8.4 m @ 7:00pm

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

R

→ sampled Sept. 25/16

Sample Site:	BH8	**Project Number:**	1343-005.31	**Date:**	Sept 24 2016
Station Status:	Growing	**Client:**	GY - AAM	**Samplers:**	JC & CH
Piezometer Diameter:	2"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	Chilly 3°C
UTM Location:	Z 08 E 0585142 N 6913785	**Waypoint:**	GPS ~~HCM~~ ID N/A	**Recovery:**	☑ Good ☑ Bad ☐ Ok
Photos:	Cam# 5 Nos 0485 - 0487	**Purge Method:**			
Duplicate Collected:	☐ Yes ☑ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo** / **Other**
Field Blank Collected:	☐ Yes ☑ No Name _____	~~Hydrolift~~ ✓			

Initial Depth to Water (m):	15.658 m	**Purge Start Time:**	17:37 Sept 24				**Purge End Time:**	17:48			
Depth to Bottom (m):	20.795 m	**Purge Interval Time (___) min, Vol. (___) L**	17:48								
Submerged Tubing Depth (m):	20.295m	**Depth to water (m)**	20.09								
Well Stick-up Height (m):	0.811 m	**Temperature (°C)**	4.2								
Estimated Water Volume (L):	10.3L	**pH (pH Units)**	3.60								
		Cond. (µs/cm)	2360								
		Specific Cond. (µs/cm)	3914								
		Redox (mV)	198.4								
		DO (mg/L)	5.03								
		DO (%)	39.1								
		Appearance & Odour (Clear, Silty, HC odours, etc.)	Slightly turbid								
		Turbidity (NTU):	49.4								
		Interval Purge Volume (L):	10								
		Cumulative Purge Volume (L):	10								

DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume

Calculations:

YSI Field Parameters Logged:	☒ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	17:50 Sept 24	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☒ YSI ☐ Pen Unit	~~Hydrolift~~ ✓				
Sample Time	9:15 Sept 25					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): BH8

Sample Date (Con't): Sept. 24, 2016

Sample Time (Con't): 9:15 Sept 25

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, or other features):

- Well has very slow recharge, 10L purged and 1 parameter reading collected.
- Will Return to sample representative sample.

Consumables:

- ☐ 1/4" HDPE (Peristaltic) _____ ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☐ 1/4" Silicon _____ ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☑ Field Filtered	☑ HNO_3	125 ml	Sept 15 direct sample
1 L (plastic)	General Chemistry	500 ml	-	-	1.0 L	Sept 15 direct sample

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	BH10A	**Project Number:**	1343-005.31	**Date:**	Sept. 24, 2016
Station Status:	good	**Client:**	GY - AAM	**Samplers:**	JC & CH
Piezometer Diameter:	2"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	chilly 2°C
UTM Location:	Z 08 E 0585125 N 6913714	**Waypoint:**	GPS ___ ID _____	**Recovery:**	☑ Good ☐ Bad ☐ Ok
Photos:	Cam. EK 2 Nos. 0470 - 0472	**Purge Method:**			
Duplicate Collected:	☑ Yes ☐ No Name Dup-8	**Waterra**	**Peristaltic** ✓	**Disp. Bailer**	**Redi-flo** / **Other**
Field Blank Collected:	☐ Yes ☑ No Name _____				

Initial Depth to Water (m):	6.186m	**Purge Start Time:**	14:37				**Purge End Time:**	14:50		
Depth to Bottom (m):	6.969 m	**Purge Interval** 0.5L **Time (___) min, Vol. (___) L**	14:40	14:42	14:45	14:48				
Submerged Tubing Depth (m):	6.469 m	**Depth to water (m)**	6.180	same	same	same				
Well Stick-up Height (m):	1.704m	**Temperature (°C)**	3.7	3.4	3.4	3.5				
Estimated Water Volume (L):	1.6 L	**pH (pH Units)**	6.42	6.43	6.41	6.41				
DTB – DTW) x (πr²)*1000 (for well diameter) = 1 well volume (DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume (DTB – DTW) x 2 (for 2" well diameter) = 1 well volume (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume (DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume Calculations:		**Cond. (µs/cm)**	215.4	197.8	193.4	193.3				
		Specific Cond. (µs/cm)	303.4	336.2	328.6	328.0				
		Redox (mV)	18.1	16.3	16.7	17.3				
		DO (mg/L)	0.93	0.86	0.91	0.89				
		DO (%)	6.0	6.6	6.9	6.3				
		Appearance & Odour (Clear, Silty, HC odours, etc.)	yellowish no odour	same	same	same				
		Turbidity (NTU):	—	—	—	708				
		Interval Purge Volume (L):	0.5L	0.5	0.5	0.5				
		Cumulative Purge Volume (L):	0.5L	1.0L	1.5L	2.0L				

YSI Field Parameters Logged:	☑ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	14:49	**Waterra**	**Peristaltic** ✓	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☑ YSI ☐ Pen Unit					
Sample Time	14:50					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

✓

HEMMERA

Sample Site (Con't): BH10A

Sample Date (Con't): Sept. 24, 2016

Sample Time (Con't): 14:50

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (^{0}C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, or other features):

Consumables:

- ☑ 1/4" HDPE (Peristaltic) 6 ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☑ 1/4" Silicon 1/2 ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☑ Field Filtered	☑ HNO_3	125 ml	
1 L (plastic)	General Chemistry	500 ml	-	-	1.0 L	

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	BH10B	**Project Number:**	1343-005.31	**Date:**	Sept. 24, 2016
Station Status:	good	**Client:**	GY - AAM	**Samplers:**	JC & CH
Piezometer Diameter:	2"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	Chilly 3°C
UTM Location:	z08 E 0505125 N 6913714	**Waypoint:**	GPS ___ ID _____	**Recovery:**	☑ Good ☐ Bad ☐ Ok
Photos:	Cam. GR Nos. 0473 - 0475	**Purge Method:**			
Duplicate Collected:	☐ Yes ☑ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo** / **Other**
Field Blank Collected:	☐ Yes ☑ No Name _____		✓		

Initial Depth to Water (m):	5.356 m	**Purge Start Time:**	14:59			**Purge End Time:**	15:12				
Depth to Bottom (m):	9.228 m	**Purge Interval** 0.5 **Time (___) min, Vol. (___) L**	15:05	15:08	15:11						
Submerged Tubing Depth (m):	8.800 m	**Depth to water (m)**	5.355	same	same						
Well Stick-up Height (m):	0.899 m	**Temperature (°C)**	3.4	3.3	3.2						
Estimated Water Volume (L):	7.7 L	**pH (pH Units)**	6.36	6.34	6.34						
		Cond. (µs/cm)	233.2	230.0	234.1						
		Specific Cond. (µs/cm)	397.0	393.5	401.7						
		Redox (mV)	32.0	34.7	35.7						
		DO (mg/L)	2.17	2.35	2.14						
		DO (%)	16.3	17.2	16.0						
		Appearance & Odour (Clear, Silty, HC odours, etc.)	yellowish no odour	same	same						
		Turbidity (NTU):	—	—	14.9						
		Interval Purge Volume (L):	0.5	0.5	0.5						
		Cumulative Purge Volume (L):	0.5L	1.0L	1.5L						

DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume

Calculations:

YSI Field Parameters Logged:	☑ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	15:14	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☑ YSI ☐ Pen Unit		✓			
Sample Time	15:13					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): BH10B

Sample Date (Con't): Sept. 24, 2016

Sample Time (Con't): 15:13

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (^{0}C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, or other features):

Consumables:

- ☑ 1/4" HDPE (Peristaltic) 5 ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☑ 1/4" Silicon _____ ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☑ Field Filtered	☐ HNO_3	125 ml	
1 L (plastic)	General Chemistry	500 ml	-	-	1.0L	

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	BH14A	**Project Number:**	1343-005.31	**Date:**	Sept. 24, 2016
Station Status:	good	**Client:**	GY - AAM	**Samplers:**	JC KCH
Piezometer Diameter:	2"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	Chilly 3°C
UTM Location:	Z. 08 E 0386584 N 6914014	**Waypoint:**	GPS ___ ID _____	**Recovery:**	☑ Good ☐ Bad ☐ Ok
Photos:	Cam. #2 Nos. 0488 - 0491	**Purge Method:**			
Duplicate Collected:	☑ Yes ☐ No Name Dup-11	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo** / **Other**
Field Blank Collected:	☐ Yes ☐ No Name _____		✓		

Initial Depth to Water (m):	3.495 m	**Purge Start Time:**	18:26			**Purge End Time:**	18:51				
Depth to Bottom (m):	6.452 m	**Purge Interval Time (___) min, Vol. (___) L**	0.5	18:34	18:37	18:42	18:48				
Submerged Tubing Depth (m):	6.00 m	**Depth to water (m)**		3.721	3.790	3.830	3.833				
Well Stick-up Height (m):	0.050 m	**Temperature (°C)**		5.9	5.5	5.4	5.2				
Estimated Water Volume (L):	5.91 L	**pH (pH Units)**		6.60	6.50	6.52	6.52				
		Cond. (µs/cm)		2612	2648	2673	2676				
		Specific Cond. (µs/cm)		4152	4225	4278	4307				
DTB – DTW) x (πr^{2})*1000 (for well diameter) = 1 well volume		**Redox (mV)**		57.5	59.9	58.1	56.6				
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume		**DO (mg/L)**		7.16	1.53	0.25	0.21				
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume		**DO (%)**		57.1	12.0	2.0	2.1				
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume		**Appearance & Odour (Clear, Silty, HC odours, etc.)**		clear no odour	same	sand	same				
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume		**Turbidity (NTU):**		—	—	—	5.75				
Calculations:		**Interval Purge Volume (L):**		0.5L	0.5	0.5	0.5				
		Cumulative Purge Volume (L):		0.5L	1.0L	1.5L	2.0L				

YSI Field Parameters Logged:	☑ Yes ☐ No	**Sample Method:**			
Time logged on YSI (24hr):	18:50	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo** / **Other**
YSI Meter or Pen Unit?:	☑ YSI ☐ Pen Unit		✓		
Sample Time	18:52				

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

✓

HEMMERA

Sample Site (Con't): BH14A

Sample Date (Con't): Sept. 24, 2016

Sample Time (Con't): 18:52

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (^{0}C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, or other features):

Consumables:

- ☐ 1/4" HDPE (Peristaltic) _____ ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☑ 1/4" Silicon 1/2 ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____
- ☐ Other _____

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☑ Field Filtered	☑ HNO_3	125 ml	
1 L (plastic)	General Chemistry	500 ml	-	-	1.0 L	

1m = 2L

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	BH14B	**Project Number:**	1343-005.31	**Date:**	24- sept -16
Station Status:	~~FLOW~~ SLOW	**Client:**	GY - AAM	**Samplers:**	AN / MM
Piezometer Diameter:	2"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	overcast
UTM Location:	Z. ~~08~~ E. _____ N. _____	**Waypoint:**	GPS N/A ~~ID~~ _____	**Recovery:**	☐ Good ☐ Bad ☒ Ok
Photos:	Cam. 2 Nos. 0488-0491	**Purge Method:**			
Duplicate Collected:	☐ Yes ☒ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
Field Blank Collected:	☐ Yes ☒ No Name _____		X			

Initial Depth to Water (m):	4.100	**Purge Start Time:**	18:24					**Purge End Time:**	18:55	
Depth to Bottom (m):	10.005	**Purge Interval Time (5) min, Vol. (___) L**	18:25	18:30	18:35	18:40	18:45	18:50	18:55	
Submerged Tubing Depth (m):	~8	**Depth to water (m)**	/	4.660	4.745	4.875	5.010	5.140	5.26	
Well Stick-up Height (m):	0.644	**Temperature (°C)**	4.2	4.8	4.9	4.9	4.8	4.7	4.7	
Estimated Water Volume (L):	11.8	**pH (pH Units)**	6.86	6.73	6.72	6.72	6.71	6.72	6.74	
		Cond. (µs/cm)	2260	2295	2308	2296	2274	2262	2252	
		Specific Cond. (µs/cm)	3764	3746	3750	3728	3707	3692	3684	
		Redox (mV)	233.5	225.0	222.0	219.6	218.0	218.2	219.1	
		DO (mg/L)	1.05	0.42	0.40	0.55	1.09	1.63	1.78	
		DO (%)	7.8	3.2	3.2	4.4	8.7	12.8	14.0	
		Appearance & Odour (Clear, Silty, HC odours, etc.)	clear	same	same	same	same	same	same	
		Turbidity (NTU):	/	/	/	/	/	/	10.47	
		Interval Purge Volume (L):	/	0.8	0.3	0.3	0.4	0.4	0.4	
		Cumulative Purge Volume (L):	/	0.8	1.1	1.4	1.8	2.2	2.6	

DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume

Calculations:

10.005 − 4.100 = 5.905 × 2 = 11.810

YSI Field Parameters Logged:	☒ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	18:55	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☒ YSI ☐ Pen Unit		X			
Sample Time	19:00					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): BH14B

Sample Date (Con't): 24 - Sept - 16

Sample Time (Con't): 19:00

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (^{0}C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, or other features):

Consumables:

- ☐ 1/4" HDPE (Peristaltic) _____ ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☒ 1/4" Silicon 0.5 ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____
- ☐ Other _____

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☒ HNO_3	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1,000	

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	CH14-107-MW001	**Project Number:**	1343-005.31	**Date:**	Sept. 24, 2016
Station Status:	good	**Client:**	GY - AAM	**Samplers:**	JC BCH
Piezometer Diameter:	4"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	chilly 3°C
UTM Location:	Z08 E. 0586074 N. 6913203	**Waypoint:**	GPS ___ ID _____	**Recovery:**	☑ Good ☐ Bad ☐ Ok
Photos:	Cam ELR2 Nos. 0482 – 0484	**Purge Method:**			
Duplicate Collected:	☐ Yes ☑ No Name _____	**Waterra**	**Peristaltic** ✓	**Disp. Bailer**	**Redi-flo** / **Other**
Field Blank Collected:	☐ Yes ☑ No Name _____		✓		

Initial Depth to Water (m):	2.729 m	**Purge Start Time:**	16:29			**Purge End Time:**	16:44			
Depth to Bottom (m):	13.689 m	**Purge Interval Time (0.5 min, Vol. ___ L**	16:32	16:36	16:38	16:41				
Submerged Tubing Depth (m):	13.189 m	**Depth to water (m)**	2.735	same	same	same				
Well Stick-up Height (m):	0.845 m	**Temperature (°C)**	4.0	4.1	4.1	4.1				
Estimated Water Volume (L):	88.7 L	**pH (pH Units)**	5.38	5.36	5.36	5.34				
		Cond. (µs/cm)	581	601	600	601				
		Specific Cond. (µs/cm)	990	1001	1000	1007				
		Redox (mV)	115.5	115.6	115.4	115.5				
		DO (mg/L)	0.35	0.07	011	0.12				
		DO (%)	2.3	0.5	0.8	0.9				
		Appearance & Odour (Clear, Silty, HC odours, etc.)	clear, no odour	same	same	same				
		Turbidity (NTU):	—	—	—	21.4				
		Interval Purge Volume (L):	0.5	0.5	0.5	0.5				
		Cumulative Purge Volume (L):	0.5L	1.0L	1.5L	2.0L				

DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume

Calculations:

YSI Field Parameters Logged:	☐ Yes ☑ No	**Sample Method:**				
Time logged on YSI (24hr):	not in YSI	**Waterra**	**Peristaltic** ✓	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☑ YSI ☐ Pen Unit					
Sample Time	16:45					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): CH14-107-MW001

Sample Date (Con't): Sept. 24, 2016

Sample Time (Con't): 16:45

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (^{0}C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, or other features):

Consumables:

- ☑ 1/4" HDPE (Peristaltic) 45 ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☑ 1/4" Silicon 1/2 ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____
- ☐ Other _____

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☑ Field Filtered	☑ HNO_3	125 ml	
1 L (plastic)	General Chemistry	500 ml	-	-	1.0L	

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	CH14-107-MW002	**Project Number:**	1343-005.31	**Date:**	Sept. 24, 2016
Station Status:	good	**Client:**	GY - AAM	**Samplers:**	JC & CH
Piezometer Diameter:	4"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	cloudy 3°C
UTM Location:	Z 08 E 585076 N. 6913613	**Waypoint:**	GPS HEM ID N/A	**Recovery:**	☑ Good ☐ Bad ☐ Ok
Photos:	Cam. ~~5~~ 2 Nos. 0479-0481	**Purge Method:**			
Duplicate Collected:	☑ Yes ☐ No Name Dup-10	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo** / **Other**
Field Blank Collected:	☐ Yes ☑ No Name _____		✓		

Initial Depth to Water (m):	2.162 m	**Purge Start Time:**	15:57			**Purge End Time:**	16:08				
Depth to Bottom (m):	11.555 m	**Purge Interval Time (___) min, Vol. (___) L**	0.5	15:59	16:02	16:06					
Submerged Tubing Depth (m):	11.000 m	**Depth to water (m)**		2.159	Same	Same					
Well Stick-up Height (m):	0.989 m	**Temperature (°C)**		3.9	3.8	3.9					
Estimated Water Volume (L):	76.0 L	**pH (pH Units)**		5.67	5.57	5.54					
DTB – DTW) x (πr²)*1000 (for well diameter) = 1 well volume (DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume (DTB – DTW) x 2 (for 2" well diameter) = 1 well volume (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume (DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume Calculations:		**Cond. (µs/cm)**		373.5	374.2	376.8					
		Specific Cond. (µs/cm)		627.8	628.0	630.3					
		Redox (mV)		99.8	101.4	102.1					
		DO (mg/L)		2.79	2.63	2.59					
		DO (%)		20.9	20.3	19.5					
		Appearance & Odour (Clear, Silty, HC odours, etc.)		clear no odour	Same	Same					
		Turbidity (NTU):		—	—	2.60					
		Interval Purge Volume (L):		0.5	0.5	0.5					
		Cumulative Purge Volume (L):		0.5L	1.0L	1.5					

YSI Field Parameters Logged:	☐ Yes ☒ No	**Sample Method:**			
Time logged on YSI (24hr):	not in YSI database	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo** / **Other**
YSI Meter or Pen Unit?:	☒ YSI ☐ Pen Unit		✓		
Sample Time	16:10				

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

✓

HEMMERA

Sample Site (Con't): CH14-107-MW002

Sample Date (Con't): Sept. 24, 2016

Sample Time (Con't): 16:10

General Notes (Condition of well, or other features):
- well has good recharge
- no drawdown.

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

Consumables:
- ☑ 1/4" HDPE (Peristaltic) 40 ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☑ 1/4" Silicon 1/2 ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____
- ☐ Other _____

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☑ Field Filtered	☑ HNO_3	125 ml	
1 L (plastic)	General Chemistry	500 ml	-	-	1.0 L	

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	CH14-107-MW006A	**Project Number:**	1343-005.31	**Date:**	Sept. 22, 2016
Station Status:	Good	**Client:**	GY - AAM	**Samplers:**	JC & CH
Piezometer Diameter:	4"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	windy & cool 2°C
UTM Location:	208 E. 057934 N. 6915090	**Waypoint:**	GPS HCM ID MA	**Recovery:**	☒ Good ☐ Bad ☐ Ok
Photos:	Cam. EOS 2 Nos. 0417 - 0415	**Purge Method:**			
Duplicate Collected:	☐ Yes ☒ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
Field Blank Collected:	☐ Yes ☒ No Name _____		✓			

Initial Depth to Water (m):	1.682 m	**Purge Start Time:**	17:05				**Purge End Time:**	17:43		
Depth to Bottom (m):	2.582 m	**Purge Interval Time (___) min, Vol. (0.5) L**	17:09	17:13	17:15	17:18	17:21	17:24	17:27	17:30	17:33
Submerged Tubing Depth (m):	2.00 m	**Depth to water (m)**	1.710	1.720	1.720	1.720	1.720	Same	Same	Same	Same
Well Stick-up Height (m):	0m (Flush)	**Temperature (°C)**	5.5	5.5	5.3	5.3	5.3	5.2	5.0	5.1	5.0
Estimated Water Volume (L):	7.29L	**pH (pH Units)**	7.34	7.30	7.27	7.26	7.25	7.24	7.23	7.23	7.23
		Cond. (µs/cm)	402.0	387.2	384.9	384.1	383.3	381.7	379.0	379.4	377.1
		Specific Cond. (µs/cm)	640.0	617.4	616.5	615.4	615.1	613.7	613.3	612.4	611.3
		Redox (mV)	-10.5	-4.2	-1.4	0.9	3.1	4.9	7.0	8.6	10.4
		DO (mg/L)	3.29	3.49	3.51	3.54	3.66	3.67	3.77	3.87	3.93
		DO (%)	26.0	27.4	27.8	28.1	28.8	28.9	29.5	30.5	30.8
		Appearance & Odour (Clear, Silty, HC odours, etc.)	murky orange slightly turbid	cleaning up.	Clearing up	Clear slight yellow	Same	Same	Same	Same	Same
		Turbidity (NTU):	–	–	–	–	–	–	–	–	–
		Interval Purge Volume (L):	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
		Cumulative Purge Volume (L):	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5

DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume

Calculations:

YSI Field Parameters Logged:	☒ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	17:43	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☒ YSI ☐ Pen Unit		✓			
Sample Time	17:45					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): CH14-107-MW006A

Sample Date (Con't): Sept. 22, 2016

Sample Time (Con't): 17:45

General Notes (Condition of well, or other features):
- mislabelled as CH12-204-MW006A, but coordinates & depths with historical data given to us. (^ match)
- well casing damaged (likely by vehicle)
- transducer in well
- photo of well damage = 0421-0423

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (0.5) L	17:37	17:40	17:43						
Depth to water (m)	Same	Same	Same						
Temperature (°C)	5.0	5.0	5.0						
pH (pH Units)	7.22	7.22	7.21						
Cond. (µs/cm)	376.7	376.9	376.8						
Specific Cond. (µs/cm)	610.3	610.6	610.3						
Redox (mV)	13.3	14.0	14.6						
DO (mg/L)	4.00	4.05	4.09						
DO (%)	31.4	31.5	31.9						
Appearance & Odour (Clear, Silty, HC odours, etc.)	Same	Same	Same						
Turbidity (NTU)	–	–	16.0						
Interval Purge Volume (L)	0.5	0.5	0.5						
Cumulative Purge Volume (L):	5.0	5.5	6.0						

Consumables:
- ☒ 1/4" HDPE (Peristaltic) 10 ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☒ 1/4" Silicon 0.5 ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____
- ☐ Other _____

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☐ HNO_3	120	–
1 L (plastic)	General Chemistry	500 ml	-	-	1000	–

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	CH14-107-MW0006B	**Project Number:**	1343-005.31	**Date:**	Sept 22/16
Station Status:	GOOD	**Client:**	GY - AAM	**Samplers:**	JC 3CH
Piezometer Diameter:	4"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	windy 3 cool 2°C
UTM Location:	Z.08 E.057934 N.6915090	**Waypoint:**	GPS ___ ID _____	**Recovery:**	☒ Good ☐ Bad ☐ Ok
Photos:	Cam ~~FUJI~~ 3 Nos 0418 - 0420	**Purge Method:**			
Duplicate Collected:	☐ Yes ☒ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo** / **Other**
Field Blank Collected:	☐ Yes ☒ No Name _____		✓		

Initial Depth to Water (m):	2.607 m	**Purge Start Time:**	17:55			**Purge End Time:**	18:07			
Depth to Bottom (m):	5.795 m	**Purge Interval** 0.5 **Time (___) min, Vol. (___) L**	17:57	18:00	18:03	18:05	18:07			
Submerged Tubing Depth (m):	5.295 m	**Depth to water (m)**	2.607	2.607	same	same	same			
Well Stick-up Height (m):	0.0 (flush)	**Temperature (°C)**	3.7	3.6	3.5	3.5	3.4			
Estimated Water Volume (L):	24.9 L.	**pH (pH Units)**	7.43	7.41	7.39	7.40	7.39			
		Cond. (µs/cm)	396.9	396.6	394.9	394.2	391.8			
		Specific Cond. (µs/cm)	670.6	672.2	670.5	669.0	666.4			
DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume		**Redox (mV)**	17.0	18.5	19.9	20.9	21.6			
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume		**DO (mg/L)**	6.94	7.66	7.85	7.65	7.66			
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume		**DO (%)**	53.6	58.0	59.2	57.7	57.6			
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume		**Appearance & Odour (Clear, Silty, HC odours, etc.)**	clear no odour	same	same	same	same			
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume		**Turbidity (NTU):**	—	—	—	—	2.14			
Calculations:		**Interval Purge Volume (L):**	0.5L	0.5L	0.5L	0.5L	0.5L			
		Cumulative Purge Volume (L):	0.5	1.0L	1.5L	2.0L	2.5L			

YSI Field Parameters Logged:	☑ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	18:08	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☑ YSI ☐ Pen Unit		✓			
Sample Time	18:10					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): CH14-107-MW006B

Sample Date (Con't): Sept. 22, 2016

Sample Time (Con't): _____

General Notes (Condition of well, or other features):
- mislabelled as CH12-204-MW006B, but coordinates & depths match with historical data provided to us.
- well casing damaged (likely by vehicle)
- transducer in well
- photos of well damage = #0421-0423

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (^{0}C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

Consumables:
- ☐ 1/4" HDPE (Peristaltic) _____ ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☐ 1/4" Silicon _____ ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____
- ☐ Other _____

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☒ HNO_3	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1000	

HEMMERA

4.88

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	CH14-107-MW007A	**Project Number:**	1343-005.31	**Date:**	20-Sept-16.
Station Status:	SLOW RECHARGE	**Client:**	GY - AAM	**Samplers:**	AN/MM.
Piezometer Diameter:	2"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	Sunny, slight breeze.
UTM Location:	Z.07 E.0584491 N.6913091	**Waypoint:**	GPS ~~ELL~~ ID N/A	**Recovery:**	☐ Good ☐ Bad ☒ Ok
Photos:	Cam. 1 Nos. 507-510	**Purge Method:**			
Duplicate Collected:	☐ Yes ☒ No Name ____				
Field Blank Collected:	☐ Yes ☒ No Name ____				

Purge Method:

Waterra	Peristaltic	Disp. Bailer	Redi-flo	Other
	X			

Initial Depth to Water (m):	3.774	**Purge Start Time:** 11:53	**Purge End Time:** 12:26.
Depth to Bottom (m):	5.753		
Submerged Tubing Depth (m):	~~0.88~~ 5.0		
Well Stick-up Height (m):	~~4.7~~ ~~5.00~~ 0.88		
Estimated Water Volume (L):	~~5.0~~ ~~5.0~~ → ~4.0		

Purge Interval Time (5) min, Vol. (___) L	11:56	12:01	12:06	12:11	12:16	12:21	12:26		
Depth to water (m)	—	3.936	3.945	3.958	3.975	3.985	4.000		
Temperature (°C)	6.1	6.3	6.6	6.3	6.3	6.3	6.3		
pH (pH Units)	5.98	5.93	5.93	5.91	5.93	5.94	5.94		
Cond. (µs/cm)	~~452~~2924	2968	2991	2975	2957	2959	2958		
Specific Cond. (µs/cm)	4579	4619	4604	4621	4594	4602	4601		
Redox (mV)	68.4	78.9	81.2	82.4	80.7	78.3	75.7		
DO (mg/L)	1.71	1.70	~~8~~2.04	2.37	2.61	2.74	2.83		
DO (%)	14.0	14.0	17.0	19.5	21.4	22.6	23.4		
Appearance & Odour (Clear, Silty, HC odours, etc.)	turbid, grey color	same	clearing up	clearing up	clear	clear	clear		
Turbidity (NTU):	—	—	—	—	—	—	7.21		
Interval Purge Volume (L):	—	0.7	0.45	0.40	0.45	0.45	0.5		
Cumulative Purge Volume (L):	—	0.7	1.15	1.55	2.00	2.45	2.95		

DTB – DTW) x (πr²)*1000 (for well diameter) = 1 well volume
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume

Calculations:
~~4.753~~ 5.753
3.774
1.979 x2 =

YSI Field Parameters Logged:	☒ Yes ☐ No
Time logged on YSI (24hr):	12:27
YSI Meter or Pen Unit?:	☒ YSI ☐ Pen Unit
Sample Time	12:30

Sample Method:

Waterra	Peristaltic	Disp. Bailer	Redi-flo	Other
	X			

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): CH14-107-MW007A

Sample Date (Con't): 20-sept-16

Sample Time (Con't): 12:30

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, or other features):

~~-transducer~~

- when attempting to pull transducer out of well it fell off the wires, upon pulling the wires completely out it was noted that the wires holding the transducer were crocked. (photo #509-511)

Consumables:

- ☐ 1/4" HDPE (Peristaltic) _____ ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☒ 1/4" Silicon 0.5 ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☒ HNO_3	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1000	

HEMMERA

9.14.

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	~~FF~~ CH14-107-MW0078	**Project Number:**	1343-005.31	**Date:**	20-Sept-16
Station Status:	GOOD	**Client:**	GY - AAM	**Samplers:**	AN / MM
Piezometer Diameter:	4"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	Sunny, slight breeze
UTM Location:	Z~~07~~ E. 0584489 N. 6913092	**Waypoint:**	GPS File ID N/A	**Recovery:**	☒ Good ☐ Bad ☐ Ok
Photos:	Cam. 1 Nos. 513-516	**Purge Method:**			
Duplicate Collected:	☒ Yes ☐ No Name Dup-1	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
Field Blank Collected:	☐ Yes ☒ No Name		X			

Initial Depth to Water (m):	4.177	**Purge Start Time:**	12:43			**Purge End Time:**		13:09			
Depth to Bottom (m):	9.723	**Purge Interval Time (5) min, Vol. (___) L**	12:44	12:49	12:54	12:59	13:04	13:09			
Submerged Tubing Depth (m):	~8.7	**Depth to water (m)**	—	4.155	4.155	4.155	4.155	4.155			
Well Stick-up Height (m):	0.76	**Temperature (°C)**	6.3	5.1	5.0	4.9	~~5.0~~ 4.9	4.9			
Estimated Water Volume (L):	~45.0	**pH (pH Units)**	6.15	6.04	6.01	6.00	6.00	5.99			
DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume (DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume (DTB – DTW) x 2 (for 2" well diameter) = 1 well volume (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume (DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume		**Cond. (µs/cm)**	1101	997	976	965	962	988			
		Specific Cond. (µs/cm)	1718	1607	1579	1568	1565	1601			
		Redox (mV)	52.8	52.4	47.2	46.8	46.2	46.2			
		DO (mg/L)	1.57	1.46	1.94	2.40	2.79	3.12			
		DO (%)	12.2	11.5	15.3	18.9	21.9	24.6			
		Appearance & Odour (Clear, Silty, HC odours, etc.)	clear	clear	same	same	same	same			
Calculations: 9.723 (6.1) 4.177 5.555 * 8.1 = 44.99		**Turbidity (NTU):**	—	—	—	/	/	1.37			
		Interval Purge Volume (L):	—	1.2	0.85	0.85	0.85	0.85			
		Cumulative Purge Volume (L):	—	1.2	2.05	2.90	3.75	5.70			

YSI Field Parameters Logged:	☒ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	13:10	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☒ YSI ☐ Pen Unit		X			
Sample Time	13:10					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): CH14-107-MW007B

Sample Date (Con't): 20-Sept-16

Sample Time (Con't): 13:10

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, or other features):

- Transducer was not attached to wires when the j-plug was taken off, most likely siting at the bottom of the well, photo #0514 shows that wires were frayed + loose

Consumables:

- ☐ 1/4" HDPE (Peristaltic) _____ ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☒ 1/4" Silicon 0.5 ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☒ HNO_3	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1000	

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	CH44-107-MW009	**Project Number:**	1343-005.31	**Date:**	20-Sept-16
Station Status:	GOOD	**Client:**	GY - AAM	**Samplers:**	AN / MM
Piezometer Diameter:	4"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	~-4°C & sun
UTM Location:	Z07N E.0584499 N.6913099	**Waypoint:**	GPS ~~FIELD~~ N/A	**Recovery:**	☒ Good ☐ Bad ☐ Ok
Photos:	Cam. 1 Nos. 501-503	**Purge Method:**			
Duplicate Collected:	☐ ~~Yes~~ ☒ No Name	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo** / **Other**
Field Blank Collected:	☐ Yes ☒ ~~No~~ Name		X		

Initial Depth to Water (m):	4.413	**Purge Start Time:**	10:~~22~~			**Purge End Time:**	10:54			
Depth to Bottom (m):	12.056	**Purge Interval Time (5) min, Vol. (___) L**	~~10:24 10:23~~	10:29	10:34	10:39	10:44	10:49	10:54	
Submerged Tubing Depth (m):	~10	**Depth to water (m)**	/	4.415	4.415	4.415	4.415	4.415	4.415	
Well Stick-up Height (m):	0.95	**Temperature (°C)**	~~10.6~~ 4.49	4.2	4.2	4.2	4.2	4.1	4.2	
Estimated Water Volume (L):	~~6.1~~ 6.1	**pH (pH Units)**	5.95	5.91	5.92	5.93	5.92	5.93	5.94	
		Cond. (µs/cm)	827	793	785	778	774	768	766	
		Specific Cond. (µs/cm)	1350	1314	1303	1294	1286	1279	1274	
		Redox (mV)	85.8	72.0	67.1	64.4	63.4	75.1	45.0	
		DO (mg/L)	2.12	1.65	2.71	3.80	3.85	3.92	3.94	
		DO (%)	15.8	12.7	21.0	29.3	29.7	30.0	30.3	
		Appearance & Odour (Clear, Silty, HC odours, etc.)	clear	clear	clear	clear	clear	clear	clear	
		Turbidity (NTU):	/	/	/	/	/	/	0.85	
		Interval Purge Volume (L):	/	0.7	0.75	0.75	0.75	0.~~75~~	0.75	
		Cumulative Purge Volume (L):	/	0.7	1.45	2.20	2.95	3.70	4.45	

DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume

Calculations:

12.056
4.413
7.643 x 8.1 = 61.9

YSI Field Parameters Logged:	☒ Yes ☐ No	**Sample Method:**			
Time logged on YSI (24hr):	10:56	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo** / **Other**
YSI Meter or Pen Unit?:	☒ YSI ☐ Pen Unit		X		
Sample Time	10:55				

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): CH14-107-MW009.

Sample Date (Con't): 20-sept-16.

Sample Time (Con't): 10:55.

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, or other features):

* ORP would not stabilize; all other parameters & drawdown stable so decided to sample

Consumables:

- ☒ 1/4" HDPE (Peristaltic) ~~0.5~~ 1 ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☒ 1/4" Silicon 0.5 ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☒ HNO_3	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1,000	

HEMMERA

31.7

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	CH14-107-MW010	**Project Number:**	1343-005.31	**Date:**	20-Sept-16
Station Status:	Good.	**Client:**	GY - AAM	**Samplers:**	AN / MM.
Piezometer Diameter:	4"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	sunny.
UTM Location:	Z.07 E. 0584497 N. 6913098	**Waypoint:**	GPS ~~ID~~ ID N/A.	**Recovery:**	☒ Good ☐ Bad ☐ Ok
Photos:	Cam. 1 Nos. 504-506.	**Purge Method:**			
Duplicate Collected:	☐ Yes ☒ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
Field Blank Collected:	☐ Yes ☒ No Name _____	Hydrolift				

Initial Depth to Water (m):	2.795.	**Purge Start Time:**	11:02.			**Purge End Time:**	11:47			
Depth to Bottom (m):	32.650.	**Purge Interval Time (5) min, Vol. (___) L**	11:07.	11:12.	11:17.	11:22.	11:27.	11:32.	11:37.	11:42.	11:47.
Submerged Tubing Depth (m):	~27.	**Depth to water (m)**	2.925	2.942.	2.975.	2.990	3.035	3.021	3.030	3.040	3.050
Well Stick-up Height (m):	~~1.7~~ 1.015.	**Temperature (°C)**	3.5	3.0	3.0	3.0	2.9	2.9	2.8	2.8	2.8.
Estimated Water Volume (L):	241.8.	**pH (pH Units)**	5.85.	5.85.	5.90	5.88	5.91	5.95	5.86	5.92	5.91
		Cond. (µs/cm)	237.2	467.1	470.6	282.9	467.8	472.1	465.7	470.5	471.1.
		Specific Cond. (µs/cm)	402.6.	805.7	812.5	487.9	809.5	817.8	807.4	816.8	817.5.
		Redox (mV)	97.8	90.7	89.0	89.4	88.5	82.7	90.7	83.9	86.1
		DO (mg/L)	4.94	5.34	5.14.	5.84	5.20	5.41	4.79	8.03	5.34
		DO (%)	37.4	39.9	38.3	43.3	38.6	40.0	35.6	59.9	39.6
		Appearance & Odour (Clear, Silty, HC odours, etc.)	slightly turbid.	Clear	clear	same	same	same	same.	same.	same.
		Turbidity (NTU):	—	—	—	—	—	—	—	—	3.05
		Interval Purge Volume (L):	12	13.	12.	12	12	12.	12	12	12.
		Cumulative Purge Volume (L):	10	25.	37	49	61	73	85	97	109

DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume

Calculations:

11514
32.650
2.795
29.855 x 8.1 = 241.8

YSI Field Parameters Logged:	☒ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	11:48	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☒ YSI ☐ Pen Unit	Hydrolift.				
Sample Time	11:50.					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): CH14-107-MW010

Sample Date (Con't): Sept. 20/2016

Sample Time (Con't): 11:50

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (^{0}C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, or other features):

No consumables used.

Consumables:

- ☐ 1/4" HDPE (Peristaltic) _____ ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☐ 1/4" Silicon _____ ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☒ HNO_3	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1060.	

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	CH15-107-MW019	**Project Number:**	1343-005.31	**Date:**	21-Sept-16
Station Status:	Good	**Client:**	GY - AAM	**Samplers:**	AN/MM
Piezometer Diameter:	2"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	overcast ~8°
UTM Location:	08V E. 0584277 N. 6912957	**Waypoint:**	GPS AN ID 110	**Recovery:**	☒ Good ☐ Bad ☐ Ok
Photos:	Cam. 1 Nos. 532-534	**Purge Method:**			
Duplicate Collected:	☐ Yes ☒ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
Field Blank Collected:	☐ Yes ☒ No Name _____		X			

Initial Depth to Water (m):	2.540	**Purge Start Time:**	11:32			**Purge End Time:**	11:48			
Depth to Bottom (m):	21.580	**Purge Interval Time (5) min, Vol. (___) L**	11:33	11:38	11:43	11:48				
Submerged Tubing Depth (m):	~17	**Depth to water (m)**	—	2.548	2.545	2.550				
Well Stick-up Height (m):	1.18	**Temperature (°C)**	3.9	2.8	2.8	2.9				
Estimated Water Volume (L):	~ 38.1	**pH (pH Units)**	6.16	5.99	6.00	6.00				
		Cond. (µs/cm)	2098	2074	2071	2068				
		Specific Cond. (µs/cm)	3541	3602	3598	3584				
		Redox (mV)	68.1	48.4	45.8	45.7				
		DO (mg/L)	1.60	1.18	1.27	1.57				
		DO (%)	11.9	8.7	9.6	11.7				
		Appearance & Odour (Clear, Silty, HC odours, etc.)	Clear	same	same	same slight odour				
		Turbidity (NTU):	—	—	—	NM	14.8			
		Interval Purge Volume (L):	—	1.3	1.3	1.3				
		Cumulative Purge Volume (L):	—	1.3	2.6	3.9				

DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume

Calculations:

21.580
2.540
19.040 x 2 = 38.08

YSI Field Parameters Logged:	☒ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	11:48	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☒ YSI ☐ Pen Unit		X			
Sample Time	11:50					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): CH15-107-MWG19

Sample Date (Con't): 21-Sept-16

Sample Time (Con't): 11:50

General Notes (Condition of well, or other features):

2" well and 1" well both located in single stick up/casing. Sampled 2" well, DTB matches SOW.

*GPS coordinates provide were not accurate; will need to be updated.

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

Consumables:

- ☒ 1/4" HDPE (Peristaltic) 75.5 ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☒ 1/4" Silicon 0.5 ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☒ HNO_3	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1000	

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	CH15-107-MW022	**Project Number:**	1343-005.31	**Date:**	21-Sept-16
Station Status:	GOOD	**Client:**	GY - AAM	**Samplers:**	AN / MM
Piezometer Diameter:	2"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	~ -2°C
UTM Location:	Z08 E~~0584335~~ N.6913650	**Waypoint:**	GPS AN ID 109	**Recovery:**	☒ Good ☐ Bad ☐ Ok
Photos:	Cam. 1 Nos. 529-531	**Purge Method:**			
Duplicate Collected:	☐ Yes ☒ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
Field Blank Collected:	☐ Yes ☒ No Name _____		X			

Initial Depth to Water (m):	1.866	**Purge Start Time:**	10:35				**Purge End Time:**	11:06		
Depth to Bottom (m):	21.470	**Purge Interval Time (5) min, Vol. (___) L**	10:36	10:41	10:46	10:51	10:56	11:01	11:06	
Submerged Tubing Depth (m):	~17	**Depth to water (m)**	/	2.150	2.140	2.190	2.190	→	2.190	
Well Stick-up Height (m):	1.10	**Temperature (°C)***	4.3	3.1	3.5	3.3	3.3	3.1	3.9	
Estimated Water Volume (L):	39.2	**pH (pH Units)**	6.68	6.34	6.33	6.34	6.35	6.34	6.34	
		Cond. (µs/cm)	823	898	874	863	856	844	837	
		Specific Cond. (µs/cm)	1551	1540	1483	1477	1463	1452	1448	
		Redox (mV)	83.1	42.4	39.0	38.0	36.4	35.4	34.1	
		DO (mg/L)	0.76	0.41	0.75	0.65	0.65	0.68	0.72	
		DO (%)	5.2	3.2	5.8	4.8	4.8	5.0	5.4	
		Appearance & Odour (Clear, Silty, HC odours, etc.)	Turbid grey sediment	clearing up; cloudy	same	clear	clear	same	same	
		Turbidity (NTU):	/	/	/	/	/	—	10.99	
		Interval Purge Volume (L):	/	1.5	1.0	1.3	1.3	1.3	1.3	
		Cumulative Purge Volume (L):	/	1.5	2.5	3.8	4.1	5.4	6.7	

DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume

Calculations:

20
21.470
1.866
19.604 x 2 = 39.208

YSI Field Parameters Logged:	☒ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	11:06	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☒ YSI ☐ Pen Unit		X			
Sample Time	11:10					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): CH15-107-MW000.

Sample Date (Con't): 21-Sept-16.

Sample Time (Con't): 11:10.

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, or other features):

*GPS coordinates supplied not accurate; will need to be changed.
- nested well; ~~dipp~~ water level taken @ both wells → 1" diameter ∴ no water in well; will sample 2" diameter.
- temperature appears to be varying ~~directly~~ slightly by the direct sunlight; → ~~need~~ all other parameters are good, therefore decided to sample ~~the next day~~ → + no drawdown

Consumables:

- ☒ 1/4" HDPE (Peristaltic) 73.5 ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☒ 1/4" Silicon 0.5 ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☒ HNO_3	120.	
1 L (plastic)	General Chemistry	500 ml	-	-	1,000	

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	CH15-107-MW023	**Project Number:**	1343-005.31	**Date:**	21-Sept-16
Station Status:	Good	**Client:**	GY - AAM	**Samplers:**	AN / MM.
Piezometer Diameter:	2"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	overcast ~ 2°C
UTM Location:	Z. 8V E. 0584119 N. 6912959	**Waypoint:**	GPS AN ID 111	**Recovery:**	☒ Good ☐ Bad ☐ Ok
Photos:	Cam. 1 Nos. 535 - 537	**Purge Method:**			
Duplicate Collected:	☐ Yes ☒ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo** / **Other**
Field Blank Collected:	☐ Yes ☒ No Name _____	manual			

Initial Depth to Water (m):	15.736	**Purge Start Time:**	12:56			**Purge End Time:**	13:27			
Depth to Bottom (m):	28.520	**Purge Interval Time (___) min, Vol. (15) L**	12:59	13:06	13:12	13:20	13:27			
Submerged Tubing Depth (m):	~25.	**Depth to water (m)**	—	—	—	—				
Well Stick-up Height (m):	0.920	**Temperature (°C)**	1.9	2.1	1.7	2.1	2.2			
Estimated Water Volume (L):	25.6	**pH (pH Units)**	6.45	6.88	6.92	6.69	6.84			
		Cond. (µs/cm)	521	502	483.9	505	512			
		Specific Cond. (µs/cm)	930	894	870.9	898	922			
		Redox (mV)	97.0	29.1	12.8	34.4	15.7			
		DO (mg/L)	1.52	1.41	1.28	1.84	1.25			
		DO (%)	10.8	9.9	9.0	13.5	9.0			
		Appearance & Odour (Clear, Silty, HC odours, etc.)	very grey & turbid	Same.	—	—	→			
		Turbidity (NTU):	—	—	—	—	54			
		Interval Purge Volume (L):	15	15	15	15	17			
		Cumulative Purge Volume (L):	15	30	45	60	77			

DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume

Calculations:

28.520
15.736
12.792 × 2 = 25.584

YSI Field Parameters Logged:	☒ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	13:28	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☒ YSI ☐ Pen Unit	manual				
Sample Time	13:30					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): CH15-107-MW023.

Sample Date (Con't): 21-Sept-16

Sample Time (Con't): 13:30

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, or other features):

- hill too steep to bring hydrolift down
∴ manual purge w waterra.
* coordinates provided not accurate, should be updated.

Consumables:

- ☐ 1/4" HDPE (Peristaltic) ~~100~~ 100 ft.
- ☒ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☐ 1/4" Silicon _____ ft.
- ☐ 0.45 micron inline filters _____ each
- ☒ D-25 (2" well) foot valves 1 each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☒ HNO_3	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1,000	

☆note on COC only, Half of general parameter bottle filled

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	CHS-107-MW02S	**Project Number:**	1343-005.31	**Date:**	Sept. 21, 2016
Station Status:	bad	**Client:**	GY - AAM	**Samplers:**	JC BCH
Piezometer Diameter:	1"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	cloudy 5°C
UTM Location:	Z08 E 584136 N 6912882	**Waypoint:**	GPS ___ ID _____	**Recovery:**	☐ Good ☑ Bad ☐ Ok
Photos:	Cam: CR2 Nos 0367-0369	**Purge Method:**			
Duplicate Collected:	☐ Yes ☑ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo** / **Other**
Field Blank Collected:	☐ Yes ☐ No Name _____			✓	

Initial Depth to Water (m):	14.785	**Purge Start Time:**	12:32		**Purge End Time:**							
Depth to Bottom (m):	18.951	**Purge Interval Time (___) min, Vol. (___) L**	12:38	12:51								
Submerged Tubing Depth (m):	N/A	**Depth to water (m)**	15.182	15.905								
Well Stick-up Height (m):	0.880	**Temperature (°C)**	3.6									
Estimated Water Volume (L):	2.083L	**pH (pH Units)**	7.12									
		Cond. (µs/cm)	1760									
		Specific Cond. (µs/cm)	2976									
		Redox (mV)	80.5									
		DO (mg/L)	2.24									
		DO (%)	16.7									
		Appearance & Odour (Clear, Silty, HC odours, etc.)	black particulate									
		Turbidity (NTU):	–	26.4								
		Interval Purge Volume (L):	0.25	0.50								
		Cumulative Purge Volume (L):	0.25	0.75								

DTB – DTW) x (πr^{2})*1000 (for well diameter) = 1 well volume
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume

Calculations:

YSI Field Parameters Logged:	☐ Yes ☑ No	**Sample Method:**				
Time logged on YSI (24hr):	N/A	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☒ YSI ☐ Pen Unit			✓		
Sample Time	12:52					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

→ not enough water to continuously sample field parameters & water is very slow to recharge
→ took one reading then direct sample
→ only able to fill half of general bottle

HEMMERA

Sample Site (Con't): CH15-107-MW025

Sample Date (Con't): Sept. 21, 2016

Sample Time (Con't): 12:52

General Notes (Condition of well, or other features):
- 1 inch well → sampled from 1 inch well

2 inch well → stick up height = 0.780 m
↳ 2.816 m = depth to ice → could not sample

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

Consumables:
- ☐ 1/4" HDPE (Peristaltic) _____ ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☐ 1/4" Silicon _____ ft.
- ☑ 0.45 micron inline filters 1 each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☑ 1" HDPE Bailer 1 each
- ☐ 2" HDPE Bailer _____ each
- ☑ Other 200ft. twine
- ☐ Other _____

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☑ Field Filtered	☑ HNO_3	125 ml	
1 L (plastic)	General Chemistry	~~500~~ ml	-	-	600 ml	

16:26

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	CH15-107-MW029	**Project Number:**	1343-005.31	**Date:**	Sept. 24/2016
Station Status:	GOOD	**Client:**	GY - AAM	**Samplers:**	AN, MM
Piezometer Diameter:	4"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	cloudy ~8°C
UTM Location:	Z. 8 E. 585763 N. 6914128	**Waypoint:**	GPS ~~ID~~	**Recovery:**	☒ Good ☐ Bad ☐ Ok
Photos:	Cam. 1 Nos. 612-615	**Purge Method:**			
Duplicate Collected:	☐ Yes ☒ No Name	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo** / **Other**
Field Blank Collected:	☒ Yes ☐ No Name FB-S		X		

Initial Depth to Water (m):	1.883	**Purge Start Time:**	16:29			**Purge End Time:**	16:51			
Depth to Bottom (m):	3.671	**Purge Interval Time (5) min, Vol. (___) L**	16:30	16:36	16:41	16:46	16:51			
Submerged Tubing Depth (m):	~3.0	**Depth to water (m)**	—	1.886	1.886	→	→			
Well Stick-up Height (m):	0.91	**Temperature (°C)**	4.2	3.4	3.3	3.2	3.2			
Estimated Water Volume (L):	~ 14.4	**pH (pH Units)**	7.63	7.09	7.03	7.00	6.99			
DTB – DTW) x (πr^{2})*1000 (for well diameter) = 1 well volume (DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume (DTB – DTW) x 2 (for 2" well diameter) = 1 well volume (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume (DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume Calculations:		**Cond. (µs/cm)**	1288	1298	1299	1298	1298			
		Specific Cond. (µs/cm)	2166	2213	2218	2222	2225			
		Redox (mV)	200.0	208.9	211.3	213.7	215.8			
		DO (mg/L)	7.74	7.30	7.18	7.38	7.35			
		DO (%)	58.6	55.2	54.0	55.6	55.4			
		Appearance & Odour (Clear, Silty, HC odours, etc.)	Clear no odour	Same	Same	Same	Same			
		Turbidity (NTU):	—	—	—	—	1.71			
		Interval Purge Volume (L):	—	1.0	1.0	1.0	1.0			
		Cumulative Purge Volume (L):	—	1.0	2.0	3.0	4.0			

YSI Field Parameters Logged:	☒ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	16:52	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☒ YSI ☐ Pen Unit		X			
Sample Time	16:55					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): CH15-107-MW029

Sample Date (Con't): Sept. 24/2016

Sample Time (Con't): 16:55

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, or other features):

transducer removed @ 16:26

Consumables:

- ☐ 1/4" HDPE (Peristaltic) _____ ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☒ 1/4" Silicon 0.5 ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☒ HNO_3	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1000	

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	CH15-107-MW030	**Project Number:**	1343-005.31	**Date:**	Sept. 24/2016
Station Status:	GOOD.	**Client:**	GY - AAM	**Samplers:**	AN, MM
Piezometer Diameter:	4"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	Sunny ~10°C.
UTM Location:	Z. 8 E. 585830 N. 6914181	**Waypoint:**	GPS N/A D:	**Recovery:**	☒ Good ☐ Bad ☐ Ok
Photos:	Cam. 1 Nos. 599-601	**Purge Method:**			
Duplicate Collected:	☐ Yes ☒ No Name	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo** / **Other**
Field Blank Collected:	☐ Yes ☒ No Name		X		

Initial Depth to Water (m):	4.263	**Purge Start Time:**	13:35			**Purge End Time:**	13:52.			
Depth to Bottom (m):	5.140	**Purge Interval Time (5) min, Vol. (___) L**	13:37	13:42	13:47	13:52				
Submerged Tubing Depth (m):	~4.5	**Depth to water (m)**	—	4.272	4.275	4.275				
Well Stick-up Height (m):	0.9	**Temperature (°C)**	5.5	5.1	5.2	5.2				
Estimated Water Volume (L):	~8 L	**pH (pH Units)**	7.23	7.03	6.97	6.97				
DTB – DTW) x (πr^{2})*1000 (for well diameter) = 1 well volume (DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume (DTB – DTW) x 2 (for 2" well diameter) = 1 well volume (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume (DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume Calculations:		**Cond. (µs/cm)**	1197	1174	1171	1172				
		Specific Cond. (µs/cm)	1907	1892	1885	1886				
		Redox (mV)	158.1	169.3	175.3	178.2				
		DO (mg/L)	7.88	7.44	7.35	7.20				
		DO (%)	62.0	58.8	58.6	56.9				
		Appearance & Odour (Clear, Silty, HC odours, etc.)	Brown Grey turbid	less turbid	some	Slightly turbid				
		Turbidity (NTU):	—	—	/	13.3				
		Interval Purge Volume (L):	—	0.95	0.5	0.5				
		Cumulative Purge Volume (L):	—	0.95	1.45	1.9				

YSI Field Parameters Logged:	☒ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	13:53	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☒ YSI ☐ Pen Unit		X			
Sample Time	13:55					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): CH15-107 - MW030

Sample Date (Con't): Sept. 24/2016

Sample Time (Con't): 13:55

General Notes (Condition of well, or other features):
Sediment on tip of WL meter.
Transducer removed @ 13:30.
@ 14:06 transducer put back in well.

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (^{0}C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

Consumables:
- ☒ 1/4" HDPE (Peristaltic) 1 ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☒ 1/4" Silicon 0.5 ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☒ HNO_3	120	
1 L (plastic)	General Chemistry	500 ml	-	-	~~500~~ 1,000	

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sampled Sept. 23, 2016 ↗ Sept. 8.0

Sample Site:	CH15-107 - MW32	**Project Number:**	1343-005.31	**Date:**	Sept. 24/2016
Station Status:	SLOW RECHARGE	**Client:**	GY - AAM	**Samplers:**	AN, MM
Piezometer Diameter:	4"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	sunny ~10°C.
UTM Location:	Z08 E.0585764 N.6914249	**Waypoint:**	GPS N/A ID _____	**Recovery:**	☐ Good ☒ Bad ☐ Ok
Photos:	Cam. 1 Nos. 608-611	**Purge Method:**			
Duplicate Collected:	☐ Yes ☒ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
Field Blank Collected:	☐ Yes ☒ No Name _____		X			

Initial Depth to Water (m):	2.331	**Purge Start Time:**	15:44			**Purge End Time:**	16:04			
Depth to Bottom (m):	9.152	**Purge Interval Time (5) min, Vol. (___) L**	15:44	15:49	15:54	15:59	16:04			
Submerged Tubing Depth (m):	~7	**Depth to water (m)**	—	2.510	2.658	2.754	2.820			
Well Stick-up Height (m):	1.03	**Temperature (°C)**	3.6	3.2	3.2	3.4	3.6			
Estimated Water Volume (L):	~54	**pH (pH Units)**	7.23	7.46	7.52	7.53	7.52			
DTB – DTW) x (πr²)*1000 (for well diameter) = 1 well volume (DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume (DTB – DTW) x 2 (for 2" well diameter) = 1 well volume (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume (DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume Calculations:		**Cond. (µs/cm)**	1495	1487	1490	1495	1508			
		Specific Cond. (µs/cm)	2536	2550	2550	2538	2549			
		Redox (mV)	198.1	198.8	197.8	196.6	195.0			
		DO (mg/L)	3.67	2.25	2.21	2.13	2.15			
		DO (%)	26.6	17.0	16.6	16.1	16.4			
		Appearance & Odour (Clear, Silty, HC odours, etc.)	clear	same	same	same	same			
		Turbidity (NTU):	—	—	—	—	0.81	19.6		
		Interval Purge Volume (L):	—	1.0	1.0	~~0.95~~ 0.45	0.6			
		Cumulative Purge Volume (L):	—	1.0	2.0	2.95	3.55			

YSI Field Parameters Logged:	☒ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	16:07	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☒ YSI ☐ Pen Unit					
Sample Time	~~16:10~~ 9:35		X			

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): CH15-107-MW032

Sample Date (Con't): Sept. ~~25~~ 26/2016

Sample Time (Con't): ~~16:10~~ 9:35

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, or other features):

- Well was sampled Sept 24 After stable parameters.
- No recharge in well
- Returned ~~7~~ pm sept 24 to 3.2 m water level (very slow recharge, 0.6 l/m/hr)
- used Hydrolift to purge out well, purged to 8.4m DTW
- Returned Sept 25 added tubing to submerge depths of 8.5 m and sampled in the screen.

Consumables: - Samples from Sept 24 discarded.

- ☒ ~~1/4~~" HDPE (Peristaltic) 9 ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☒ ~~1/4~~" Silicon 0.5 ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____
- ☐ Other _____

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☒ HNO_3	120	Resampled Sept 25
1 L (plastic)	General Chemistry	500 ml	-	-	1000	Resampled Sept 25

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	CH15-107 - MW0033	**Project Number:**	1343-005.31	**Date:**	Sept. 24/2016
Station Status:	Good	**Client:**	GY - AAM	**Samplers:**	AN, MM
Piezometer Diameter:	4"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	Sunny ~10°C. light wind.
UTM Location:	Z. 8 E. 585764 N. 6914249	**Waypoint:**	~~GPS ___ ID ___~~	**Recovery:**	☒ Good ☐ Bad ☐ Ok
Photos:	Cam. 1 Nos. 605 - 607	**Purge Method:**			
Duplicate Collected:	☐ Yes ☒ No Name ___	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo** / **Other**
Field Blank Collected:	☐ Yes ☒ No Name ___		X		

Initial Depth to Water (m):	2.542	**Purge Start Time:**	15:20			**Purge End Time:**	15:36			
Depth to Bottom (m):	3.960	**Purge Interval** Time (5) min, Vol. (___) L	15:21	15:26	15:31	15:36				
Submerged Tubing Depth (m):	~3	**Depth to water (m)**	—	2.545	2.545	→				
Well Stick-up Height (m):	1.1	**Temperature (°C)**	5.4	4.2	4.2	4.1				
Estimated Water Volume (L):	11.3	**pH (pH Units)**	7.08	7.04	7.01	7.02				
		Cond. (µs/cm)	1013	951	952	949				
		Specific Cond. (µs/cm)	1625	1576	1577	1577				
		Redox (mV)	193.2	199.4	198.7	198.9				
		DO (mg/L)	8.32	7.12	6.97	6.85				
		DO (%)	64.5	54.5	53.6	52.8				
		Appearance & Odour (Clear, Silty, HC odours, etc.)	clear	Same	Same	Same				
		Turbidity (NTU):	—	—	—	1.14				
		Interval Purge Volume (L):	—	1.3	1.6	1.5				
		Cumulative Purge Volume (L):	—	1.3	2.9	4.4				

DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume

Calculations:

3.960
2.542
1.418 * 8

YSI Field Parameters Logged:	☒ Yes ☐ No	**Sample Method:**			
Time logged on YSI (24hr):	15:37	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo** / **Other**
YSI Meter or Pen Unit?:	☒ YSI ☐ Pen Unit		X		
Sample Time	15:40				

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): CH15-107-MW033

Sample Date (Con't): Sept. 24/2016

Sample Time (Con't): 15:40

General Notes (Condition of well, or other features):
Transducer removed @ 15:18.
@15:43 → transducer put back in well.

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (^{0}C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

Consumables:
- ☒ 1/4" HDPE (Peristaltic) 1.0 ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☒ 1/4" Silicon 0.5 ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☒ HNO_3	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1000	

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

5.2

Sample Site:	CH15-107-MW034	**Project Number:**	1343-005.31	**Date:**	24-Sept-16
Station Status:	GOOD	**Client:**	GY - AAM	**Samplers:**	AN / MM
Piezometer Diameter:	4"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	sunny
UTM Location:	Z. 8 E. 585752 N. 6914497	**Waypoint:**	GPS NA ID NA	**Recovery:**	☒ Good ☐ Bad ☐ Ok
Photos:	Cam. 1 Nos. 602-604	**Purge Method:**			
Duplicate Collected:	☒ Yes ☐ No Name DUP-9				
Field Blank Collected:	☐ Yes ☒ No Name ____				

Purge Method:

Waterra	Peristaltic	Disp. Bailer	Redi-flo	Other
	X			

Initial Depth to Water (m):	3.780	**Purge Start Time:**	14:35		**Purge End Time:**	14:51					
Depth to Bottom (m):	6.125	**Purge Interval Time (5) min, Vol. (__) L**	14:36	14:41	14:46	14:51					
Submerged Tubing Depth (m):	~5	**Depth to water (m)**	—	3.820	3.820	→					
Well Stick-up Height (m):	1.1	**Temperature (°C)**	5.2	4.3	4.2	4.3					
Estimated Water Volume (L):	~~4~~ 18.8	**pH (pH Units)**	7.33	6.98	6.88	6.81					
		Cond. (µs/cm)	620	579	576	578					
		Specific Cond. (µs/cm)	997	958	956	957					
		Redox (mV)	160.5	173.2	177.5	185.6					
		DO (mg/L)	6.61	6.08	6.11	6.08					
		DO (%)	51.8	47.1	46.6	46.8					
		Appearance & Odour (Clear, Silty, HC odours, etc.)	Light brown grey turbid	Clear	Same	Same					
		Turbidity (NTU):	—	—	—	10.01					
		Interval Purge Volume (L):	—	1.0	0.75	0.8					
		Cumulative Purge Volume (L):	—	1.0	1.75	2.55					

DTB – DTW) x (πr²)*1000 (for well diameter) = 1 well volume
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume

Calculations:

6.125 − 3.780 = 2.345 × 8 = 18.76 ~~4.690~~

YSI Field Parameters Logged:	☒ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	14:52	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☒ YSI ☐ Pen Unit		X			
Sample Time	14:55					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): CH15-107-MW034

Sample Date (Con't): Sept. 24/2016

Sample Time (Con't): 14:55

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (^{0}C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, or other features):

Consumables:

- ☒ 1/4" HDPE (Peristaltic) 1.0 ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☒ 1/4" Silicon 0.5 ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☒ HNO_3	120	DUP-9 also collected full sets.
1 L (plastic)	General Chemistry	500 ml	-	-	1000	

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	POI-01A	**Project Number:**	1343-005.31	**Date:**	Sept. 22, 2016
Station Status:	GOOD	**Client:**	GY - AAM	**Samplers:**	JC, BCH
Piezometer Diameter:	2"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	windy, cool 1°C
UTM Location:	ZONE 8 E. 0579698 N. 6914857	**Waypoint:**	GPS ___ ID _____	**Recovery:**	☒ Good ☐ Bad ☐ Ok
Photos:	Cam. FLB 2 Nos. 0409-0411	**Purge Method:**			
Duplicate Collected:	☑ Yes ☐ No Name Dup-5	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo** / **Other**
Field Blank Collected:	☐ Yes ☑ No Name _____	✓			

Initial Depth to Water (m):	3.543m	**Purge Start Time:**	15:30			**Purge End Time:**	15:46			
Depth to Bottom (m):	20.377m	**Purge Interval** 10 **Time (___) min, Vol. (___) L**	15:31	15:34	15:40	15:43	15:46			
Submerged Tubing Depth (m):	19.800 m	**Depth to water (m)**	3.633	3.633	3.633	same	same			
Well Stick-up Height (m):	0.610 m	**Temperature (°C)**	2.3	2.1	2.5	2.2	2.1			
Estimated Water Volume (L):	33.8L	**pH (pH Units)**	7.20	6.99	6.91	6.89	6.89			
		Cond. (µs/cm)	875	1233	1248	1231	1292			
		Specific Cond. (µs/cm)	1544	2177	2180	2183	2294			
DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume		**Redox (mV)**	10.5	24.7	29.1	30.7	30.5			
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume		**DO (mg/L)**	1.69	1.89	2.62	2.16	2.29			
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume		**DO (%)**	12.3	13.1	19.1	15.5	16.6			
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume		**Appearance & Odour (Clear, Silty, HC odours, etc.)**	clear no odour	same	same	same	same			
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume		**Turbidity (NTU):**	–	–	–	–	0.15			
Calculations:		**Interval Purge Volume (L):**	10L	10L	10L	10L	10L			
		Cumulative Purge Volume (L):	10L	20L	30L	40L	50L			

YSI Field Parameters Logged:	☑ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	15:47	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☑ YSI ☐ Pen Unit	✓				
Sample Time	15:50					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): P01-01A

Sample Date (Con't): Sept. 22, 2016

Sample Time (Con't): 15:50

General Notes (Condition of well, or other features):
- hydra lift used
- dup-5 collected

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

Consumables:
- ☐ 1/4" HDPE (Peristaltic) _____ ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☐ 1/4" Silicon _____ ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☐ Field Filtered	☑ HNO_3	125 ml	
1 L (plastic)	General Chemistry	500 ml	-	-	1.0 L	

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	POI-01B	**Project Number:**	1343-005.31	**Date:**	Sept. 22, 2016
Station Status:	good	**Client:**	GY - AAM	**Samplers:**	JC BCH
Piezometer Diameter:	2"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	windy, cool 10°C
UTM Location:	Z08 E.0579698 N.6914857	**Waypoint:**	GPS ___ ID _____	**Recovery:**	☑ Good ☐ Bad ☐ Ok
Photos:	Cam: EB Nos. 0412 - 0414	**Purge Method:**			
Duplicate Collected:	☐ Yes ☑ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
Field Blank Collected:	☐ Yes ☑ No Name _____	✓				

Initial Depth to Water (m):	3.704 m	**Purge Start Time:**	16:00			**Purge End Time:**	16:29			
Depth to Bottom (m):	35.544m	**Purge Interval** Time (___) min, Vol. (10) L	16:03	16:06	16:10	16:14	16:17	16:19	16:22	16:26	16:29
Submerged Tubing Depth (m):	35.0 m	**Depth to water (m)**	3.752	3.750	same	same	same	same	same	same	same
Well Stick-up Height (m):	0.570	**Temperature (°C)**	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3
Estimated Water Volume (L):	63.7L.	**pH (pH Units)**	7.19	7.21	7.22	7.23	7.22	7.23	7.22	7.21	7.22
		Cond. (µs/cm)	699	818	911	910	909	909	909	909	907
		Specific Cond. (µs/cm)	1231	1451	1611	1607	1606	1605	1605	1479	1602
		Redox (mV)	20.3	20.6	16.1	10.0	14.2	1.3	-1.5	-4.6	-8.2
		DO (mg/L)	2.12	1.64	1.82	2.17	2.01	2.04	1.93	1.75	1.86
		DO (%)	15.4	12.0	13.2	15.°	15.7	15.2	14.2	12.8	13.3
		Appearance & Odour (Clear, Silty, HC odours, etc.)	clear no odour	same	same	same	same	same	same	same	same
		Turbidity (NTU):	—	—	—	—	—	—	—	—	—
		Interval Purge Volume (L):	10 L	10L	10L	10L	10L	10L	10L	15L	15L
		Cumulative Purge Volume (L):	10 L	20L	20L	30L	40L	50L	60L	75L	90L

DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume

Calculations:

YSI Field Parameters Logged:	☑ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	16:32	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☑ YSI ☐ Pen Unit	✓				
Sample Time	16:35					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): P01-01B

Sample Date (Con't): Sept. 22, 2016

Sample Time (Con't): 16:35

Additional Purge Data:									
Purge Interval 10-15L Time (___) min, Vol. (___) L									
Depth to water (m)	3.750								
Temperature (°C)	2.3								
pH (pH Units)	7.23								
Cond. (µs/cm)	907								
Specific Cond. (µs/cm)	1602								
Redox (mV)	-9.3								
DO (mg/L)	1.89								
DO (%)	13.6								
Appearance & Odour (Clear, Silty, HC odours, etc.)	clear no odour								
Turbidity (NTU)	0.08								
Interval Purge Volume (L)	15L								
Cumulative Purge Volume (L):	105L								

General Notes (Condition of well, or other features):

Consumables:

- ☐ 1/4" HDPE (Peristaltic) _____ ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☐ 1/4" Silicon _____ ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☐ Field Filtered	☑ HNO_3	125 ml	
1 L (plastic)	General Chemistry	500 ml	-	-	1.0 L	

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	PO1-02A	**Project Number:**	1343-005.31	**Date:**	Sept. 23, 2015
Station Status:	good (other than broken pvc stick up)	**Client:**	GY - AAM	**Samplers:**	JC & CH
Piezometer Diameter:	2"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	chilly 3°C
UTM Location:	z08 E.0579063 N.6914226	**Waypoint:**	GPS ___ ID _____	**Recovery:**	☑ Good ☐ Bad ☐ Ok
Photos:	Cam. #5 Nos. 0457-0459	**Purge Method:**			
Duplicate Collected:	☐ Yes ☑ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo** / **Other**
Field Blank Collected:	☐ Yes ☑ No Name _____		✓		

Initial Depth to Water (m):	1.988 m	**Purge Start Time:**	14:23			**Purge End Time:**			
Depth to Bottom (m):	14.222	**Purge Interval** 0.5 **Time (___) min, Vol. (___) L**	14:27	14:30	14:32	14:34	14:36		
Submerged Tubing Depth (m):	13.800 m	**Depth to water (m)**	2.012	2.013	same	same	same		
Well Stick-up Height (m):	1.27 ± 0.361	**Temperature (°C)**	4.3	4.3	4.2	4.2	4.2		
Estimated Water Volume (L):	24.5 L.	**pH (pH Units)**	7.59	7.57	7.57	7.57	7.57		
		Cond. (µs/cm)	436.5	448.9	456.2	456.7	457.7		
		Specific Cond. (µs/cm)	723.6	743.6	756.4	758.8	757.6		
		Redox (mV)	-77.8	-74.8	-71.1	-68.6	-67.0		
		DO (mg/L)	0.24	0.02	0.0	0.0	0.0		
		DO (%)	1.6	0.1	0.0	0.0	0.0		
		Appearance & Odour (Clear, Silty, HC odours, etc.)	clear no odour	same	same	same	same		
		Turbidity (NTU):	—	—	—	—	0.21		
		Interval Purge Volume (L):	0.5	0.5	0.5	0.5	0.5		
		Cumulative Purge Volume (L):	0.5L	1.0L	1.5L	2.0L	2.5L		

DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume

Calculations:

YSI Field Parameters Logged:	☑ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	14:36	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☑ YSI ☐ Pen Unit		✓			
Sample Time	14:40					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): P01-02A

Sample Date (Con't): Sept. 23, 2016

Sample Time (Con't): 14:40

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (^{0}C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, or other features):
-refer to Jeremy's field notes

Consumables:

- ☐ 1/4" HDPE (Peristaltic) _____ ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☑ 1/4" Silicon 1/2 ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☑ Other 1 j-plug
- ☐ Other _____

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☑ Field Filtered	☑ HNO_3	125 ml	
1 L (plastic)	General Chemistry	500 ml	-	-	1.0L	

not → partially obstructed like noted last year

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	POI – 02B	**Project Number:**	1343-005.31	**Date:**	Sept. 23, 2016
Station Status:	good minus damage	**Client:**	GY - AAM	**Samplers:**	JC & CH
Piezometer Diameter:	2"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	chilly 3°C
UTM Location:	ZDB E. 0579963 N. 6914226	**Waypoint:**	GPS ___ ID _____	**Recovery:**	☑ Good ☐ Bad ☐ Ok
Photos:	Cam. ___ Nos. 0460 – 0462	**Purge Method:**			
Duplicate Collected:	☐ Yes ☑ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
Field Blank Collected:	☐ Yes ☑ No Name _____		✓			

Initial Depth to Water (m):	1.583 m	**Purge Start Time:**	14:00						**Purge End Time:**	
Depth to Bottom (m):	29.982 m	**Purge Interval** 0.5 **Time (___) min, Vol. (___) L**	14:01	14:04	14:06	14:08	14:10	14:12	14:14	14:16
Submerged Tubing Depth (m):	29.482 m	**Depth to water (m)**	Flowing artesian well		–	–	–	–	–	–
Well Stick-up Height (m):	1.593 m	**Temperature (°C)**	4.1	4.1	4.1	4.1	4.1	4.2	4.2	4.2
Estimated Water Volume (L):	56.8 L	**pH (pH Units)**	7.63	7.63	7.63	7.64	7.64	7.63	7.63	7.63
		Cond. (µs/cm)	347.2	342.6	341.8	341.5	341.8	342.0	341.6	341.5
		Specific Cond. (µs/cm)	576.6	569.6	569.0	568.0	568.1	567.6	567.5	567.4
		Redox (mV)	-38.2	-45.3	-56.5	-68.5	-76.0	-82.0	-88.4	-89.1
		DO (mg/L)	0.21	0.11	0.06	0.06	0.04	0.05	0.03	0.01
		DO (%)	1.8	0.9	0.4	0.6	0.2	0.3	0.2	0.1
		Appearance & Odour (Clear, Silty, HC odours, etc.)	clear no odour	same	same	same	same	same	same	same
		Turbidity (NTU):	–	–	–	–	–	–	–	4.69
		Interval Purge Volume (L):	0.5L	0.5L	0.5L	0.5L	0.5L	0.5L	0.5L	0.5L
		Cumulative Purge Volume (L):	0.5L	1.0L	1.5L	2.0L	2.5L	3.0L	3.5L	4.0L

DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume

Calculations:

YSI Field Parameters Logged:	☑ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	14:16	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☑ YSI ☐ Pen Unit		✓			
Sample Time	14:20					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): PO1-02B

Sample Date (Con't): Sept. 23, 2016

Sample Time (Con't): 14:20

General Notes (Condition of well, or other features):
- refer to Jeremy's field notes

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (^{0}C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

Consumables:

- ☑ 1/4" HDPE (Peristaltic) 100 ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☑ 1/4" Silicon 1/2 ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☑ Field Filtered	☑ HNO_3	125 ml	
1 L (plastic)	General Chemistry	500 ml	-	-	1.0 L	

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	PO1 - 03	**Project Number:**	1343-005.31	**Date:**	Sept. 22, 2016
Station Status:	good	**Client:**	GY - AAM	**Samplers:**	JC, BH
Piezometer Diameter:	2"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	Sunny 5°C
UTM Location:	Z08 E 0580521 N 6914252	**Waypoint:**	GPS ___ ID _____	**Recovery:**	☑ Good ☐ Bad ☐ Ok
Photos:	Cam: CR2 Nos. 0382 - 0384	**Purge Method:**			
Duplicate Collected:	☑ Yes ☐ No Name: DUP3	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo** / **Other**
Field Blank Collected:	☐ Yes ☒ No Name _____		✓		

Initial Depth to Water (m):	3.134 m	**Purge Start Time:**	9:19			**Purge End Time:**	9:36			
Depth to Bottom (m):	9.583 m	**Purge Interval Time (___) min, Vol. (0.5) L**	9:23	9:28	9:31	9:36				
Submerged Tubing Depth (m):	9.0 m	**Depth to water (m)**	3.601	3.840	4.130	4.354				
Well Stick-up Height (m):	0.450 m	**Temperature (°C)**	4.6	4.5	4.5	4.7				
Estimated Water Volume (L):	12.89 L	**pH (pH Units)**	6.11	6.13	6.12	6.12				
		Cond. (µs/cm)	2637	2627	2626	2644				
		Specific Cond. (µs/cm)	4313	4320	4318	4313				
		Redox (mV)	-25.9	-25.6	-26.2	-26.9				
		DO (mg/L)	0.10	0.04	0.05	0.04				
		DO (%)	0.8	0.3	0.3	0.3				
		Appearance & Odour (Clear, Silty, HC odours, etc.)	Slightly yellow	metallic odour	sand	Sand				
		Turbidity (NTU):	—	—	—	13.6				
		Interval Purge Volume (L):	0.5	0.5	0.5	0.5				
		Cumulative Purge Volume (L):	0.5	1.0	1.5	2.0				

DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume

Calculations:

YSI Field Parameters Logged:	☑ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	9:36	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☑ YSI ☐ Pen Unit		✓			
Sample Time	9:38					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): P01-03

Sample Date (Con't): Sept. 22, 2016

Sample Time (Con't): 9:38

General Notes (Condition of well, or other features):
- well has draw down
- stable parameters
- dup-3 collected HRL

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (^{0}C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

Consumables:
- ☑ 1/4" HDPE (Peristaltic) 6 ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☑ 1/4" Silicon 1/2 ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☐ Field Filtered	☑ HNO_3	125 ml	
1 L (plastic)	General Chemistry	500 ml	-	-	1.0L	

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	P01-04A	**Project Number:**	1343-005.31	**Date:**	Sept. 22, 2016
Station Status:	GOOD	**Client:**	GY - AAM	**Samplers:**	JC BCH
Piezometer Diameter:	2"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	cloudy 5°C
UTM Location:	Z08 E. 0580377 N. 6914075	**Waypoint:**	GPS ___ ID _____	**Recovery:**	☒ Good ☐ Bad ☐ Ok
Photos:	Cam. FLR2 Nos. 0391 - 0393	**Purge Method:**			
Duplicate Collected:	☐ Yes ☑ No Name _____	**Waterra** ✓	**Peristaltic**	**Disp. Bailer**	**Redi-flo** / **Other**
Field Blank Collected:	☐ Yes ☑ No Name _____				

Initial Depth to Water (m):	1.419 m	**Purge Start Time:**	10:45			**Purge End Time:**				
Depth to Bottom (m):	53.650 m	**Purge Interval** Time (___) min, Vol. (10) L	10:48	10:54	10:58	11:02				
Submerged Tubing Depth (m):	53.150 m	**Depth to water (m)**	1.51	Same	Same	Same				
Well Stick-up Height (m):	0.255	**Temperature (°C)**	4.1	3.8	3.6	3.6				
Estimated Water Volume (L):	52.2 L	**pH (pH Units)**	6.74	6.73	6.76	6.71				
		Cond. (µs/cm)	773	721	718	714				
		Specific Cond. (µs/cm)	1288	1212	1213	1208				
		Redox (mV)	-36.5	-26.6	-22.2	-20.2				
		DO (mg/L)	2.24	1.95	2.06	2.10				
		DO (%)	17.6	15.0	15.4	16.0				
		Appearance & Odour (Clear, Silty, HC odours, etc.)	Clear Colourless	Same	Same	Same				
		Turbidity (NTU):	-	-	-	1.37				
		Interval Purge Volume (L):	10	10	10	10				
		Cumulative Purge Volume (L):	10	20	30	40				

DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume

Calculations:

YSI Field Parameters Logged:	☒ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	11:03	**Waterra** ✓	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☒ YSI ☐ Pen Unit					
Sample Time	11:10					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): PO1-4A

Sample Date (Con't): Sept. 22, 2016

Sample Time (Con't): 11:10

General Notes (Condition of well, or other features):
→ tubing already in well
→ used hydralift to sample

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

Consumables:

- ☐ 1/4" HDPE (Peristaltic) _____ ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☐ 1/4" Silicon _____ ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☒ HNO_3	120	-
1 L (plastic)	General Chemistry	500 ml	-	-	1000	-

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	P01-04B	**Project Number:**	1343-005.31	**Date:**	Sept. 22, 2016
Station Status:	Frozen	**Client:**	GY - AAM	**Samplers:**	JC & CH
Piezometer Diameter:	2"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	cloudy 5°C
UTM Location:	Z08 E0580377 N6914075	**Waypoint:**	GPS ___ ID _____	**Recovery:**	☐ Good ☐ Bad ☐ Ok
Photos:	Cam: ELR2 Nos. 0394 - 0396	**Purge Method:**			
Duplicate Collected:	☐ Yes ☑ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo** / **Other**
Field Blank Collected:	☐ Yes ☑ No Name _____				

Initial Depth to Water (m):	1.400 m Frozen	**Purge Start Time:**			**Purge End Time:**						
Depth to Bottom (m):	—	**Purge Interval Time (___) min, Vol. (___) L**									
Submerged Tubing Depth (m):	—	**Depth to water (m)**									
Well Stick-up Height (m):	0.250 m	**Temperature (°C)**									
Estimated Water Volume (L):	—	**pH (pH Units)**									
		Cond. (µs/cm)									
		Specific Cond. (µs/cm)									
		Redox (mV)									
		DO (mg/L)									
		DO (%)									
		Appearance & Odour (Clear, Silty, HC odours, etc.)									
		Turbidity (NTU):									
		Interval Purge Volume (L):									
		Cumulative Purge Volume (L):									

FROZEN

DTB – DTW) x (πr^{2})*1000 (for well diameter) = 1 well volume
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume

Calculations:

YSI Field Parameters Logged:	☐ Yes ☒ No	**Sample Method:**				
Time logged on YSI (24hr):		**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☐ YSI ☐ Pen Unit					
Sample Time						

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): P01-4B

Sample Date (Con't): Sept. 22, 2016

Sample Time (Con't): N/A / FROZEN

General Notes (Condition of well, or other features):
- FROZEN; no sample collected

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (^{0}C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

Consumables:

- ☐ 1/4" HDPE (Peristaltic) _____ ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☐ 1/4" Silicon _____ ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☐ Field Filtered	☐ HNO_3		
1 L (plastic)	General Chemistry	500 ml	-	-		

10:53

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	PO1-11	**Project Number:**	1343-005.31	**Date:**	Sept 23 2016
Station Status:	Good	**Client:**	GY - AAM	**Samplers:**	JC CH
Piezometer Diameter:	2"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	5° overcast
UTM Location:	Z.08 E. 0580094 N. 6914487	**Waypoint:**	GPS HEM ID N/A	**Recovery:**	☒ Good ☐ Bad ☐ Ok
Photos:	Cam. E08 Nos. 0445 – 0447	**Purge Method:**			
Duplicate Collected:	☐ Yes ☒ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
Field Blank Collected:	☐ Yes ☒ No Name _____		✓			

Initial Depth to Water (m):	1.259	**Purge Start Time:**	9:55			**Purge End Time:**	10:08				
Depth to Bottom (m):	11.034	**Purge Interval Time (___) min, Vol. (0.5) L**	9:59	10:02	10:05	10:08					
Submerged Tubing Depth (m):	10.500	**Depth to water (m)**	1.265	Same	Same	Same					
Well Stick-up Height (m):	1.295m	**Temperature (°C)**	4.8	4.5	4.4	4.4					
Estimated Water Volume (L):	22L	**pH (pH Units)**	6.44	6.45	6.44	6.44					
DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume (DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume (DTB – DTW) x 2 (for 2" well diameter) = 1 well volume (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume (DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume Calculations:		**Cond. (µs/cm)**	2376	2378	2380	2378					
		Specific Cond. (µs/cm)	3899	3913	3919	3919					
		Redox (mV)	-29.8	-32.1	-34.1	-35.5					
		DO (mg/L)	0.01	0.03	0.05	0.03					
		DO (%)	0.1	0.3	0.4	0.2					
		Appearance & Odour (Clear, Silty, HC odours, etc.)	Slightly turbid no odour	Same	Same	Same					
		Turbidity (NTU):	–	–	–	27.2					
		Interval Purge Volume (L):	0.5	0.5	0.5	0.5					
		Cumulative Purge Volume (L):	0.5	1.0	1.5	2.0					

YSI Field Parameters Logged:	☒ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	10:07	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☒ YSI ☐ Pen Unit		✓			
Sample Time	10:10					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): PO1-11

Sample Date (Con't): Sept 23 2016

Sample Time (Con't): 10:10

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, or other features):

- Good recovery
- No draw down

Consumables:

- ☐ 1/4" HDPE (Peristaltic) _____ ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☒ 1/4" Silicon 0.5 ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☒ HNO_3	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1000	

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	PG3-04-02	**Project Number:**	1343-005.31	**Date:**	24-Sept-16.
Station Status:	good	**Client:**	GY - AAM	**Samplers:**	JC/SC/H
Piezometer Diameter:	0.5"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	~~0~~ Clouds, slight breeze.
UTM Location:	Z~~08~~ E. ~~0581963~~ N. 6913367	**Waypoint:**	GPS AN ID N/A	**Recovery:**	☑ Good ☐ Bad ☐ Ok
Photos:	Cam. 1 Nos. 538-540	**Purge Method:**			
Duplicate Collected:	☐ Yes ☑ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
Field Blank Collected:	☐ Yes ☑ No Name _____	micro (manual)				

Initial Depth to Water (m):	11.988	**Purge Start Time:**	8:32			**Purge End Time:**	8:46				
Depth to Bottom (m):	48.680	**Purge Interval** 0.5 **Time (___) min, Vol. (___) L**	8:36	8:41	8:43						
Submerged Tubing Depth (m):	~40	**Depth to water (m)**	—	—	—						
Well Stick-up Height (m):	0.595	**Temperature (°C)**	4.4	4.6	3.8						
Estimated Water Volume (L):	~4.7	**pH (pH Units)**	6.71	6.36	6.40						
		Cond. (µs/cm)	1241	1297	1323						
		Specific Cond. (µs/cm)	2043	2125	2230						
		Redox (mV)	176.4	182.6	182.3						
		DO (mg/L)	1.31	1.34	1.91						
		DO (%)	10.3	10.8	15.6						
		Appearance & Odour (Clear, Silty, HC odours, etc.)	clear no odour	same	same						
		Turbidity (NTU):	—	—	29.7						
		Interval Purge Volume (L):	0.5	0.5	0.5						
		Cumulative Purge Volume (L):	0.5	1.0L	1.5L						

0.5 = 0.027 $(\pi \frac{0.0635}{2}^2) * 1{,}000$ ~~= 196.35~~ 0.1267.

DTB – DTW) x ($\pi r^{2)}$*1000 (for well diameter) = 1 well volume
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume

~~2.54~~ r=m.

Calculations: 48.680 − 11.988 = 36.692 * 4.65.

YSI Field Parameters Logged:	☑ Yes ☐ No	**Sample Method:**			
Time logged on YSI (24hr):	8:45	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☑ YSI ☐ Pen Unit	micro (manual)				
Sample Time	8:50					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): PM3-04-02

Sample Date (Con't): Sept. 24, 2016

Sample Time (Con't): 9:50

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, or other features):

Consumables:

- ☐ 1/4" HDPE (Peristaltic) 17 ft.
- ☑ 3/8" HDPE (Microwaterra) 170 ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☐ 1/4" Silicon _____ ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☑ SS-10 (5/8" well) foot valves 1 each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☑ Field Filtered	☑ HNO_3	125 ml	
1 L (plastic)	General Chemistry	500 ml	-	-	75 ml	

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

35

Sample Site:	PO3-04-04	**Project Number:**	1343-005.31	**Date:**	24-Sept-16
Station Status:	good	**Client:**	GY - AAM	**Samplers:**	JG & CH
Piezometer Diameter:	0.5"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	chilly 0°C
UTM Location:	Z 8 E. 0581967 N. 6913367	**Waypoint:**	GPS AN ID N/A	**Recovery:**	☑ Good ☐ Bad ☐ Ok
Photos:	Cam. 1 Nos. 538-540	**Purge Method:**			
Duplicate Collected:	☐ Yes ☑ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
Field Blank Collected:	☐ Yes ☑ No Name _____	micro (manual)				

Initial Depth to Water (m):	12.319	**Purge Start Time:**	9:14			**Purge End Time:**	9:47			
Depth to Bottom (m):	36.280	**Purge Interval Time (___) min, Vol. (___) L**	9:18	9:21	9:23	9:26	9:28	9:29	9:31	9:38	9:41
Submerged Tubing Depth (m):		**Depth to water (m)**	–	–	–	–	–	–	–	–	–
Well Stick-up Height (m):	0.625	**Temperature (°C)**	3.7	4.6	4.4	4.4	4.5	4.2	4.4	3.8	4.6
Estimated Water Volume (L):	~3.0	**pH (pH Units)**	6.67	6.60	6.59	6.57	6.60	6.65	6.63	7.01	7.04
		Cond. (µs/cm)	943	929	922	921	921	910	916	886	949
		Specific Cond. (µs/cm)	1597	1520	1525	1519	1514	1513	1516	1488	1555
		Redox (mV)	131.4	115.5	104.2	93.3	79.1	63.5	53.2	-41.8	-46.7
		DO (mg/L)	3.77	3.10	3.99	2.56	3.28	3.11	2.96	2.90	3.61
		DO (%)	28.4	32.9	30.7	19.8	25.5	23.9	23.0	22.0	28.2
		Appearance & Odour (Clear, Silty, HC odours, etc.)	clear no odour	same	same	same	same	same	same	very silty	same
		Turbidity (NTU):	–	–	–	0	–	–	–	–	–
		Interval Purge Volume (L):	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1.5	0.5
		Cumulative Purge Volume (L):	0.5L	1.0L	1.5L	2.0L	2.5	3.0	3.5	5.0	5.5

535 / 9 / 7.5 = 0.1267

DTB – DTW) x (πr²)*1000 (for well diameter) = 1 well volume
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume

Calculations:

36.280 − 12.319 = 23.961 × 0.1267 = 3.04

YSI Field Parameters Logged:	☑ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	9:46	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☐ YSI ☐ Pen Unit	micro (manual)				
Sample Time	9:50					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): P03-04-04

Sample Date (Con't): Sept. 24, 2016

Sample Time (Con't): 9:50

General Notes (Condition of well, or other features):

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L	9:44	9:45	9:46						
Depth to water (m)	–	–	–						
Temperature (°C)	4.8	4.1	4.2						
pH (pH Units)	7.06	7.06	7.12						
Cond. (µs/cm)	957	965	964						
Specific Cond. (µs/cm)	1572	1606	1602						
Redox (mV)	-51.2	-53.9	-55.7						
DO (mg/L)	3.61	3.05	3.05						
DO (%)	27.9	22.3	23.2						
Appearance & Odour (Clear, Silty, HC odours, etc.)	sand	sand	sand						
Turbidity (NTU)	–	–	714						
Interval Purge Volume (L)	0.5	0.5	0.5						
Cumulative Purge Volume (L):	6.0	6.5	7.0						

Consumables:

- ☐ 1/4" HDPE (Peristaltic) _____ ft.
- ☑ 3/8" HDPE (Microwaterra) 110 ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☑ 1/4" Silicon 1/2 ft.
- ☑ 0.45 micron inline filters 1 each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☑ SS-10 (5/8" well) foot valves 1 each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____
- ☐ Other _____

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☑ Field Filtered	☑ HNO_3	125 ml	
1 L (plastic)	General Chemistry	500 ml	-	-	750 ml	

9:46

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	FO3-04-06	**Project Number:**	1343-005.31	**Date:**	21-Sept-16
Station Status:	GOOD	**Client:**	GY - AAM	**Samplers:**	AN/MM
Piezometer Diameter:	0.5"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	sunny, breezy
UTM Location:	Z. 8 E. 0581967 N. 6913367	**Waypoint:**	GPS AN ID N/A	**Recovery:**	☒ Good ☐ Bad ☐ Ok
Photos:	Cam. 1 Nos. 538-540	**Purge Method:**			
Duplicate Collected:	☐ Yes ☒ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
Field Blank Collected:	☐ Yes ☒ No Name _____	MICRO.				

Initial Depth to Water (m):	12.260	**Purge Start Time:**	15:07			**Purge End Time:**	15:12				
Depth to Bottom (m):	18.480	**Purge Interval Time (___) min, Vol. (0.8) L**	15:08	15:10	15:12						
Submerged Tubing Depth (m):	~16	**Depth to water (m)**	—	—	—						
Well Stick-up Height (m):	0.675	**Temperature (°C)**	6.2	5.5	5.4						
Estimated Water Volume (L):	~0.79	**pH (pH Units)**	6.53	6.33	6.32						
555 14 0.1267		**Cond. (µs/cm)**	3125	3114	3105						
DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume		**Specific Cond. (µs/cm)**	4877	4959	4964						
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume		**Redox (mV)**	-39.8	-55.1	-53.5						
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume		**DO (mg/L)**	1.32	1.21	1.23						
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume		**DO (%)**	10.8	9.9	9.9						
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume		**Appearance & Odour (Clear, Silty, HC odours, etc.)**	cloudy, turbid, sweet	clear	clear						
Calculations:		**Turbidity (NTU):**	—	—	11.21						
18.480 − 12.260 = 06.220 × 0.1267 = 0.788		**Interval Purge Volume (L):**	0.8	0.8	0.8						
		Cumulative Purge Volume (L):	0.8	1.6	2.4						

YSI Field Parameters Logged:	☒ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	15:13	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☒ YSI ☐ Pen Unit	MICRO.				
Sample Time	15:15					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): DO3-04-06.

Sample Date (Con't): 21-Sept-16.

Sample Time (Con't): 15:15

General Notes (Condition of well, or other features):

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (^{0}C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

Consumables:

- ☐ 1/4" HDPE (Peristaltic) _____ ft.
- ☒ 3/8" HDPE (Microwaterra) 65. ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☐ 1/4" Silicon _____ ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☒ SS-10 (5/8" well) foot valves 1 each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☒ HNO_3	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1,000	

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	P03-05-02	**Project Number:**	1343-005.31	**Date:**	Sept. 21, 2016
Station Status:	good	**Client:**	GY - AAM	**Samplers:**	JC BCH
Piezometer Diameter:	1/2"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	Sunny 6°C
UTM Location:	Z08 E.0582481 N.6913115	**Waypoint:**	GPS ___ ID _____	**Recovery:**	☑ Good ☐ Bad ☐ Ok
Photos:	Cam. 5 Nos. 0370-0372	**Purge Method:**			
Duplicate Collected:	☐ Yes ☑ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo** / **Other**
Field Blank Collected:	☐ Yes ☑ No Name _____	would suggest micro waterra	✓		

Initial Depth to Water (m):	8.374	**Purge Start Time:**	15:05					**Purge End Time:**	15:53		
Depth to Bottom (m):	37.777	**Purge Interval Time (___) min, Vol. (0.25) L**	15:12	15:23	15:32	15:37	15:45	15:51			
Submerged Tubing Depth (m):	37.250	**Depth to water (m)**	–	–	–	–	–	–			
Well Stick-up Height (m):	0.785m	**Temperature (°C)**	13.4	12.3	12.3	11.5	12.3	11.9			
Estimated Water Volume (L):	7.351 L	**pH (pH Units)**	6.23	5.93	5.81	5.77	5.76	5.73			
		Cond. (µs/cm)	1525	1576	1652	1668	1710	1699			
		Specific Cond. (µs/cm)	1957	2098	2182	2237	2250	2265			
		Redox (mV)	+25.6	5.7	17.5	20.7	23.5	24.9			
		DO (mg/L)	1.50	0.79	0.62	0.54	0.49	0.47			
		DO (%)	14.4	7.3	5.7	5.0	4.7	4.4			
		Appearance & Odour (Clear, Silty, HC odours, etc.)	clear no odour	same	same	same	same	same			
		Turbidity (NTU):	–	–	–	–	~~1.67~~	1.67			
		Interval Purge Volume (L):	0.250L	0.250	0.250	0.250	0.250	0.250			
		Cumulative Purge Volume (L):	0.250	0.5	0.750	1.0	1.250	1.50			

DTB – DTW) x (πr^{2})*1000 (for well diameter) = 1 well volume
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume
x0.25 for 1/2
Calculations:

YSI Field Parameters Logged:	☑ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	15:55	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☑ YSI ☐ Pen Unit		✓			
Sample Time	15:55					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): PO3-05-02

Sample Date (Con't): Sept. 21, 2016.

Sample Time (Con't): 15:55

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, or other features):

- pump rate very slow due to lower water table
- Able to aquire stable parameters before sampling
- Would suggest to switch to micro waterra

Consumables:

- ☒ 1/4" HDPE (Peristaltic) 130 ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☒ 1/4" Silicon 0.6 ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____
- ☐ Other _____

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☒ HNO_3	120	–
1 L (plastic)	General Chemistry	500 ml	-	-	500	Min volume collected due to very slow pump rate

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	MW03-05-04	**Project Number:**	1343-005.31	**Date:**	Sept. 21/16
Station Status:	good	**Client:**	GY - AAM	**Samplers:**	JC & CH
Piezometer Diameter:	1/2"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	Sunny 6C
UTM Location:	08 E. 0582484 N. 6913115	**Waypoint:**	GPS ___ ID ___	**Recovery:**	☑ Good ☐ Bad ☐ Ok
Photos:	Cam. EOR 2 Nos 0373-0375	**Purge Method:**			
Duplicate Collected:	☐ Yes ☑ No Name ___	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo** / **Other**
Field Blank Collected:	☐ Yes ☑ No Name ___	Should use micro waterra	✓		

Initial Depth to Water (m):	8.563	**Purge Start Time:**	16:27			**Purge End Time:**	17:10			
Depth to Bottom (m):	24.523	**Purge Interval** 0.2L **Time (___) min, Vol. (___) L**	16:38	16:44	16:50	16:56	17:01	17:09		
Submerged Tubing Depth (m):	24.000	**Depth to water (m)**	—	—	—	—	—	—		
Well Stick-up Height (m):	0.821	**Temperature (°C)**	11.9	12.2	11.4	11.6	11.2	11.4		
Estimated Water Volume (L):	4.056L	**pH (pH Units)**	6.19	5.94	5.87	5.85	5.84	5.84		
DTB – DTW) x (πr²)*1000 (for well diameter) = 1 well volume (DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume (DTB – DTW) x 2 (for 2" well diameter) = 1 well volume (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume (DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume x 0.25 for 1/2" Calculations:		**Cond. (µs/cm)**	1630	1694	1686	1630	1631	1593		
		Specific Cond. (µs/cm)	2178	2239	2268	2185	2221	2155		
		Redox (mV)	-1.3	13.4	19.5	22.1	25.8	27.4		
		DO (mg/L)	0.82	0.76	0.74	0.32	0.33	0.33		
		DO (%)	7.7	7.1	6.8	2.9	3.0	3.2		
		Appearance & Odour (Clear, Silty, HC odours, etc.)	clear no odour	same	same	same	same	same		
		Turbidity (NTU):	—	—	—	—	—	0.38		
		Interval Purge Volume (L):	0.2L	0.2L	0.2L	0.2L	0.2L	0.2L		
		Cumulative Purge Volume (L):	0.2L	0.4L	0.6L	0.8L	1.0L	1.2L		

YSI Field Parameters Logged:	☑ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	17:10	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☑ YSI ☐ Pen Unit		✓			
Sample Time	17:12					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): PO3-05-04

Sample Date (Con't): Sept. 21, 2016

Sample Time (Con't): 17:12

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, or other features):

- Low water table for peristaltic, flowrate very slow
- Able to collect stable readings before sampling
- would suggest micro waterra next event.

Consumables:

- ☒ 1/4" HDPE (Peristaltic) 80 ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☒ 1/4" Silicon 2.0 ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____
- ☐ Other _____

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☑ Field Filtered	☐ HNO_3	120	
1 L (plastic)	General Chemistry	500 ml	-	-	500ml	min volume collected due to low pump rate

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HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	P03-05-05	**Project Number:**	1343-005.31	**Date:**	Sept. 21/16
Station Status:	good	**Client:**	GY - AAM	**Samplers:**	JC & CH
Piezometer Diameter:	1/2"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	Sunny 6°
UTM Location:	ZONE 8 E 0582484 N 6913115	**Waypoint:**	GPS ___ ID _____	**Recovery:**	☑ Good ☐ Bad ☐ Ok
Photos:	Cam. 2 Nos 0376-0378	**Purge Method:**			
Duplicate Collected:	☐ Yes ☑ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo** / **Other**
Field Blank Collected:	☐ Yes ☑ No Name _____	micro ✓			

Initial Depth to Water (m):	8.622	**Purge Start Time:**	10:36			**Purge End Time:**	10:52			
Depth to Bottom (m):	22.611	**Purge Interval Time (___) min, Vol. (___) L**	10:38	10:40	10:43	10:45	10:46	10:48	10:50	
Submerged Tubing Depth (m):	22.111 m	**Depth to water (m)**	–	–	–	–	–	–	–	
Well Stick-up Height (m):	0.840	**Temperature (°C)**	4.8	4.9	5.2	5.1	4.9	5.1	5.1	
Estimated Water Volume (L):	3.497 L	**pH (pH Units)**	6.71	6.51	6.35	6.22	6.17	6.15	6.14	
		Cond. (µs/cm)	1873	2212	3009	4035	4449	4599	4806	
		Specific Cond. (µs/cm)	3051	3589	4844	6526	7218	7420	7755	
		Redox (mV)	-1.9	-32.7	-32.9	-31.5	-32.5	-33.9	-34.7	
		DO (mg/L)	2.20	1.83	2.21	1.83	1.87	2.02	2.48	
		DO (%)	17.1	14.2	17.3	14.4	14.9	16.4	19.5	
		Appearance & Odour (Clear, Silty, HC odours, etc.)	red turbid no odour	same	same	same	same	same	same	
		Turbidity (NTU):	–	–	–	–	–	–	1910	
		Interval Purge Volume (L):	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
		Cumulative Purge Volume (L):	0.5	1.0L	1.5L	2.0	2.5	3.0	3.5	

DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume

Calculations:

YSI Field Parameters Logged:	☑ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	10:51	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☑ YSI ☐ Pen Unit	micro ✓				
Sample Time	10:55					1

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): P03-05-05

Sample Date (Con't): Sept. 24, 2016

Sample Time (Con't): 10:55

General Notes (Condition of well, or other features):
- tried low flow sampling, water table too low. will return with micro waterra (Sept 21)
- returned Sept. 24th & sampled with micro waterra

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

Consumables:
- ☒ 1/4" HDPE (Peristaltic) 80 ft.
- ☒ 3/8" HDPE (Microwaterra) 80 ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☒ 1/4" Silicon 0.5 ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☒ SS-10 (5/8" well) foot valves 1 each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____
- ☐ Other _____

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☐ HNO_3	125 ml	
1 L (plastic)	General Chemistry	500 ml	-	-	750 ml	

HEMMERA

26.5

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	PO3-06-01	**Project Number:**	1343-005.31	**Date:**	21-Sept-16
Station Status:	good	**Client:**	GY - AAM	**Samplers:**	AN/MM
Piezometer Diameter:	0.5	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	Sunny w breeze
UTM Location:	Z08 E.0582454 N.6913485	**Waypoint:**	GPS AN ID N/A	**Recovery:**	☐ Good ☐ Bad ☑ Ok
Photos:	Cam. 1 Nos. 541 - 543	**Purge Method:**			
Duplicate Collected:	☐ Yes ☑ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
Field Blank Collected:	☐ Yes ☑ No Name _____	micro				

Initial Depth to Water (m):	16.120	**Purge Start Time:**	17:31		**Purge End Time:**	11:51						
Depth to Bottom (m):	26.560	**Purge Interval Time (___) min, Vol. (___) L**	17:36	17:39								
Submerged Tubing Depth (m):		**Depth to water (m)**	—	—	Well purged DRY @ 17:39 (Sept 21 2016)							
Well Stick-up Height (m):	0.80	**Temperature (°C)**	6.8	6.5								
Estimated Water Volume (L):	1.3	**pH (pH Units)**	3.62	3.97								
		Cond. (µs/cm)	3203	2217								
		Specific Cond. (µs/cm)	4904	3416								
		Redox (mV)	327.2	285.5								
		DO (mg/L)	4.33	4.66								
		DO (%)	36.0	38.2								
		Appearance & Odour (Clear, Silty, HC odours, etc.)	cloudy & brown humic	same.								
		Turbidity (NTU):	—	—		11.0						
		Interval Purge Volume (L):	1.3	0.5								
		Cumulative Purge Volume (L):	1.3	1.8								

DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume

Calculations:

26.560
16.120
10.44

10.44 * 0.1267
1.3.2.

YSI Field Parameters Logged:	☐ Yes ☑ No	**Sample Method:**			
Time logged on YSI (24hr):	not logged	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☐ YSI ☐ Pen Unit	micro				
Sample Time	11:52					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): P03-06-01

Sample Date (Con't): Sept. 24, 2016

Sample Time (Con't): 11:52

General Notes (Condition of well, or other features):

→ came back to sample on sept 24th.

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

Consumables:

- ☐ 1/4" HDPE (Peristaltic) _____ ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☐ 1/4" Silicon _____ ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☑ Field Filtered	☑ HNO_3	125ml.	
1 L (plastic)	General Chemistry	500 ml	-	-	750 mL	

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

23.6

Sample Site:	PC3-06-2	**Project Number:**	1343-005.31	**Date:**	21-Sept-16
Station Status:	GOOD	**Client:**	GY - AAM	**Samplers:**	AN
Piezometer Diameter:	0.5"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	breezy
UTM Location:	Z08V E.0581962 N. 6913382	**Waypoint:**	GPS AN ID N/A	**Recovery:**	☒ Good ☐ Bad ☐ Ok
Photos:	Cam. 1 Nos. 541-543	**Purge Method:**			
Duplicate Collected:	☐ Yes ☒ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
Field Blank Collected:	☐ Yes ☒ No Name _____	micro				

Initial Depth to Water (m):	10.725	**Purge Start Time:**	17:01			**Purge End Time:**	17:12				
Depth to Bottom (m):	23.640	**Purge Interval** 1.6 **Time (___) min, Vol. (___) L**	17:03	17:08	17:12						
Submerged Tubing Depth (m):	~20	**Depth to water (m)**	—	—	—						
Well Stick-up Height (m):	0.775	**Temperature (°C)**	8.0	4.8	4.7						
Estimated Water Volume (L):	1.6	**pH (pH Units)**	4.16	4.55	4.61						
0.1267		**Cond. (µs/cm)**	3565	3396	3435						
DTB – DTW) x (πr²)*1000 (for well diameter) = 1 well volume		**Specific Cond. (µs/cm)**	6280	5539	5602						
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume		**Redox (mV)**	228.7	196.4	182.4						
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume		**DO (mg/L)**	1.23	0.95	1.07						
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume		**DO (%)**	10.3	7.5	8.6						
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume		**Appearance & Odour (Clear, Silty, HC odours, etc.)**	grey-black color	brown, lots of sediment	same						
Calculations: 23.640 − 10.725 = 12.915 × 0.1267 = 1.64		**Turbidity (NTU):**	—	—	2055	AN					
		Interval Purge Volume (L):	1.6	1.6	1.6						
		Cumulative Purge Volume (L):	1.6	3.2	4.8						

YSI Field Parameters Logged:	☒ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	17:13	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☒ YSI ☐ Pen Unit	micro				
Sample Time	17:15					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): PO3-06-2

Sample Date (Con't): 21-Sept-16

Sample Time (Con't): 17:15

General Notes (Condition of well, or other features):

- drawdown not measured D/C no space for the tape.

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (^{0}C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

Consumables:

- ☐ 1/4" HDPE (Peristaltic) _____ ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☐ 1/4" Silicon _____ ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☒ SS-10 (5/8" well) foot valves 1 each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☒ HNO_3	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1,000	

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	PO3-deep 03	**Project Number:**	1343-005.31	**Date:**	24-Sept-16
Station Status:	good	**Client:**	GY - AAM	**Samplers:**	JC & CH
Piezometer Diameter:	0.5	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	chilly 1°C
UTM Location:	Z08 E. 0582455 N. 6913484	**Waypoint:**	GPS AN ID _____	**Recovery:**	☑ Good ☐ Bad ☐ Ok
Photos:	Cam. 1 Nos. 541-543	**Purge Method:**			
Duplicate Collected:	☐ Yes ☑ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo** / **Other**
Field Blank Collected:	☐ Yes ☑ No Name _____	micro			

Initial Depth to Water (m):	5.310	**Purge Start Time:**	12:32			**Purge End Time:**	12:56			
Depth to Bottom (m):	20.870	**Purge Interval Time (___) min, Vol. (___) L**	0.5 12:34	12:36	12:38	12:40	12:41	12:42	12:44	12:49	12:51
Submerged Tubing Depth (m):	20.370	**Depth to water (m)**	—	—	—	—	—	—	—	—	—
Well Stick-up Height (m):	0.83 m	**Temperature (°C)**	6.0	5.5	5.2	5.1	5.1	4.9	5.0	5.7	5.5
Estimated Water Volume (L):	1.97L	**pH (pH Units)**	4.27	5.18	5.47	5.58	5.63	5.66	5.66	5.68	5.68
	0.1267	**Cond. (µs/cm)**	3271	3340	3366	3421	3420	3421	3430	3481	3423
DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume		**Specific Cond. (µs/cm)**	5130	5327	5413	5518	5517	5540	5551	5515	5457
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume		**Redox (mV)**	105.9	63.9	52.6	48.1	44.0	38.7	29.9	27.0	21.8
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume		**DO (mg/L)**	1.51	2.57	1.81	1.82	2.02	2.13	1.60	1.98	1.60
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume		**DO (%)**	12.1	20.5	14.3	14.5	16.1	17.0	12.5	16.0	13.0
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume		**Appearance & Odour (Clear, Silty, HC odours, etc.)**	clear slight odour	same	same	same	same	same	same	same	same
Calculations:		**Turbidity (NTU):**	—	—	—	—	—	—	—	—	—
20.870 − 5.310 = 15.56 × 0.1267 = 1.97		**Interval Purge Volume (L):**	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
		Cumulative Purge Volume (L):	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5

YSI Field Parameters Logged:	☑ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	12:55	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☑ YSI ☐ Pen Unit	micro				
Sample Time	13:00					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): PO3-06-03

Sample Date (Con't): Sept. 24, 2016

Sample Time (Con't): 13:00

Additional Purge Data:									
Purge Interval Time (0.5) min, Vol. (___) L	12:53								
Depth to water (m)	–								
Temperature (°C)	5.4								
pH (pH Units)	5.70								
Cond. (µs/cm)	3466								
Specific Cond. (µs/cm)	5571								
Redox (mV)	21.5								
DO (mg/L)	1.80								
DO (%)	14.1								
Appearance & Odour (Clear, Silty, HC odours, etc.)	sand								
Turbidity (NTU)	24.4								
Interval Purge Volume (L)	0.5								
Cumulative Purge Volume (L):	5.0								

General Notes (Condition of well, or other features):

Consumables:

- ☐ 1/4" HDPE (Peristaltic) _____ ft.
- ☑ 3/8" HDPE (Microwaterra) 65 ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☐ 1/4" Silicon _____ ft.
- ☑ 0.45 micron inline filters 1 each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☑ SS-10 (5/8" well) foot valves 1 each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☑ Field Filtered	☑ HNO_3	125 ml	
1 L (plastic)	General Chemistry	500 ml	-	-	1.0L	

HEMMERA

16.46

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	PO3-06-04	**Project Number:**	1343-005.31	**Date:**	Sept. 24, 2016
Station Status:	good	**Client:**	GY - AAM	**Samplers:**	AJC, KZH
Piezometer Diameter:	0.5"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	Chilly 1°C
UTM Location:	z08 E582456 N.6913485	**Waypoint:**	GPS AN ID N/A	**Recovery:**	☑ Good ☐ Bad ☐ Ok
Photos:	Cam. 1 Nos. 541-543	**Purge Method:**			
Duplicate Collected:	☐ Yes ☑ No Name	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo** / **Other**
Field Blank Collected:	☐ Yes ☑ No Name	micro			

Initial Depth to Water (m):	12.040 m	**Purge Start Time:**	13:07				**Purge End Time:**	13:19		
Depth to Bottom (m):	17.560 m	**Purge Interval** 0.5 **Time (___) min, Vol. (___) L**	13:10	13:13	13:15	13:17	13:18			
Submerged Tubing Depth (m):	17.060 m	**Depth to water (m)**	—	—	—	—	—			
Well Stick-up Height (m):	0.88 m	**Temperature (°C)**	5.1	5.3	5.3	5.2	4.7			
Estimated Water Volume (L):	~~0.~~0.70	**pH (pH Units)**	6.05	6.27	6.33	6.35	6.37			
	0.1267	**Cond. (µs/cm)**	2003	2093	2070	2065	2067			
DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume		**Specific Cond. (µs/cm)**	3219	3212	3310	3317	3363			
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume		**Redox (mV)**	-15.1	-39.4	-43.0	-48.1	-49.9			
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume		**DO (mg/L)**	1.85	1.96	1.60	1.97	2.01			
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume		**DO (%)**	14.3	15.2	12.7	15.3	15.5			
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume		**Appearance & Odour (Clear, Silty, HC odours, etc.)**	clear no odour	same	same	same	same			
Calculations:		**Turbidity (NTU):**	—	—	—	—	29.7			
17.560 − 12.040 = 5.52 × 0.1267 ≈ 0.69		**Interval Purge Volume (L):**	0.5	0.5	0.5	0.5	0.5			
		Cumulative Purge Volume (L):	0.5	1.0	1.5	2.0	2.5			

YSI Field Parameters Logged:	☑ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	13:19	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☑ YSI ☐ Pen Unit	micro				
Sample Time	13:20					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): PO3-06-04

Sample Date (Con't): Sept. 24, 2016

Sample Time (Con't): 13:20

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (^{0}C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, or other features):

Consumables:

- ☐ 1/4" HDPE (Peristaltic) _____ ft.
- ☒ 3/8" HDPE (Microwaterra) 55 ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☐ 1/4" Silicon _____ ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☒ SS-10 (5/8" well) foot valves 1 each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☒ HNO_3	125 ml	
1 L (plastic)	General Chemistry	500 ml	-	-	1.0L	

20.870
17.560
15.140
48.578 K

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	PO3-06-05.	**Project Number:**	1343-005.31	**Date:**	Sept. 24, 2016
Station Status:	good	**Client:**	GY - AAM	**Samplers:**	AJC & CH
Piezometer Diameter:	0.5"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	cold breeze -1°C
UTM Location:	Z. 08 E. 0582455 N. 6913486	**Waypoint:**	GPS AN ID N/A	**Recovery:**	☑ Good ☐ Bad ☐ Ok
Photos:	Cam. 1 Nos. 541 - 543.	**Purge Method:**			
Duplicate Collected:	☐ Yes ☑ No Name _____	Waterra	Peristaltic	Disp. Bailer	Redi-flo / Other
Field Blank Collected:	☐ Yes ☑ No Name _____	micro ✓			

Initial Depth to Water (m):	9.730	**Purge Start Time:**	11:23					**Purge End Time:**	11:43	
Depth to Bottom (m):	15.140	**Purge Interval Time (___) min, Vol. (0.5) L**	11:29	11:31	11:33	11:34	11:37	11:39	11:41	
Submerged Tubing Depth (m):	14.600m	**Depth to water (m)**	—	—	—	—	—	—	—	
Well Stick-up Height (m):	0.91	**Temperature (°C)**	5.4	5.6	5.5	5.5	5.6	5.4	5.3	
Estimated Water Volume (L):	0.7	**pH (pH Units)**	6.08	6.23	6.30	6.33	6.35	6.36	6.39	
		Cond. (µs/cm)	3632	3594	3426	3340	3253	2994	2962	
		Specific Cond. (µs/cm)	5812	5715	5466	5322	5163	4793	4743	
		Redox (mV)	-0.9	-26.1	-43.0	-53.7	-62.4	-64.6	-68.4	
		DO (mg/L)	1.40	1.56	1.73	2.13	2.52	2.05	2.02	
		DO (%)	11.4	12.5	14.0	17.3	19.8	16.5	16.1	
		Appearance & Odour (Clear, Silty, HC odours, etc.)	high turbid 20 odour	some	some	some	some	some	some	
		Turbidity (NTU):	—	—	—	—	—	—	1866	
		Interval Purge Volume (L):	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
		Cumulative Purge Volume (L):	0.5	1.0	1.5	2.0	2.5	3.0	3.5	

DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume

Calculations:

4
15.140
9.730
5.610

x 0.1267
= 0.71

YSI Field Parameters Logged:	☑ Yes ☐ No	**Sample Method:**			
Time logged on YSI (24hr):	11:42	Waterra	Peristaltic	Disp. Bailer	Redi-flo / Other
YSI Meter or Pen Unit?:	☑ YSI ☐ Pen Unit	micro ✓			
Sample Time	11:45				

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

✓

HEMMERA

Sample Site (Con't): P03-06-05

Sample Date (Con't): Sept. 24, 2016

Sample Time (Con't): 11:45

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (^{0}C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, or other features):

Consumables:

- ☐ 1/4" HDPE (Peristaltic) _____ ft.
- ☑ 3/8" HDPE (Microwaterra) 55 ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☐ 1/4" Silicon _____ ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☑ SS-10 (5/8" well) foot valves 1 each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☑ Field Filtered	☑ HNO_3	125 ml	
1 L (plastic)	General Chemistry	500 ml	-	-	750 ml	

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	PO3-09-02	**Project Number:**	1343-005.31	**Date:**	Sept. 23, 2016
Station Status:	good	**Client:**	GY - AAM	**Samplers:**	TC & CH
Piezometer Diameter:	1/2 "	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	Chilly 3°C
UTM Location:	Z08 E.0579910 N.6914409	**Waypoint:**	GPS ___ ID _____	**Recovery:**	☑ Good ☐ Bad ☐ Ok
Photos:	Cam: ELB Nos. 0463 - 0469	**Purge Method:**			
Duplicate Collected:	☐ Yes ☑ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo** / **Other**
Field Blank Collected:	☐ Yes ☑ No Name _____		✓		

Initial Depth to Water (m):	2.800 m	**Purge Start Time:**	16:17					**Purge End Time:**		
Depth to Bottom (m):	32.940 m	**Purge Interval** 0.5-1.0 **Time (___) min, Vol. (___) L**	16:20	16:22	16:24	16:28	16:32	16:35	16:38	16:40
Submerged Tubing Depth (m):	32.440m	**Depth to water (m)**	—	—	—	—	—	—	—	—
Well Stick-up Height (m):	0.460 m	**Temperature (°C)**	4.8	4.5	4.5	4.3	4.3	4.2	4.2	4.2
Estimated Water Volume (L):	7.5L	**pH (pH Units)**	6.95	6.88	6.87	6.87	6.88	6.88	6.87	6.87
		Cond. (µs/cm)	1072	1132	1163	1171	1173	1171	1174	1171
		Specific Cond. (µs/cm)	1752	1861	1914	1938	1943	1944	1945	1944
		Redox (mV)	46.2	34.8	16.2	-6.9	-19.8	-25.9	-30.9	-32.9
		DO (mg/L)	0.49	0.30	0.21	0.06	0.06	0.06	0.07	0.07
		DO (%)	3.6	2.3	1.7	0.4	0.6	0.2	0.3	0.5
		Appearance & Odour (Clear, Silty, HC odours, etc.)	clear no odour	same	same	same	same	same	same	same
		Turbidity (NTU):	—	—	—	—	—	—	—	1.85
		Interval Purge Volume (L):	0.5	0.5	0.5	1.0	1.0	1.0	1.0	1.0
		Cumulative Purge Volume (L):	0.5L	1.0L	1.5L	2.5L	3.5L	4.5L	5.5L	6.5L

DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume

Calculations:

YSI Field Parameters Logged:	☑ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	16:41	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☑ YSI ☐ Pen Unit		✓			
Sample Time	16:45					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): P03-09-02

Sample Date (Con't): Sept. 23, 2016

Sample Time (Con't): 16:45

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (^{0}C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, or other features):

Consumables:

- ☐ 1/4" HDPE (Peristaltic) _____ ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☐ 1/4" Silicon _____ ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☑ Field Filtered	☐ HNO_3	125ml	
1 L (plastic)	General Chemistry	500 ml	-	-	1.0 L	

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	PO3-09-04	**Project Number:**	1343-005.31	**Date:**	Sept. 23, 2016
Station Status:	good	**Client:**	GY - AAM	**Samplers:**	JC & CH
Piezometer Diameter:	1/2 "	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	Chilly 3°C
UTM Location:	z08 E.0577940 N6914409	**Waypoint:**	GPS ___ ID _____	**Recovery:**	☑ Good ☐ Bad ☐ Ok
Photos:	Cam: 5 Nos. 0463-0469	**Purge Method:**			
Duplicate Collected:	☐ Yes ☑ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
Field Blank Collected:	☐ Yes ☑ No Name _____		✓			

Initial Depth to Water (m):	3.154 m	**Purge Start Time:**	16:48	**Purge End Time:**							
Depth to Bottom (m):	24.436 m	**Purge Interval** 0.5-1.0 **Time (___) min, Vol. (___) L**	16:50	16:51	16:53	16:56	16:59	17:01	17:03	17:06	17:09
Submerged Tubing Depth (m):	24.0 m.	**Depth to water (m)**	–	–	–	–	–	–	–	–	–
Well Stick-up Height (m):	0.580 m	**Temperature (°C)**	4.3	4.3	4.3	4.2	4.2	4.2	4.1	4.1	4.1
Estimated Water Volume (L):	5.3 L	**pH (pH Units)**	6.83	6.79	6.76	6.74	6.73	6.73	6.72	6.72	6.73
		Cond. (µs/cm)	1189	1244	1290	1311	1317	1318	1317	1321	1320
		Specific Cond. (µs/cm)	1968	2069	2141	2176	2186	2189	2191	2194	2192
		Redox (mV)	-47.4	-40.0	-34.7	-25.8	-20.1	-18.4	-14.5	-10.8	-8.4
		DO (mg/L)	0.17	0.11	0.05	0.01	0.02	0.0	0.0	0.0	0.0
		DO (%)	1.4	0.9	0.6	0.1	0.1	0.0	0.1	0.1	0.1
		Appearance & Odour (Clear, Silty, HC odours, etc.)	clear 2° odour	same	same	same	same	same	same	same	same
		Turbidity (NTU):	–	–	–	–	–	–	–	–	–
		Interval Purge Volume (L):	0.5	0.5	0.5	1.0	1.0	1.0	1.0	1.0	1.0
		Cumulative Purge Volume (L):	0.5L	1.0L	1.5	2.5	3.5L	4.5L	5.5L	6.5L	7.5

DTB – DTW) x (πr²)*1000 (for well diameter) = 1 well volume
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume

Calculations:

YSI Field Parameters Logged:	☑ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	17:17	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☑ YSI ☐ Pen Unit		✓			
Sample Time	17:20					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): P03-09-04

Sample Date (Con't): Sept. 23, 2016

Sample Time (Con't): 17:20

General Notes (Condition of well, or other features):
-ORP slow to stabilize

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L	17:11	17:15	17:17						
Depth to water (m)	—	—	—						
Temperature (°C)	4.1	4.1	4.1						
pH (pH Units)	6.72	6.72	6.72						
Cond. (µs/cm)	1321	1318	1318						
Specific Cond. (µs/cm)	2169	2195	2195						
Redox (mV)	+4.9	+1.1	0.5						
DO (mg/L)	0.0	0.0	0.0						
DO (%)	0.00	0.00	0.00						
Appearance & Odour (Clear, Silty, HC odours, etc.)	Same	same	same						
Turbidity (NTU)	—	—	1.26						
Interval Purge Volume (L)	1.0	1.0	1.0						
Cumulative Purge Volume (L):	8.5	9.5	10.5						

Consumables:
- ☒ 1/4" HDPE (Peristaltic) 0.5 ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☐ 1/4" Silicon _____ ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☒ HNO_3	125 ml	
1 L (plastic)	General Chemistry	500 ml	-	-	1.0L	

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	P03-09-06	**Project Number:**	1343-005.31	**Date:**	Sept. 23, 2016
Station Status:	good	**Client:**	GY - AAM	**Samplers:**	JC & CH
Piezometer Diameter:	1/2 "	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	cloudy 3°C
UTM Location:	z08 E0579940 N6914409	**Waypoint:**	GPS ___ ID _____	**Recovery:**	☑ Good ☐ Bad ☐ Ok
Photos:	Cam: FR Nos. 0463-469	**Purge Method:**			
Duplicate Collected:	☐ Yes ☑ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
Field Blank Collected:	☐ Yes ☑ No Name _____		✓			

Initial Depth to Water (m):	3.228 m	**Purge Start Time:**	17:24			**Purge End Time:**				
Depth to Bottom (m):	19.572 m	**Purge Interval Time (___) min, Vol. (___) L**	0.5 17:26	17:28	17:29	17:30				
Submerged Tubing Depth (m):	19.072 m	**Depth to water (m)**	–	–	–	–				
Well Stick-up Height (m):	0.630 m	**Temperature (°C)**	4.3	4.2	4.2	4.2				
Estimated Water Volume (L):	4.01 L.	**pH (pH Units)**	6.79	6.77	6.76	6.75				
		Cond. (µs/cm)	1197	1290	1303	1309				
		Specific Cond. (µs/cm)	1998	2141	2163	2172				
		Redox (mV)	6.7	6.1	6.1	6.2				
		DO (mg/L)	0.32	0.10	0.10	0.09				
		DO (%)	2.5	0.8	0.6	0.5				
		Appearance & Odour (Clear, Silty, HC odours, etc.)	med turbid & odour	same	same	same				
		Turbidity (NTU):	–	–	–	3.08				
		Interval Purge Volume (L):	0.5	0.5	0.5	0.5				
		Cumulative Purge Volume (L):	0.5L	1.0L	1.5L	2.0L				

DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume

Calculations:

YSI Field Parameters Logged:	☑ Yes ☐ No	**Sample Method:**			
Time logged on YSI (24hr):	17:30	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☑ YSI ☐ Pen Unit		✓			
Sample Time	17:35					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): P03-09-06

Sample Date (Con't): Sept. 23, 2016

Sample Time (Con't): 17:35

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (^{0}C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, or other features):

Consumables:

- ☐ 1/4" HDPE (Peristaltic) _____ ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☐ 1/4" Silicon _____ ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☑ Field Filtered	☑ HNO_3	125 ml	
1 L (plastic)	General Chemistry	500 ml	-	-	1.0 L	

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	P03-09-08	**Project Number:**	1343-005.31	**Date:**	Sept. 23, 2016
Station Status:	good	**Client:**	GY - AAM	**Samplers:**	JC & CH
Piezometer Diameter:	9 1/2 "	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	chilly 3°C
UTM Location:	Z08 E0579940 N.6914409	**Waypoint:**	GPS ___ ID _____	**Recovery:**	☑ Good ☐ Bad ☐ Ok
Photos:	Cam: 2R Nos 0463-0469	**Purge Method:**			
Duplicate Collected:	☐ Yes ☐ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo** / **Other**
Field Blank Collected:	☐ Yes ☐ No Name _____		✓		

Initial Depth to Water (m):	3.611 m	**Purge Start Time:**	17:37			**Purge End Time:**				
Depth to Bottom (m):	10.266 m	**Purge Interval Time (___) min, Vol. (___) L**	17:39	17:40	17:41	17:43	17:44			
Submerged Tubing Depth (m):	9.800 m	**Depth to water (m)**	—	—	—	—	—			
Well Stick-up Height (m):	0.650 m	**Temperature (°C)**	4.2	4.1	4.1	4.1	4.1			
Estimated Water Volume (L):	1.66 L	**pH (pH Units)**	6.72	6.69	6.69	6.69	6.68			
		Cond. (µs/cm)	1384	1386	1392	1396	1395			
		Specific Cond. (µs/cm)	2266	2305	2319	2324	2324			
		Redox (mV)	12.6	13.9	14.6	15.1	15.5			
		DO (mg/L)	0.32	0.14	0.02	0.01	0.03			
		DO (%)	2.5	0.8	0.3	0.1	0.2			
		Appearance & Odour (Clear, Silty, HC odours, etc.)	turbid no odour	same	same	same	same			
		Turbidity (NTU):	—	—	—	—	8.69			
		Interval Purge Volume (L):	0.5	0.5	0.5	0.5	0.5			
		Cumulative Purge Volume (L):	0.5L	1.0L	1.5L	2.0L	2.5L			

DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume

Calculations:

YSI Field Parameters Logged:	☑ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	17:44	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☑ YSI ☐ Pen Unit		✓			
Sample Time	17:47					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): P03-09-08

Sample Date (Con't): Sept. 23, 2016

Sample Time (Con't): 17:47

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (^{0}C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, or other features):

Consumables:

- ☑ 1/4" HDPE (Peristaltic) 30 ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☑ 1/4" Silicon 1/2 ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☑ Field Filtered	☑ HNO_3	125 ml	
1 L (plastic)	General Chemistry	500 ml	-	-	1.0 L	

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	MW-09-09	**Project Number:**	1343-005.31	**Date:**	Sept. 23, 2016
Station Status:	good	**Client:**	GY - AAM	**Samplers:**	JC & CH
Piezometer Diameter:	1/2 "	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	cloudy 3°C
UTM Location:	Z08 E0579940 N.6914409	**Waypoint:**	GPS ___ ID _____	**Recovery:**	☑ Good ☐ Bad ☐ Ok
Photos:	Cam: #2 Nos. 0463 - 0469	**Purge Method:**			
Duplicate Collected:	☐ Yes ☑ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo** / **Other**
Field Blank Collected:	☐ Yes ☑ No Name _____		✓		

Initial Depth to Water (m):	3.942 m	**Purge Start Time:**	17:49			**Purge End Time:**				
Depth to Bottom (m):	8.392 m	**Purge Interval Time (___) min, Vol. (___) L**	0.5	17:52	17:54	17:56	17:57			
Submerged Tubing Depth (m):	7.900 m	**Depth to water (m)**		–	–	–	–			
Well Stick-up Height (m):	0.670 m	**Temperature (°C)**		4.3	4.3	4.2	4.2			
Estimated Water Volume (L):	2.23L	**pH (pH Units)**		6.74	6.72	6.70	6.69			
		Cond. (µs/cm)		1389	1390	1391	1394			
		Specific Cond. (µs/cm)		2296	2301	2307	2311			
		Redox (mV)		20.3	21.3	22.0	22.5			
		DO (mg/L)		0.01	0.0	0.0	0.0			
		DO (%)		0.1	0.0	0.0	0.0			
		Appearance & Odour (Clear, Silty, HC odours, etc.)		turbid no odours	same	same	same			
		Turbidity (NTU):		–	–	–	17.4			
		Interval Purge Volume (L):		0.5	0.5	0.5	0.5			
		Cumulative Purge Volume (L):		0.5L	1.0L	1.5L	2.0L			

DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume

Calculations:

YSI Field Parameters Logged:	☑ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	17:58	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☑ YSI ☐ Pen Unit		✓			
Sample Time	18:00					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): P03-09-09

Sample Date (Con't): Sept. 23, 2016

Sample Time (Con't): 18:00

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (^{0}C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, or other features):

Consumables:

- ☐ 1/4" HDPE (Peristaltic) _____ ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☐ 1/4" Silicon _____ ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☐ Field Filtered	☐ HNO_3		
1 L (plastic)	General Chemistry	500 ml	-	-		

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	POS-01-01	**Project Number:**	1343-005.31	**Date:**	Sept. 23, 2016
Station Status:	Good	**Client:**	GY - AAM	**Samplers:**	JC, CH
Piezometer Diameter:	1/2"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	chilly 2°C
UTM Location:	208E 0580056 N. 6914512	**Waypoint:**	GPS ___ ID _____	**Recovery:**	☒ Good ☐ Bad ☐ Ok
Photos:	Cam: ELK 2 Nos. 0430 – 0432	**Purge Method:**			
Duplicate Collected:	☐ Yes ☑ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
Field Blank Collected:	☐ Yes ☑ No Name _____		✓			

Initial Depth to Water (m):	1.312	**Purge Start Time:**	11:38			**Purge End Time:**	12:05			
Depth to Bottom (m):	26.243	**Purge Interval** 0.5 **Time (___) min, Vol. (___) L**	11:40	11:42	11:44	11:46	11:48	11:51	11:55	12:00	12:02
Submerged Tubing Depth (m):	21.243	**Depth to water (m)**	~~1.40~~	–	–	–	–	–	–	–	–
Well Stick-up Height (m):	0.455 m	**Temperature (°C)**	5.7	5.7	5.5	5.4	5.3	5.2	5.2	5.4	5.4
Estimated Water Volume (L):	6.23L	**pH (pH Units)**	6.46	6.45	6.47	6.47	6.46	6.44	6.39	6.35	6.33
		Cond. (µs/cm)	1988	1940	1907	1911	1919	1964	2057	2148	2177
		Specific Cond. (µs/cm)	3149	3080	3041	3055	3080	3162	3292	3432	3475
		Redox (mV)	-28.6	-24.7	-21.4	-17.7	-14.7	-10.9	-5.5	-1.2	0.0
		DO (mg/L)	0.80	0.40	0.22	0.17	0.15	0.15	0.00	0.04	0.08
		DO (%)	6.3	3.2	2.0	1.4	1.2	1.0	0.0	0.6	0.7
		Appearance & Odour (Clear, Silty, HC odours, etc.)	Silty/ no odour	same	same	same	Some	same	same	same	same
		Turbidity (NTU):	–	–	–	–	–	–	–	–	–
		Interval Purge Volume (L):	0.5L	0.5L	0.5L	0.5	0.5	0.5	1.0	0.5	0.5
		Cumulative Purge Volume (L):	0.5L	1.0L	1.5L	2.0L	2.5	3.0	4.0	4.5	5.0

DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume

Calculations:

YSI Field Parameters Logged:	☑ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	12:07	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☑ YSI ☐ Pen Unit		✓			
Sample Time	12:10					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): POS-01-01

Sample Date (Con't): Sept. 23, 2016

Sample Time (Con't): 12:10

General Notes (Condition of well, or other features):
- could not take continuous water levels due to 1/2" diameter

Additional Purge Data:									
Purge Interval 0,5 Time (___) min, Vol. (___) L	12:05	12:07							
Depth to water (m)	–	–							
Temperature (°C)	5.4	5.4							
pH (pH Units)	6.32	6.32							
Cond. (µs/cm)	2194	2208							
Specific Cond. (µs/cm)	3502	3532							
Redox (mV)	1.8	1.6							
DO (mg/L)	0.10	0.05							
DO (%)	0.10	0.3							
Appearance & Odour (Clear, Silty, HC odours, etc.)	same	same							
Turbidity (NTU)	–	3.62							
Interval Purge Volume (L)	0,5	0.5							
Cumulative Purge Volume (L):	5.5	6.0							

Consumables:
- ☐ 1/4" HDPE (Peristaltic) _____ ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☐ 1/4" Silicon _____ ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____
- ☐ Other _____

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☑ Field Filtered	☑ HNO_3	125 ml	
1 L (plastic)	General Chemistry	500 ml	-	-	1.0L	

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	P05-01-02	**Project Number:**	1343-005.31	**Date:**	Sept. 23, 2016
Station Status:	Good	**Client:**	GY - AAM	**Samplers:**	JE & CH
Piezometer Diameter:	1/2"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	Chilly 1°C
UTM Location:	Z.08 E.0581056 N.6914512	**Waypoint:**	GPS HEM ID NA	**Recovery:**	☒ Good ☐ Bad ☐ Ok
Photos:	Cam: E48 Nos. 0433 - 0435	**Purge Method:**			
Duplicate Collected:	☐ Yes ☒ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
Field Blank Collected:	☐ Yes ☒ No Name _____		✓			

Initial Depth to Water (m):	1.529 m	**Purge Start Time:**	11:28			**Purge End Time:**			11:40		
Depth to Bottom (m):	20.768 m	**Purge Interval Time (___) min, Vol. (0.5) L**	11:31	11:36	11:39						
Submerged Tubing Depth (m):	20.268 m	**Depth to water (m)**	N/A	N/A	N/A						
Well Stick-up Height (m):	0.480 m.	**Temperature (°C)**	6.1	5.8	5.6						
Estimated Water Volume (L):		**pH (pH Units)**	6.33	6.30	6.29						
DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume (DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume (DTB – DTW) x 2 (for 2" well diameter) = 1 well volume (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume (DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume x0.25 for 1/2 Calculations:		**Cond. (µs/cm)**	2290	2311	2302						
		Specific Cond. (µs/cm)	3599	3647	3658						
		Redox (mV)	3.0	3.5	2.6						
		DO (mg/L)	0.75	0.71	0.78						
		DO (%)	6.0	5.7	6.2						
		Appearance & Odour (Clear, Silty, HC odours, etc.)	slightly turbid	Clear	Clear						
		Turbidity (NTU):	–	–	1.79						
		Interval Purge Volume (L):	0.5	0.5	0.5						
		Cumulative Purge Volume (L):	0.5	1.0	1.5						

YSI Field Parameters Logged:	☒ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	~~11:40~~	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☒ YSI ☐ Pen Unit		✓			
Sample Time	11:42					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): P05-01-02

Sample Date (Con't): Sept 23 2016

Sample Time (Con't): 11:42

General Notes (Condition of well, or other features):

- No water levels taken during stabilization due to small well diameter.

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (^{0}C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

Consumables:

- ☒ 1/4" HDPE (Peristaltic) 6 ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☒ 1/4" Silicon 0.5 ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____
- ☐ Other _____

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☒ HNO_3	120	—
1 L (plastic)	General Chemistry	500 ml	-	-	1000	—

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	PDS-01-03	**Project Number:**	1343-005.31	**Date:**	Sept. 23, 2016
Station Status:	good	**Client:**	GY - AAM	**Samplers:**	JC, CH
Piezometer Diameter:	1/2"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	CW 1°C
UTM Location:	Z08 E. 588056 N. 6914512	**Waypoint:**	GPS ___ ID _____	**Recovery:**	☑ Good ☐ Bad ☐ Ok
Photos:	Cam: EL2 Nos. 0436 - 0438	**Purge Method:**			
Duplicate Collected:	☐ Yes ☑ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
Field Blank Collected:	☐ Yes ☑ No Name _____		✓			

Initial Depth to Water (m):	1,566 m	**Purge Start Time:**	11:17					**Purge End Time:**			
Depth to Bottom (m):	17.803	**Purge Interval Time (___) min, Vol. (___) L**	11:20	11:21	11:23	11:25	11:27	11:29			
Submerged Tubing Depth (m):	17,203	**Depth to water (m)**	—	—	—	—	—	—			
Well Stick-up Height (m):	0,519 m	**Temperature (°C)**	5,5	5,1	5,1	5,2	5,2	5,3			
Estimated Water Volume (L):	4,10L	**pH (pH Units)**	6,42	6,33	6,31	6,30	6,30	6,29			
DTB – DTW) x (πr²)*1000 (for well diameter) = 1 well volume (DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume (DTB – DTW) x 2 (for 2" well diameter) = 1 well volume (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume (DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume Calculations:		**Cond. (µs/cm)**	2319	2362	2368	2370	2371	2372			
		Specific Cond. (µs/cm)	3720	3809	3809	3815	3816	3817			
		Redox (mV)	-18,1	-12,4	-9,5	-7,5	-5,9	-5,0			
		DO (mg/L)	0,53	0,28	0,22	0,16	0,12	0,11			
		DO (%)	4,0	2,5	1,7	1,4	1,0	0,9			
		Appearance & Odour (Clear, Silty, HC odours, etc.)	clear no odour	same	same	same	same	same			
		Turbidity (NTU):	—	—	—	—	—	3,59			
		Interval Purge Volume (L):	0,5L	0,5L	0,5L	0,5L	0,5L	0,5L			
		Cumulative Purge Volume (L):	0,5L	1,0L	1,5L	2,0L	2,5L	3,0L			

YSI Field Parameters Logged:	☑ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	11:29	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☑ YSI ☐ Pen Unit		✓			
Sample Time	11:30					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): PDS-01-03

Sample Date (Con't): Sept. 23, 2016

Sample Time (Con't): 11:30

General Notes (Condition of well, or other features):
- couldn't take continuous water levels due to 1/2" diameter

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (^{0}C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

Consumables:
- ☑ 1/4" HDPE (Peristaltic) 10 ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☐ 1/4" Silicon _____ ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☑ Field Filtered	☑ HNO_3	125 ml	
1 L (plastic)	General Chemistry	500 ml	-	-	1.0 L	

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	POS-01-04	**Project Number:**	1343-005.31	**Date:**	Sept. 23, 2016
Station Status:	good	**Client:**	GY - AAM	**Samplers:**	JC & CH
Piezometer Diameter:	1/2 "	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	chilly 1°C
UTM Location:	Z 08 E 0580056 N. 6914512	**Waypoint:**	GPS HCN ID N/A	**Recovery:**	☑ Good ☐ Bad ☐ Ok
Photos:	Cam: ESR Nos. 0439-0441	**Purge Method:**			
Duplicate Collected:	☐ Yes ☑ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
Field Blank Collected:	☐ Yes ☑ No Name _____		✓			

Initial Depth to Water (m):	1.805 m	**Purge Start Time:**	10:53			**Purge End Time:**	11:16				
Depth to Bottom (m):	12.309 m	**Purge Interval Time (___) min, Vol. (0.5) L**	11:05	11:08	11:11	11:14					
Submerged Tubing Depth (m):	11.800 m	**Depth to water (m)**	N/A	N/A	N/A	N/A					
Well Stick-up Height (m):	0.532 m	**Temperature (°C)**	5.9	5.4	5.4	5.3					
Estimated Water Volume (L):	2.63 L	**pH (pH Units)**	6.38	6.32	6.31	6.30					
DTB – DTW) x (πr²)*1000 (for well diameter) = 1 well volume (DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume (DTB – DTW) x 2 (for 2" well diameter) = 1 well volume (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume (DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume Calculations:		**Cond. (µs/cm)**	2274	2268	2269	2307					
		Specific Cond. (µs/cm)	3497	3622	3674	3680					
		Redox (mV)	-19.0	-17.0	-16.4	-16.9					
		DO (mg/L)	0.73	0.76	0.72	0.65					
		DO (%)	5.7	5.8	5.7	5.1					
		Appearance & Odour (Clear, Silty, HC odours, etc.)	murky turbid grey	Same	Same	Clear					
		Turbidity (NTU):	–	–	–	6.07					
		Interval Purge Volume (L):	0.5	0.5	0.5	0.5					
		Cumulative Purge Volume (L):	0.5	1.0	1.5	2.0					

YSI Field Parameters Logged:	☒ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	11:14	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☒ YSI ☐ Pen Unit		✓			
Sample Time	11:18					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): POS-01-04

Sample Date (Con't): Sept 23 2016

Sample Time (Con't): 11:18

General Notes (Condition of well, or other features):

- could not take water level reading due to small well diameter.

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

Consumables:

- ☒ 1/4" HDPE (Peristaltic) 6 ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☐ 1/4" Silicon _____ ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____
- ☐ Other _____

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☒ HNO_3	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1000.	

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	P05-01-05	**Project Number:**	1343-005.31	**Date:**	Sept. 23, 2016
Station Status:	good	**Client:**	GY - AAM	**Samplers:**	JC & CH
Piezometer Diameter:	1/2"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	cloudy 1°C
UTM Location:	Z: 08 E: 0580057 N: 6914512	**Waypoint:**	GPS ___ ID _____	**Recovery:**	☑ Good ☐ Bad ☐ Ok
Photos:	Cam: EOS Nos. 0442 – 0444	**Purge Method:**			
Duplicate Collected:	☐ Yes ☑ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo** / **Other**
Field Blank Collected:	☐ Yes ☑ No Name _____		✓		

Initial Depth to Water (m):	1.982 m	**Purge Start Time:**	10.53				**Purge End Time:**			
Depth to Bottom (m):	6.553m	**Purge Interval** 0.5L **Time (___) min, Vol. (___) L**	10:56	10:58	11:00	11:03	11:05			
Submerged Tubing Depth (m):	6.00 m	**Depth to water (m)**	–	–	–	–	–			
Well Stick-up Height (m):	0.552m	**Temperature (°C)**	6.2	6.0	6.0	5.9	5.9			
Estimated Water Volume (L):	1.14 L	**pH (pH Units)**	6.48	6.43	6.41	6.40	6.40			
		Cond. (µs/cm)	2247	2236	2231	2229	2229			
		Specific Cond. (µs/cm)	3510	3508	3504	3504	3505			
		Redox (mV)	-43.1	-34.0	-29.2	-24.9	-22.7			
		DO (mg/L)	0.04	0.05	0.06	0.01	0.01			
		DO (%)	0.3	0.4	0.3	0.1	0.0			
		Appearance & Odour (Clear, Silty, HC odours, etc.)	clear no odour	same	same	same	same			
		Turbidity (NTU):	–	–	–	–	2.40			
		Interval Purge Volume (L):	0.5L	0.5L	0.5L	0.5L	0.5L			
		Cumulative Purge Volume (L):	0.5L	1.0L	1.5L	2.0L	2.5L			

DTB – DTW) x (πr^{2})*1000 (for well diameter) = 1 well volume
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume

Calculations:

YSI Field Parameters Logged:	☑ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	11:06	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☑ YSI ☐ Pen Unit		✓			
Sample Time	11:10					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): P05-01-05

Sample Date (Con't): Sept. 23, 2016

Sample Time (Con't): 11:10

General Notes (Condition of well, or other features):
- couldn't take continuous water levels due to 1/2" diameter

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

Consumables:
- ☑ 1/4" HDPE (Peristaltic) 10 ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☐ 1/4" Silicon _____ ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____
- ☐ Other _____

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☑ Field Filtered	☑ HNO_3	125ml	
1 L (plastic)	General Chemistry	500 ml	-	-	1.0 L	

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	P05-[redacted]02	**Project Number:**	1343-005.31	**Date:**	Sept 23 2016
Station Status:	GOOD	**Client:**	GY - AAM	**Samplers:**	JC CH
Piezometer Diameter:	2"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	10° Sunny
UTM Location:	Z. 08 E. 0580038 N. 6914444	**Waypoint:**	GPS HEM ID N/A	**Recovery:**	☒ Good ☐ Bad ☐ Ok
Photos:	Cam. ELR2 Nos. 0451 - 0453	**Purge Method:**			
Duplicate Collected:	☒ Yes ☐ No Name DUP-6	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo** / **Other**
Field Blank Collected:	☐ Yes ☒ No Name _____		✓		

Initial Depth to Water (m):	2.745	**Purge Start Time:**	12:47				**Purge End Time:**				
Depth to Bottom (m):	5.982	**Purge Interval Time (___) min, Vol. (0.5) L**	12:50	12:53	12:56	12:59	13:03	13:06			
Submerged Tubing Depth (m):	5.50	**Depth to water (m)**	2.733	2.733	Same	Same	Same	Same			
Well Stick-up Height (m):	1.890	**Temperature (°C)**	6.2	6.1	5.9	5.8	5.8	5.8			
Estimated Water Volume (L):	6.354	**pH (pH Units)**	6.39	6.36	6.33	6.33	6.31	6.30			
		Cond. (µs/cm)	2233	2228	2216	2212	2206	2208			
		Specific Cond. (µs/cm)	3487	3487	3488	3489	3485	3490			
		Redox (mV)	14.0	10.9	8.4	6.9	6.3	5.8			
		DO (mg/L)	0.65	0.76	0.64	0.63	0.64	0.67			
		DO (%)	5.3	6.1	5.2	5.1	5.2	5.4			
		Appearance & Odour (Clear, Silty, HC odours, etc.)	clear odourless	Same	Same	Same	Same	Same			
		Turbidity (NTU):	–	–	–	–	–	3HQ			
		Interval Purge Volume (L):	0.5	0.5	0.5	0.5	0.5	0.5			
		Cumulative Purge Volume (L):	0.5	1.0	1.5	2.0	2.5	3.0			

DTB – DTW) x (πr^{2})*1000 (for well diameter) = 1 well volume
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume

Calculations:

YSI Field Parameters Logged:	☒ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	13:06	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☒ YSI ☐ Pen Unit		✓			
Sample Time	13:10					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): PO5-02

Sample Date (Con't): Sept 23 2016

Sample Time (Con't): 13:10

General Notes (Condition of well, or other features):

- good producing well

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (^{0}C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

Consumables:

- ☐ 1/4" HDPE (Peristaltic) _____ ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☒ 1/4" Silicon 0.5 ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____
- ☐ Other _____

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☒ HNO_3	120	—
1 L (plastic)	General Chemistry	500 ml	-	-	1000	—

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	PQ5-03	**Project Number:**	1343-005.31	**Date:**	Sept. 23, 2016
Station Status:	good	**Client:**	GY - AAM	**Samplers:**	JC & CH
Piezometer Diameter:	2"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	Sunny 5°C
UTM Location:	Z 08 E. 057 986 N. 6914350	**Waypoint:**	GPS ___ ID _____	**Recovery:**	☑ Good ☐ Bad ☐ Ok
Photos:	Cam. 2 Nos. 0448 - 0450	**Purge Method:**			
Duplicate Collected:	☐ Yes ☑ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
Field Blank Collected:	☑ Yes ☐ No Name FB-4		✓			

Initial Depth to Water (m):	4.469 m	**Purge Start Time:**	12:41			**Purge End Time:**	13:06			
Depth to Bottom (m):	8.010 m	**Purge Interval Time (___) min, Vol. (___) L**	0.5	12:46	12:50	12:52	12:54	12:57	13:00	13:02	13:04
Submerged Tubing Depth (m):	7.500 m	**Depth to water (m)**		4.482	4.483	4.490	same	same	same	same	same
Well Stick-up Height (m):	0.812 m	**Temperature (°C)**		6.1	6.0	5.1	5.0	4.9	4.8	4.8	4.8
Estimated Water Volume (L):	7.1 L	**pH (pH Units)**		6.87	6.85	6.84	6.83	6.83	6.83	6.82	6.82
DTB – DTW) x (πr²)*1000 (for well diameter) = 1 well volume (DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume (DTB – DTW) x 2 (for 2" well diameter) = 1 well volume (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume (DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume Calculations:		**Cond. (µs/cm)**		1301	1292	1287	1280	1275	1275	1273	1273
		Specific Cond. (µs/cm)		2094	2088	2076	2072	2072	2071	2072	2072
		Redox (mV)		-63.0	-53.1	-46.1	-42.2	-40.0	-38.0	-36.8	-35.7
		DO (mg/L)		0.70	0.78	0.63	0.35	0.28	0.20	0.14	0.13
		DO (%)		5.5	6.2	5.1	3.0	2.3	1.5	1.0	0.9
		Appearance & Odour (Clear, Silty, HC odours, etc.)		clear no odour	same	same	same	same	same	same	same
		Turbidity (NTU):		—	—	—	—	—	—	—	1.49
		Interval Purge Volume (L):		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
		Cumulative Purge Volume (L):		0.5L	1.0L	1.5L	2.0L	2.5L	3.0L	3.0L	3.5L

YSI Field Parameters Logged:	☑ Yes ☐ No	**Sample Method:**			
Time logged on YSI (24hr):	13:05	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☑ YSI ☐ Pen Unit		✓			
Sample Time	13:07					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): PDS-03

Sample Date (Con't): Sept. 23, 2016

Sample Time (Con't): 13:07

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (^{0}C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, or other features):

Consumables:

- ☐ 1/4" HDPE (Peristaltic) _____ ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☐ 1/4" Silicon _____ ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☑ Field Filtered	☑ HNO_3	125 ml	
1 L (plastic)	General Chemistry	500 ml	-	-	1.0L	

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	~~BH05-4~~ BH05-04	**Project Number:**	1343-005.31	**Date:**	Sept. 24, 2016
Station Status:	good	**Client:**	GY - AAM	**Samplers:**	JC & CH
Piezometer Diameter:	2"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	Chilly 3°C
UTM Location:	Z08 E. 0585116 N. 6913651	**Waypoint:**	GPS HEM ID N/A	**Recovery:**	☑ Good ☐ Bad ☐ Ok
Photos:	Cam: 25 Nos. 0476 - 0478	**Purge Method:**			
Duplicate Collected:	☐ Yes ☑ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo** / **Other**
Field Blank Collected:	☐ Yes ☑ No Name _____		✓		

Initial Depth to Water (m):	3.111 m	**Purge Start Time:**	15:25			**Purge End Time:**	15:40				
Depth to Bottom (m):	7.107 m	**Purge Interval 0.5 Time (___) min, Vol. (___) L**	15:27	15:31	15:34						
Submerged Tubing Depth (m):	6.600 m	**Depth to water (m)**	3.113	Same	Same						
Well Stick-up Height (m):	0.679 m	**Temperature (°C)**	3.5	3.5	3.5						
Estimated Water Volume (L):	7.9 L	**pH (pH Units)**	6.12	6.10	6.08						
DTB – DTW) x (πr²)*1000 (for well diameter) = 1 well volume (DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume (DTB – DTW) x 2 (for 2" well diameter) = 1 well volume (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume (DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume Calculations:		**Cond. (µs/cm)**	264.	264.2	263.5						
		Specific Cond. (µs/cm)	449	447.9	448.1						
		Redox (mV)	57.9	58.7	59.1						
		DO (mg/L)	0.06	0.10	0.05						
		DO (%)	0.4	0.8	0.6						
		Appearance & Odour (Clear, Silty, HC odours, etc.)	Clear odourless	Same	Same						
		Turbidity (NTU):	–	–	0.52						
		Interval Purge Volume (L):	0.5	0.5	0.5						
		Cumulative Purge Volume (L):	0.5	1.0	1.5						

YSI Field Parameters Logged:	☐ Yes ☒ No	**Sample Method:**			
Time logged on YSI (24hr):	BH05-4 not in YSI database	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo** / **Other**
YSI Meter or Pen Unit?:	☒ YSI ☐ Pen Unit		✓		
Sample Time	15:40				

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

✓

HEMMERA

Sample Site (Con't): P05-04

Sample Date (Con't): Sept 24 2016

Sample Time (Con't): 15:40

General Notes (Condition of well, or other features):

- good producing well

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (^{0}C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

Consumables:

- ☐ 1/4" HDPE (Peristaltic) _____ ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☐ 1/4" Silicon _____ ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____
- ☐ Other _____

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☐ HNO_3	120	—
1 L (plastic)	General Chemistry	500 ml	-	-	1000	—

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	PO9- ETA -2	**Project Number:**	1343-005.31	**Date:**	23- Sept - 16
Station Status:	GOOD	**Client:**	GY - AAM	**Samplers:**	AN / MM.
Piezometer Diameter:	2"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	sunny, light breeze
UTM Location:	Z 08 E. 0589704 N. 6913810	**Waypoint:**	GPS N/A ID N/A	**Recovery:**	☒ Good ☐ Bad ☐ Ok
Photos:	Cam. 1 Nos. 580-582	**Purge Method:**			
Duplicate Collected:	☐ Yes ☒ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo** / **Other**
Field Blank Collected:	☐ Yes ☒ No Name _____	hydrolift			

Initial Depth to Water (m):	10.380	**Purge Start Time:**	17:41		**Purge End Time:**	17:55					
Depth to Bottom (m):	16.170	**Purge Interval Time (5.) min, Vol. (~~15~~ 12.) L**	17:46	17:50	17:55						
Submerged Tubing Depth (m):	~12	**Depth to water (m)**	—	—	—						
Well Stick-up Height (m):	0.74	**Temperature (°C)**	6.6	5.8	5.7						
Estimated Water Volume (L):	11.6	**pH (pH Units)**	5.96	6.27	6.36						
		Cond. (µs/cm)	4068	4034	4025						
		Specific Cond. (µs/cm)	6286	6364	6370						
		Redox (mV)	-5.4	-45.1	-41.3						
		DO (mg/L)	2.61	2.82	2.85						
		DO (%)	21.7	23.0	23.8						
		Appearance & Odour (Clear, Silty, HC odours, etc.)	clear	same	same						
		Turbidity (NTU):	—	—	2.20						
		Interval Purge Volume (L):	15	15	10						
		Cumulative Purge Volume (L):	15	30.	40						

DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume

Calculations:

16.170 − 10.380 = 5.79 × 2 = 11.58

YSI Field Parameters Logged:	☒ Yes ☐ No	**Sample Method:**			
Time logged on YSI (24hr):	17:54	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo** / **Other**
YSI Meter or Pen Unit?:	☒ YSI ☐ Pen Unit	hydrolift			
Sample Time	18:00				

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): P09- ETA-2

Sample Date (Con't): 23- sept-16

Sample Time (Con't): 19:00

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (^{0}C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, or other features):

Consumables:

- ☐ 1/4" HDPE (Peristaltic) _____ ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☐ 1/4" Silicon _____ ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☑ Field Filtered	☑ HNO_3	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1,000	

HEMMERA

7.3

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	PQ9-GS1A	**Project Number:**	1343-005.31	**Date:**	24-Sept-16
Station Status:	GOOD	**Client:**	GY - AAM	**Samplers:**	AN / MM
Piezometer Diameter:	2"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	Some clouds, light breeze.
UTM Location:	Z. 8 E. 592494 N. 6904832	**Waypoint:**	GPS N[illegible]	**Recovery:**	☒ Good ☐ Bad ☐ Ok
Photos:	Cam. 1 Nos. 593-598	**Purge Method:**			
Duplicate Collected:	☐ Yes ☒ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
Field Blank Collected:	☐ Yes ☒ No Name _____		X			

Initial Depth to Water (m):	2.875	**Purge Start Time:**	11:57			**Purge End Time:**	12:13			
Depth to Bottom (m):	7.380	**Purge Interval Time (5) min, Vol. (___) L**	11:58	12:03	12:08	12:13				
Submerged Tubing Depth (m):	~6.5	**Depth to water (m)**	—	2.876	2.876	→				
Well Stick-up Height (m):	1.29	**Temperature (°C)**	8.2	9.0	9.0	9.0				
Estimated Water Volume (L):	9.0	**pH (pH Units)**	7.59	7.05	6.97	6.93				
		Cond. (µs/cm)	805	786	782	780				
		Specific Cond. (µs/cm)	1185	1133	1127	1124				
		Redox (mV)	49.0	24.5	17.5	12.1				
		DO (mg/L)	1.46	0.19	0.16	0.17				
		DO (%)	12.1	1.7	1.4	1.5				
		Appearance & Odour (Clear, Silty, HC odours, etc.)	Clear no odour	Same	Same	Same				
		Turbidity (NTU):	—	—	—	1.86				
		Interval Purge Volume (L):	—	1.5	1.5	1.5				
		Cumulative Purge Volume (L):	—	1.5	3.0	4.5				

DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume

Calculations:

7.380
2.875
4.505 x2
9.010

YSI Field Parameters Logged:	☒ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	12:14	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☒ YSI ☐ Pen Unit		X			
Sample Time	12:15					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): P09-651A

Sample Date (Con't): Sept. 24 / 2016

Sample Time (Con't): 12:15

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (^{0}C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, or other features):

Consumables:

- ☒ 1/4" HDPE (Peristaltic) 1.0 ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☒ 1/4" Silicon 0.5 ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☒ HNO_3	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1000	

HEMMERA

29.7

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	P09-GS18	**Project Number:**	1343-005.31	**Date:**	24-Sept-16
Station Status:	GOOD.	**Client:**	GY - AAM	**Samplers:**	AN, MM
Piezometer Diameter:	2"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	Cloudy ~8°C. Light wind
UTM Location:	Z. 8 E. 592487 N. 6904835	**Waypoint:**	GPS ___ ID _____	**Recovery:**	☐ Good ☐ Bad ☒ Ok
Photos:	Cam. 1 Nos. 593 - 598	**Purge Method:**			
Duplicate Collected:	☐ Yes ☒ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
Field Blank Collected:	☐ Yes ☒ No Name _____		X			

Initial Depth to Water (m):	2.559	**Purge Start Time:**	12:20		**Purge End Time:**	12:37				
Depth to Bottom (m):	29.645	**Purge Interval Time (5) min, Vol. (___) L**	12:21	12:26	12:33	12:37				
Submerged Tubing Depth (m):	~27.5	**Depth to water (m)**	—	2.980	3.075	3.134				
Well Stick-up Height (m):	0.96	**Temperature (°C)**	7.8	7.6	7.6	7.5				
Estimated Water Volume (L):	~54	**pH (pH Units)**	7.15	6.89	6.89	6.84				
		Cond. (µs/cm)	1039	1015	1012	1012				
		Specific Cond. (µs/cm)	1560	1521	1516	1524				
		Redox (mV)	4.9	-41.4	-45.7	-47.6				
		DO (mg/L)	1.18	0.28	0.42	0.42				
		DO (%)	7.7	7.6	3.4	3.6				
		Appearance & Odour (Clear, Silty, HC odours, etc.)	clear	Same	Same.	Same				
		Turbidity (NTU):	—	—	—	8.55				
		Interval Purge Volume (L):	—	0.9	0.5	0.5				
		Cumulative Purge Volume (L):	—	0.9	0.5	0.5				

DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume

Calculations:

YSI Field Parameters Logged:	☒ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	1237	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☒ YSI ☐ Pen Unit		X			
Sample Time	1240					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMER

Sample Site (Con't): P09 - 651B

Sample Date (Con't): Sept. 24/2016

Sample Time (Con't): 12:40

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (^{0}C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, or other features):

Consumables:

- ☒ 1/4" HDPE (Peristaltic) 1.0 ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☒ 1/4" Silicon 0.5 ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☒ HNO_3	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1600	

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

7.4

Sample Site:	PO9-LCD1	**Project Number:**	1343-005.31	**Date:**	24-Sept-16.
Station Status:	GOOD	**Client:**	GY - AAM	**Samplers:**	AN/MM.
Piezometer Diameter:	0"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	~0°C.
UTM Location:	Z. 08 E. 0593357 N. 6903316	**Waypoint:**	GPS N/A ID N/A	**Recovery:**	☒ Good ☐ Bad ☐ Ok
Photos:	Cam. 1 Nos. 583 - 585.	**Purge Method:**			
Duplicate Collected:	☒ Yes ☐ No Name Dup-7	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
Field Blank Collected:	☐ Yes ☒ No Name _____		X			

Initial Depth to Water (m):	3.783	**Purge Start Time:**	08:34			**Purge End Time:**	08:55			
Depth to Bottom (m):	7.346.	**Purge Interval Time (5.) min, Vol. (___) L**	08:35.	08:40	08:45.	08:50	08:55				
Submerged Tubing Depth (m):	~6	**Depth to water (m)**	—	3.830	3.830	3.850	3.853				
Well Stick-up Height (m):	0.92 -	**Temperature (°C)**	3.7.	3.3	3.3	3.3 -	3.3				
Estimated Water Volume (L):	7.1	**pH (pH Units)**	6.64.	7.00.	7.07	7.11	7.13				
DTB – DTW) x (πr²)*1000 (for well diameter) = 1 well volume (DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume (DTB – DTW) x 2 (for 2" well diameter) = 1 well volume (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume (DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume Calculations: 6/7. 7.346 3.783 3.563. X2 7.126		**Cond. (µs/cm)**	708	698.	685	684	684				
		Specific Cond. (µs/cm)	1195	1183.	1171	1169	1169.				
		Redox (mV)	-89.8.	-115.8	-115.1	-113.5	-113.7				
		DO (mg/L)	1.35.	0.47.	0.40	0.36	0.31				
		DO (%)	9.7.	3.5.	3.0	2.6	2.3.				
		Appearance & Odour (Clear, Silty, HC odours, etc.)	clear	clear	clear	clear	clear				
		Turbidity (NTU):	—	—	—	—	—	0.57			
		Interval Purge Volume (L):	—	1.75	1.85	1.90.	1.85.				
		Cumulative Purge Volume (L):	—	1.75	3.60	5.08	7.05				

YSI Field Parameters Logged:	☒ Yes ☐ No	**Sample Method:** 5.20				
Time logged on YSI (24hr):	08:55	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☒ YSI ☐ Pen Unit		X			
Sample Time	09:00					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): PO9-LCD1

Sample Date (Con't): 24-Sept-16.

Sample Time (Con't): 09:00

General Notes (Condition of well, or other features):

- Fast purge rate.

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (^{0}C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

Consumables:

- ☒ 1/4" HDPE (Peristaltic) 27 ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☒ 1/4" Silicon 0.5 ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____
- ☐ Other _____

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☐ HNO_3	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1,000	

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

+25-Sept-16. ~~10-2~~

Sample Site:	POS-LCD4	**Project Number:**	1343-005.31	**Date:**	24-Sept-16
Station Status:	SLOW RECHARGE, RETURN	**Client:**	GY - AAM	**Samplers:**	AN/MM
Piezometer Diameter:	2"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	slight cloud, 0°C.
UTM Location:	Z08V E. 0593221 N. 6903278	**Waypoint:**	GPS N/A ID ____	**Recovery:**	☐ Good ☒ Bad ☐ Ok
Photos:	Cam. 1 Nos. 586-588	**Purge Method:**			
Duplicate Collected:	☐ Yes ☒ No Name ____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
Field Blank Collected:	☐ Yes ☒ No Name ____		X			

Initial Depth to Water (m):	2.363	**Purge Start Time:**	09:09			**Purge End Time:**	~~09:50~~ 10:15				
Depth to Bottom (m):	12.400	**Purge Interval Time (5.) min, Vol. (___) L**	09:16	09:15	09:20	10:15	17:44	Sept 25 0930			
Submerged Tubing Depth (m):	~10	**Depth to water (m)**	—	2.785	3.035		11.632	11.581			
Well Stick-up Height (m):	0.96	**Temperature (°C)**	3.8	3.6	3.8	LITTLE RECHARGE AT 2"					
Estimated Water Volume (L):	20.1	**pH (pH Units)**	7.38	7.45	7.44		very little recharge insufficient vol. to sample.				
DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume (DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume (DTB – DTW) x 2 (for 2" well diameter) = 1 well volume (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume (DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume		**Cond. (µs/cm)**	479.3	468.4	465.9						
		Specific Cond. (µs/cm)	809.4	791.9	783.8						
		Redox (mV)	69.0	46.2	48.2						
		DO (mg/L)	1.98	0.41	0.36						
		DO (%)	14.6	3.1	2.7						
Calculations: 12.480 (39) 2.363 10.037 X2 20.074		**Appearance & Odour (Clear, Silty, HC odours, etc.)**	slightly Cloudy	Clear	Clear						
		Turbidity (NTU):	—	—	—						
		Interval Purge Volume (L):	—	0.95	0.4						
		Cumulative Purge Volume (L):	—	0.95	1.35						

YSI Field Parameters Logged:	☐ Yes ☒ No	**Sample Method:**				
Time logged on YSI (24hr):	N/A	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☐ YSI ☐ Pen Unit		X			
Sample Time	09:35 on Sept 25					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

* well requires more than 24 hours to recharge, + should be sampled w a bailer. There is lots of sediment in the bottom of the well; attempt to get as much water as possible w the bailer; not enough water present to get parameters. ~~FD~~

HEMMERA

- on 25-sept-16 @ 09:30 DTW 11.581 m

Sample Site (Con't): P09-LCD4

Sample Date (Con't): ~~24 Sept 16~~ 25-sept-16

Sample Time (Con't): 09:35

General Notes (Condition of well, or other features):

- very slow recharge, will return to attempt to sample.
- the well should be purged w waterra + sampled w peristaltic or bailer
- had to finish purge w waterra

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (^{0}C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

Consumables:

- ☒ 1/4" HDPE (Peristaltic) 41.5 ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☒ 5/8" HDPE (Waterra) 41.5 ft.
- ☒ 1/4" Silicon 0.5 ft.
- ☐ 0.45 micron inline filters _____ each
- ☒ D-25 (2" well) foot valves 1 each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☒ 2" HDPE Bailer 2 each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☒ HNO_3	100	
1 L (plastic)	General Chemistry	500 ml	-	-	400	

* can hear the water drain out of the bailer

↳ too much sediment ~~not~~ in the bottom unable to bail out the remaining water due to sand preventing the ball from sitting.

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

7.9

Sample Site:	P09-LCD6	**Project Number:**	1343-005.31	**Date:**	24-sept-16
Station Status:	GOOD	**Client:**	GY - AAM	**Samplers:**	AN/MM
Piezometer Diameter:	2"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	some clouds
UTM Location:	Z. [illegible] E. 593313 N. 6903242	**Waypoint:**	GPS N/A ID. ______	**Recovery:**	☒ Good ☐ Bad ☐ Ok
Photos:	Cam. 1 Nos. 589 - 592	**Purge Method:**			
Duplicate Collected:	☐ Yes ☒ No Name ______				
Field Blank Collected:	☐ Yes ☒ No Name ______				

Purge Method:

Waterra	Peristaltic	Disp. Bailer	Redi-flo	Other
	X			

Initial Depth to Water (m):	5.914	**Purge Start Time:**	09:53			**Purge End Time:**	10:15					
Depth to Bottom (m):	7.910	**Purge Interval Time (5) min, Vol. (___) L**	09:55	10:00	10:05	10:10	10:15					
Submerged Tubing Depth (m):	~ 6.9	**Depth to water (m)**	/	5.950	5.950	5.950	5.950					
Well Stick-up Height (m):	0.77	**Temperature (°C)**	3.4	3.3	3.4	3.4	3.5					
Estimated Water Volume (L):	4	**pH (pH Units)**	7.29	7.23	7.23	7.23	7.23					
		Cond. (μs/cm)	635	645	649	651	653					
		Specific Cond. (μs/cm)	1083	1101	1104	1107	1107					
		Redox (mV)	-84.2	-102.2	-108.0	-110.4	-111.9					
		DO (mg/L)	0.51	0.30	0.41	0.48	0.49					
		DO (%)	3.7	2.2	3.1	3.6	3.7					
		Appearance & Odour (Clear, Silty, HC odours, etc.)	slightly cloudy	clear	clear	clear	clear					
		Turbidity (NTU):	/	/	/	/	8.9					
		Interval Purge Volume (L):	/	1.5	1.5	1.4	1.0					
		Cumulative Purge Volume (L):	/	1.5	3.0	4.4	5.4					

(DTB – DTW) x (πr²)*1000 (for well diameter) = 1 well volume
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume

Calculations:
6.18.6
7.910
5.914
1.996 x 2 3.992

YSI Field Parameters Logged:	☒ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	10:15	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☒ YSI ☐ Pen Unit		X			
Sample Time	10:20 ~~10:20~~					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): P09-LCD6

Sample Date (Con't): 24-Sept-16

Sample Time (Con't): 10:20

General Notes (Condition of well, or other features):

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (^{0}C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

Consumables:

- ☒ 1/4" HDPE (Peristaltic) 1 ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☒ 1/4" Silicon 6.5 ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____
- ☐ Other _____

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☒ HNO_3	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1,000	

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	P09-SIS1	**Project Number:**	1343-005.31	**Date:**	Sept. 20, 2016
Station Status:	good	**Client:**	GY - AAM	**Samplers:**	JC & CH
Piezometer Diameter:	2"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	Sunny 10°C
UTM Location:	Z 08 E 0584476 N. 6913132	**Waypoint:**	GPS KEY ID N/A	**Recovery:**	☑ Good ☐ Bad ☐ Ok
Photos:	Cam ELR Nos. 0352 - 0354	**Purge Method:**			
Duplicate Collected:	☐ Yes ☒ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
Field Blank Collected:	☐ Yes ☒ No Name _____		✓			

Initial Depth to Water (m):	4.613	**Purge Start Time:**	17:06			**Purge End Time:**	17:41			
Depth to Bottom (m):	6.631	**Purge Interval Time (___) min, Vol. (0.5) L**	17:12	17:16	17:21	17:26	17:30	17:36	17:40	
Submerged Tubing Depth (m):	6.500	**Depth to water (m)**	4.850	4.989	5.110	5.170	5.232	5.301	5.318	
Well Stick-up Height (m):	0.979 m.	**Temperature (°C)**	7.4	7.2	6.8	7.0	6.9	6.9	6.8	
Estimated Water Volume (L):	4.0	**pH (pH Units)**	6.36	6.36	6.37	6.36	6.35	6.33	6.33	
DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume (DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume (DTB – DTW) x 2 (for 2" well diameter) = 1 well volume (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume (DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume Calculations:		**Cond. (µs/cm)**	4339	4302	4309	4403	4498	4654	4749	
		Specific Cond. (µs/cm)	6537	6525	6608	6715	6870	7109	7288	
		Redox (mV)	60.7	48.8	38.2	31.5	29.0	27.6	26.9	
		DO (mg/L)	0.14	0.14	0.20	0.19	0.19	0.22	0.22	
		DO (%)	1.2	1.3	1.7	1.5	1.5	1.7	1.8	
		Appearance & Odour (Clear, Silty, HC odours, etc.)	clear no odour	Same	Same	Same	Same	Same	Same	
		Turbidity (NTU):	–	–	–	–	–	–	8.33	
		Interval Purge Volume (L):	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
		Cumulative Purge Volume (L):	0.5	1.0	1.5	2.0	2.5	3.0	3.5	

YSI Field Parameters Logged:	☑ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	17:41	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☒ YSI ☐ Pen Unit		✓			
Sample Time	17:45					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): P09-SIS1

Sample Date (Con't): Sept. 20, 2016

Sample Time (Con't): ~~17:44~~ 17:45

General Notes (Condition of well, or other features):
- transducer in well
- parameters stable - full sample set collected.

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

Consumables:
- ☒ 1/4" HDPE (Peristaltic) 6 ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☒ 1/4" Silicon 0.5 ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____
- ☐ Other _____

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☒ HNO_3	120	—
1 L (plastic)	General Chemistry	500 ml	-	-	1000	—

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	P09-SI52	**Project Number:**	1343-005.31	**Date:**	Sept 20 2016
Station Status:	good	**Client:**	GY - AAM	**Samplers:**	JC CH
Piezometer Diameter:	2"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	10° Sunny
UTM Location:	Z08 E. 0584486 N. 6913126	**Waypoint:**	GPS HEM ID N/A	**Recovery:**	☑ Good ☐ Bad ☐ Ok
Photos:	Cam. EOS Nos. 0346 - 0348	**Purge Method:**			
Duplicate Collected:	☐ Yes ☒ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
Field Blank Collected:	☐ Yes ☒ No Name _____		✓			

Initial Depth to Water (m):	3.943	**Purge Start Time:**	15:39			**Purge End Time:**	15:55			
Depth to Bottom (m):	6.335	**Purge Interval Time (___) min, Vol. (0.5) L**	15:44	15:47	15:50	15:54				
Submerged Tubing Depth (m):	6.100	**Depth to water (m)**	3.982	3.979	3.978	3.980				
Well Stick-up Height (m):	1.13	**Temperature (°C)**	7.5	7.6	7.5	7.4				
Estimated Water Volume (L):	4.78	**pH (pH Units)**	5.71	5.59	5.55	5.60				
		Cond. (µs/cm)	6785	6880	6834	6811				
		Specific Cond. (µs/cm)	10207	10279	10293	10277				
		Redox (mV)	75.5	80.1	83.7	81.0				
		DO (mg/L)	0.23	0.09	0.15	0.12				
		DO (%)	1.7	0.9	1.4	1.0				
		Appearance & Odour (Clear, Silty, HC odours, etc.)	Slightly turbid slight organic smell	Same	Same	Same				
		Turbidity (NTU):				11.67				
		Interval Purge Volume (L):	0.5	0.5	0.5	0.5				
		Cumulative Purge Volume (L):	0.5	1.0	1.5	2.0				

DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume

Calculations:

YSI Field Parameters Logged:	☒ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	15:55	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☒ YSI ☐ Pen Unit	✓	✓			
Sample Time	15:55					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): P09-SIS2

Sample Date (Con't): Sept 20 2016

Sample Time (Con't): 15:55

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (^{0}C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, or other features):

- Well has good recharge
- Full parameters + sample set
- transducer in well

Consumables:

- ☒ 1/4" HDPE (Peristaltic) _____ ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☒ 1/4" Silicon 0.5 ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☑ Field Filtered	☒ HNO_3	120	—
1 L (plastic)	General Chemistry	500 ml	-	-	1000	—

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	P09-SIS3	**Project Number:**	1343-005.31	**Date:**	Sept. 20, 2016
Station Status:	Good	**Client:**	GY - AAM	**Samplers:**	JC & CH
Piezometer Diameter:	2"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	10° Sunny
UTM Location:	z08 E0584493 N6913119	**Waypoint:**	GPS HEM ID N/A	**Recovery:**	☑ Good ☐ Bad ☐ Ok
Photos:	Cam EOS2 Nos 0343 - 0345	**Purge Method:**			
Duplicate Collected:	☐ Yes ☒ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo** / **Other**
Field Blank Collected:	☐ Yes ☒ No Name _____		✓		

Initial Depth to Water (m):	3.989	**Purge Start Time:**	14:49			**Purge End Time:**	15:14			
Depth to Bottom (m):	4.589	**Purge Interval** Time (___) min, Vol. (0.5) L	14:55	14:59	15:05	15:09				
Submerged Tubing Depth (m):	4.200	**Depth to water (m)**	4.009	4.013	4.016	4.012				
Well Stick-up Height (m):	1.110	**Temperature (°C)**	7.9	7.5	7.3	7.1				
Estimated Water Volume (L):	1.5	**pH (pH Units)**	5.67	5.68	5.68	5.67				
		Cond. (µs/cm)	7479	7450	7399	7378				
		Specific Cond. (µs/cm)	11129	11202	11192	11192				
DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume		**Redox (mV)**	46.9	51.1	54.7	57.1				
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume		**DO (mg/L)**	0.08	0.02	0.02	0.03				
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume		**DO (%)**	0.6	0.2	0.1	0.2				
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume		**Appearance & Odour (Clear, Silty, HC odours, etc.)**	clear no odour	same	same	same				
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume		**Turbidity (NTU):**	–	–	–	2.23				
Calculations:		**Interval Purge Volume (L):**	0.5	0.5	0.5	0.5				
		Cumulative Purge Volume (L):	0.5	1L	1.5L	2.0L				

YSI Field Parameters Logged:	☑ Yes ☐ No	**Sample Method:**			
Time logged on YSI (24hr):	15:11	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo** / **Other**
YSI Meter or Pen Unit?:	☑ YSI ☐ Pen Unit		✓		
Sample Time	15:15				

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): P09-SIS3

Sample Date (Con't): Sept. 20, 2016

Sample Time (Con't): 15:15

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (^{0}C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, or other features):

- Well had stable water level while purging.
- Full parameters + Full sample.

Consumables:

- ☒ 1/4" HDPE (Peristaltic) 16 ft.
- ☒ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☒ 1/4" Silicon 0.5 ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☒ HNO_3	120	—
1 L (plastic)	General Chemistry	500 ml	-	-	1000	—

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	P09-S154	**Project Number:**	1343-005.31	**Date:**	Sept20 2016
Station Status:	Slow recharge	**Client:**	GY - AAM	**Samplers:**	JC CH
Piezometer Diameter:	2"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	10° sunny
UTM Location:	Z.08 E. 0584509 N. 6913111	**Waypoint:**	GPS HEM ID N/A	**Recovery:**	☑ Good ☑ Bad ☐ Ok
Photos:	Cam. EOS2 Nos. 0334 - 0336	**Purge Method:**			
Duplicate Collected:	☐ Yes ☒ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
Field Blank Collected:	☐ Yes ☒ No Name _____		✓			

Initial Depth to Water (m):	4.047	**Purge Start Time:**	11:45				**Purge End Time:**	12:51			
Depth to Bottom (m):	4.460	**Purge Interval Time (___) min, Vol. (0.5) L**	11:50	11:55	12:03	12:13	12:17	12:26	12:39	12:45	12:51
Submerged Tubing Depth (m):	4.300	**Depth to water (m)**	4.189	4.273	4.333	4.319	4.311	4.354	4.278	4.336	4.310
Well Stick-up Height (m):	0.954	**Temperature (°C)**	6.9	7.0	7.0	7.0	7.5	7.0	7.4	7.7	7.2
Estimated Water Volume (L):	0.826	**pH (pH Units)**	6.38	6.33	6.29	6.31	6.31	6.31	6.32	6.31	6.31
		Cond. (µs/cm)	5790	5763	5688	5769	5785	5773	6014	5795	5727
		Specific Cond. (µs/cm)	8853	8795	8677	8757	8776	8815	8983	8643	8710
DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume (DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume (DTB – DTW) x 2 (for 2" well diameter) = 1 well volume (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume (DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume Calculations:		**Redox (mV)**	-21.5	-13.9	-5.4	3.4	5.5	11.8	18.3	21.0	23.1
		DO (mg/L)	0.26	0.12	0.12	0.14	1.33	0.23	0.20	0.66	0.46
		DO (%)	2.4	1.0	1.1	1.2	1.5	1.6	1.4	5.4	3.8
		Appearance & Odour (Clear, Silty, HC odours, etc.)	clear odourless	clear odourless	clear no odour	clear no odour	clear no odour	clear no odour	Same	Same.	Same.
		Turbidity (NTU):	—	—	—	—	—	—	—	—	2.85
		Interval Purge Volume (L):	0.5L	0.5L	0.5L	0.5L	0.5L	0.5L	0.5	0.5	0.5
		Cumulative Purge Volume (L):	0.5L	1L	1.5L	2.0L	2.5L	3.0L	3.5	4.0	4.5

YSI Field Parameters Logged:	☒ Yes ☐ No	**Sample Method:**			
Time logged on YSI (24hr):	12:52	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☐ YSI ☐ Pen Unit		✓			
Sample Time	12:55					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): P09-SIS4

Sample Date (Con't): Sept. 20, 2016

Sample Time (Con't): 12:55

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, or other features):

- transducer in well
- recovery ok
- ORP slow to stabilize
- had to turn off pump midway to let the well recharge
- over 3 well volumes purged
- ORP Not stablizing - Sampled after 9 readings

Consumables:

- ☒ 1/4" HDPE (Peristaltic) 4 ft.
- ☐ 3/8" HDPE (Microwaterra) ______ ft.
- ☐ 5/8" HDPE (Waterra) ______ ft.
- ☒ 1/4" Silicon 0.5 ft.
- ☐ 0.45 micron inline filters ______ each
- ☐ D-25 (2" well) foot valves ______ each
- ☐ D-16 (1" well) foot valves ______ each
- ☐ SS-10 (5/8" well) foot valves ______ each
- ☐ 1" HDPE Bailer ______ each
- ☐ 2" HDPE Bailer ______ each
- ☐ Other ______
- ☐ Other ______

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☒ HNO_3	120	—
1 L (plastic)	General Chemistry	500 ml	-	-	1000	—

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	P09-S156	**Project Number:**	1343-005.31	**Date:**	Sept 20 2016
Station Status:	Very slow Recharge	**Client:**	GY - AAM	**Samplers:**	JC CH
Piezometer Diameter:	2"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	10° Sunny
UTM Location:	Z08 E. 0584516 N. 6913106	**Waypoint:**	GPS HEM ID N/A	**Recovery:**	☐ Good ☒ Bad ☐ Ok
Photos:	Cam EL2 Nos. 0,331 - 0,333	**Purge Method:**			
Duplicate Collected:	☐ Yes ☒ No Name _____	**Waterra**	**Peristaltic** ✓	**Disp. Bailer**	**Redi-flo** / **Other**
Field Blank Collected:	☐ Yes ☒ No Name _____				

Initial Depth to Water (m):	3.793	**Purge Start Time:**	10:37			**Purge End Time:**	11:14				
Depth to Bottom (m):	6.305	**Purge Interval Time (___) min, Vol. (0.5) L**	10:44	10:54	11:01	11:05	11:10	11:14			
Submerged Tubing Depth (m):	5.800	**Depth to water (m)**	4.133	4.367	4.51	4.681	4.814	4.926			
Well Stick-up Height (m):	1.281	**Temperature (°C)**	6.5	7.5	6.0	5.8	5.9	6.1			
Estimated Water Volume (L):	5.024	**pH (pH Units)**	6.92	7.02	6.84	6.85	6.85	6.84			
DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume (DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume (DTB – DTW) x 2 (for 2" well diameter) = 1 well volume (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume (DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume Calculations:		**Cond. (µs/cm)**	3493	3788	3862	3806	3789	3826			
		Specific Cond. (µs/cm)	5399	5887	6070	5996	5965	6000			
		Redox (mV)	-17.1	-38.6	-50.6	-63.7	-68.1	-70			
		DO (mg/L)	1.03	3.54	0.33	0.14	0.14	0.13			
		DO (%)	8.7	27.7	2.1	1.2	1.2	1.1			
		Appearance & Odour (Clear, Silty, HC odours, etc.)	clear colourless	same.	same	same	same	same			
		Turbidity (NTU):	—	—	—	—	—	27.1			
		Interval Purge Volume (L):	0.5	0.5	0.5	0.5	0.5	0.5			
		Cumulative Purge Volume (L):	0.5	1.0	1.5	2.0	2.5	3.0			

YSI Field Parameters Logged:	☒ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	11:15	**Waterra**	**Peristaltic** ✓	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☒ YSI ☐ Pen Unit					
Sample Time	11:16					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): P09-SISG

Sample Date (Con't): Sept 20 2016.

Sample Time (Con't): 11:16

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, or other features):

- Possibly a transducer in the well (Aircraft cable attached to well)
- well has very slow recharge
- Stable parameters collected + Full Sample set.

Consumables:

- ☒ 1/4" HDPE (Peristaltic) 19 ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☒ 1/4" Silicon 0.5 ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☒ HNO_3	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1L	

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

+24-Sept.
22-Sept-16.

Sample Site:	P8001-2A	**Project Number:**	1343-005.31	**Date:**	~~22-Sept~~
Station Status:	SLOW RECHARGE	**Client:**	GY - AAM	**Samplers:**	AN/MM.
Piezometer Diameter:	2"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	windy, overcast
UTM Location:	Z08V E.0593132 N.6962866	**Waypoint:**	GPS ~~ID~~	**Recovery:**	☐ Good ☒ Bad ☐ Ok
Photos:	Cam. 1 Nos. 550-552	**Purge Method:**			
Duplicate Collected:	☐ Yes ☒ No Name	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
Field Blank Collected:	☐ Yes ☒ No Name		X			

Initial Depth to Water (m):	4.386	**Purge Start Time:**	10:56			**Purge End Time:**	11:32				
Depth to Bottom (m):	6.366	**Purge Interval Time (5) min, Vol. (___) L**	10:57	11:02	11:09	11:14	11:19	11:24	11:28	11:32	Sept 24 11:00
Submerged Tubing Depth (m):	~5.5	**Depth to water (m)**	—	4.612	4.626	4.80	4.98	5.124	increased slow recharge rate.	Well DRY.	—
Well Stick-up Height (m):	0.605	**Temperature (°C)**	6.2	6.4	6.4	6.4	6.6	6.7			5.8
Estimated Water Volume (L):	~4.0	**pH (pH Units)**	6.77	6.64	6.63	6.63	6.63	6.65			6.88
		Cond. (µs/cm)	2409	2428	2440	2438	2443	2434			2474
		Specific Cond. (µs/cm)	3759	3772	3785	3782	3770	3742			3907
		Redox (mV)	-11.7	-16.5	-22.7	-21.8	-10.6	1.4			75.4
		DO (mg/L)	0.86	0.56	0.87	1.11	1.49	2.07			1.29
		DO (%)	6.2	6.4	7.2	9.2	12.1	16.9			10.1
		Appearance & Odour (Clear, Silty, HC odours, etc.)	grey turbid	Same	Same.	Same	Same.	Same.			Clear
		Turbidity (NTU):	—	~~11.6~~	—	—	—	—			27.7
		Interval Purge Volume (L):	—	0.6	0.5	0.35	0.45	0.35			—
		Cumulative Purge Volume (L):	—	0.6	1.1	1.45	1.9	2.25			—

DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume

Calculations:

6.366
4.386
1.980 × 2 = 3.96

YSI Field Parameters Logged:	☒ Yes ☐ No	**Sample Method:**			
Time logged on YSI (24hr):	11:11	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☒ YSI ☐ Pen Unit		X			
Sample Time	11:00 onsept					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

24

HEMMERA

Sample Site (Con't): PZ001-ZA

Sample Date (Con't): Sept 24, 2016

Sample Time (Con't): 11:00

General Notes (Condition of well, or other features):

Tip of WL meter covered in bentonite after well was dipped.

- on Sept 24 returned to sample

DTW 4.445

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

Consumables:

- ☒ 1/4" HDPE (Peristaltic) 1.0 ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☒ 1/4" Silicon 0.5 ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____
- ☐ Other _____

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☒ HNO_3	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1,000	

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

+24 - Sept-16

Sample Site:	P2001-2B	**Project Number:**	1343-005.31	**Date:**	22-Sept-16
Station Status:	SLOW RECHARG, RETURN	**Client:**	GY - AAM	**Samplers:**	AN MM
Piezometer Diameter:	2"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	windy
UTM Location:	Z. 8 E. 0593132 N. 6902866	**Waypoint:**	GPS ___ ID _____	**Recovery:**	☐ Good ☒ Bad ☐ Ok
Photos:	Cam. 1 Nos. 550-552	**Purge Method:**			
Duplicate Collected:	☐ Yes ☒ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo** / **Other**
Field Blank Collected:	☐ Yes ☒ No Name _____	manual			

Initial Depth to Water (m):	4.160	**Purge Start Time:**	11:10			**Purge End Time:**	11:53				
Depth to Bottom (m):	27.565	**Purge Interval Time (5) min, Vol. (___) L**	11:15	11:37	11:45	11:53	Sept 22	11:22	Sept 24		
Submerged Tubing Depth (m):	~21	**Depth to water (m)**	—	—	—	—		4.336			
Well Stick-up Height (m):	~~0.4~~ 0.37	**Temperature (°C)**	—	3.3	3.5	3.4		4.8			
Estimated Water Volume (L):	46.8	**pH (pH Units)**	—	6.97	6.93	6.99		6.87			
		Cond. (µs/cm)	—	2259	2172	2162		2329			
		Specific Cond. (µs/cm)	—	3853	3682	3681		3787			
		Redox (mV)	—	11.3	-11.1	-0.8		97.2			
		DO (mg/L)	—	2.18	1.79	2.33		4.45			
		DO (%)	—	16.5	13.6	17.6		35.0			
		Appearance & Odour (Clear, Silty, HC odours, etc.)	slightly turbid.	Clear.	Sand	sand		turbid rusty brown			
		Turbidity (NTU):	—	—	—	—		17.0			
		Interval Purge Volume (L):	12.0	15.0	15.	15.		—			
		Cumulative Purge Volume (L):	12.0	27.0	42	57		—			

DTB – DTW) x (πr^2) 1000 (for well diameter) = 1 well volume
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume

Calculations:

27565
4160
23405 ×2 = 46.810

YSI Field Parameters Logged:	☒ Yes ☐ No	**Sample Method:**			
Time logged on YSI (24hr):	1123	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo** / **Other**
YSI Meter or Pen Unit?:	☒ YSI ☐ Pen Unit	manual			
Sample Time	11:20 on Sept 24				

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): P2001 - 2B

Sample Date (Con't): 24 - Sept - 16

Sample Time (Con't): 11:15

General Notes (Condition of well, or other features):

- returned to sample on 24-Sept-16

DTW: 4.336m

Sample was clear (i.e. not turbid) but became cloudy (light brown/rusty) when completing YSI in-situ measurements.

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

Consumables:

- ☐ 1/4" HDPE (Peristaltic) _____ ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☐ 1/4" Silicon _____ ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☒ HNO_3	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1000	

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	P96-7	**Project Number:**	1343-005.31	**Date:**	Sept. 21, 2016
Station Status:	good	**Client:**	GY - AAM	**Samplers:**	JC & CH
Piezometer Diameter:	2"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	sunny 6°C
UTM Location:	Z. 08 E. 0584128 N. 6913283	**Waypoint:**	GPS ~~HDM~~ ID N/A	**Recovery:**	☑ Good ☐ Bad ☐ Ok
Photos:	Cam# E182 Nos. 0364 - 0366	**Purge Method:**			
Duplicate Collected:	☐ Yes ☒ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
Field Blank Collected:	☐ Yes ☒ No Name _____		✓			

Initial Depth to Water (m):	4.330	**Purge Start Time:**	10:59			**Purge End Time:**	11:23				
Depth to Bottom (m):	9.894	**Purge Interval Time (3) min, Vol. 0.5L**	11:03	11:07	11:11	11:14	11:18	11:22			
Submerged Tubing Depth (m):	9.450	**Depth to water (m)**	4.441	4.445	4.454	4.462	4.474	4.461			
Well Stick-up Height (m):	0.791 m	**Temperature (°C)**	2.9	2.8	2.8	2.8	2.8	2.8			
Estimated Water Volume (L):	11.128L	**pH (pH Units)**	7.16	7.14	7.17	7.19	7.20	7.21			
		Cond. (µs/cm)	1812	1776	1742	1737	1734	1736			
		Specific Cond. (µs/cm)	3132	3077	3025	3018	3013	3016			
		Redox (mV)	28.2	37.6	41.2	42.2	43.2	44.6			
		DO (mg/L)	3.67	5.78	9.23	10.14	10.61	10.61			
		DO (%)	27.8	43.6	68.9	75.7	79.4	79.5			
		Appearance & Odour (Clear, Silty, HC odours, etc.)	clear slight odour	clear slight odour	same	same	same	same			
		Turbidity (NTU):	—	—	—	—	—	0.96			
		Interval Purge Volume (L):	0.5	0.5	0.5	0.5	0.5	0.5			
		Cumulative Purge Volume (L):	0.5	1.0	1.5	2.0	2.5	3.0			

DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume

Calculations:

YSI Field Parameters Logged:	☑ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	11:23	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☑ YSI ☐ Pen Unit		✓			
Sample Time	11:25					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): P96-7

Sample Date (Con't): Sept. 21, 2016

Sample Time (Con't): 11:25

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, or other features):

- tubing was in wells
- well accessible by road along Powerline.

Consumables:

- ☐ 1/4" HDPE (Peristaltic) _____ ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☐ 1/4" Silicon _____ ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☒ HNO_3	120	—
1 L (plastic)	General Chemistry	500 ml	-	-	1000	—

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	PW6-8A	**Project Number:**	1343-005.31	**Date:**	~~Sept~~ 23 Sept - 16
Station Status:	GOOD	**Client:**	GY - AAM	**Samplers:**	AN/MM
Piezometer Diameter:	2"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	blue skies, light breeze
UTM Location:	Z.08 E. 0583219 N. 6914672	**Waypoint:**	GPS ~~N IDA~~	**Recovery:**	☒ Good ☐ Bad ☐ Ok
Photos:	Cam. 1 Nos. 578 - 580	**Purge Method:**			
Duplicate Collected:	☐ Yes ☒ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
Field Blank Collected:	☐ Yes ☒ No Name _____		X			

Initial Depth to Water (m):	2.625	**Purge Start Time:**	16:19			**Purge End Time:**	16:40			
Depth to Bottom (m):	84.895	**Purge Interval** Time (5) min, Vol. (___) L	16:20	16:25	16:30	16:35	16:40			
Submerged Tubing Depth (m):	4	**Depth to water (m)**	—	2.630	2.630	2.630	2.630			
Well Stick-up Height (m):	0.71	**Temperature (°C)**	9.1	9.0	9.2	9.2	9.2			
Estimated Water Volume (L):	4.5	**pH (pH Units)**	4.36	3.97	3.82	3.80	3.78			
		Cond. (µs/cm)	6430	6474	5842	5587	5549			
		Specific Cond. (µs/cm)	9260	9310	8348	7989	7937			
		Redox (mV)	283.2	286.7	306.2	305.5	305.2			
		DO (mg/L)	0.56	0.21	0.46	0.45	0.45			
		DO (%)	4.9	1.9	4.1	4.1	4.1			
		Appearance & Odour (Clear, Silty, HC odours, etc.)	clear	clear	same	same	same			
		Turbidity (NTU):	—	—	—	—	0.32			
		Interval Purge Volume (L):	—	1	1.5	1.4	1.5			
		Cumulative Purge Volume (L):	—	1	1.5	2.9	4.4			

DTB – DTW) x (πr^{2})*1000 (for well diameter) = 1 well volume
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume

Calculations:

4.895
2.625
4270 x2 4.54

YSI Field Parameters Logged:	☒ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	16:40	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☒ YSI ☐ Pen Unit		X			
Sample Time	16:45					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): P96-8A

Sample Date (Con't): 23-Sept-16

Sample Time (Con't): 16:45

General Notes (Condition of well, or other features):

- lots of oxidation (orange) odor around well + in seepage creek

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

Consumables:

- ☒ 1/4" HDPE (Peristaltic) 1 ft.
- ☒ ~~3/8" HDPE (Microwaterra)~~ _____ ft.
- ☒ ~~5/8" HDPE (Waterra)~~ _____ ft.
- ☒ 1/4" Silicon 0.5 ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☒ HNO_3	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1,000	

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	P96-88	**Project Number:**	1343-005.31	**Date:**	23-Sept-16
Station Status:	GOOD	**Client:**	GY - AAM	**Samplers:**	AN / MM
Piezometer Diameter:	2"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	sunny
UTM Location:	Z. 08 E. 0528219 N. 6914072	**Waypoint:**	GPS N/A ID N/A	**Recovery:**	☒ Good ☐ Bad ☐ Ok
Photos:	Cam. 1 Nos. 578 - 580	**Purge Method:**			
Duplicate Collected:	☐ Yes ☒ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo** / **Other**
Field Blank Collected:	☐ Yes ☒ No Name _____		X		

Initial Depth to Water (m):	2.537	**Purge Start Time:**	16:49			**Purge End Time:**	17:09			
Depth to Bottom (m):	9.410	**Purge Interval Time (5) min, Vol. (___) L**	16:49	16:54	16:59	17:04	17:09			
Submerged Tubing Depth (m):	~8	**Depth to water (m)**	—	2.535	2.535	2.535	2.535			
Well Stick-up Height (m):	0.61	**Temperature (°C)**	8.9	8.1	8.0	8.1	8.0			
Estimated Water Volume (L):	13.7	**pH (pH Units)**	4.15	4.94	5.09	5.13	5.10			
		Cond. (µs/cm)	6205	5979	5959	5965	5952			
		Specific Cond. (µs/cm)	8177	8839	8810	8809	8807			
		Redox (mV)	218.4	162.5	155.4	151.1	148.6			
		DO (mg/L)	3.16	0.53	0.64	0.76	0.88			
		DO (%)	27.2	4.6	5.6	6.7	7.8			
		Appearance & Odour (Clear, Silty, HC odours, etc.)	clear	same	same	same	same			
		Turbidity (NTU):	—	—	—	—	0.11			
		Interval Purge Volume (L):	—	1	1.25	1.15	1.15			
		Cumulative Purge Volume (L):	—	1	2.25	3.40	4.55			

DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume

Calculations:
9.410
2.537
6.873 × 2
13.746

YSI Field Parameters Logged:	☒ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	17:09	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☒ YSI ☐ Pen Unit		X			
Sample Time	17:10					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): P96-SB

Sample Date (Con't): 23-Sept-16

Sample Time (Con't): 17:10

General Notes (Condition of well, or other features):

- oxidation around well & creek

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

Consumables:

- ☒ 1/4" HDPE (Peristaltic) 1 ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☒ 1/4" Silicon 0.5 ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____
- ☐ Other _____

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☒ HNO_3	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1,000	

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	PQ6 - 9A	**Project Number:**	1343-005.31	**Date:**	22-sept-16
Station Status:	GOOD	**Client:**	GY - AAM	**Samplers:**	AN/MM
Piezometer Diameter:	2"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	windy/overcast
UTM Location:	Z. 8 E. 592647 N. 6903349	**Waypoint:**	GPS N/A	**Recovery:**	☒ Good ☐ Bad ☐ Ok
Photos:	Cam. 1 Nos. 565-567	**Purge Method:**			
Duplicate Collected:	☐ Yes ☒ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
Field Blank Collected:	☐ Yes ☒ No Name _____		X			

Initial Depth to Water (m):	5.941	**Purge Start Time:**	16:06			**Purge End Time:**	16:24			
Depth to Bottom (m):	9.419	**Purge Interval Time (5) min, Vol. (___) L**	16:08	16:14	16:19	16:24				
Submerged Tubing Depth (m):	~7.5	**Depth to water (m)**	—	5.976	5.976	5.976				
Well Stick-up Height (m):	1.01	**Temperature (°C)**	7.3	7.2	7.1	7.1				
Estimated Water Volume (L):	~7.0	**pH (pH Units)**	6.89	6.70	6.70	6.69				
		Cond. (µs/cm)	2101	2125	2130	2130				
		Specific Cond. (µs/cm)	3179	3224	3232	3232				
		Redox (mV)	184.5	181.8	180.5	179.5				
		DO (mg/L)	1.43	0.97	1.11	1.24				
		DO (%)	11.7	8.1	9.4	10.3				
		Appearance & Odour (Clear, Silty, HC odours, etc.)	Clear	Same	Same.	Same.				
		Turbidity (NTU):	—	—	—	2.80				
		Interval Purge Volume (L):	—	0.8	0.4	0.5				
		Cumulative Purge Volume (L):	—	0.8	1.2	1.7				

DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume

Calculations:

9.419
5.941
3.478 * 2 = 6.956

YSI Field Parameters Logged:	☒ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	16:25	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☒ YSI ☐ Pen Unit		X			
Sample Time	16:25					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): P96-9A

Sample Date (Con't): Sept. 22/2016

Sample Time (Con't): 16:25

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (^{0}C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, or other features):

Consumables:

- ☒ 1/4" HDPE (Peristaltic) 1.0 ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☒ 1/4" Silicon 0.5 ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☒ HNO_3	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1000	

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	S1A	**Project Number:**	1343-005.31	**Date:**	20-Sept-16.
Station Status:	GOOD.	**Client:**	GY - AAM	**Samplers:**	AN/MM
Piezometer Diameter:	2"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	Sunny
UTM Location:	Z: 8 E: 558433 N. 6913114	**Waypoint:**	GPS ___ ID _____	**Recovery:**	☒ Good ☐ Bad ☐ Ok
Photos:	Cam. 1 Nos. 505-508.	**Purge Method:**			
Duplicate Collected:	☐ Yes ☒ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
Field Blank Collected:	☐ Yes ☒ No Name _____		X			

Initial Depth to Water (m):	4.729	**Purge Start Time:**	1535			**Purge End Time:**				
Depth to Bottom (m):	13.100	**Purge Interval Time (5) min, Vol. (___) L**	15:37	1542	1547	1552	1557			
Submerged Tubing Depth (m):	~10	**Depth to water (m)**	4.730	4.729	4.729	→	→			
Well Stick-up Height (m):	1.320	**Temperature (°C)**	4.3	4.5	4.3	4.1	4.1			
Estimated Water Volume (L):	16.7	**pH (pH Units)**	6.06	5.82	5.83	5.84	5.83			
		Cond. (µs/cm)	1161	1197	1188	1182	1182			
		Specific Cond. (µs/cm)	1937	1967	1961	1969	1971			
		Redox (mV)	120.0	114.8	112.6	111.4	111.4			
		DO (mg/L)	0.97	1.35	2.17	3.11	3.74			
		DO (%)	7.1	10.7	16.9	24.1	28.7			
		Appearance & Odour (Clear, Silty, HC odours, etc.)	clear	clear	some.	some	some.			
		Turbidity (NTU):	—	—	—	—	0.55			
		Interval Purge Volume (L):	—	1.0	0.85	0.85	0.85			
		Cumulative Purge Volume (L):	—	1.0	1.85	2.7	3.55			

DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume

Calculations:

13.100
4.729
8.371 *2 = 16.74

YSI Field Parameters Logged:	☒ Yes ☐ No	**Sample Method:**			
Time logged on YSI (24hr):	15:58	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☒ YSI ☐ Pen Unit		X			
Sample Time	16:00					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): S1A

Sample Date (Con't): Sept. 20/16

Sample Time (Con't): 16:00

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (^{0}C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, or other features):

Consumables:

- ☒ 1/4" HDPE (Peristaltic) 1.0 ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☒ 1/4" Silicon 0.5 ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____
- ☐ Other _____

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☒ HNO_3	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1000	

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

+ 21-Sept-16.

Sample Site:	SIB	**Project Number:**	1343-005.31	**Date:**	20-Sept-16
Station Status:	SLOW RECHARGE; RETURN	**Client:**	GY - AAM	**Samplers:**	AN/MM
Piezometer Diameter:	2"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	Sunny w some clouds.
UTM Location:	Z 08 E 584432 N. 6913114	**Waypoint:**	GPS ELEVID N/A.	**Recovery:**	☐ Good ☒ Bad ☐ Ok
Photos:	Cam. 1 Nos. 521-524	**Purge Method:**			
Duplicate Collected:	☐ Yes ☒ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
Field Blank Collected:	☐ Yes ☒ No Name _____		X			

Initial Depth to Water (m):	4.521	**Purge Start Time:**	15:16			**Purge End Time:**		1529			
Depth to Bottom (m):	5.168	**Purge Interval Time (5) min, Vol. (___) L**	15:19	1524	1529			09:43			
Submerged Tubing Depth (m):	~5	**Depth to water (m)**	4.778	5.055	5.16	Well					
Well Stick-up Height (m):	1.175	**Temperature (°C)**	6.5	4.9	4.5	Purged	Dry	2.6			
Estimated Water Volume (L):	1.3	**pH (pH Units)**	6.56	6.54	6.54			6.66			
		Cond. (µs/cm)	526	487.6	487.2			484.8			
		Specific Cond. (µs/cm)	817	792.4	788.7			847.8			
		Redox (mV)	71.5	119.1	130.5			129.0			
		DO (mg/L)	3.61	3.30	2.84			2.94			
		DO (%)	28.9	26.0	22.7			21.9			
		Appearance & Odour (Clear, Silty, HC odours, etc.)	~~Clear~~ Slightly cloudy	Same	Same	Sept. 20/2016 @ 15:29		Clear			
		Turbidity (NTU):	—	—	—			23.5			
		Interval Purge Volume (L):	—	0.5	0.5			—			
		Cumulative Purge Volume (L):	—	0.5	1.0			—			

DTB – DTW) x (πr^{2})*1000 (for well diameter) = 1 well volume
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume

Calculations:

5.168
4.521
0647 x2 =

YSI Field Parameters Logged:	☒ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	09:43	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☒ YSI ☐ Pen Unit					
Sample Time	09:30 on 21-Sept		X			

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): S1B

Sample Date (Con't): 21-Sept-16

Sample Time (Con't): 09:30

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (^{0}C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, or other features):

- well not recharging, after consulting previous years notes well was purged dry & will return to sample later.
- returned to sample on 21-Sept-16 DTW: 4.539m; sample time 09:30; well dry after taking parameters.

Consumables:

- ☒ 1/4" HDPE (Peristaltic) 20 ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☒ 1/4" Silicon 0.5 ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____
- ☐ Other _____

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☐ HNO_3	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1,000	

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	S2A	**Project Number:**	1343-005.31	**Date:**	20-Sept-16
Station Status:	GOOD	**Client:**	GY - AAM	**Samplers:**	AN/MM
Piezometer Diameter:	2"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	Overcast
UTM Location:	Z. 8 E. 584471 N. 6913123	**Waypoint:**	GPS ER ID N/A	**Recovery:**	☒ Good ☐ Bad ☐ Ok
Photos:	Cam. 1 Nos. 525-528	**Purge Method:**			
Duplicate Collected:	☐ Yes ☒ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
Field Blank Collected:	☐ Yes ☒ No Name _____		X			

Initial Depth to Water (m):	4.355	**Purge Start Time:**	8:37				**Purge End Time:**		09:04	
Depth to Bottom (m):	11.820	**Purge Interval Time (5) min, Vol. (___) L**	8:38	8:43	08:48	08:53	8:59	9:04		
Submerged Tubing Depth (m):	~9	**Depth to water (m)**	—	4.294	4.290	4.282	4282	→		
Well Stick-up Height (m):	*0.35 | Δ	**Temperature (°C)**	3.2	2.7	2.6	2.6	2.7	2.6		
Estimated Water Volume (L):	14.9	**pH (pH Units)**	6.20	6.04	6.01	6.00	6.00	5.99		
DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume (DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume (DTB – DTW) x 2 (for 2" well diameter) = 1 well volume (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume (DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume		**Cond. (µs/cm)**	1076	1083	1072	1069	1069	1071		
		Specific Cond. (µs/cm)	1854	1886	1871	1866	1861	1868		
		Redox (mV)	10.5	9.3	26.0	33.8	39.7	42.7		
		DO (mg/L)	3.56	0.69	0.67	0.83	1.17	1.45		
		DO (%)	23.1	5.0	5.0	6.1	8.6	10.8		
		Appearance & Odour (Clear, Silty, HC odours, etc.)	Brown Grey turbid	Same.	same	same	Slightly less turbid	Same.		
		Turbidity (NTU):	—	—	—	—	—	129		
		Interval Purge Volume (L):	—	0.8	0.8	0.8	0.8	0.5		
		Cumulative Purge Volume (L):	—	0.8	1.6	2.4	3.2	3.7		

Calculations:

11.820 − 4.355 = 7.465 × 2 = 14.930

YSI Field Parameters Logged:	☒ Yes ☐ No	**Sample Method:**			
Time logged on YSI (24hr):	9:05	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☒ YSI ☐ Pen Unit		X			
Sample Time	9:10					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): S2A

Sample Date (Con't): 21- Sept-16

Sample Time (Con't): 09:10

General Notes (Condition of well, or other features):

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

Consumables:

- ☒ 1/4" HDPE (Peristaltic) 30 ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☒ 1/4" Silicon 0.5 ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☒ HNO_3	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1,000	

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

+21 Sept-16

Sample Site:	~~SDA~~ SDB	**Project Number:**	1343-005.31	**Date:**	20-Sept-16
Station Status:	SLOW RECHARGE	**Client:**	GY - AAM	**Samplers:**	ANMM
Piezometer Diameter:	2"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	overcast
UTM Location:	Z.08 E. 0084468 N. 6913118	**Waypoint:**	GPS ~~ELE~~ ID N/A	**Recovery:**	☐ Good ☐ Bad ☒ Ok
Photos:	Cam. 1 Nos. 525 - 528	**Purge Method:**			
Duplicate Collected:	☐ Yes ☒ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
Field Blank Collected:	☐ Yes ☒ No Name _____		X			

Initial Depth to Water (m):	~~4.355~~ 4.448	**Purge Start Time:**	16:17			**Purge End Time:**		17:44		
Depth to Bottom (m):	~~11~~ 7.074	**Purge Interval Time (5) min, Vol. (___) L**	16:19	16:24	16:29	16:34	16:39	16:44	16:49	16:54	16:59
Submerged Tubing Depth (m):	~4.6	**Depth to water (m)**	—	4.892	4.975	5.005	5.062	5.095	5.134	5.152	5.110
Well Stick-up Height (m):	0.54	**Temperature (°C)**	5.6	4.6	5.2	5.2	4.9	4.9	4.9	5.4	5.6
Estimated Water Volume (L):	5.3	**pH (pH Units)**	6.21	6.12	6.11	6.12	6.11	6.12	6.12	6.03	6.04
		Cond. (µs/cm)	2136	1978	2024	2091	2127	2166	2235	2516	3513
		Specific Cond. (µs/cm)	3440	3238	3249	3369	3447	3511	3640	4068	5582
		Redox (mV)	41.5	57.4	58.4	54.2	53.0	52.0	52.0	53.6	63.9
		DO (mg/L)	2.31	1.49	1.79	2.11	2.43	2.68	2.93	3.17	3.21
		DO (%)	18.3	11.7	14.4	16.7	19.4	21.4	23.1	25.3	26.0
		Appearance & Odour (Clear, Silty, HC odours, etc.)	turbid	same	same	same	same	~~same~~ clear	~~same~~ clear	same	same
		Turbidity (NTU):	—	—	—	—	—	—	—	—	—
		Interval Purge Volume (L):	—	0.95	0.65	0.35	0.45	0.40	0.40	0.45	0.35
		Cumulative Purge Volume (L):	—	~~—~~	1.60	1.95	~~2.50~~	2.90	3.30	3.75	4.10

DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume

Calculations:

5.6
7.074
4.448
2.626 x2 = 5.252

YSI Field Parameters Logged:	☒ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	8:35	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☒ YSI ☐ Pen Unit		X			
Sample Time	08:20 on Sept 21.					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): SDB

Sample Date (Con't): ~~20 Sept 16~~ 21- sept - 16

Sample Time (Con't): 08:20

General Notes (Condition of well, or other features):

~~Comm~~

Parameters would not stablize. Could not purge slowly enough to match recharge. Purged well DRY @ 17:44 on Sept. 20/2016.
- returned to sample on 21-sept-16
DTW: 4.477m; sample time 08:20

Additional Purge Data:	Sept. 20								Sept. 21
Purge Interval Time (___) min, Vol. (___) L	17:04	17:09	17:14	17:19	17:24	17:27	17:44		8:34
Depth to water (m)	5.140	5.163	5.146	5.131	5.175	→	7.01		
Temperature (°C)	5.9	5.2	5.3	5.4	4.8	increased	well purged		3.5
pH (pH Units)	5.92	5.92	5.91	5.82	5.80	increased	purged		5.80
Cond. (µs/cm)	5259	5644	5708	6404	6222	purge	DRY		6138
Specific Cond. (µs/cm)	8381	9067	9167	10256	10137	rate	@		10452
Redox (mV)	87.9	102.3	112.1	126.5	127.6	to	17:44		60.3
DO (mg/L)	3.37	3.39	3.51	3.82	3.62	1/DRY	Sept 20/16		0.51
DO (%)	27.9	27.6	28.7	31.4	29.3	well			3.8
Appearance & Odour (Clear, Silty, HC odours, etc.)	slightly cloudy	same	same	same	same				clear
Turbidity (NTU)	—	—	—	—	—				6.54
Interval Purge Volume (L)	0.4	0.25	0.5	0.3	0.35		~5.0		—
Cumulative Purge Volume (L):	4.5	4.75	5.25	5.55	5.85		10.85		—

Consumables:

- ☒ 1/4" HDPE (Peristaltic) 1.0 ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☒ 1/4" Silicon 0.5 ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____
- ☐ Other _____

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☒ HNO_3	120	21-sept-16 @ 08:20
1 L (plastic)	General Chemistry	500 ml	-	-	1,000	21-sept-16 @ 08:20

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	S3.	**Project Number:**	1343-005.31	**Date:**	20-Sept-16.
Station Status:		**Client:**	GY - AAM	**Samplers:**	AN / MM.
Piezometer Diameter:		**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	Sunny.
UTM Location:	Z. __ E. _____ N. _____	**Waypoint:**	GPS ___ ID _____	**Recovery:**	☐ Good ☐ Bad ☐ Ok
Photos:	Cam. ___ Nos. _____	**Purge Method:**			
Duplicate Collected:	☐ Yes ☒ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo** / **Other**
Field Blank Collected:	☒ Yes ☐ No Name _____				

Initial Depth to Water (m):		**Purge Start Time:**			**Purge End Time:**					
Depth to Bottom (m):		**Purge Interval Time (___) min, Vol. (___) L**								
Submerged Tubing Depth (m):		**Depth to water (m)**								
Well Stick-up Height (m):		**Temperature (^{0}C)**								
Estimated Water Volume (L):		**pH (pH Units)**								
		Cond. (µs/cm)								
		Specific Cond. (µs/cm)								
		Redox (mV)								
		DO (mg/L)								
		DO (%)								
		Appearance & Odour (Clear, Silty, HC odours, etc.)								
		Turbidity (NTU):								
		Interval Purge Volume (L):								
		Cumulative Purge Volume (L):								

CANNOT LOCATE

DTB – DTW) x ($\pi r^{2)}$*1000 (for well diameter) = 1 well volume
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume

Calculations:

YSI Field Parameters Logged:	☐ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):		**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☐ YSI ☐ Pen Unit					
Sample Time						

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): S3

Sample Date (Con't): _____

Sample Time (Con't): _____

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (^{0}C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

CANNOT LOCATE

General Notes (Condition of well, or other features):

Consumables:

- ☐ 1/4" HDPE (Peristaltic) _____ ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☐ 1/4" Silicon _____ ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☐ Field Filtered	☐ HNO_3		
1 L (plastic)	General Chemistry	500 ml	-	-		

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	SRK04-31	**Project Number:**	1343-005.31	**Date:**	~~03~~ 03-Sept-16
Station Status:	GOOD	**Client:**	GY - AAM	**Samplers:**	AN / MM
Piezometer Diameter:	2"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	Overcast / 0°C
UTM Location:	Z. 8 E. 582868 N. 6914001	**Waypoint:**	GPS 11 101	**Recovery:**	☒ Good ☐ Bad ☐ Ok
Photos:	Cam. 1 Nos. 571-573	**Purge Method:**			
Duplicate Collected:	☐ Yes ☒ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo** / **Other**
Field Blank Collected:	☐ Yes ☒ No Name _____		X		

Initial Depth to Water (m):	6.990	**Purge Start Time:**	8:05			**Purge End Time:**	8:27			
Depth to Bottom (m):	12.410	**Purge Interval Time (5) min, Vol. (___) L**	8:07	8:11	8:17	8:21	8:27			
Submerged Tubing Depth (m):	~10	**Depth to water (m)**	—	6.025	6.025	6.025	→			
Well Stick-up Height (m):	0.625	**Temperature (°C)**	7.4	6.6	6.5	6.4	6.4			
Estimated Water Volume (L):	12.8	**pH (pH Units)**	5.80	5.66	5.67	5.66	5.65			
		Cond. (µs/cm)	5519	5352	5306	5293	5278			
		Specific Cond. (µs/cm)	8412	8252	8196	8199	8188			
		Redox (mV)	13.1	13.4	10.2	9.2	9.1			
		DO (mg/L)	0.59	0.63	0.65	0.74	0.94			
		DO (%)	4.7	5.5	5.5	6.2	8.0			
		Appearance & Odour (Clear, Silty, HC odours, etc.)	Clear slight turbid.	clear	same	same	same			
		Turbidity (NTU):	—	—	—	—	7.21			
		Interval Purge Volume (L):	—	0.85	0.6	0.6	0.8			
		Cumulative Purge Volume (L):	—	0.85	1.45	2.05	2.85			

DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume

Calculations:

12.410 − 6.990 = 6.390 × 2 = 12.78

YSI Field Parameters Logged:	☒ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	8:29	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☒ YSI ☐ Pen Unit		X			
Sample Time	8:30					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): SRK04-3A

Sample Date (Con't): Sept. 23/2016

Sample Time (Con't): 8:30.

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, or other features):

Consumables:

- ☒ 1/4" HDPE (Peristaltic) 1.0 ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☒ 1/4" Silicon 0.5 ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☒ HNO_3	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1000	

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	SRK05-07	**Project Number:**	1343-005.31	**Date:**	22-Sept-16
Station Status:	GOOD	**Client:**	GY - AAM	**Samplers:**	ANI MM.
Piezometer Diameter:	2"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	breezy, overcast
UTM Location:	Z.08 E. 0592367 N. 6903189	**Waypoint:**	GPS N ID A	**Recovery:**	☒ Good ☐ Bad ☐ Ok
Photos:	Cam. 1 Nos. 559-561	**Purge Method:**			
Duplicate Collected:	☐ Yes ☒ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
Field Blank Collected:	☐ Yes ☒ No Name _____		X			

Initial Depth to Water (m):	5.765	**Purge Start Time:**	14:25			**Purge End Time:**	14:47			
Depth to Bottom (m):	6.430	**Purge Interval Time (3) min, Vol. (___) L**	14:27	14:32	14:37	14:42	14:47			
Submerged Tubing Depth (m):	~6.0	**Depth to water (m)**	/	5.835	5.845	5.850	5.850			
Well Stick-up Height (m):	0.67	**Temperature (°C)**	5.6	5.2	5.2	5.1	5.1			
Estimated Water Volume (L):	1.3	**pH (pH Units)**	7.05	6.91	6.86	6.90	6.89			
		Cond. (µs/cm)	0171	2152	2142	2145	2146			
		Specific Cond. (µs/cm)	3453	3458	3447	3462	3465			
		Redox (mV)	130.5	128.5	136.0	139.7	140.9			
		DO (mg/L)	2.53	2.46	2.98	3.22	3.33			
		DO (%)	20.0	19.9	23.9	25.5	26.7			
		Appearance & Odour (Clear, Silty, HC odours, etc.)	light brown turbid	clearing up	clear	clear	same			
		Turbidity (NTU):	/	/	/	/	8.16			
		Interval Purge Volume (L):	/	0.85	0.8	0.7	0.85			
		Cumulative Purge Volume (L):	/	0.85	1.65	2.15	3.00			

DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume

Calculations:

6.430
5.765 X2
0.665

1.330

YSI Field Parameters Logged:	☒ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	14:48	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☒ YSI ☐ Pen Unit		X			
Sample Time	14:50					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): SRK05-07

Sample Date (Con't): 22-Sept-16

Sample Time (Con't): 14:50

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (^{0}C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, or other features):

Consumables:

- ☒ 1/4" HDPE (Peristaltic) 1 ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☒ 1/4" Silicon 0.5 ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☒ HNO_3	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1,000	

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	SRK09-08.	**Project Number:**	1343-005.31	**Date:**	22-Sept-16.
Station Status:	B GOOD, SLOW PURGE	**Client:**	GY - AAM	**Samplers:**	AN / MM
Piezometer Diameter:	2"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	windy / overcast
UTM Location:	Z.08 E.0592580 N. 6903239	**Waypoint:**	GPS ~~ID~~	**Recovery:**	☐ Good ☐ Bad ☒ Ok
Photos:	Cam. 1 Nos. 562-564	**Purge Method:**			
Duplicate Collected:	☐ Yes ☒ No Name	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo** / **Other**
Field Blank Collected:	☐ Yes ☒ No Name		X		

Initial Depth to Water (m):	5.940	**Purge Start Time:**	15:10			**Purge End Time:**	15:32			
Depth to Bottom (m):	8.478.	**Purge Interval Time (5) min, Vol. (___) L**	15:12.	15:17	15:22	15:28	15:32			
Submerged Tubing Depth (m):	~7	**Depth to water (m)**	—	6.045	6.060	6.075	6.090			
Well Stick-up Height (m):	0.76.	**Temperature (°C)**	6.3	5.4	5.9	5.8	5.9			
Estimated Water Volume (L):	5.1	**pH (pH Units)**	7.30	6.83	6.91	6.87	6.84			
DTB – DTW) x (πr²)*1000 (for well diameter) = 1 well volume (DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume (DTB – DTW) x 2 (for 2" well diameter) = 1 well volume (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume (DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume Calculations: 8.478 5.940 2.538 x2 5.076		**Cond. (µs/cm)**	1859	1793	1813	1818	1818			
		Specific Cond. (µs/cm)	2914	2863	2850	2858	2856			
		Redox (mV)	159.4	164.3	166.3	169.2	170.8			
		DO (mg/L)	5.34	4.88	4.91	5.00	4.82			
		DO (%)	43.0	39.0	40.1	40.5	39.0			
		Appearance & Odour (Clear, Silty, HC odours, etc.)	clear	same	same	same	same			
		Turbidity (NTU):	—	—	—	—	1.03			
		Interval Purge Volume (L):	—	0.5	0.4	0.4	0.4			
		Cumulative Purge Volume (L):	—	0.5	0.9	1.3	1.7			

YSI Field Parameters Logged:	☒ Yes ☐ No	**Sample Method:**			
Time logged on YSI (24hr):	15:34	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo** / **Other**
YSI Meter or Pen Unit?:	☒ YSI ☐ Pen Unit				
Sample Time	15:35		X		

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): SRK05-09

Sample Date (Con't): 22-Sept-16

Sample Time (Con't): 15:35

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, or other features):

Consumables:

- ☒ 1/4" HDPE (Peristaltic) 1 ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☒ 1/4" Silicon 0.5 ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☒ HNO_3	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1,000	

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	SRK05-9	**Project Number:**	1343-005.31	**Date:**	20-sept-16
Station Status:	GOOD	**Client:**	GY - AAM	**Samplers:**	AN/NM
Piezometer Diameter:	~~2~~ 1.5"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	windy/overcast.
UTM Location:	Z. 08 E. 0592951 N. 6903160	**Waypoint:**	GPS AN/NM	**Recovery:**	☒ Good ☐ Bad ☐ Ok
Photos:	Cam. 1 Nos. 568-570	**Purge Method:**			
Duplicate Collected:	☐ Yes ☒ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
Field Blank Collected:	☐ Yes ☒ No Name _____		X			

Initial Depth to Water (m):	3.016	**Purge Start Time:**	17:00			**Purge End Time:**	17:22			
Depth to Bottom (m):	3.896	**Purge Interval Time (5) min, Vol. (___) L**	17:02	17:07	17:12	17:17	17:22			
Submerged Tubing Depth (m):	~3.6	**Depth to water (m)**	/	3.044	3.044	3.044	→			
Well Stick-up Height (m):	0.52	**Temperature (°C)**	5.3	4.7	4.6	4.6	4.6			
Estimated Water Volume (L):	~~0.97~~ ~1.0	**pH (pH Units)**	7.53	7.41	7.34	7.33	7.31			
		Cond. (µs/cm)	751	725	754	772	780			
		Specific Cond. (µs/cm)	1214	1187	1235	1266	1280			
		Redox (mV)	176.9	164.0	166.0	170.9	174.2			
		DO (mg/L)	5.44	5.03	5.31	5.35	5.52			
		DO (%)	42.4	39.7	41.5	41.7	42.9			
		Appearance & Odour (Clear, Silty, HC odours, etc.)	clear	clear	clear	clear	clear			
		Turbidity (NTU):	/	/	/	/	0.57			
		Interval Purge Volume (L):	/	0.85	0.7	0.7	0.75			
		Cumulative Purge Volume (L):	/	0.85	1.55	2.25	3.0			

DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume

Calculations:

3.896
3.016
0.880 × 1.1 = 0.968

YSI Field Parameters Logged:	☒ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	17:22	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☒ YSI ☐ Pen Unit		X			
Sample Time	17:25					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): SRK05-9

Sample Date (Con't): 22-Sept-16.

Sample Time (Con't): 17:25.

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (^{0}C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, or other features):

@16:26 → ~~25~~ transducer removed

* bring garbage ~~bag~~ bag → lots of old tubing that has been left @ the well.

@17:31 → transducer put back in well

Consumables:

- ☒ 1/4" HDPE (Peristaltic) 14.7 ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☒ 1/4" Silicon 0.5 ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☒ HNO_3	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1,000	

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	SRK05-ETA-BR1	**Project Number:**	1343-005.31	**Date:**	Sept. 23, 2016
Station Status:	good	**Client:**	GY - AAM	**Samplers:**	JC & CH
Piezometer Diameter:	1"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	chilly 0°C
UTM Location:	Z08 E. 0582865 N. 6914024	**Waypoint:**	GPS ___ ID _____	**Recovery:**	☑ Good ☐ Bad ☐ Ok
Photos:	Cam: FS Nos. 0424 – 0426	**Purge Method:**			
Duplicate Collected:	☐ Yes ☑ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
Field Blank Collected:	☐ Yes ☑ No Name _____		✓			

Initial Depth to Water (m):	6.859	**Purge Start Time:**	8:18				**Purge End Time:**			
Depth to Bottom (m):	13.283	**Purge Interval** 0.25-0.5L **Time (___) min, Vol. (___) L**	8:23	8:25	8:30	8:32	8:35			
Submerged Tubing Depth (m):	12.800 m.	**Depth to water (m)**	6.833	6.833	same	same	same			
Well Stick-up Height (m):	0.701m	**Temperature (°C)**	6.2	5.9	5.7	5.6	5.6			
Estimated Water Volume (L):	3.2L	**pH (pH Units)**	5.27	5.28	5.29	5.27	5.29			
		Cond. (µs/cm)	5405	5425	5409	5404	5400			
		Specific Cond. (µs/cm)	8432	8474	8566	8583	8585			
		Redox (mV)	139.5	125.4	109.4	105.0	102.3			
		DO (mg/L)	2.04	0.75	0.19	0.10	0.10			
		DO (%)	16.5	6.3	1.4	0.7	0.8			
		Appearance & Odour (Clear, Silty, HC odours, etc.)	yellowish no odour	same	same	same	same			
		Turbidity (NTU):	–	–	–	–	18.0			
		Interval Purge Volume (L):	0.25L	0.25	0.5	0.25	0.25			
		Cumulative Purge Volume (L):	0.25L	0.5	1.0	1.25	1.5			

DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume

Calculations:

YSI Field Parameters Logged:	☑ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	8:34	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☑ YSI ☐ Pen Unit		✓			
Sample Time	8:40					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): SRK05-ETA-BR1

Sample Date (Con't): Sept. 23, 2016

Sample Time (Con't): 8:40

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (^{0}C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, or other features):

–

Consumables:

- ☑ 1/4" HDPE (Peristaltic) 45 ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☐ 1/4" Silicon _____ ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☑ Field Filtered	☑ HNO_3	125 ml	
1 L (plastic)	General Chemistry	500 ml	-	-	1.0L	

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	SRK05-ETA-BR2	**Project Number:**	1343-005.31	**Date:**	Sept. 22, 2016
Station Status:	good	**Client:**	GY - AAM	**Samplers:**	JC & CH
Piezometer Diameter:	1"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	cloudy 0°C
UTM Location:	z08 E. 0582880 N. 6914001	**Waypoint:**	GPS ___ ID _____	**Recovery:**	☑ Good ☐ Bad ☐ Ok
Photos:	Cam: 2 Nos 0427 - 0429	**Purge Method:**			
Duplicate Collected:	☐ Yes ☑ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
Field Blank Collected:	☐ Yes ☑ No Name _____		✓			

Initial Depth to Water (m):	4.829 m	**Purge Start Time:**	8:56			**Purge End Time:**				
Depth to Bottom (m):	19.372 m	**Purge Interval Time (___) min, Vol. (0.5) L**	8:59	9:04	9:08	9:12	9:15			
Submerged Tubing Depth (m):	18.800 m	**Depth to water (m)**	5.180	5.195	5.211	5.23				
Well Stick-up Height (m):	0.398 m	**Temperature (°C)**	5.2	5.2	5.1	5.1	5.0			
Estimated Water Volume (L):	7.3 L	**pH (pH Units)**	6.63	6.83	6.80	6.86	6.88			
		Cond. (µs/cm)	1709	1629	1617	1622	1653			
		Specific Cond. (µs/cm)	2744	2619	2604	2615	2673			
		Redox (mV)	-43	-55.1	-66.0	-70.0	-72.3			
		DO (mg/L)	0.03	0.03	0.00	0.00	0.00			
		DO (%)	1.0	0.3	0.0	0.00	0.00			
		Appearance & Odour (Clear, Silty, HC odours, etc.)	yellowish no odour	same	same	same	same			
		Turbidity (NTU):	—	—	—	—	9.60			
		Interval Purge Volume (L):	0.5	0.5	0.5	0.5	0.5			
		Cumulative Purge Volume (L):	0.5	1.0L	1.0L	1.5L	2.0L			

DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume

Calculations:

YSI Field Parameters Logged:	☑ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	9:16	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☑ YSI ☐ Pen Unit		✓			
Sample Time	9:20					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): SRK05 - ETA - BR2

Sample Date (Con't): Sept. 23, 2016

Sample Time (Con't): 9:20

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (^{0}C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, or other features):

- good recharge

Consumables:

- ☐ 1/4" HDPE (Peristaltic) _____ ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☐ 1/4" Silicon _____ ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☑ Field Filtered	☑ HNO_3	1.25 ml	
1 L (plastic)	General Chemistry	500 ml	-	-	1.0 L	

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	SRK05-SP-4A	**Project Number:**	1343-005.31	**Date:**	Sept 20 2016
Station Status:	Good.	**Client:**	GY - AAM	**Samplers:**	JC CH
Piezometer Diameter:	5"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	8° Sunny
UTM Location:	Z.08 E. 0584502 N. 6913113	**Waypoint:**	GPS HEM ID N/A	**Recovery:**	☒ Good ☐ Bad ☐ Ok
Photos:	Cam. SLR2 Nos. 0337 - 0339	**Purge Method:**			
Duplicate Collected:	☐ Yes ☒ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
Field Blank Collected:	☐ Yes ☒ No Name _____		✓			

Initial Depth to Water (m):	4.699	**Purge Start Time:**	14:03			**Purge End Time:**	14:28			
Depth to Bottom (m):	22.565	**Purge Interval Time (___) min, Vol. (0.5) L**	14:09	14:14	14:18	14:23	14:28			
Submerged Tubing Depth (m):	22.000	**Depth to water (m)**	5.552	5.229	5.082	4.993	4.930			
Well Stick-up Height (m):	0.659	**Temperature (°C)**	5.6	5.6	5.2	5.3	5.1			
Estimated Water Volume (L):	35.7	**pH (pH Units)**	6.01	5.95	5.94	5.93	5.91			
DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume (DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume (DTB – DTW) x 2 (for 2" well diameter) = 1 well volume (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume (DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume Calculations:		**Cond. (µs/cm)**	958	866	852	848	847			
		Specific Cond. (µs/cm)	1517	1390	1373	1355	1358			
		Redox (mV)	39.0	39.9	40.3	40.7	40.6			
		DO (mg/L)	1.01	0.24	0.07	0.07	0.09			
		DO (%)	8.1	1.9	0.5	0.5	0.8			
		Appearance & Odour (Clear, Silty, HC odours, etc.)	Clear Colourless	clear colourless	Same	Same	Same			
		Turbidity (NTU):	—	—	—	—	0.63			
		Interval Purge Volume (L):	0.5	0.5	0.5	0.5	0.5			
		Cumulative Purge Volume (L):	0.5	1.0	1.5	2.0	2.5			

YSI Field Parameters Logged:	☐ Yes ☒ No	**Sample Method:**				
Time logged on YSI (24hr):	—	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☒ YSI ☐ Pen Unit		✓			
Sample Time	14:25					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): SRK05-SP-4A

Sample Date (Con't): Sept 20 2016

Sample Time (Con't): 14:25

General Notes (Condition of well, or other features):

- well has good recharge

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (^{0}C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

Consumables:

- ☒ 1/4" HDPE (Peristaltic) 100 ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☒ 1/4" Silicon 1 ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____
- ☐ Other _____

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☒ HNO_3	120	-
1 L (plastic)	General Chemistry	500 ml	-	-	1000	-

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	SRK05-SP-4B	**Project Number:**	1343-005.31	**Date:**	Sept 20 2016
Station Status:	OK recharge	**Client:**	GY - AAM	**Samplers:**	JC CH
Piezometer Diameter:	2"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	10° Sunny
UTM Location:	Z. 08 E. 0584502 N. 6913113	**Waypoint:**	GPS HEm ID N/A	**Recovery:**	☐ Good ☐ Bad ☒ Ok
Photos:	Cam. ELR Nos. 0340 - 0342	**Purge Method:**			
Duplicate Collected:	☐ Yes ☒ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
Field Blank Collected:	☐ Yes ☒ No Name _____		✓			

Initial Depth to Water (m):	3.969	**Purge Start Time:**	13:16			**Purge End Time:**	13:47			
Depth to Bottom (m):	4.773	**Purge Interval Time (___) min, Vol. (0.5) L**	13:22	13:26	13:32	13:38	13:46			
Submerged Tubing Depth (m):	4.600	**Depth to water (m)**	4.094	4.130	4.178	4.218	4.231			
Well Stick-up Height (m):	0.794	**Temperature (°C)**	7.4	7.3	7.9	7.5	7.6			
Estimated Water Volume (L):	1.5	**pH (pH Units)**	6.01	5.97	5.97	5.92	5.88			
DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume (DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume (DTB – DTW) x 2 (for 2" well diameter) = 1 well volume (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume (DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume Calculations:		**Cond. (µs/cm)**	6302	6291	6382	6351	6375			
		Specific Cond. (µs/cm)	9464	9451	9480	9536	9551			
		Redox (mV)	33.3	27.7	24.4	29.1	32.9			
		DO (mg/L)	0.62	0.55	0.43	0.43	0.30			
		DO (%)	5.4	4.9	3.4	3.4	2.5			
		Appearance & Odour (Clear, Silty, HC odours, etc.)	Clear Colourless	clear no odour	Same	Same	Same.			
		Turbidity (NTU):	~	~	✓	~	9.47			
		Interval Purge Volume (L):	0.5	0.5	0.5	0.5	0.5			
		Cumulative Purge Volume (L):	0.5	1.0	1.5	2.0	2.5			

YSI Field Parameters Logged:	☒ Yes ☐ No	**Sample Method:**			
Time logged on YSI (24hr):	13:47	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☒ YSI ☐ Pen Unit		✓			
Sample Time	13:50					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): SRK05-SP-4B

Sample Date (Con't): 4 Sept 20 2016.

Sample Time (Con't): 13:50

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (^{0}C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, or other features):

- well has ok recharge
- Stopped pump after 3rd reading to let water recharge.
- parameters stablized
- full sample collected.

Consumables:

- ☒ 1/4" HDPE (Peristaltic) 3 ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☐ 1/4" Silicon _____ ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☒ HNO_3	120	—
1 L (plastic)	General Chemistry	500 ml	-	-	1000	—

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	SRK05 - SP-5	**Project Number:**	1343-005.31	**Date:**	Sept 21 2016
Station Status:	Good	**Client:**	GY - AAM	**Samplers:**	JL CH
Piezometer Diameter:	2"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	0° Sunny
UTM Location:	Z08 E. 584481 N 6913132	**Waypoint:**	GPS HFM ID N/A	**Recovery:**	☑ Good ☐ Bad ☐ Ok
Photos:	Cam CR2 Nos. 0355 - 0367	**Purge Method:**			
Duplicate Collected:	☐ Yes ☒ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
Field Blank Collected:	☐ Yes ☒ No Name _____		✓			

Initial Depth to Water (m):	6.869	**Purge Start Time:**	8:32			**Purge End Time:**	9:02			
Depth to Bottom (m):	14.685	**Purge Interval Time (___) min, Vol. 0.5 L**	8:40	8:46	8:49	8:53	8:57	9:01		
Submerged Tubing Depth (m):	14.5	**Depth to water (m)**	6.87	Same	Same	Same	Same	Same		
Well Stick-up Height (m):	0.981 M.	**Temperature (°C)**	3.0	3.0	2.8	2.8	3.0	2.8		
Estimated Water Volume (L):	15.6	**pH (pH Units)**	5.71	5.70	5.69	5.71	5.71	5.74		
DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume (DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume (DTB – DTW) x 2 (for 2" well diameter) = 1 well volume (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume (DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume Calculations:		**Cond. (µs/cm)**	6061	6077	6052	6035	6051	6028		
		Specific Cond. (µs/cm)	10454	10491	10515	10476	10441	1045		
		Redox (mV)	64.4	74.4	78.0	79.6	81.2	82.0		
		DO (mg/L)	0.38	0.27	0.24	0.16	0.14	0.13		
		DO (%)	3.0	1.9	1.9	1.4	1.1	0.9		
		Appearance & Odour (Clear, Silty, HC odours, etc.)	Clear Colourless Odourless	Same	Same	Same	Same	Same		
		Turbidity (NTU):	—	—	—	—	—	2.81		
		Interval Purge Volume (L):	0.5	0.5	0.5	0.5	0.5	0.5		
		Cumulative Purge Volume (L):	0.5	1.0	1.5	2.0	2.5	3.0		

YSI Field Parameters Logged:	☒ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	9:01	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☒ YSI ☐ Pen Unit		✓			
Sample Time	9:05					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): SRK05-SP-5

Sample Date (Con't): Sept 21 2016.

Sample Time (Con't): 9:05

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (^{0}C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, or other features):

- Transducer in well
- good producing well
- No drawdown

Consumables:

- ☒ 1/4" HDPE (Peristaltic) 53 ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☒ 1/4" Silicon 0.5 ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☐ HNO_3	120	—
1 L (plastic)	General Chemistry	500 ml	-	-	1000	—

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	SRK08-SP7A	**Project Number:**	1343-005.31	**Date:**	Sept. 20/2016
Station Status:	GOOD	**Client:**	GY - AAM	**Samplers:**	AN, MM
Piezometer Diameter:	2"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	Cloudy ~13°C
UTM Location:	Z 08 E 0584437 N 6913005	**Waypoint:**	GPS ELR ID N/A	**Recovery:**	☒ Good ☐ Bad ☐ Ok
Photos:	Cam. 1 Nos. 517-520	**Purge Method:**			
Duplicate Collected:	☐ Yes ☒ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo** / **Other**
Field Blank Collected:	☐ Yes ☒ No Name _____	manual			

Initial Depth to Water (m):	2.713	**Purge Start Time:**	14:21				**Purge End Time:**		14:51		
Depth to Bottom (m):	17.730	**Purge Interval Time (___) min, Vol. (10) L**	14:28	14:31	14:34	14:36	14:39	14:43	14:47	14:51	
Submerged Tubing Depth (m):		**Depth to water (m)**	—	—	—	—	—	—	—		
Well Stick-up Height (m):	1.2	**Temperature (°C)**	2.9	2.5	2.4	2.4	2.4	2.7	2.6	2.5	
Estimated Water Volume (L):	~30	**pH (pH Units)**	6.14	6.12	6.13	6.13	6.14	6.13	6.14	6.13	
		Cond. (µs/cm)	876	978	948	920	915	899	899	890	
		Specific Cond. (µs/cm)	1519	1714	1666	1618	1607	1568	1570	1558	
		Redox (mV)	67.2	65.5	62.6	58.1	57.3	66.3	62.9	65.9	
		DO (mg/L)	1.20	1.54	1.37	1.34	1.31	1.87	1.84	1.54	
		DO (%)	8.9	11.4	10.1	9.8	9.7	14.2	13.5	11.3	
		Appearance & Odour (Clear, Silty, HC odours, etc.)	very turbid	same	same	same	same	same	same	same	
		Turbidity (NTU):	—	—	—	—	—	—	—	NA	59.4
		Interval Purge Volume (L):	10	10	10	10	10	10	10	10	
		Cumulative Purge Volume (L):	10	20	30	40	50	60	70	80	

DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume

Calculations:

YSI Field Parameters Logged:	☒ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	14:51	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☒ YSI ☐ Pen Unit	manual				
Sample Time	14:50					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): SRK08-~~3A~~ SP1A

Sample Date (Con't): 20-Sept-16

Sample Time (Con't): 14:50

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (^{0}C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, or other features):

Consumables:

- ☐ 1/4" HDPE (Peristaltic) _____ ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☒ 5/8" HDPE (Waterra) 623 ft.
- ☐ 1/4" Silicon _____ ft.
- ☐ 0.45 micron inline filters _____ each
- ☒ D-25 (2" well) foot valves 1 each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☒ HNO_3	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1000	

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	SRK08-SP7B	**Project Number:**	1343-005.31	**Date:**	Sept. 20/2016
Station Status:	GOOD	**Client:**	GY - AAM	**Samplers:**	AN, MM.
Piezometer Diameter:	2"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	Cloudy ~13°C
UTM Location:	Z 08 E. 584437 N. 6913095	**Waypoint:**	GPS BR ID N/A	**Recovery:**	☒ Good ☐ Bad ☐ Ok
Photos:	Cam. 1 Nos. 517-520	**Purge Method:**			
Duplicate Collected:	☐ Yes ☒ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
Field Blank Collected:	☐ Yes ☒ No Name _____		X			

Initial Depth to Water (m):	2.795	**Purge Start Time:**	1352			**Purge End Time:**	14:17			
Depth to Bottom (m):	8.780	**Purge Interval Time (___) min, Vol. 0.8 L**	1356	14:01	1406	1412	1417			
Submerged Tubing Depth (m):	~8.6	**Depth to water (m)**	~~2.810~~	2.820	2.817	2.810	2.812			
Well Stick-up Height (m):	1.110	**Temperature (°C)**	4.3	4.6	4.4	4.4	4.4			
Estimated Water Volume (L):	~12.0	**pH (pH Units)**	6.69	6.53	6.52	6.47	6.45			
DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume (DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume (DTB – DTW) x 2 (for 2" well diameter) = 1 well volume (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume (DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume Calculations:		**Cond. (µs/cm)**	119.0	113.8	111.5	112.6	115.5			
		Specific Cond. (µs/cm)	198.6	186.2	183.7	185.8	190.3			
		Redox (mV)	56.3	59.6	60.3	55.6	48.8			
		DO (mg/L)	0.39	0.27	0.22	0.25	0.35			
		DO (%)	3.0	2.0	1.7	1.9	2.8			
		Appearance & Odour (Clear, Silty, HC odours, etc.)	Suspend Solids rusty	Same.	Same	Same	Same.			
		Turbidity (NTU):	—	—	—	—	6.47.			
		Interval Purge Volume (L):	0.8	0.8	0.8	0.8	0.8			
		Cumulative Purge Volume (L):	0.8	1.6	2.4	3.2	4.0			

YSI Field Parameters Logged:	☒ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	14:18	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☒ YSI ☐ Pen Unit		X			
Sample Time	14:20					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): SRK08 - SP7B

Sample Date (Con't): Sept. 20 / 2016

Sample Time (Con't): 14:20

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (^{0}C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, or other features):

Consumables:

- ☒ 1/4" HDPE (Peristaltic) 30 ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☒ 1/4" Silicon 0.5 ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____
- ☐ Other _____

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☒ HNO_3	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1000	

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	SRK08 - SBR2	**Project Number:**	1343-005.31	**Date:**	Sept. 20, 2016
Station Status:	Good	**Client:**	GY - AAM	**Samplers:**	JC & CH
Piezometer Diameter:	2"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	10°C Sunny
UTM Location:	ZONE 8 E. 0584482 N. 6913127	**Waypoint:**	GPS HEM ID N/A	**Recovery:**	☒ Good ☐ Bad ☐ Ok
Photos:	Cam CR2 Nos. 0349 - 0351	**Purge Method:**			
Duplicate Collected:	☒ Yes ☐ No Name DUP-2	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
Field Blank Collected:	☒ Yes ☐ No Name FB-1		✓			

Initial Depth to Water (m):	6.749	**Purge Start Time:**	16:14			**Purge End Time:**	16:33			
Depth to Bottom (m):	19.102	**Purge Interval Time (___) min, Vol. (05) L**	16:20	16:24	16:29	16:33				
Submerged Tubing Depth (m):	18.700	**Depth to water (m)**	6.878	6.884	6.888	6.889				
Well Stick-up Height (m):	*see Sketch on	**Temperature (°C)**	6.8	6.2	6.0	6.0				
Estimated Water Volume (L):	24.7	**pH (pH Units)**	5.92	5.90	5.90	5.89				
DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume (DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume (DTB – DTW) x 2 (for 2" well diameter) = 1 well volume (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume (DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume Calculations:		**Cond. (µs/cm)**	1609	1531	1515	1514				
		Specific Cond. (µs/cm)	2469	2388	2370	2379				
		Redox (mV)	82.7	84.3	85.5	86.6				
		DO (mg/L)	1.00	0.97	0.99	0.99				
		DO (%)	8.1	7.8	7.9	7.9				
		Appearance & Odour (Clear, Silty, HC odours, etc.)	yellowish no odour	Same	Same	Same				
		Turbidity (NTU):	—	—	—	27.7				
		Interval Purge Volume (L):	0.5	0.5	0.5	0.5				
		Cumulative Purge Volume (L):	0.5	1.0	1.5	2.0				

YSI Field Parameters Logged:	☒ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	16:35	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☒ YSI ☐ Pen Unit		✓			
Sample Time	16:40					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): SRK08-SBR2

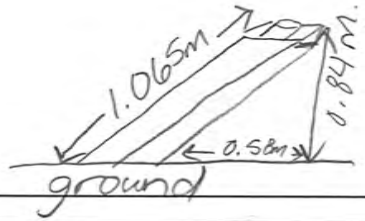
Sample Date (Con't): Sept 20 2016

Sample Time (Con't): 16:35

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, or other features):

- well at an angle like:
- Dup-2 collected
- FB-1 Collected
- slight wind no dust
- DI Date 8 Sept 2016



Consumables:

- ☒ 1/4" HDPE (Peristaltic) 6 ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☒ 1/4" Silicon 0.5 ft.
- ☒ 0.45 micron inline filters 1 each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____
- ☐ Other _____

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☒ HNO_3	120	Dup-2 collected
1 L (plastic)	General Chemistry	500 ml	-	-	1000	Dup-2 Collected

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	SRK08 - SRB3	**Project Number:**	1343-005.31	**Date:**	Sept. 21, 2016
Station Status:	good	**Client:**	GY - AAM	**Samplers:**	JC & CH
Piezometer Diameter:	2"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	chilly 3°C
UTM Location:	z08 E. 0584393 N. 6913150	**Waypoint:**	GPS ___ ID ___	**Recovery:**	☑ Good ☐ Bad ☐ Ok
Photos:	Cam. 2 Nos 0361 - 0363	**Purge Method:**			
Duplicate Collected:	☐ Yes ☒ No Name ___	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo** / **Other**
Field Blank Collected:	☐ Yes ☒ No Name ___	✓	✓		

Initial Depth to Water (m):	11.615	**Purge Start Time:**	10:10			**Purge End Time:**	10:22			
Depth to Bottom (m):	13.245	**Purge Interval Time (___) min, Vol. (5) L**	10:12	10:14	10:16	10:19	10:22			
Submerged Tubing Depth (m):	bottom	**Depth to water (m)**	11.617	11.610	11.611	11.610	11.610			
Well Stick-up Height (m):	0.985 m	**Temperature (°C)**	1.8	1.4	1.3	1.2	1.4			
Estimated Water Volume (L):	3.26 L	**pH (pH Units)**	6.67	6.74	6.77	6.77	6.79			
		Cond. (µs/cm)	2165	2114	1785	2090	2097			
		Specific Cond. (µs/cm)	3888	3845	3249	3826	3825			
		Redox (mV)	52.6	51.5	51.2	51.8	50.8			
		DO (mg/L)	2.81	3.28	3.52	3.28	2.95			
		DO (%)	20.4	23.9	25.1	23.3	21.1			
		Appearance & Odour (Clear, Silty, HC odours, etc.)	clear, no odour	same	same	same	same			
		Turbidity (NTU):	—	—	—	—	25.3			
		Interval Purge Volume (L):	5.0	5.0	5.0	5.0	5.0			
		Cumulative Purge Volume (L):	5.0	10.0	15.0	20.0	25.0			

DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume

Calculations:

YSI Field Parameters Logged:	☑ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	10:23	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☐ YSI ☐ Pen Unit	✓				
Sample Time	10:25					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): SRK08 - SBR3

Sample Date (Con't): Sept. 21, 2016

Sample Time (Con't): 10:25

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, or other features):

- good producing well
- New waterra in well.

Consumables:

- ☐ 1/4" HDPE (Peristaltic) _____ ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☒ 5/8" HDPE (Waterra) 50 ft.
- ☐ 1/4" Silicon _____ ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☒ HNO_3	120	—
1 L (plastic)	General Chemistry	500 ml	-	-	1000	—

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	SRK08-SBR4	**Project Number:**	1343-005.31	**Date:**	Sept. 21, 2016
Station Status:	Good.	**Client:**	GY - AAM	**Samplers:**	JC & CH
Piezometer Diameter:	2"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	chilly 3°C
UTM Location:	20 E. 058444 N. 6913144	**Waypoint:**	GPS HEM ID N/A	**Recovery:**	☒ Good ☐ Bad ☐ Ok
Photos:	Cam: C2 Nos. 0358 - 0360	**Purge Method:**			
Duplicate Collected:	☐ Yes ☒ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo** / **Other**
Field Blank Collected:	☐ Yes ☒ No Name _____		✓		

Initial Depth to Water (m):	7.315m.	**Purge Start Time:**	9:18			**Purge End Time:**	9:53			
Depth to Bottom (m):	21.383m	**Purge Interval Time (___) min, Vol. (0.5) L**	9:27	9:35	9:42	9:46	9:52			
Submerged Tubing Depth (m):	20.0	**Depth to water (m)**	7.315	7.320	Same	Same.	Same			
Well Stick-up Height (m):	0.70m	**Temperature (°C)**	2.9	3.2	3.3	3.2	3.1			
Estimated Water Volume (L):	28.1L	**pH (pH Units)**	5.85	5.83	5.84	5.84	5.84			
DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume (DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume (DTB – DTW) x 2 (for 2" well diameter) = 1 well volume (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume (DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume Calculations:		**Cond. (µs/cm)**	5098	5177	5183	5164	5169			
		Specific Cond. (µs/cm)	8952	8899	8857	8873	8885			
		Redox (mV)	90.9	93.6	93.9	93.9	93.6			
		DO (mg/L)	0.36	0.19	0.15	0.14	0.17			
		DO (%)	2.8	1.4	1.2	1.2	1.4			
		Appearance & Odour (Clear, Silty, HC odours, etc.)	Clear Colourless Odourless	Same	Same	Same	Same			
		Turbidity (NTU):	—	—	—	—	1.15			
		Interval Purge Volume (L):	0.5	0.5	0.5	0.5	0.5			
		Cumulative Purge Volume (L):	0.5	1.0	1.5	2.0	2.5			

YSI Field Parameters Logged:	☒ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	9:52.	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☒ YSI ☐ Pen Unit		✓			
Sample Time	9:55					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): SRK08 - SBR4

Sample Date (Con't): Sept. 21, 2016

Sample Time (Con't): 9:55

General Notes (Condition of well, or other features):

- Well has good recharge
- new tubing in well.

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (^{0}C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

Consumables:

- ☒ 1/4" HDPE (Peristaltic) 70 ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☒ 1/4" Silicon 0.5 ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☒ HNO_3	120	—
1 L (plastic)	General Chemistry	500 ml	-	-	1000	—

HEMMERA

123

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	V34	**Project Number:**	1343-005.31	**Date:**	Sept. 22/2016
Station Status:	SLOW RECHARGE	**Client:**	GY - AAM	**Samplers:**	AN, MM.
Piezometer Diameter:	2"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	Overcast/windy ~5°C
UTM Location:	Z. 8 E. 593427 N. 6902476	**Waypoint:**	GPS ~~ID~~	**Recovery:**	☐ Good ☐ Bad ☒ Ok
Photos:	Cam. 1 Nos. 544-546	**Purge Method:**			
Duplicate Collected:	☐ Yes ☒ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
Field Blank Collected:	☐ Yes ☒ No Name _____		☒			

Initial Depth to Water (m):	5.725	**Purge Start Time:**	8:25			**Purge End Time:**	8:53			
Depth to Bottom (m):	12.036	**Purge Interval Time (5) min, Vol. (___) L**	8:27	8:32	8:37	8:43	8:47	8:53		
Submerged Tubing Depth (m):	~5.0	**Depth to water (m)**	—	6.087	6.170	6.205	6.220	6.227		
Well Stick-up Height (m):	0.52	**Temperature (°C)**	4.4	3.8	4.2	4.4	4.3	4.3		
Estimated Water Volume (L):	~12.6	**pH (pH Units)**	6.41	6.79	6.72	6.79	6.76	6.79		
DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume (DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume (DTB – DTW) x 2 (for 2" well diameter) = 1 well volume (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume (DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume Calculations:		**Cond. (µs/cm)**	1422	1344	1344	1364	1351	1350		
		Specific Cond. (µs/cm)	2354	2269	2229	2235	2233	2237		
		Redox (mV)	-49.0	-48.1	-45.0	-42.4	-41.0	-38.1		
		DO (mg/L)	2.28	0.32	0.36	0.97	1.07	1.28		
		DO (%)	16.1	2.4	2.9	7.5	8.3	4.3		
		Appearance & Odour (Clear, Silty, HC odours, etc.)	clear no odour	Same.	Same	same	same.	Same		
		Turbidity (NTU):	—	—	—	/	—	1.54		
		Interval Purge Volume (L):	—	0.7	0.45	0.45	0.3	0.35		
		Cumulative Purge Volume (L):	—	0.7	1.15	1.90	2.2	2.55		

105 / 70 / .35

YSI Field Parameters Logged:	☒ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	8:55	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☒ YSI ☐ Pen Unit		☒			
Sample Time	8:55					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): V34

Sample Date (Con't): 22 - Sept - 16

Sample Time (Con't): 8:55

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (^{0}C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, or other features):

Consumables:

- ☐ 1/4" HDPE (Peristaltic) _____ ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☒ 1/4" Silicon 0.5 ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☒ HNO_3	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1000	

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

16.

Sample Site:	V35.	**Project Number:**	1343-005.31	**Date:**	02-Sept-16.
Station Status:	SLOW RECHARGE	**Client:**	GY - AAM	**Samplers:**	AN/MM.
Piezometer Diameter:	2"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	windy + overcast.
UTM Location:	Z. 08 E. 593175 N. 6902554	**Waypoint:**	GPS AN ID N/A.	**Recovery:**	☐ Good ☒ Bad ☐ Ok
Photos:	Cam. 1 Nos. 547-549.	**Purge Method:**			
Duplicate Collected:	☐ Yes ☒ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
Field Blank Collected:	☐ Yes ☒ No Name _____		X			

Initial Depth to Water (m):	6.626	**Purge Start Time:**	09:36.			**Purge End Time:**		10:06			
Depth to Bottom (m):	16.002.	**Purge Interval Time (5.) min, Vol. (___) L**	9:39	9:45	9:50	9:55	10:01	10:06			
Submerged Tubing Depth (m):	~13	**Depth to water (m)**	—	6.854	6.957	7.030	7.105	7.180			
Well Stick-up Height (m):	0.48	**Temperature (°C)**	4.7	4.5	4.3	4.2	4.1	4.2			
Estimated Water Volume (L):	18.8.	**pH (pH Units)**	7.19	7.07	6.99	6.99	7.00	6.99			
DTB – DTW) x (πr²)*1000 (for well diameter) = 1 well volume (DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume (DTB – DTW) x 2 (for 2" well diameter) = 1 well volume (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume (DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume Calculations: 16.002 − 6.626 = 9.377 ×2 = 18.754		**Cond. (µs/cm)**	1730	1594	1575	1562	1556	1557			
		Specific Cond. (µs/cm)	2806	2615	2598	2592	2588	2581			
		Redox (mV)	151.7	136.2	141.8	142.6	145.4	146.5			
		DO (mg/L)	2.83	1.55	1.56	1.65	1.82	1.70			
		DO (%)	21.0	12.1	12.1	12.6	14.0	13.2			
		Appearance & Odour (Clear, Silty, HC odours, etc.)	Clear	Same	Same	Same.	Same	Same.			
		Turbidity (NTU):	—	0	—	—	—	22.0			
		Interval Purge Volume (L):	—	0.45	0.4	0.3	0.45	0.4			
		Cumulative Purge Volume (L):	—	0.45	0.85	1.15	1.6	2.0			

YSI Field Parameters Logged:	☒ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	10:08	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☒ YSI ☐ Pen Unit		X.			
Sample Time	10:10					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): V35

Sample Date (Con't): 22-Sept-16

Sample Time (Con't): 10:10

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (^{0}C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, or other features):

Consumables:

- ☒ 1/4" HDPE (Peristaltic) 1.0 ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☒ 1/4" Silicon 0.5 ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☒ HNO_3	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1000	

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	V36	**Project Number:**	1343-005.31	**Date:**	20-sept-16
Station Status:	GOOD	**Client:**	GY - AAM	**Samplers:**	AN / MM
Piezometer Diameter:	2"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	windy overcast
UTM Location:	ZONE E. 0593131 N. 6905916	**Waypoint:**	GPS N/A	**Recovery:**	☒ Good ☐ Bad ☐ Ok
Photos:	Cam. 1 Nos. 553 - 555	**Purge Method:**			
Duplicate Collected:	☒ Yes ☐ No Name Dup-4	Waterra	Peristaltic	Disp. Bailer	Redi-flo / Other
Field Blank Collected:	☒ Yes ☐ No Name FB-3	manual	~~X~~		

Initial Depth to Water (m):	8.847	**Purge Start Time:**	12:56 ~~10:35~~	**Purge End Time:**	13:02

Depth to Bottom (m):	11.240	**Purge Interval Time (2) min, Vol. (5) L**	12:54	12:58	13:02						
Submerged Tubing Depth (m):	~10	**Depth to water (m)**	/	/	/						
Well Stick-up Height (m):	0.50	**Temperature (°C)**	4.2	3.9	4.0						
Estimated Water Volume (L):	4.8	**pH (pH Units)**	7.04	6.94	6.91						
		Cond. (µs/cm)	1473	1734	1895						
		Specific Cond. (µs/cm)	2440	2909	3164						
		Redox (mV)	-27.9	5.0	29.4						
		DO (mg/L)	3.15	1.97	2.52						
		DO (%)	24.6	15.2	19.3						
		Appearance & Odour (Clear, Silty, HC odours, etc.)	clear	clear	same						
		Turbidity (NTU):	/	/	/	5.44					
		Interval Purge Volume (L):	5	5	5						
		Cumulative Purge Volume (L):	5	10	15						

$(DTB - DTW) \times (\pi r^2) \times 1000$ (for well diameter) = 1 well volume
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume

Calculations:
11.240
8.847
2.393 x 2 4.786

YSI Field Parameters Logged:	☒ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	13:03	Waterra	Peristaltic	Disp. Bailer	Redi-flo	Other
YSI Meter or Pen Unit?:	☒ YSI ☐ Pen Unit	manual				
Sample Time	13:05					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): V36.

Sample Date (Con't): 22-sept-16.

Sample Time (Con't): 13:05.

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, or other features):

- attempted peristaltic, just out of reach so had to sample w watera
- FB batch date 8-sept-16.
  ↳ windy conditions during sampling + FB

Consumables:

- ☐ 1/4" HDPE (Peristaltic) _____ ft. (12m).
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☒ 1/4" Silicon 0.5 ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☒ Other PVC cap + ELR.
- ☐ Other _____

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☒ HNO_3	120	(+ Dup-4)
1 L (plastic)	General Chemistry	500 ml	-	-	1,000	(+ Dup-4)

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	V37.	**Project Number:**	1343-005.31	**Date:**	22-Sept-16. & 24-Sept
Station Status:	SLOW RECHARGE (RETURN)	**Client:**	GY - AAM	**Samplers:**	AN/MM.
Piezometer Diameter:	2"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	windy, overcast
UTM Location:	Z.08 E. 0593309 N. ____	**Waypoint:**	GPS ___ ID ____	**Recovery:**	☐ Good ☒ Bad ☐ Ok
Photos:	Cam. 1 Nos. 556-558	**Purge Method:**			
Duplicate Collected:	☐ Yes ☒ No Name 903079				
Field Blank Collected:	☐ Yes ☒ No Name ____				

Purge Method:

Waterra	Peristaltic	Disp. Bailer	Redi-flo	Other
manual				

Initial Depth to Water (m):	8.553	**Purge Start Time:**	13:54			**Purge End Time:**	13:59			
Depth to Bottom (m):	14.410	**Purge Interval Time (___) min, Vol. (12) L**	13:59			10:41				
Submerged Tubing Depth (m):	~11	**Depth to water (m)**	/	purged dry 22-sept-16	Sept 24					
Well Stick-up Height (m):	0.485	**Temperature (°C)**	2.9			3.6				
Estimated Water Volume (L):	11.7	**pH (pH Units)**	7.23			7.46				
		Cond. (µs/cm)	647			670				
		Specific Cond. (µs/cm)	1119			1133				
		Redox (mV)	127.5			103.9				
		DO (mg/L)	4.46			4.31				
		DO (%)	33.1			32.6				
		Appearance & Odour (Clear, Silty, HC odours, etc.)	slightly cloudy			cloudy				
		Turbidity (NTU):	/			23.4				
		Interval Purge Volume (L):	12		20	/				
		Cumulative Purge Volume (L):	12							

DTB – DTW) x (πr²)*1000 (for well diameter) = 1 well volume
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume

Calculations:
14.410 − 8.553 = 5.857 x2 = 11.714

YSI Field Parameters Logged:	☒ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	10:43	Waterra	Peristaltic	Disp. Bailer	Redi-flo	Other
YSI Meter or Pen Unit?:	☒ YSI ☐ Pen Unit	Manual				
Sample Time	10:40 on Sept 24					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): V37.

Sample Date (Con't): 24-Sept-16.

Sample Time (Con't): 10:40

General Notes (Condition of well, or other features):

- Purged dry, slow recharge, will return later to sample.
- returned to sample on 24-Sept DTW 9.713m

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (^{0}C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

Consumables:

- ☐ 1/4" HDPE (Peristaltic) _____ ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☐ 1/4" Silicon _____ ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☒ HNO_3	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1000	

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	X16A	**Project Number:**	1343-005.31	**Date:**	Sept. 22, 2016
Station Status:	good	**Client:**	GY - AAM	**Samplers:**	JC & CH
Piezometer Diameter:	4.5"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	cloudy 5°C
UTM Location:	Z08 E. 0579446 N. 6918422	**Waypoint:**	GPS ___ ID _____	**Recovery:**	☑ Good ☐ Bad ☐ Ok
Photos:	Cam. EOS R 2 Nos 0397 – 0399	**Purge Method:**			
Duplicate Collected:	☐ Yes ☒ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
Field Blank Collected:	☐ Yes ☒ No Name _____		✓			

Initial Depth to Water (m):	3.650 m	**Purge Start Time:**	11:48			**Purge End Time:**				
Depth to Bottom (m):	5.410 m.	**Purge Interval Time (___) min, Vol. (0.5)L**	11:52	11:55	11:57	11:59	12:01	12:04	12:06	12:08
Submerged Tubing Depth (m):	5.0 m	**Depth to water (m)**	3.65	3.641	3.645	3.640	3.650	3.650	3.650	3
Well Stick-up Height (m):	0.842 m	**Temperature (°C)**	6.3	6.3	6.3	6.4	6.4	6.5	6.5	6.4
Estimated Water Volume (L):	3.52 L	**pH (pH Units)**	7.86	7.74	7.69	7.64	7.61	7.60	7.57	7.55
		Cond. (µs/cm)	266.6	250.4	244.0	241.5	240.6	240.2	239.8	239.6
		Specific Cond. (µs/cm)	414.0	389.6	379.6	374.7	372.8	371.7	370.9	371.7
		Redox (mV)	-75.9	-58.6	-53.1	-47.9	-44.8	-42.0	-40.1	-38.4
		DO (mg/L)	2.53	2.57	2.65	2.52	2.56	2.50	2.48	2.44
		DO (%)	20.6	20.9	21.5	20.4	20.9	20.4	20.0	19.8
		Appearance & Odour (Clear, Silty, HC odours, etc.)	clear slight odour	same	same	same	same	same	same	same
		Turbidity (NTU):	–	–	–	–	–	–	–	0.42
		Interval Purge Volume (L):	0.5L	0.5L	0.5L	0.5L	0.5L	0.5	0.5L	0.5L
		Cumulative Purge Volume (L):	0.5L	1.0L	1.5L	2.0L	2.5L	3.0L	3.5L	4.0L

DTB – DTW) x (πr^{2})*1000 (for well diameter) = 1 well volume
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume

Calculations:

YSI Field Parameters Logged:	☑ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	12:09	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☑ YSI ☐ Pen Unit		✓			
Sample Time	12:10					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): X16A

Sample Date (Con't): Sept. 22, 2016

Sample Time (Con't): 12:10

General Notes (Condition of well, or other features):
- good producer; no draw-down
- well cap held on with glove

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (^{0}C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

Consumables:

- ☐ 1/4" HDPE (Peristaltic) _____ ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☐ 1/4" Silicon _____ ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☐ Field Filtered	☑ HNO_3	125 ml	
1 L (plastic)	General Chemistry	500 ml	-	-	1L	

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	X16B	**Project Number:**	1343-005.31	**Date:**	Sept. 22, 2016
Station Status:	good	**Client:**	GY - AAM	**Samplers:**	JC 3CH
Piezometer Diameter:	3"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	cloudy 5°C
UTM Location:	Z08E.0579446 N.6914842 ELR	**Waypoint:**	GPS ___ ID _____	**Recovery:**	☑ Good ☐ Bad ☐ Ok
Photos:	Cam. 2 Nos. 0400-0402	**Purge Method:**			
Duplicate Collected:	☐ Yes ☒ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo** / **Other**
Field Blank Collected:	☐ Yes ☒ No Name _____	✓			

Initial Depth to Water (m):	3.751	**Purge Start Time:**	12:13			**Purge End Time:**	12:27			
Depth to Bottom (m):	29.050	**Purge Interval** Time (___) min, Vol. (7.5) L	12:19	12:22	12:24	12:27				
Submerged Tubing Depth (m):	28.450 m.	**Depth to water (m)**	3.752	3.752	3.751	3.752				
Well Stick-up Height (m):	1.030M	**Temperature (°C)**	4.0	3.8	3.7	3.5				
Estimated Water Volume (L):	50.6L	**pH (pH Units)**	7.67	7.71	7.76	7.79				
		Cond. (µs/cm)	251.6	242.7	245.0	244.0				
		Specific Cond. (µs/cm)	419.8	408.2	413.4	414.0				
DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume		**Redox (mV)**	-38.8	-40.6	-40.3	-40.5				
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume		**DO (mg/L)**	4.27	4.99	4.34	4.79				
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume		**DO (%)**	32.7	37.8	32.8	35.6				
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume		**Appearance & Odour (Clear, Silty, HC odours, etc.)**	clear no odour	mod turbid no odour	Same	Same				
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume		**Turbidity (NTU):**	–	–	–	96.4				
Calculations:		**Interval Purge Volume (L):**	7.5L	7.5L	7.5	7.5L				
		Cumulative Purge Volume (L):	7.5L	15L	22.5L	30L				

YSI Field Parameters Logged:	☑ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	12:28	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☑ YSI ☐ Pen Unit	✓				
Sample Time	12:30					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): X16B

Sample Date (Con't): Sept. 22, 2016

Sample Time (Con't): 12:30

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (^{0}C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, or other features):

Consumables:

- ☐ 1/4" HDPE (Peristaltic) _____ ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☐ 1/4" Silicon _____ ft.
- ☑ 0.45 micron inline filters 1 each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____
- ☐ Other _____

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☐ Field Filtered	☑ HNO_3	125 ml	
1 L (plastic)	General Chemistry	500 ml	-	-	1.0 L	

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	X17A	**Project Number:**	1343-005.31	**Date:**	23-Jul-16
Station Status:	GOOD	**Client:**	GY - AAM	**Samplers:**	MM/AN
Piezometer Diameter:	~~2~~ 1.5"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	sunny/breezy
UTM Location:	Z.08 E. 0579734 N. 6914648	**Waypoint:**	GPS N/A	**Recovery:**	☒ Good ☐ Bad ☐ Ok
Photos:	Cam. 1 Nos.	**Purge Method:**			
Duplicate Collected:	☐ Yes ☒ No Name	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
Field Blank Collected:	☐ Yes ☒ No Name		X			

Initial Depth to Water (m):	2.261	**Purge Start Time:**	15:02			**Purge End Time:**	15:23			
Depth to Bottom (m):	6.085	**Purge Interval Time (5) min, Vol. (___) L**	15:03	15:08	15:13	15:17	15:23			
Submerged Tubing Depth (m):	~5	**Depth to water (m)**	—	2.269	2.269	2.269	2.269			
Well Stick-up Height (m):	0.84	**Temperature (°C)**	4.8	3.6	3.7	3.7	3.3			
Estimated Water Volume (L):	~~3.6~~ 4.2	**pH (pH Units)**	7.60	7.45	7.37	7.37	7.36			
		Cond. (µs/cm)	397.2	340.4	328.4	328.3	317.3			
		Specific Cond. (µs/cm)	615.5	574.3	563.6	545.7	543.7			
		Redox (mV)	-37.7	-26.5	-14.1	-15.1	0.6			
		DO (mg/L)	1.20	0.29	0.21	0.20	0.19			
		DO (%)	8.6	2.1	1.6	1.5	1.4			
		Appearance & Odour (Clear, Silty, HC odours, etc.)	Clear, sulphur odour	~~clear~~ same	clear, sulphur odour	same	same			
		Turbidity (NTU):	—	—	—	—	—	0.83		
		Interval Purge Volume (L):	—	1	0.95	0.80	1			
		Cumulative Purge Volume (L):	—	1	1.95	2.75	3.75			

DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume

Calculations:

5
6.1085
2.261
3.824 × 1.1 = 4.21
7.648

YSI Field Parameters Logged:	☒ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	15:24	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☒ YSI ☐ Pen Unit		X			
Sample Time	15:25					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): X17A

Sample Date (Con't): 23-Sept-16

Sample Time (Con't): 15:25

General Notes (Condition of well, or other features):

* temperature fluctuating directly w the sunlight, therefore sampled without being in range, other parameters look good

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (°C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

Consumables:

- ☒ 1/4" HDPE (Peristaltic) 1 ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☒ 1/4" Silicon 0.5 ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____
- ☐ Other _____

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☒ HNO_3	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1,000	

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	X17B	**Project Number:**	1343-005.31	**Date:**	23-Sept-16
Station Status:	GOOD	**Client:**	GY - AAM	**Samplers:**	AN/MM
Piezometer Diameter:	~~4"~~ 3"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	sunny/breezy
UTM Location:	Z. ~~8~~ 9 E. 0579754 N. 6914648	**Waypoint:**	GPS N/A	**Recovery:**	☒ Good ☐ Bad ☐ Ok
Photos:	Cam. 1 Nos. _____	**Purge Method:**			
Duplicate Collected:	☐ Yes ☒ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo** / **Other**
Field Blank Collected:	☐ Yes ☒ No Name _____	manual			

Initial Depth to Water (m):	1.829	**Purge Start Time:**	15:08				**Purge End Time:**	15:38		
Depth to Bottom (m):	22.100	**Purge Interval Time (___) min, Vol. (~~5~~) L**	15:36	15:32	15:34	15:36	15:38			
Submerged Tubing Depth (m):	18	**Depth to water (m)**	/	/	/	/	/			
Well Stick-up Height (m):	0.38	**Temperature (°C)**	2.9	2.8	2.8	2.9	2.8			
Estimated Water Volume (L):	92.4	**pH (pH Units)**	7.11	7.16	7.08	6.98	7.00			
		Cond. (µs/cm)	1027	1080	1077	1071	1060			
		Specific Cond. (µs/cm)	1738	1874	1809	1861	1843			
		Redox (mV)	-152	-39.6	-44.2	-47.1	-38.8			
		DO (mg/L)	2.11	1.92	1.97	~~2.13~~ 1.94	1.92			
		DO (%)	14.9	13.4	14.1	12.7	13.7			
		Appearance & Odour (Clear, Silty, HC odours, etc.)	very turbid (brown)	same	same + sulphur odour	same	same			
		Turbidity (NTU):	/	/	/	/	483			
		Interval Purge Volume (L):	6	~~6~~ 5	5	5.	5			
		Cumulative Purge Volume (L):	6	~~6~~ 11	16	21	26			

3" = 0.0762m
r = 0.0381 = 4.56 *

DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume

Calculations:

0.0

20.27 * 4.56 = 92.44

YSI Field Parameters Logged:	☒ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	~~15:40~~ 15:39	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☒ YSI ☐ Pen Unit	manual				
Sample Time	15:45					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): X17B

Sample Date (Con't): 23rd Sept-16

Sample Time (Con't): 15:45

Additional Purge Data:									
Purge Interval Time (8) min, Vol. (___) L									
Depth to water (m)									
Temperature (^{0}C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, or other features):

Consumables:

- ☐ 1/4" HDPE (Peristaltic) _____ ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☐ 1/4" Silicon _____ ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☒ HNO_3	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1,000	

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	X18A	**Project Number:**	1343-005.31	**Date:**	Sept. 22, 2016
Station Status:	good	**Client:**	GY - AAM	**Samplers:**	JC, CH
Piezometer Diameter:	2"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	cloudy 5°C
UTM Location:	z08 E. 0579198 N. 6914717	**Waypoint:**	GPS ___ ID _____	**Recovery:**	☑ Good ☐ Bad ☐ Ok
Photos:	Cam. ER 2 Nos 0403–0405	**Purge Method:**			
Duplicate Collected:	☐ Yes ☑ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
Field Blank Collected:	☐ Yes ☑ No Name _____		✓			

Initial Depth to Water (m):	4.282 m	**Purge Start Time:**	13:18			**Purge End Time:**	14:01				
Depth to Bottom (m):	12.349 m	**Purge Interval Time (___) min, Vol. (0.5) L**	13:22	13:26	13:27	13:30	13:33	13:37	13:41	13:47	13:55
Submerged Tubing Depth (m):	11.8 m	**Depth to water (m)**	4.709	4.822	4.902	4.959	4.933	4.935	4.956	4.929	4.929
Well Stick-up Height (m):	0.622 m	**Temperature (°C)**	3.4	3.2	3.2	3.2	3.3	3.3	3.2	3.4	3.3
Estimated Water Volume (L):	16.1 L	**pH (pH Units)**	7.02	6.94	6.92	6.91	6.90	6.91	6.90	6.90	6.90
DTB – DTW) x (πr²)*1000 (for well diameter) = 1 well volume (DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume (DTB – DTW) x 2 (for 2" well diameter) = 1 well volume (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume (DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume Calculations:		**Cond. (µs/cm)**	1035	1029	1032	1038	1065	1069	1068	1072	1070
		Specific Cond. (µs/cm)	1769	1763	1770	1780	1818	1825	1827	1824	1822
		Redox (mV)	17.0	12.7	7.4	3.4	-2.3	-6.9	-9.8	-14.6	-18.0
		DO (mg/L)	0.16	0.12	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		DO (%)	1.3	0.6	0.0	-0.2	-0.2	-0.4	-0.2	-0.2	0.0
		Appearance & Odour (Clear, Silty, HC odours, etc.)	low turbid no odour	same	same	same	same	same	same	same	same
		Turbidity (NTU):	—	—	—	—	—	—	—	—	—
		Interval Purge Volume (L):	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1.0	1.0
		Cumulative Purge Volume (L):	0.5L	1.0L	1.5L	2.0L	2.5L	3.0L	3.5L	4.5L	5.5L

YSI Field Parameters Logged:	☒ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	14:02	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☒ YSI ☐ Pen Unit		✓			
Sample Time	14:05					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): X18A

Sample Date (Con't): Sept. 22, 2016

Sample Time (Con't): 14:05

General Notes (Condition of well, or other features):
-black stick-ups, no red casing, follow line locate flags.

Additional Purge Data:									
Purge Interval 0.5 - 1.0L Time (___) min, Vol. (___) L	13:59	14:01							
Depth to water (m)	4.929	4.929							
Temperature (°C)	3.4	3.4							
pH (pH Units)	6.90	6.90							
Cond. (µs/cm)	1070	1068							
Specific Cond. (µs/cm)	1824	1816							
Redox (mV)	-19.3	-20.3							
DO (mg/L)	0.0	0.0							
DO (%)	-0.2	-0.3							
Appearance & Odour (Clear, Silty, HC odours, etc.)	same	same							
Turbidity (NTU)	—	1.13							
Interval Purge Volume (L)	0.5L	0.5L							
Cumulative Purge Volume (L):	6.0L	6.5L							

Consumables:
- ☑ 1/4" HDPE (Peristaltic) 1 ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☑ 1/4" Silicon 1/2 ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____
- ☐ Other _____

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☐ Field Filtered	☑ HNO_3	125 ml	
1 L (plastic)	General Chemistry	500 ml	-	-	1.0 L	

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	X18B	**Project Number:**	1343-005.31	**Date:**	Sept. 22, 2016
Station Status:	good	**Client:**	GY - AAM	**Samplers:**	JC & CH
Piezometer Diameter:	2"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	cloudy 5°C
UTM Location:	Z08 E 0579984 N. 6914717	**Waypoint:**	GPS ___ ID _____	**Recovery:**	☑ Good ☐ Bad ☐ Ok
Photos:	Cam. ELB 2 Nos. 0406 – 0408	**Purge Method:**			
Duplicate Collected:	☐ Yes ☒ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
Field Blank Collected:	☐ Yes ☒ No Name _____		✓			

Initial Depth to Water (m):	4.012 m	**Purge Start Time:**	14:11			**Purge End Time:**	14:49			
Depth to Bottom (m):	10.736 m	**Purge Interval** 0.5 **Time (___) min, Vol. (___) L**	14:15	14:18	14:22	14:25	14:30	14:38	14:44	14:47	14:49
Submerged Tubing Depth (m):	10.236 m	**Depth to water (m)**	4.050	4.052	4.055	4.053	4.050	4.050	4.050	4.050	4.050
Well Stick-up Height (m):	0.682 m	**Temperature (°C)**	3.3	3.3	3.3	3.3	3.4	3.3	3.3	3.3	3.4
Estimated Water Volume (L):	12.4 L	**pH (pH Units)**	6.93	6.88	6.88	6.87	6.86	6.85	6.85	6.85	6.85
DTB – DTW) x (πr²)*1000 (for well diameter) = 1 well volume (DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume (DTB – DTW) x 2 (for 2" well diameter) = 1 well volume (DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume (DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume Calculations:		**Cond. (µs/cm)**	984	1005	1011	1011	1010	1003	999	994	1003
		Specific Cond. (µs/cm)	1686	1722	1735	1729	1721	1711	1706	1700	1706
		Redox (mV)	-28.5	-22.3	-17.9	-14.5	-10.1	-5.1	-2.1	-1.0	-0.3
		DO (mg/L)	0.10	0.03	0.00	0.00	0.0	0.02	0.00	0.0	0.0
		DO (%)	0.6	0.2	0.0	-0.3	-0.2	0.2	0.0	0.0	0.0
		Appearance & Odour (Clear, Silty, HC odours, etc.)	clear no odour	same	same	same	same	same	same	same	same
		Turbidity (NTU):	–	–	–	–	–	–	–	–	0.04
		Interval Purge Volume (L):	0.5L	0.5L	0.5L	0.5L	1.0L	1.5L	1.0	0.5	0.5
		Cumulative Purge Volume (L):	0.5L	1.0L	1.5L	2.0L	3.0L	4.5L	5.5L	6.0L	6.5L

YSI Field Parameters Logged:	☑ Yes ☐ No	**Sample Method:**			
Time logged on YSI (24hr):	14:49	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☑ YSI ☐ Pen Unit		✓			
Sample Time	14:52					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): X18B

Sample Date (Con't): Sept. 22, 2016

Sample Time (Con't): 14:52

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (^{0}C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

General Notes (Condition of well, or other features):

Consumables:

- ☑ 1/4" HDPE (Peristaltic) 1 ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☑ 1/4" Silicon 1/2 ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____
- ☐ Other _____

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☑ HNO_3	125 ml	
1 L (plastic)	General Chemistry	500 ml	-	-	1.0 L	

Dup 3

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	X24-960D	**Project Number:**	1343-005.31	**Date:**	Sept. 22/16
Station Status:	good	**Client:**	GY - AAM	**Samplers:**	JC & CH
Piezometer Diameter:	2"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	Sunny 5°C
UTM Location:	Z08 E. 0582548 N. 6914296	**Waypoint:**	GPS ___ ID _____	**Recovery:**	☑ Good ☐ Bad ☐ Ok
Photos:	Cam ELR Nos. 6379 - 0381	**Purge Method:**			
Duplicate Collected:	☐ Yes ☒ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
Field Blank Collected:	☑ Yes ☐ No Name FB-2		✓			

Initial Depth to Water (m):	3.735 m.	**Purge Start Time:**	8:28					**Purge End Time:**	9:04	
Depth to Bottom (m):	28.472 m	**Purge Interval Time (___) min, Vol. (0.5) L**	8:32	8:37	8:42	8:46	8:50	8:55	8:59	9:03
Submerged Tubing Depth (m):	28.0 m	**Depth to water (m)**	4.209	4.355	4.500	4.595	4.683	4.735	4.795	4.877
Well Stick-up Height (m):	0.799 m	**Temperature (°C)**	4.6	4.8	4.7	4.7	4.7	4.7	4.7	4.7
Estimated Water Volume (L):	49.5 L	**pH (pH Units)**	6.04	6.05	6.06	6.07	6.08	6.08	6.07	6.08
		Cond. (µs/cm)	2571	2589	2573	2570	2573	2572	2567	2566
		Specific Cond. (µs/cm)	4205	4217	4198	4199	4201	4200	4190	4192
		Redox (mV)	61.1	24.9	4.4	-4.8	-10.3	-14.1	-15.9	-18.8
		DO (mg/L)	0.96	0.61	0.22	0.14	0.11	0.11	0.07	0.06
		DO (%)	7.2	4.9	1.8	1.0	0.9	0.9	0.6	0.6
		Appearance & Odour (Clear, Silty, HC odours, etc.)	clear, metallic odour	same	same	same	same	same	same	same
		Turbidity (NTU):	—	—	—	—	—	—	—	11.23
		Interval Purge Volume (L):	0.5L	0.5L	0.5L	0.5L	0.5	0.5	0.5	0.5
		Cumulative Purge Volume (L):	0.5L	1.0L	1.5L	2.0L	2.5	3.0	3.5	4.0

DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume

Calculations:

YSI Field Parameters Logged:	☒ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	9:03	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☒ YSI ☐ Pen Unit		✓			
Sample Time	9:05					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): X24-96P

Sample Date (Con't): Sept. 22, 2016

Sample Time (Con't): 9:05

General Notes (Condition of well, or other features):

-FB-2 collected slight wind, no dust. Collected in the back of the truck.

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (^{0}C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

Consumables:

- ☑ 1/4" HDPE (Peristaltic) 100 ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☑ 1/4" Silicon 1/2 ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☑ Field Filtered	☐ HNO_3	125 ml	
1 L (plastic)	General Chemistry	500 ml	-	-	1.0 L	

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	X25-96A	**Project Number:**	1343-005.31	**Date:**	Sept. 22, 2016
Station Status:	Good	**Client:**	GY - AAM	**Samplers:**	JC & CH
Piezometer Diameter:	2"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	cloudy 5°C
UTM Location:	Z08 E0580414 N6914122	**Waypoint:**	GPS ___ ID _____	**Recovery:**	☒ Good ☐ Bad ☐ Ok
Photos:	Cam ELR2 Nos. 0385 - 0387	**Purge Method:**			
Duplicate Collected:	☐ Yes ☒ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo** / **Other**
Field Blank Collected:	☐ Yes ☒ No Name _____		✓		

Initial Depth to Water (m):	3.339 m	**Purge Start Time:**	9:56			**Purge End Time:**	10:68				
Depth to Bottom (m):	9.505m	**Purge Interval Time (___) min, Vol. (0.5) L**	9:59	10:02	10:05	10:68					
Submerged Tubing Depth (m):	9.0 m	**Depth to water (m)**	3.336	Same	Same	Same					
Well Stick-up Height (m):	0.485	**Temperature (°C)**	4.1	4.0	4.0	4.0					
Estimated Water Volume (L):	12.3 L	**pH (pH Units)**	6.89	6.81	6.83	6.83					
		Cond. (µs/cm)	1160	1165	1167	1167					
		Specific Cond. (µs/cm)	1930	1944	1946	1947					
DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume		**Redox (mV)**	-66.5	-63.9	-62.1	-60.5					
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume		**DO (mg/L)**	0.35	0.10	0.08	0.04					
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume		**DO (%)**	2.8	1.0	0.6	0.3					
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume		**Appearance & Odour (Clear, Silty, HC odours, etc.)**	Clear slightly yellow	metallic smell	Same	Same					
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume		**Turbidity (NTU):**	—	—	—	0.0					
Calculations:		**Interval Purge Volume (L):**	0.5	0.5	0.5	0.5					
		Cumulative Purge Volume (L):	0.5	1.0	1.5	2.0					

YSI Field Parameters Logged:	☒ Yes ☐ No	**Sample Method:**			
Time logged on YSI (24hr):	~~10:09~~ 10:09	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo** / **Other**
YSI Meter or Pen Unit?:	☒ YSI ☐ Pen Unit				
Sample Time	10:10		✓		

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): X25-96A

Sample Date (Con't): Sept 22 2016.

Sample Time (Con't): 10:10

General Notes (Condition of well, or other features):

-well has good recharge no drawdown

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (^{0}C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

Consumables:

- ☐ 1/4" HDPE (Peristaltic) _____ ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☐ 1/4" Silicon _____ ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☒ HNO_3	120	—
1 L (plastic)	General Chemistry	500 ml	-	-	1000	—

HEMMERA

GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site:	X25-96B	**Project Number:**	1343-005.31	**Date:**	Sept. 22, 2016
Station Status:		**Client:**	GY - AAM	**Samplers:**	JC, ZCH
Piezometer Diameter:	2"	**Project Name:**	Faro 2016 GW Fall Sampling Program	**Weather/Temperature:**	cloudy 5°C
UTM Location:	z08 E.0580414 N. 6914122	**Waypoint:**	GPS ~~Hem~~ ID N/A	**Recovery:**	☒ Good ☐ Bad ☐ Ok
Photos:	Cam ER2 Nos. 0388 – 0390	**Purge Method:**			
Duplicate Collected:	☐ Yes ☒ No Name _____	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
Field Blank Collected:	☐ Yes ☒ No Name _____		✓			

Initial Depth to Water (m):	3.202	**Purge Start Time:**	10:20			**Purge End Time:**	10:31			
Depth to Bottom (m):	19.750	**Purge Interval Time (___) min, Vol. (0.5) L**	10:23	10:26	10:28	10:31				
Submerged Tubing Depth (m):	19.2 m	**Depth to water (m)**	3.202	Same	same	same				
Well Stick-up Height (m):	0.429	**Temperature (°C)**	4.1	4.2	4.3	4.1				
Estimated Water Volume (L):	33.1 L	**pH (pH Units)**	7.34	7.34	7.39	7.40				
		Cond. (µs/cm)	1179	1181	1182	1177				
		Specific Cond. (µs/cm)	1961	1961	1961	1962				
DTB – DTW) x (πr^2)*1000 (for well diameter) = 1 well volume		**Redox (mV)**	-96.5	-97.6	-99.0	-100.3				
(DTB – DTW) x 8.1 (for 4" well diameter) = 1 well volume		**DO (mg/L)**	0.18	0.02	0.01	0.01				
(DTB – DTW) x 2 (for 2" well diameter) = 1 well volume		**DO (%)**	1.5	0.2	0.0	0.0				
(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume		**Appearance & Odour (Clear, Silty, HC odours, etc.)**	clear metallic odour	Same	same	same				
(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume		**Turbidity (NTU):**	—	—	—	0.35				
Calculations:		**Interval Purge Volume (L):**	0.5	0.5	0.5	0.5				
		Cumulative Purge Volume (L):	0.5	1.0	1.5L	2.0L				

YSI Field Parameters Logged:	☑ Yes ☐ No	**Sample Method:**				
Time logged on YSI (24hr):	10:32	**Waterra**	**Peristaltic**	**Disp. Bailer**	**Redi-flo**	**Other**
YSI Meter or Pen Unit?:	☑ YSI ☐ Pen Unit		✓			
Sample Time	10:35					

*Field parameters are considered stable when the following criteria have been met; temperature ±3%, pH ±0.1, conductivity ±3%, redox ±10%, DO ±10%, turbidity 50 NTU.

HEMMERA

Sample Site (Con't): X25-96B

Sample Date (Con't): 22-Sept-16

Sample Time (Con't): 10:35

General Notes (Condition of well, or other features):

Additional Purge Data:									
Purge Interval Time (___) min, Vol. (___) L									
Depth to water (m)									
Temperature (^{0}C)									
pH (pH Units)									
Cond. (µs/cm)									
Specific Cond. (µs/cm)									
Redox (mV)									
DO (mg/L)									
DO (%)									
Appearance & Odour (Clear, Silty, HC odours, etc.)									
Turbidity (NTU)									
Interval Purge Volume (L)									
Cumulative Purge Volume (L):									

Consumables:

- ☐ 1/4" HDPE (Peristaltic) _____ ft.
- ☐ 3/8" HDPE (Microwaterra) _____ ft.
- ☐ 5/8" HDPE (Waterra) _____ ft.
- ☐ 1/4" Silicon _____ ft.
- ☐ 0.45 micron inline filters _____ each
- ☐ D-25 (2" well) foot valves _____ each
- ☐ D-16 (1" well) foot valves _____ each
- ☐ SS-10 (5/8" well) foot valves _____ each
- ☐ 1" HDPE Bailer _____ each
- ☐ 2" HDPE Bailer _____ each
- ☐ Other _____.
- ☐ Other _____.

Sample Collection

Bottle Type	Parameters Analyzed	Min. Volume	Treatment ☒	Preservative Added ☒	Vol. Collected (ml)	Comments
120 ml (plastic)	Dissolved Metals	100 ml	☒ Field Filtered	☒ HNO_3	120	
1 L (plastic)	General Chemistry	500 ml	-	-	1000	