Standard: 230 mV Reads: 225 mV					
Stick-up 1.37 (ft.)	Screen Int. 459-479 (ft.)	Purge Containerized: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		Destination: _____			Comments: Post sampling calibration @ 1601 MST, all good. Casing Volume multipliers (gal/ft): 2"=(.16) 3"=(.37) 4"=(.65) 6"=(1.5)					
Time	Volume Removed (casings)	Temp. (°C)	pH (s.u.)	Cond (mS/cm)	DO (mg/L)	ORP (mV)	Water Level (ft below TOC)	Pumping Rate (gal/min)	Visual Description			
1402MST									Start purge ≈ 5.26 gpm, water clear, sulfur smell.			
1501MST	310.3	18.7	6.85	3.31	0.15	-315			Reduced flow to 3 gpm, hooked up block, started readings			
1506MST	325	18.7	6.86	3.31	0.15	-327						
1510MST	337	18.7	6.86	3.30	0.18	-334						
1515MST	352	18.7	6.86	3.30	0.20	-340						
1520MST	367	18.7	6.86	3.30	0.22	-344						
1525MST	382	18.7	6.86	3.30	0.23	-347						
1530MST	397	18.7	6.86	3.29	0.23	-350						
1535MST	412	18.7	6.86	3.29	0.24	-353						
1540MST	427	18.7	6.86	3.29	0.23	-354						
1545MST	442	18.7	6.85	3.29	0.24	-355						
1552MST	447								Pulled Samples			
1554MST		19.4	6.99						Filtered PH Final Depth 412.75'			
Condition of Sampler: Everything in good condition.							Full Suite: Yes /		Pump Depth: _____ ft BTOC			
							# MW-6		Duplicate Yes \		# Duplicate	
							Partial Suite: / No		Rinsate \ No		#	
							#		Trip Blank \ No		#	
Additional Comments: Performed instrument calibrations at sampling site, initial during purge and post immediately after sampling.							PPE Utilized		Gloves <input checked="" type="checkbox"/>		Safety Glasses <input type="checkbox"/>	
							Signature: <i>James W. Talley</i>					



GROUNDWATER SAMPLING FIELD DATA SHEET

Well No. MW-7		Purge Equipment <input checked="" type="checkbox"/> Disposable Bailor <input checked="" type="checkbox"/> Bladder Pump		Analytical Equipment pH meter (temp): <input checked="" type="checkbox"/> WTW 3400i			Sampler's Initials JWF/AM/DR		Time 1014MST		Date 4/29/09	
Casing Diameter (In.) 4		Grundfos Pump Other :		Other: Comments:			Meter Calibration					
Total Well Depth (ft.) 425		Comments:		Cond. Meter (temp): <input checked="" type="checkbox"/> WTW 3400i			Time: 0702mat Date: 4/29/2009 Auto. Calibrations? pH <input checked="" type="checkbox"/> Cont. <input checked="" type="checkbox"/> D.O. <input checked="" type="checkbox"/> ORP <input checked="" type="checkbox"/>					
Static Water Level (ft.) 335.87		Sample Equipment <input checked="" type="checkbox"/> Disposable Bailor <input checked="" type="checkbox"/> Bladder Pump		Comments:			pH pH std. # 1 = 4.01 at 13.3 °C Calibration Evaluation pH std. # 2 = 7.00 at 13.3 °C 3 Bars Slope = -59 mV/pH Assymetry = -11 mV					
Water Thickness (ft.) 89.13		Grundfos Pump Other :		DO Meter: <input checked="" type="checkbox"/> WTW 3400i			Specific Conductance Cell Constant = 0.470 /cm Calibration Evaluation 3 Bars					
Casing Volume (gal.) 57.93		Comments:		Comments:			Dissolved Oxygen Relative Slope = 0.76 at 11.4 °C Calibration Evaluation 2 Bars					
Stick-up 2.75 (ft.)		Filtration Equipment: 0.45 micron filter		ORP Meter: <input checked="" type="checkbox"/> WTW 3400i			Oxygen-Reduction Potential Conductance Standard: 230 mV Reads: 227 mV					
Screen Int. 365-425 (ft.)		Comments:		Other:			Comments: Post sampling calibration performed at 1020MST, all good.					
Water Level Meter: <input checked="" type="checkbox"/> Keck		Water Level Meter: <input checked="" type="checkbox"/> Keck		Comments:			Casing Volume multipliers (gal/ft): 2"=(.16) 3"=(.37) 4"=(.65) 6"=(1.5)					
Purge Containerized: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Other:		Turbidity Meter: WTW								
Destination:		Comments:		Other:								
Destination:		Comments:		Other:								
Time	Volume Removed (casings)	Temp. (°C)	pH (s.u.)	Cond (uS/cm)	DO (mg/L)	ORP (mV)	Water Level (ft below TOC)	Pumping Rate (gal/min)	Visual Description			
0940MST							336.02		Water Clear, No Odor, Started Purge			
0950MST		16.0	7.47	1287	5.76	46	336.08		Started Readings			
0955MST	5	15.7	7.43	1289	5.62	58	336.14		Reduced flow slightly			
1000MST		15.7	7.43	1289	5.58	62	336.12					
1005MST		15.7	7.43	1289	5.59	61	336.11					
1009MST		15.7	7.43	1289	5.59	62	336.10					
1014MST	13	15.7	7.43	1289	5.59	62	336.09		Pulled Samples			
1024MST		19.8	7.46						Filtered PH			
Condition of Sampler: All in good order.				Full Suite: Yes /			Pump Depth: 395 ft BTOC					
				# MW-7			Duplicate \ No #					
				Partial Suite: / No			Rinsate \ No #					
				#			Trip Blank \ No #					
Additional Comments: Gallons removed is a running total.				PPE Utilized			Gloves <input checked="" type="checkbox"/> Safety Glasses <input checked="" type="checkbox"/>					
				Signature: <i>James W. Sullivan</i>								



GROUNDWATER SAMPLING FIELD DATA SHEET

Well No. MW-8		Purge Equipment <input checked="" type="checkbox"/> Disposable Bailor <input checked="" type="checkbox"/> Bladder Pump Grundfos Pump Other:		Analytical Equipment pH meter (temp): <input checked="" type="checkbox"/> WTW 3400i Other: Comments:			Sampler's Initials JWF/AM/DR		Time 0905MST		Date 4/29/09	
Casing Diameter (in.) 4		Comments:		Cond. Meter (temp): <input checked="" type="checkbox"/> WTW 3400i Other: Comments:			Meter Calibration Time: 0702mst Date: 4/29/2009 Auto. Calibrations? pH <input checked="" type="checkbox"/> Cond. <input checked="" type="checkbox"/> D.O. <input checked="" type="checkbox"/> ORP <input checked="" type="checkbox"/>					
Total Well Depth (ft.) 422		Sample Equipment <input checked="" type="checkbox"/> Disposable Bailor <input checked="" type="checkbox"/> Bladder Pump Grundfos Pump Other:		DO Meter: <input checked="" type="checkbox"/> WTW 3400i Other: Comments:			pH pH std. # 1 = 4.01 at 13.3 °C Calibration Evaluation pH std. # 2 = 7.00 at 13.3 °C 3 Bars Slope = -59 mV/pH Assymetry = -11 mV					
Static Water Level (ft.) 381.46		Comments:		ORP Meter: <input checked="" type="checkbox"/> WTW 3400i Other: Comments:			Specific Conductance Cell Constant = 0.470 /cm Calibration Evaluation 3 Bars					
Water Thickness (ft.) 40.54		Filtration Equipment: 0.45 micron filter		Turbidity Meter: WTW Other: Comments:			Dissolved Oxygen Relative Slope = 0.76 at 11.4 °C Calibration Evaluation 2 Bars					
Casing Volume (gal.) 26.35		Water Level Meter: <input checked="" type="checkbox"/> Keck Other: Comments:		Comments:			Oxygen-Reduction Potential Conductance Standard: 230 mV Reads: 227 mV					
Stick-up 2.58 (ft.)	Screen Int. 297-417 (ft.)	Purge Containerized: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Destination:			Comments: Post sampling calibration performed at 1820MST, all good.					
Casing Volume multipliers (gal/ft): 2"=(.16) 3"=(.37) 4"=(.65) 6"=(1.5)												
Time	Volume Removed (casings)	Volume Removed (gal)	Temp. (°C)	pH (s.u.)	Cond (mS/cm)	DO (mg/L)	ORP (mV)	Water Level (ft below TOC)	Pumping Rate (gal/min)	Visual Description		
0820MST								381.46		Started purge-water clear		
0825MST			16.0	6.77	2.64	0.30	-170	381.50		Started readings		
0830MST			15.9	6.76	2.68	0.31	-170	381.55				
0835MST			16.0	6.74	2.73	0.36	-170	381.59				
0840MST		5	16.0	6.72	2.83	0.45	-210	381.66				
0845MST			16.0	6.71	2.86	0.52	-208	381.71				
0850MST			16.0	6.71	2.94	0.69	-203	381.77				
0855MST			16.0	6.69	2.93	0.71	-204	381.82				
0900MST		10	16.0	6.70	2.94	0.70	-203	381.87				
0905MST		13								Pulled samples.		
1009MST			18.8	6.72						Filtered PH		
Condition of Sampler: All good.				Full Suite: Yes /				Pump Depth: 400 ft BTOC				
				# MW-8				Duplicate \ No #				
				Partial Suite: / No				Rinsate \ No #				
				#				Trip Blank \ No #				
Additional Comments: Gallons removed is a running total.				PPE Utilized				Gloves <input checked="" type="checkbox"/>				
								Safety Glasses <input checked="" type="checkbox"/>				
Signature: <i>James W. Jullig</i>												



GROUNDWATER SAMPLING FIELD DATA SHEET

Well No. PW-1		Purge Equipment Disposable Bailer <input checked="" type="checkbox"/> Bladder Pump Grundfos Pump Other: _____		Analytical Equipment pH meter (temp): <input checked="" type="checkbox"/> WTW 3400i Other: _____ Comments: _____		Sampler's Initials AM/DR		Time 1023MST		Date 4/30/09	
Casing Diameter (in.) 6		Comments:		Cond. Meter (temp): <input checked="" type="checkbox"/> WTW 3400i Other: _____ Comments: _____		Meter Calibration Time: 0510mst Date: 4/30/2009 Auto. Calibrations? _____ pH <input checked="" type="checkbox"/> Cond. <input checked="" type="checkbox"/> D.O. <input checked="" type="checkbox"/> ORP <input checked="" type="checkbox"/>					
Total Well Depth (ft.) 380		Sample Equipment Disposable Bailer <input checked="" type="checkbox"/> Bladder Pump Grundfos Pump Other: _____		DO Meter: <input checked="" type="checkbox"/> WTW 3400i Other: _____ Comments: _____		<p>pH pH std. # 1 = 4.01 at 14.6 °C Calibration Evaluation pH std. # 2 = 7.00 at 14.6 °C 3 Bars Slope = -59 mV/pH Assymetry = -9 mV</p> <p>Specific Conductance Cell Constant = 0.469 /cm Calibration Evaluation 3 Bars</p> <p>Dissolved Oxygen Relative Slope = 0.75 at 15.1 °C Calibration Evaluation 2 Bars</p> <p>Oxygen-Reduction Potential Conductance Standard: 230 mV Reads: 209 mV</p>					
Static Water Level (ft.) 280.69		Comments:		ORP Meter: <input checked="" type="checkbox"/> WTW 3400i Other: _____ Comments: _____		Comments: Post sampling calibration performed at 1621 MST, all passed with 3 bars.					
Water Thickness (ft.) 99.31		Filtration Equipment: 0.45 micron filter		Turbidity Meter: _____ WTW Other: _____ Comments: _____		Casing Volume multipliers (gal/ft): 2"=(.16) 3"=(.37) 4"=(.65) 6"=(1.5)					
Casing Volume (gal.) 148.97		Comments:		Water Level Meter: <input checked="" type="checkbox"/> Keck Other: _____ Comments: _____							
Stick-up 1.8 (ft.)	Screen Int. 320-370 (ft.)	Destination:									
Purge Containerized: Yes _____ No <input checked="" type="checkbox"/>											
Time	Volume Removed (casings)	Temp. (°C)	pH (s.u.)	Cond (uS/cm)	DO (mg/L)	ORP (mV)	Water Level (ft below TOC)	Pumping Rate (gal/min)	Visual Description		
0938MST		16.2	7.35	1184		-178	280.69	≈ 0.2	Water Clear		
0943MST		16.2	7.39	1184	2.87	-182	280.69				
0948MST		15.8	7.39	1185	2.37	-179	280.70				
0953MST		15.4	7.39	1185	2.32	-179	280.71				
0958MST		15.8	7.43	1184	2.60	-178	280.71				
1003MST		15.8	7.43	1185	2.90	-172	280.72				
1008MST		15.9	7.43	1185	3.95	-166	280.73				
1013MST		15.8	7.43	1185	3.92	-162	280.75				
1018MST		15.8	7.43	1184	3.75	-162	280.76				
1023MST		15.8	7.43	1184	3.29	-162	280.77		Pulled samples		
1034MST		20.9	7.35						Filtered PH		
Condition of Sampler: Sampler clean and in good condition.				Full Suite: Yes /		Pump Depth: 345 ft BTOC					
				# PW-1		Duplicate \ No #					
				Partial Suite: / No		Rinsate \ No #					
				#		Trip Blank \ No #					
Additional Comments:				PPE Utilized		Gloves <input checked="" type="checkbox"/>					
						Safety Glasses _____					
				Signature: <i>Jess W. [Signature]</i>							



GROUNDWATER SAMPLING FIELD DATA SHEET

Well No. PW-2		Purge Equipment Disposable Bailer <input checked="" type="checkbox"/> Bladder Pump Grundfos Pump Other:		Analytical Equipment pH meter (temp): <input checked="" type="checkbox"/> WTW 3400i Other: Comments:			Sampler's Initials JWF/AM/DR		Time 1610MST		Date 4/29/09	
Casing Diameter (in.) 6		Comments:		Conduct. Meter (temp): <input checked="" type="checkbox"/> WTW 3400i Other: Comments:			Meter Calibration					
Total Well Depth (ft.) 420		Sample Equipment Disposable Bailer <input checked="" type="checkbox"/> Bladder Pump Grundfos Pump Other:		DO Meter: <input checked="" type="checkbox"/> WTW 3400i Other: Comments:			Time: 0702mst Date: 4/29/2009 Auto. Calibrations?		pH <input checked="" type="checkbox"/> Cond. <input checked="" type="checkbox"/> D.O. <input checked="" type="checkbox"/> ORP <input checked="" type="checkbox"/>			
Static Water Level (ft.) 332.43		Comments:		ORP Meter: <input checked="" type="checkbox"/> WTW 3400i Other: Comments:			pH pH std. # 1 = 4.01 at 13.3 °C Calibration Evaluation pH std. # 2 = 7.00 at 13.3 °C 3 Bars Slope = -59 mV/pH Assymetry = -11 mV					
Water Thickness (ft.) 87.57		Comments:		Turbidity Meter: WTW Other: Comments:			Specific Conductance					
Casing Volume (gal.) 131.36		Filtration Equipment: 0.45 micron filter		Comments:			Cell Constant = 0.470 /cm Calibration Evaluation 3 Bars					
Stick-up 1.7 (ft.)	Screen Int. 340-410 (ft.)	Comments:		Water Level Meter: <input checked="" type="checkbox"/> Keck Other: Comments:			Dissolved Oxygen					
Purge Containerized: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		Comments:		Comments:			Relative Slope = 0.76 at 11.4 °C Calibration Evaluation 2 Bars					
Destination:		Comments:			Comments:			Oxygen-Reduction Potential				
								Conductance Standard: 230 mV Reads: 227 mV				
								Comments: Post sampling calibration performed at 1820MST, all good.				
								Casing Volume multipliers (gal/ft): 2"=(.16) 3"=(.37) 4"=(.65) 6"=(1.5)				
Time	Volume Removed (casings)	Volume Removed (gal)	Temp. (°C)	pH (s.u.)	Cond (uS/cm)	DO (mg/L)	ORP (mV)	Water Level (ft below TOC)	Pumping Rate (gal/min)	Visual Description		
1450MST										Started Purge		
1520MST		5	16.1	7.40	1318	0.88	-199					
1525MST			16.2	7.39	1317	0.82	-198					
1530MST			16.2	7.40	1319	0.80	-200					
1535MST			16.2	7.40	1318	0.72	-201					
1540MST			16.2	7.39	1319	0.66	-201					
1545MST			16.2	7.40	1318	0.52	-204					
1550MST		10	16.2	7.40	1318	0.51	-203					
1555MST			16.2	7.39	1318	0.50	-204					
1610MST		13								Pulled samples		
1621MST			19.1	7.22						Filtered PH		
Condition of Sampler: Good, all clean.								Full Suite: Yes / No		Pump Depth: 375 ft BTOC		
								# PW-2		Duplicate \ No #		
								Partial Suite: Yes / No		Rinsate \ No #		
								#		Trip Blank \ No #		
Additional Comments: Gallons removed is a running total.								PPE Utilized		Gloves <input checked="" type="checkbox"/>		
										Safety Glasses <input checked="" type="checkbox"/>		
								Signature: <i>Jess W. Jallage</i>				

