

# GROUNDWATER SAMPLE COLLECTION SHEET

<b>Sample Site</b>		CH-P-B-01/10		<b>Project Number</b>		1343-005.28		<b>Date</b>		29-Aug-16			
<b>Piezometer Diameter</b>		1.5"		<b>Client</b>		GY - AAM		<b>Samplers</b>		AN/MU			
<b>UTM Location</b>		Z: 08, E: 0388653 N: 6881120		<b>Project Name</b>		Mount Nansen 2016 GW Sampling Program		<b>Weather/Temperature</b>		Sunny w. breeze 4°C			
<b>Waypoint</b>		GPS: AN Name: A. N/A						<b>Recovery</b>		<input type="checkbox"/> Good <input type="checkbox"/> Bad			
<b>Photos</b>		Cam: 1 Nos: 0439-0441		<b>Purge Method</b>									
<b>Duplicate Collected</b>		<input type="checkbox"/> Yes Name: /		<b>Waterra</b>		<b>Peristaltic</b>		<b>Disp. Bailer</b>		<b>Other</b>			
<b>Field Blank Collected</b>		<input type="checkbox"/> Yes Name: /											
<b>Initial Depth to Water (m)</b>		6.800 iced		<b>Purge Start Time:</b>		<b>Purge End Time:</b>		<b>Pen or YSI:</b>		<input type="checkbox"/> YSI Pro Plus <input type="checkbox"/> Pen Unit			
<b>Depth to Bottom (m)</b>		6.800 FROZEN		<b>Purge Interval Time ( ) min / Vol. ( ) L</b>									
<b>Submerged Tubing Depth (m)</b>		N/A		<b>Depth to water (m)</b>									
<b>Well Stick-up Height (m)</b>		0.480		<b>Temperature (°C) 3%</b>									
<b>Estimated Water Volume (L)</b>		N/A		<b>pH (pH Units) ±0.1</b>									
<p>Calculations:</p> <p>(DTB - DTW) x (πr<sup>2</sup>) 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</p>				<b>Cond. (µs/cm) 3%</b>									
				<b>Specific Cond. (µs/cm) 3%</b>									
				<b>Redox (mV) 10%</b>									
				<b>DO (mg/L) 10%</b>									
				<b>DO (%) 10%</b>									
				<b>Appearance &amp; Odour (Clear, Silty, HC odours, etc.)</b>									
				<b>Only for final readings</b>		<b>Sulphide (mg/L)</b>							
						<b>Turbidity (NTU)</b>							
						<b>Interval Purge Volume (L)</b>							
						<b>Cumulative Purge Volume (L):</b>							
<b>YSI ID</b>				<b>Sample Method:</b>									
<b>Logged Field Parameters</b>		<input type="checkbox"/> Yes <input type="checkbox"/> No		<b>Waterra</b>		<b>Peristaltic</b>		<b>Disp. Bailer</b>		<b>Other</b>			
<b>Time logged on YSI (24hr)</b>													
<b>Sample Time (24hr)</b>													

Sample Site (Con't): CH-P-13-01/10

Sample Date (Con't): 29-Aug-16

Well Head Seal:  J-Plug  PVC Cap  Not Sealed  Other \_\_\_\_\_

Seal Replaced:  J-Plug  PVC Cap  Not required  Other \_\_\_\_\_

Well properly sealed for gas monitoring:  Yes  No Details: at 5:45 in PVC

**Head Space Gas Measurements**

	Units	Values
Methane (CH4)	%LEL	0
Oxygen (O2)	%	20.9
Carbon Dioxide (CO2)	PPM	500

Priority	Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
1a	120 ml (plastic)	Dissolved Metals	100 ml	<input type="checkbox"/> Field Filtered	<input type="checkbox"/> HNO <sub>3</sub> (Nitric)		
1b	40 ml (glass)	Dissolved Mercury	15 mL	<input type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HCL (Hydrochloric)		
2	500 ml (plastic)	General Chemistry	100 ml	-	-		
3	145 ml (plastic)	Cyanide (total, free, weak acid dissociable)	100 ml	-	<input type="checkbox"/> NaOH (Sodium Hydroxide)		
4	120 ml (glass)	Ammonia (NH3)	60 ml	-	<input type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> (Sulfuric)		
5	120 ml (plastic)	Thiocyanate (SCN)	50 ml	-	<input type="checkbox"/> HNO <sub>3</sub> (Nitric)		
6	120 ml (glass amber)	Total Inorganic Carbon (TIC)	50 ml	-	-		

**General Notes and Observations:**

- Frozen @ 6.800 m → depth should be 10 m → permafrost well?

**Consumables Used:**

- 1/4" HDPE (peristaltic pump tubing) \_\_\_\_\_ ft
- 3/8" HDPE (microwaterra tubing) \_\_\_\_\_ ft
- 5/8" HDPE (waterra tubing) \_\_\_\_\_ ft
- 1/4" Silicon tubing \_\_\_\_\_ ft
- High Capacity .45 micron filters \_\_\_\_\_
- D-25 (for 2" wells, use with 5/8") foot valves \_\_\_\_\_
- D-16 (for 1" wells, use with 5/8") foot valves \_\_\_\_\_
- SS-10 (for 5/8" wells, use with 3/8") foot valves \_\_\_\_\_
- 1" bailer \_\_\_\_\_
- 2" bailer \_\_\_\_\_
- other (describe) \_\_\_\_\_

# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site	CH-P-13-03/50	Project Number	1343-005.28	Date	Aug 29 2016
Piezometer Diameter	1"	Client	GY - AAM	Samplers	SC NB
UTM Location	Z: 08 E: 0389145 N: 688 1108	Project Name	Mount Nansen 2016 GW Sampling Program	Weather/Temperature	11° Sunny
Waypoint	GPS: ELR Name: N/A			Recovery	<input type="checkbox"/> Good <input checked="" type="checkbox"/> Bad
Photos	Cam: ELR2 Nos: 0155 - 0157	Purge Method <i>No purge</i>			
Duplicate Collected	<input type="checkbox"/> Yes Name: _____	Waterra	Peristaltic	Disp. Bailer	Other
Field Blank Collected	<input type="checkbox"/> Yes Name: _____				
Initial Depth to Water (m)	46.921	Purge Start Time:	_____	Purge End Time:	_____
				Pen or YSI:	<input type="checkbox"/> YSI Pro Plus <input type="checkbox"/> Pen Unit
Depth to Bottom (m)	<del>30.2</del> 50.528	Purge Interval Time ( ) min / Vol. ( ) L			
Submerged Tubing Depth (m)	N/A	Depth to water (m)			
Well Stick-up Height (m)	0.56	Temperature (°C) 3%			
Estimated Water Volume (L)	4.7	pH (pH Units) ±0.1			
(DTB - DTW) x (πr <sup>2</sup> ) 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: 3.6 x 1.1 = 4.7	Cond. (µs/cm) 3%				
	Specific Cond. (µs/cm) 3%				
	Redox (mV) 10%				
	DO (mg/L) 10%				
	DO (%) 10%				
	Appearance & Odour (Clear, Silty, HC odours, etc.)				
	Only for final readings	Sulphide (mg/L)	0.09		
		Turbidity (NTU)	28.1		
	Interval Purge Volume (L)				
	Cumulative Purge Volume (L):				
YSI ID		Sample Method:			
Logged Field Parameters	<input type="checkbox"/> Yes <input type="checkbox"/> No	Waterra	Peristaltic	Disp. Bailer	Other
Time logged on YSI (24hr)	_____				
Sample Time (24hr)	15:45				

*Direct Sample*

Sample Site (Con't): CH-P-13-03/50

Sample Date (Con't): Aug 29 2016

Well Head Seal:  J-Plug  PVC Cap  Not Sealed  Other \_\_\_\_\_

Seal Replaced:  J-Plug  PVC Cap  Not required  Other \_\_\_\_\_

Well properly sealed for gas monitoring:  Yes  No Details: \_\_\_\_\_

**Head Space Gas Measurements**

	Units	Values
Methane (CH4)	%LEL	0
Oxygen (O2)	%	20.9
Carbon Dioxide (CO2)	PPM	400

Priority	Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
1a	120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)	100	
1b	40 ml (glass)	Dissolved Mercury	15 mL	<input type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HCL (Hydrochloric)	20	
2	500 ml (plastic)	General Chemistry	100 ml	-	-	400	
3	145 ml (plastic)	Cyanide (total, free, weak acid dissociable)	100 ml	-	<input checked="" type="checkbox"/> NaOH (Sodium Hydroxide)	140	
4	120 ml (glass)	Ammonia (NH3)	60 ml	-	<input checked="" type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> (Sulfuric)	100	
5	120 ml (plastic)	Thiocyanate (SCN)	50 ml	-	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)	120	
6	120 ml (glass amber)	Total Inorganic Carbon (TIC)	50 ml	-	-	120	

**General Notes and Observations:**

- depth of well was ~ 50m deep  
 - pulled 1L of sample volume, water level decreasing  
 - Able to collect full ~~and~~ sample set + Run sulphidate turbidity.

**Consumables Used:**

- 1/4" HDPE (peristaltic pump tubing) \_\_\_\_\_ ft
- 3/8" HDPE (microwaterra tubing) \_\_\_\_\_ ft
- 5/8" HDPE (waterra tubing) \_\_\_\_\_ ft
- 1/4" Silicon tubing \_\_\_\_\_ ft
- High Capacity .45 micron filters \_\_\_\_\_
- D-25 (for 2" wells, use with 5/8") foot valves \_\_\_\_\_
- D-16 (for 1" wells, use with 5/8") foot valves \_\_\_\_\_
- SS-10 (for 5/8" wells, use with 3/8") foot valves \_\_\_\_\_
- 1" bailer 1
- 2" bailer \_\_\_\_\_
- other (describe) 50m Twine 50m



# GROUNDWATER SAMPLE COLLECTION SHEET

<b>Sample Site</b>	CH-P-13-04/10	<b>Project Number</b>	1343-005 <del>28</del> 28	<b>Date</b>	29-Aug-16
<b>Piezometer Diameter</b>	# 1.75	<b>Client</b>	GY - AAM	<b>Samplers</b>	AN/MM
<b>UTM Location</b>	Z: 083 E: 0329136 N: 6881471	<b>Project Name</b>	Mount Nansen 2016 GW Sampling Program	<b>Weather/Temperature</b>	windy 24°C
<b>Waypoint</b>	GPS: AN Name: N/A			<b>Recovery</b>	<input type="checkbox"/> Good <input type="checkbox"/> Bad
<b>Photos</b>	Cam: 1 Nos: 0435-0438	<b>Purge Method</b>			
<b>Duplicate Collected</b>	<input type="checkbox"/> Yes Name: _____	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>
<b>Field Blank Collected</b>	<input type="checkbox"/> Yes Name: _____				
<b>Initial Depth to Water (m)</b>	6.100 - ice	<b>Purge Start Time:</b>		<b>Purge End Time:</b>	
				<b>Pen or YSI:</b>	<input type="checkbox"/> YSI Pro Plus <input type="checkbox"/> Pen Unit
<b>Depth to Bottom (m)</b>	6.100 FROZEN	<b>Purge Interval Time ( ) min / Vol. ( ) L</b>			
<b>Submerged Tubing Depth (m)</b>		<b>Depth to water (m)</b>			
<b>Well Stick-up Height (m)</b>	0.675	<b>Temperature (°C) 3%</b>			
<b>Estimated Water Volume (L)</b>		<b>pH (pH Units) ±0.1</b>			
<p>(DTB - DTW) x (πr<sup>2</sup>) 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</p> <p>Calculations:</p>	<b>Cond. (µs/cm) 3%</b>				
	<b>Specific Cond. (µs/cm) 3%</b>				
	<b>Redox (mV) 10%</b>				
	<b>DO (mg/L) 10%</b>				
	<b>DO (%) 10%</b>				
	<b>Appearance &amp; Odour (Clear, Silty, HC odours, etc.)</b>				
	<b>Only for final readings</b>	<b>Sulphide (mg/L)</b>			
		<b>Turbidity (NTU)</b>			
	<b>Interval Purge Volume (L)</b>				
	<b>Cumulative Purge Volume (L):</b>				
<b>YSI ID</b>		<b>Sample Method:</b>			
<b>Logged Field Parameters</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>
<b>Time logged on YSI (24hr)</b>					
<b>Sample Time (24hr)</b>					

Sample Site (Con't): CH-D-13-0415<sup>10</sup>

Sample Date (Con't): 29-Aug-16

Well Head Seal:  J-Plug  PVC Cap  Not Sealed  Other \_\_\_\_\_

Seal Replaced:  J-Plug  PVC Cap  Not required  Other \_\_\_\_\_

Well properly sealed for gas monitoring:  Yes  No Details: cap was loose.

**Head Space Gas Measurements**

	Units	Values
Methane (CH4)	%LEL	0
Oxygen (O2)	%	80.22.3
Carbon Dioxide (CO2)	PPM	200

Priority	Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
1a	120 ml (plastic)	Dissolved Metals	100 ml	<input type="checkbox"/> Field Filtered	<input type="checkbox"/> HNO <sub>3</sub> (Nitric)		
1b	40 ml (glass)	Dissolved Mercury	15 mL	<input type="checkbox"/> Field Filtered	<input type="checkbox"/> HCL (Hydrochloric)		
2	500 ml (plastic)	General Chemistry	100 ml	-	-		
3	145 ml (plastic)	Cyanide (total, free, weak acid dissociable)	100 ml	-	<input type="checkbox"/> NaOH (Sodium Hydroxide)		
4	120 ml (glass)	Ammonia (NH3)	60 ml	-	<input type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> (Sulfuric)		
5	120 ml (plastic)	Thiocyanate (SCN)	50 ml	-	<input type="checkbox"/> HNO <sub>3</sub> (Nitric)		
6	120 ml (glass amber)	Total Inorganic Carbon (TIC)	50 ml	-	-		

**General Notes and Observations:**

- ice @ 6.100m → ice found on the top of the water level. → possibly permafrost well?

**Consumables Used:**

- 1/4" HDPE (peristaltic pump tubing) \_\_\_\_\_ ft
- 3/8" HDPE (microwaterra tubing) \_\_\_\_\_ ft
- 5/8" HDPE (waterra tubing) \_\_\_\_\_ ft
- 1/4" Silicon tubing \_\_\_\_\_ ft
- High Capacity .45 micron filters \_\_\_\_\_
- D-25 (for 2" wells, use with 5/8") foot valves \_\_\_\_\_
- D-16 (for 1" wells, use with 5/8") foot valves \_\_\_\_\_
- SS-10 (for 5/8" wells, use with 3/8") foot valves \_\_\_\_\_
- 1" bailer \_\_\_\_\_
- 2" bailer \_\_\_\_\_
- other (describe) \_\_\_\_\_

# GROUNDWATER SAMPLE COLLECTION SHEET

<b>Sample Site</b>	CH-P-13-04/35	<b>Project Number</b>	1343-005.28	<b>Date</b>	29-Aug-16
<b>Piezometer Diameter</b>	1"	<b>Client</b>	GY - AAM	<b>Samplers</b>	AN/MM
<b>UTM Location</b>	Z: 08 E: 0389137 N: 6881472	<b>Project Name</b>	Mount Nansen 2016 GW Sampling Program	<b>Weather/Temperature</b>	windy sunny breaks 4°C
<b>Waypoint</b>	GPS: AN Name: N/A			<b>Recovery</b>	<input type="checkbox"/> Good <input type="checkbox"/> Bad
<b>Photos</b>	Cam: 1 Nos: 0435-0438	<b>Purge Method</b>			
<b>Duplicate Collected</b>	<input type="checkbox"/> Yes Name:	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>
<b>Field Blank Collected</b>	<input type="checkbox"/> Yes Name:				
<b>Initial Depth to Water (m)</b>	6.500 <sup>1ce.</sup> <del>6.500</del> (free)	<b>Purge Start Time:</b>		<b>Purge End Time:</b>	
<b>Depth to Bottom (m)</b>	N/A	<b>Purge Interval Time ( ) min / Vol. ( ) L</b>			
<b>Submerged Tubing Depth (m)</b>	N/A	<b>Depth to water (m)</b>			
<b>Well Stick-up Height (m)</b>	0.608	<b>Temperature (°C) 3%</b>			
<b>Estimated Water Volume (L)</b>	N/A	<b>pH (pH Units) ±0.1</b>			
<p>(DTB – DTW) x (πr<sup>2</sup>) 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</p> <p>Calculations:</p>	<b>Cond. (µs/cm) 3%</b>				
	<b>Specific Cond. (µs/cm) 3%</b>				
	<b>Redox (mV) 10%</b>				
	<b>DO (mg/L) 10%</b>				
	<b>DO (%) 10%</b>				
	<b>Appearance &amp; Odour (Clear, Silty, HC odours, etc.)</b>				
	<b>Only for final readings</b>	<b>Sulphide (mg/L)</b>			
		<b>Turbidity (NTU)</b>			
		<b>Interval Purge Volume (L)</b>			
		<b>Cumulative Purge Volume (L):</b>			
<b>YSI ID</b>		<b>Sample Method:</b>			
<b>Logged Field Parameters</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>
<b>Time logged on YSI (24hr)</b>					
<b>Sample Time (24hr)</b>					

OBSERVED FROZEN?

CH-P-13-04/35

Sample Site (Con't): CH-P-13-04/35

Sample Date (Con't): 29-Aug-16

Well Head Seal:  J-Plug  PVC Cap  Not Sealed  Other \_\_\_\_\_

Seal Replaced:  J-Plug  PVC Cap  Not required  Other \_\_\_\_\_

Well properly sealed for gas monitoring:  Yes  No Details: cap loss

**Head Space Gas Measurements**

	Units	Values
Methane (CH4)	%LEL	0
Oxygen (O2)	%	21.6
Carbon Dioxide (CO2)	PPM	300

Priority	Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
1a	120 ml (plastic)	Dissolved Metals	100 ml	<input type="checkbox"/> Field Filtered	<input type="checkbox"/> HNO <sub>3</sub> (Nitric)		
1b	40 ml (glass)	Dissolved Mercury	15 mL	<input type="checkbox"/> Field Filtered	<input type="checkbox"/> HCL (Hydrochloric)		
2	500 ml (plastic)	General Chemistry	100 ml	-	-		
3	145 ml (plastic)	Cyanide (total, free, weak acid dissociable)	100 ml	-	<input type="checkbox"/> NaOH (Sodium Hydroxide)		
4	120 ml (glass)	Ammonia (NH3)	60 ml	-	<input type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> (Sulfuric)		
5	120 ml (plastic)	Thiocyanate (SCN)	50 ml	-	<input type="checkbox"/> HNO <sub>3</sub> (Nitric)		
6	120 ml (glass amber)	Total Inorganic Carbon (TIC)	50 ml	-	-		

**General Notes and Observations:**

- obstruction @ 6.500m → white ice found on the tip of the water level → no drawing attempt → permeable well?

**Consumables Used:**

- 1/4" HDPE (peristaltic pump tubing) \_\_\_\_\_ ft
- 3/8" HDPE (microwaterra tubing) \_\_\_\_\_ ft
- 5/8" HDPE (waterra tubing) \_\_\_\_\_ ft
- 1/4" Silicon tubing \_\_\_\_\_ ft
- High Capacity .45 micron filters \_\_\_\_\_
- D-25 (for 2" wells, use with 5/8") foot valves \_\_\_\_\_
- D-16 (for 1" wells, use with 5/8") foot valves \_\_\_\_\_
- SS-10 (for 5/8" wells, use with 3/8") foot valves \_\_\_\_\_
- 1" bailer \_\_\_\_\_
- 2" bailer \_\_\_\_\_
- other (describe) \_\_\_\_\_

# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site	G1107-01	Project Number	1343-005 <del>22</del> 22	Date	Aug 29 2016
Piezometer Diameter	2"	Client	GY - AAM	Samplers	JC NB
UTM Location	Z: 08 E: 03 88852 N: 6881779	Project Name	Mount Nansen 2016 GW Sampling Program	Weather/Temperature	10° Sunny
Waypoint	GPS: ECR Name: NA			Recovery	<input type="checkbox"/> Good <input checked="" type="checkbox"/> Bad
Photos	Cam: ECR2 Nos: 0149-0151	Purge Method			
Duplicate Collected	<input type="checkbox"/> Yes Name:	Waterra	Peristaltic	Disp. Bailer	Other
Field Blank Collected	<input checked="" type="checkbox"/> Yes Name:				
Initial Depth to <del>Water</del> <sup>Ice</sup> (m)	13.824	Purge Start Time:	Purge End Time:	Pen or YSI:	<input type="checkbox"/> YSI Pro Plus <input checked="" type="checkbox"/> Pen Unit
Depth to Bottom (m)	13.824 Frozen.	Purge Interval Time ( ) min / Vol. ( ) L			
Submerged Tubing Depth (m)		Depth to water (m)			
Well Stick-up Height (m)	0.75	Temperature (°C) 3%			
Estimated Water Volume (L)		pH (pH Units) ±0.1			
<p>Calculations:</p> <p>(DTB - DTW) x (πr<sup>2</sup>) 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</p>	Cond. (µs/cm) 3%				
	Specific Cond. (µs/cm) 3%				
	Redox (mV) 10%				
	DO (mg/L) 10%				
	DO (%) 10%				
	Appearance & Odour (Clear, Silty, HC odours, etc.)				
	<u>Only for final readings</u> Sulphide (mg/L)				
	Turbidity (NTU)				
	Interval Purge Volume (L)				
	Cumulative Purge Volume (L):				
YSI ID		Sample Method:			
Logged Field Parameters	<input type="checkbox"/> Yes <input type="checkbox"/> No	Waterra	Peristaltic	Disp. Bailer	Other
Time logged on YSI (24hr)					
Sample Time (24hr)					



Sample Site (Con't): GULL07-01

Sample Date (Con't): Aug 29 2016

Well Head Seal:  J-Plug  PVC Cap  Not Sealed  Other \_\_\_\_\_

Seal Replaced:  J-Plug  PVC Cap  Not required  Other \_\_\_\_\_

Well properly sealed for gas monitoring:  Yes  No Details: \_\_\_\_\_

**Head Space Gas Measurements**

	Units	Values
Methane (CH4)	%LEL	0
Oxygen (O2)	%	20.9
Carbon Dioxide (CO2)	PPM	200

Priority	Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
1a	120 ml (plastic)	Dissolved Metals	100 ml	<input type="checkbox"/> Field Filtered	<input type="checkbox"/> HNO <sub>3</sub> (Nitric)		
1b	40 ml (glass)	Dissolved Mercury	15 mL	<input type="checkbox"/> Field Filtered	<input type="checkbox"/> HCL (Hydrochloric)		
2	500 ml (plastic)	General Chemistry	100 ml	-	-		
3	145 ml (plastic)	Cyanide (total, free, weak acid dissociable)	100 ml	-	<input type="checkbox"/> NaOH (Sodium Hydroxide)		
4	120 ml (glass)	Ammonia (NH3)	60 ml	-	<input type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> (Sulfuric)		
5	120 ml (plastic)	Thiocyanate (SCN)	50 ml	-	<input type="checkbox"/> HNO <sub>3</sub> (Nitric)		
6	120 ml (glass amber)	Total Inorganic Carbon (TIC)	50 ml	-	-		

**General Notes and Observations:**

→ Well is Frozen @ 13.824 m

**Consumables Used:**

- 1/4" HDPE (peristaltic pump tubing) \_\_\_\_\_ ft
- 3/8" HDPE (microwaterra tubing) \_\_\_\_\_ ft
- 5/8" HDPE (waterra tubing) \_\_\_\_\_ ft
- 1/4" Silicon tubing \_\_\_\_\_ ft
- High Capacity .45 micron filters \_\_\_\_\_
- D-25 (for 2" wells, use with 5/8") foot valves \_\_\_\_\_
- D-16 (for 1" wells, use with 5/8") foot valves \_\_\_\_\_
- SS-10 (for 5/8" wells, use with 3/8") foot valves \_\_\_\_\_
- 1" bailer \_\_\_\_\_
- 2" bailer \_\_\_\_\_
- other (describe) \_\_\_\_\_

# GROUNDWATER SAMPLE COLLECTION SHEET

<b>Sample Site</b>	GLL07-02	<b>Project Number</b>	1343-005.28	<b>Date</b>	Aug 31 2016
<b>Piezometer Diameter</b>	6"	<b>Client</b>	GY - AAM	<b>Samplers</b>	SC NB
<b>UTM Location</b>	Z:08 E: 038907 DN: 6881704	<b>Project Name</b>	Mount Nansen 2016 GW Sampling Program	<b>Weather/Temperature</b>	9° Sunny
<b>Waypoint</b>	GPS: ELR Name: _____			<b>Recovery</b>	<input type="checkbox"/> Good <input checked="" type="checkbox"/> Bad
<b>Photos</b>	Cam: FLR2 Nos: 0206 - 0208	<b>Purge Method</b>			
<b>Duplicate Collected</b>	<input type="checkbox"/> Yes Name: _____	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>
<b>Field Blank Collected</b>	<input type="checkbox"/> Yes Name: _____				
<b>Initial Depth to Water (m)</b>	Dry	<b>Purge Start Time:</b>		<b>Purge End Time:</b>	
<b>Depth to Bottom (m)</b>	7.257			<b>Pen or YSI:</b>	<input type="checkbox"/> YSI Pro Plus <input type="checkbox"/> Pen Unit
<b>Submerged Tubing Depth (m)</b>	—	<b>Purge Interval Time ( ) min / Vol. ( ) L</b>			
<b>Well Stick-up Height (m)</b>	1.272	<b>Depth to water (m)</b>			
<b>Estimated Water Volume (L)</b>	—	<b>Temperature (°C) 3%</b>			
Calculations: $(DTB - DTW) \times (\pi r^2) \times 1000$ (for well diameter) = 1 well volume $(DTB - DTW) \times 8.1$ (for 4" well diameter) = 1 well volume $(DTB - DTW) \times 2$ (for 2" well diameter) = 1 well volume $(DTB - DTW) \times 1.1$ (for 1.5" diameter) = 1 well volume $(DTB - DTW) \times 0.5$ (for 1" diameter) = 1 well volume	<b>pH (pH Units) ±0.1</b>				
	<b>Cond. (µs/cm) 3%</b>				
	<b>Specific Cond. (µs/cm) 3%</b>				
	<b>Redox (mV) 10%</b>				
	<b>DO (mg/L) 10%</b>				
	<b>DO (%) 10%</b>				
	<b>Appearance &amp; Odour (Clear, Silty, HC odours, etc.)</b>				
	<b>Only for final readings</b>	<b>Sulphide (mg/L)</b>			
		<b>Turbidity (NTU)</b>			
	<b>Interval Purge Volume (L)</b>				
<b>Cumulative Purge Volume (L):</b>					
<b>YSI ID</b>		<b>Sample Method:</b>			
<b>Logged Field Parameters</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>
<b>Time logged on YSI (24hr)</b>					
<b>Sample Time (24hr)</b>					

Sample Site (Con't): GLL07-02

 Sample Date (Con't): Aug 31 2016

 Well Head Seal:  J-Plug  PVC Cap  Not Sealed  Other Steel cap

 Seal Replaced:  J-Plug  PVC Cap  Not required  Other \_\_\_\_\_

 Well properly sealed for gas monitoring:  Yes  No Details: \_\_\_\_\_

**Head Space Gas Measurements**

	Units	Values
Methane (CH <sub>4</sub> )	%LEL	0
Oxygen (O <sub>2</sub> )	%	19.5
Carbon Dioxide (CO <sub>2</sub> )	PPM	4600

Priority	Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
1a	120 ml (plastic)	Dissolved Metals	100 ml	<input type="checkbox"/> Field Filtered	<input type="checkbox"/> HNO <sub>3</sub> (Nitric)		
1b	40 ml (glass)	Dissolved Mercury	15 mL	<input type="checkbox"/> Field Filtered	<input type="checkbox"/> HCL (Hydrochloric)		
2	500 ml (plastic)	General Chemistry	100 ml	-	-		
3	145 ml (plastic)	Cyanide (total, free, weak acid dissociable)	100 ml	-	<input type="checkbox"/> NaOH (Sodium Hydroxide)		
4	120 ml (glass)	Ammonia (NH <sub>3</sub> )	60 ml	-	<input type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> (Sulfuric)		
5	120 ml (plastic)	Thiocyanate (SCN)	50 ml	-	<input type="checkbox"/> HNO <sub>3</sub> (Nitric)		
6	120 ml (glass amber)	Total Inorganic Carbon (TIC)	50 ml	-	-		

**General Notes and Observations:**

Well is Dry

**Consumables Used:**

- 1/4" HDPE (peristaltic pump tubing) \_\_\_\_\_ ft
- 3/8" HDPE (microwaterra tubing) \_\_\_\_\_ ft
- 5/8" HDPE (waterra tubing) \_\_\_\_\_ ft
- 1/4" Silicon tubing \_\_\_\_\_ ft
- High Capacity .45 micron filters \_\_\_\_\_
- D-25 (for 2" wells, use with 5/8") foot valves \_\_\_\_\_
- D-16 (for 1" wells, use with 5/8") foot valves \_\_\_\_\_
- SS-10 (for 5/8" wells, use with 3/8") foot valves \_\_\_\_\_
- 1" bailer \_\_\_\_\_
- 2" bailer \_\_\_\_\_
- other (describe) \_\_\_\_\_



Return



# GROUNDWATER SAMPLE COLLECTION SHEET

<b>Sample Site</b>	GSI-DC-013 / A	<b>Project Number</b>	1343-005.28	<b>Date</b>	Aug 24 2016
<b>Piezometer Diameter</b>	<del>1.5"</del> 1.0"	<b>Client</b>	GY - AAM	<b>Samplers</b>	SC NB
<b>UTM Location</b>	Z:08V E:0387666 N:6881121	<b>Project Name</b>	Mount Nansen 2016 GW Sampling Program	<b>Weather/Temperature</b>	Sunny 30C
<b>Waypoint</b>	GPS: ELR Name: N/A			<b>Recovery</b>	<input type="checkbox"/> Good <input checked="" type="checkbox"/> Bad
<b>Photos</b>	Cam: ELR/2 Nos: 103-0125-103-0127	<b>Purge Method</b>			
<b>Duplicate Collected</b>	<input type="checkbox"/> Yes Name: -	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>
<b>Field Blank Collected</b>	<input type="checkbox"/> Yes Name: -		✓		
<b>Initial Depth to Water (m)</b>	B: 1.347 / A: 0.857	<b>Purge Start Time:</b>		<b>Purge End Time:</b>	
				<b>Pen or YSI:</b>	<input type="checkbox"/> YSI Pro Plus <input type="checkbox"/> Pen Unit
<b>Depth to Bottom (m)</b>	B: 1.702 / A: 1.552	<b>Purge Interval Time ( ) min / Vol. ( ) L</b>			
<b>Submerged Tubing Depth (m)</b>	1.702	<b>Depth to water (m)</b>			
<b>Well Stick-up Height (m)</b>	0.9605 (0.933 - A)	<b>Temperature (°C) 3%</b>			
<b>Estimated Water Volume (L)</b>	100ml (0.1L)	<b>pH (pH Units) ±0.1</b>			
<p>Calculations:</p> <p>(DTB - DTW) x (πr<sup>2</sup>) 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</p>	<b>Cond. (µs/cm) 3%</b>				
	<b>Specific Cond. (µs/cm) 3%</b>				
	<b>Redox (mV) 10%</b>				
	<b>DO (mg/L) 10%</b>				
	<b>DO (%) 10%</b>				
	<b>Appearance &amp; Odour (Clear, Silty, HC odours, etc.)</b>				
	<b>Only for final readings</b>	<b>Sulphide (mg/L)</b>			
		<b>Turbidity (NTU)</b>			
	<b>Interval Purge Volume (L)</b>				
	<b>Cumulative Purge Volume (L):</b>				
<b>YSI ID</b>	N/A	<b>Sample Method:</b>			
<b>Logged Field Parameters</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>
<b>Time logged on YSI (24hr)</b>	N/A		✓		
<b>Sample Time (24hr)</b>	08:45				

DIRECT SAMPLE

Sample Site (Con't): GSZ-DC-01BA

Sample Date (Con't): Aug 29 2016

Well Head Seal:  J-Plug  PVC Cap  Not Sealed  Other \_\_\_\_\_

Seal Replaced:  J-Plug  PVC Cap  Not required  Other \_\_\_\_\_

Well properly sealed for gas monitoring:  Yes  No Details: \_\_\_\_\_

**Head Space Gas Measurements**

	Units	Values
Methane (CH4)	%LEL	B: 0 / A: 0
Oxygen (O2)	%	B: 20.9 / A: 20.9
Carbon Dioxide (CO2)	PPM	B: 300 / A: 300

Priority	Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
1a	120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)	100	16/08/2016 08:45
1b	40 ml (glass)	Dissolved Mercury	15 mL	<input type="checkbox"/> Field Filtered	<input type="checkbox"/> HCL (Hydrochloric)		
2	500 ml (plastic)	General Chemistry	100 ml	-	-		
3	145 ml (plastic)	Cyanide (total, free, weak acid dissociable)	100 ml	-	<input type="checkbox"/> NaOH (Sodium Hydroxide)		
4	120 ml (glass)	Ammonia (NH3)	60 ml	-	<input type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> (Sulfuric)		
5	120 ml (plastic)	Thiocyanate (SCN)	50 ml	-	<input type="checkbox"/> HNO <sub>3</sub> (Nitric)		
6	120 ml (glass amber)	Total Inorganic Carbon (TIC)	50 ml	-	-		

**General Notes and Observations:**

Limited sampling volume

Aug 30, 2016

-Returned @ 14:50 to attempt to fill more bottles.

~~DTB~~ DTB 1.705m → no water well has not

sample time recharged; unable to collect anymore samples at this time.

Second visit to well on Aug 31 @ 16:00. Measured DTW/DTB. well found DRY. No recharge.

**Consumables Used:**

- 1/4" HDPE (peristaltic pump tubing) \_\_\_\_\_ ft
- 3/8" HDPE (microwaterra tubing) \_\_\_\_\_ ft
- 5/8" HDPE (waterra tubing) \_\_\_\_\_ ft
- 1/4" Silicon tubing \_\_\_\_\_ ft
- High Capacity .45 micron filters \_\_\_\_\_
- D-25 (for 2" wells, use with 5/8" foot valves) \_\_\_\_\_
- D-16 (for 1" wells, use with 5/8" foot valves) \_\_\_\_\_
- SS-10 (for 5/8" wells, use with 3/8" foot valves) \_\_\_\_\_
- 1" bailer \_\_\_\_\_
- 2" bailer \_\_\_\_\_
- other (describe) \_\_\_\_\_

# GROUNDWATER SAMPLE COLLECTION SHEET

<b>Sample Site</b>		GSI-DC-02B/A		<b>Project Number</b>		1343-005.28		<b>Date</b>		29-Aug-16 / Aug. 30			
<b>Piezometer Diameter</b>		1" DP		<b>Client</b>		GY - AAM		<b>Samplers</b>		AN/MM			
<b>UTM Location</b>		Zone: E: 0405247 N: 6806659		<b>Project Name</b>		Mount Nansen 2016 GW Sampling Program		<b>Weather/Temperature</b>		Sunny			
<b>Waypoint</b>		GPS: AN Name: 094		<b>Purge Method</b>				<b>Recovery</b>		<input type="checkbox"/> Good <input type="checkbox"/> Bad <input checked="" type="checkbox"/> okay			
<b>Photos</b>		Cam: 1 Nos: 0417-0419		<b>Waterra</b>				<b>Peristaltic</b>		X			
<b>Duplicate Collected</b>		<input type="checkbox"/> Yes Name: _____		<b>Disp. Bailer</b>				<b>Other</b>					
<b>Field Blank Collected</b>		<input type="checkbox"/> Yes Name: _____											
<b>Initial Depth to Water (m)</b>		B 1.845 A 1.603		<b>Purge Start Time:</b>		09:24 <del>08:50</del>		<b>Purge End Time:</b>		<input type="checkbox"/> YSI Pro Plus <input type="checkbox"/> Pen Unit			
<b>Depth to Bottom (m)</b>		<del>3.80</del> 0.221 1.861		<b>Purge Interval Time ( ) min / Vol. ( ) L</b>		Aug. 29 09:26							
<b>Submerged Tubing Depth (m)</b>		~3.80		<b>Depth to water (m)</b>						Aug 29 Direct Sample re-sampled on Aug 30			
<b>Well Stick-up Height (m)</b>		<del>1.20</del> 0.880   1.015		<b>Temperature (°C) 3%</b>		3.9							
<b>Estimated Water Volume (L)</b>		<del>0.006</del> 0.013		<b>pH (pH Units) ±0.1</b>		8.40							
(DTB - DTW) x (πr <sup>2</sup> ) * 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: $\frac{1.603 - 1.845}{0.221} \times 0.5 = 0.426$		<b>Cond. (µs/cm) 3%</b>		597									
		<b>Specific Cond. (µs/cm) 3%</b>		1006									
		<b>Redox (mV) 10%</b>		-37.2									
		<b>DO (mg/L) 10%</b>		* 38.3									
		<b>DO (%) 10%</b>		* 5.85									
		<b>Appearance &amp; Odour (Clear, Silty, HC odours, etc.)</b>		slightly turbid									
		<b>Only for final readings</b>		<b>Sulphide (mg/L)</b>		0.11							
				<b>Turbidity (NTU)</b>		46.5							
				<b>Interval Purge Volume (L)</b>									
				<b>Cumulative Purge Volume (L):</b>									
<b>YSI ID</b>		GSI-DC-02B		<b>Sample Method:</b>									
<b>Logged Field Parameters</b>		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<b>Waterra</b>				<b>Peristaltic</b>		X			
<b>Time logged on YSI (24hr)</b>		<del>09:27</del> 08:50		<b>Disp. Bailer</b>				<b>Other</b>					
<b>Sample Time (24hr)</b>		<del>09:27</del> 08:50											

Sample Site (Con't): GSI-DC-a2B/A

Sample Date (Con't): 29-Aug-16

Well Head Seal:  J-Plug  PVC Cap  Not Sealed  Other grommet cap

Seal Replaced:  J-Plug  PVC Cap  Not required  Other \_\_\_\_\_

Well properly sealed for gas monitoring:  Yes  No Details: \_\_\_\_\_

**Head Space Gas Measurements**

	Units	Values	
Methane (CH4)	%LEL	0	0
Oxygen (O2)	%	20.9	20.9
Carbon Dioxide (CO2)	PPM	500	<del>500</del> 500

Priority	Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)		Comments
						Aug. 29	Aug. 30	
1a	120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)	100	100	
1b	40 ml (glass)	Dissolved Mercury	15 mL	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HCL (Hydrochloric)	15	15	Min. Vol. collected
2	500 ml (plastic)	General Chemistry	100 ml	-	-	100	100	during both dates.
3	145 ml (plastic)	Cyanide (total, free, weak acid dissociable)	100 ml	-	<input type="checkbox"/> NaOH (Sodium Hydroxide)	100	100	
4	120 ml (glass)	Ammonia (NH3)	60 ml	-	<input checked="" type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> (Sulfuric)	60	60	
5	120 ml (plastic)	Thiocyanate (SCN)	50 ml	-	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)	50	50	
6	120 ml (glass amber)	Total Inorganic Carbon (TIC)	50 ml	-	-	50	50	

**General Notes and Observations:**

~~Unable to get water depth again & water level @ 1.855m~~

- Difficulty getting the water level tape to the bottom of the well; able to put 33.80 m of peri tubing into the well.

- able to collect full minimum values; will purge water & return later to attempt second sample (not direct)

\* Do not a reliable reading due to air bubbles, well dry after parameter reading.

**Consumables Used:**

- 1/4" HDPE (peristaltic pump tubing) 10.5 ft
- 3/8" HDPE (microwaterra tubing) \_\_\_\_\_ ft
- 5/8" HDPE (waterra tubing) \_\_\_\_\_ ft
- 1/4" Silicon tubing 1.0 ft
- High Capacity .45 micron filters \_\_\_\_\_
- D-25 (for 2" wells, use with 5/8") foot valves \_\_\_\_\_
- D-16 (for 1" wells, use with 5/8") foot valves \_\_\_\_\_
- SS-10 (for 5/8" wells, use with 3/8") foot valves \_\_\_\_\_
- 1" bailer \_\_\_\_\_
- 2" bailer \_\_\_\_\_
- other (describe) \_\_\_\_\_

⊗ 30 Aug-16 @ 6:55 DTW 1.855 → attempt resample.

→ Sample time

12:55

→ Full sample set collected (min. vol.)

# GROUNDWATER SAMPLE COLLECTION SHEET

<b>Sample Site</b>		GSI-DC-03B/A		<b>Project Number</b>		1343-005.28		<b>Date</b>		29-Aug-16			
<b>Piezometer Diameter</b>		1" DP		<b>Client</b>		GY - AAM		<b>Samplers</b>		AN/MM			
<b>UTM Location</b>		Z: 081 E: 0388107 N: 6881079		<b>Project Name</b>		Mount Nansen 2016 GW Sampling Program		<b>Weather/Temperature</b>		windy/overcast			
<b>Waypoint</b>		GPS: AN Name: N/A						<b>Recovery</b>		<input type="checkbox"/> Good <input type="checkbox"/> Bad		LOW	
<b>Photos</b>		Cam: I Nos: 0422-0431		<b>Purge Method</b>									
<b>Duplicate Collected</b>		<input type="checkbox"/> Yes Name: _____		<b>Waterra</b>		<b>Peristaltic</b>		<b>Disp. Bailer</b>		<b>Other</b>			
<b>Field Blank Collected</b>		<input type="checkbox"/> Yes Name: _____				X							
<b>Initial Depth to Water (m)</b>		1.405 <sup>13.1</sup>   1.248		<b>Purge Start Time:</b>		13:04		<b>Purge End Time:</b>		<input checked="" type="checkbox"/> YSI Pro Plus <input type="checkbox"/> Pen Unit			
<b>Depth to Bottom (m)</b>		1.860 <sup>13.1</sup>   1.855		<b>Purge Interval Time ( ) min / Vol. ( ) L</b>		13:05							
<b>Submerged Tubing Depth (m)</b>		~1.70		<b>Depth to water (m)</b>		12							
<b>Well Stick-up Height (m)</b>		0.964		<b>Temperature (°C) 3%</b>		4.2							
<b>Estimated Water Volume (L)</b>		0.23		<b>pH (pH Units) ±0.1</b>		7.30							
(DTB - DTW) x (πr <sup>2</sup> ) 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: $\frac{8.1 \times 4.05}{0.455} \times 0.5$				<b>Cond. (µs/cm) 3%</b>		554							
				<b>Specific Cond. (µs/cm) 3%</b>		917							
				<b>Redox (mV) 10%</b>		173.1							
				<b>DO (mg/L) 10%</b>		5.2							
				<b>DO (%) 10%</b>		41.2							
				<b>Appearance &amp; Odour (Clear, Silty, HC odours, etc.)</b>		turbid							
				<b>Only for final readings</b>		<b>Sulphide (mg/L)</b>		/		0.25			
						<b>Turbidity (NTU)</b>		/		580			
						<b>Interval Purge Volume (L)</b>		/					
						<b>Cumulative Purge Volume (L):</b>		/					
<b>YSI ID</b>		GSI-DC-06B		<b>Sample Method:</b>									
<b>Logged Field Parameters</b>		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<b>Waterra</b>		<b>Peristaltic</b>		<b>Disp. Bailer</b>		<b>Other</b>			
<b>Time logged on YSI (24hr)</b>		13:06											
<b>Sample Time (24hr)</b>		12:50 *				X							

DIRECT \*SEE SAMPLE NOTES OVER BACK

\* Sample time submitted to lab is 15:25 on 30-Aug-16

Sample Site (Con't): ~~20-Aug-16~~ 601-DC-0381A

Sample Date (Con't): ~~29-Aug-16~~ \* 30-Aug-16 @ 15:25

Well Head Seal:  J-Plug  PVC Cap  Not Sealed  Other \_\_\_\_\_

Seal Replaced:  J-Plug  PVC Cap  Not required  Other \_\_\_\_\_

Well properly sealed for gas monitoring:  Yes  No Details: \_\_\_\_\_

↳ has plastic bag covering.

**Head Space Gas Measurements**

	Units	B Values	A
Methane (CH4)	%LEL	0	0
Oxygen (O2)	%	20.9	20.9
Carbon Dioxide (CO2)	PPM	300	300

Priority	Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
1a	120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)	100 * 2 min	<p>30-Aug-15 @ 15:25 to sample time</p>
1b	40 ml (glass)	Dissolved Mercury	15 mL	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HCL (Hydrochloric)	15 * 2 min	
2	500 ml (plastic)	General Chemistry	100 ml	-	-	<del>500</del>	
3	145 ml (plastic)	Cyanide (total, free, weak acid dissociable)	100 ml	-	<input checked="" type="checkbox"/> NaOH (Sodium Hydroxide)	<del>145</del>	
4	120 ml (glass)	Ammonia (NH3)	60 ml	-	<input checked="" type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> (Sulfuric)	<del>120</del>	
5	120 ml (plastic)	Thiocyanate (SCN)	50 ml	-	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)	<del>120</del>	
6	120 ml (glass amber)	Total Inorganic Carbon (TIC)	50 ml	-	-	<del>120</del>	

**General Notes and Observations:**

- standing water surrounding both DPs  
 - attempted direct sample.  
 - well went dry after parameter measurement was taken; min sample vols collected.  
 30-Aug-16 → returned to attempt a re-sample to get a more representative (not direct) samp.  
 DTW → 1.554m  
 Sample Time: 15:25 on 30-Aug-16 → dug out dry + re-logged to sample.

**Consumables Used:**

- 1/4" HDPE (peristaltic pump tubing) 0.5 ft
- 3/8" HDPE (microwaterra tubing) \_\_\_\_\_ ft
- 5/8" HDPE (waterra tubing) \_\_\_\_\_ ft
- 1/4" Silicon tubing 0.5 ft to 0.5 ft
- High Capacity .45 micron filters \_\_\_\_\_
- D-25 (for 2" wells, use with 5/8") foot valves \_\_\_\_\_
- D-16 (for 1" wells, use with 5/8") foot valves \_\_\_\_\_
- SS-10 (for 5/8" wells, use with 3/8") foot valves \_\_\_\_\_
- 1" bailer \_\_\_\_\_
- 2" bailer \_\_\_\_\_
- other (describe) \_\_\_\_\_

\* Direct sample from 20-Aug-16 will not be submitted to the lab.

↳ able to collect full vols of gen & chem, cyanide, SCN, NH<sub>3</sub> + TIC  
 ↳ only min vols of diss metals & mercury

# GROUNDWATER SAMPLE COLLECTION SHEET

<b>Sample Site</b>	951-DC-053/A	<b>Project Number</b>	1343-005.28	<b>Date</b>	29 Aug - 16 + 30 Aug - 16
<b>Piezometer Diameter</b>	1" DP	<b>Client</b>	GY - AAM	<b>Samplers</b>	AN / MM
<b>UTM Location</b>	Z: 08 E: 038835 N: 6880836	<b>Project Name</b>	Mount Nansen 2016 GW Sampling Program	<b>Weather/Temperature</b>	sunny to breeze
<b>Waypoint</b>	GPS: AN Name: N/A	<b>Purge Method</b>	<input type="checkbox"/> Waterra <input checked="" type="checkbox"/> Peristaltic <input type="checkbox"/> Disp. Bailer <input type="checkbox"/> Other		
<b>Photos</b>	Cam: 1 Nos: 0442 - 0444	<b>Field Blank Collected</b>	<input type="checkbox"/> Yes Name: _____		
<b>Duplicate Collected</b>	<input type="checkbox"/> Yes Name: _____	<b>Initial Depth to Water (m)</b>	0.930	1.334	<input type="checkbox"/> YSI Pro Plus <input type="checkbox"/> Pen Unit
<b>Field Blank Collected</b>	<input type="checkbox"/> Yes Name: _____	<b>Depth to Bottom (m)</b>	2.855	1.940	
		<b>Submerged Tubing Depth (m)</b>	2.6		
		<b>Well Stick-up Height (m)</b>	0.646	1.154	
		<b>Estimated Water Volume (L)</b>	1.9		
Calculations: $(DTB - DTW) \times (\pi r^2) \times 1000$ (for well diameter) = 1 well volume $(DTB - DTW) \times 8.1$ (for 4" well diameter) = 1 well volume $(DTB - DTW) \times 2$ (for 2" well diameter) = 1 well volume $(DTB - DTW) \times 1.1$ (for 1.5" diameter) = 1 well volume $(DTB - DTW) \times 0.5$ (for 1" diameter) = 1 well volume		<b>Purge Start Time:</b>		<b>Purge End Time:</b>	16:37
		<b>Purge Interval Time ( ) min / Vol. ( ) L</b>			
		<b>Temperature (°C) 3%</b>	1.9		
		<b>pH (pH Units) ±0.1</b>	7.23		
		<b>Cond. (µs/cm) 3%</b>	770		
		<b>Specific Cond. (µs/cm) 3%</b>	380		
		<b>Redox (mV) 10%</b>	50.9		
		<b>DO (mg/L) 10%</b>	2.39		
		<b>DO (%) 10%</b>	* 15.1		
		<b>Appearance &amp; Odour (Clear, Silty, HC odours, etc.)</b>	turbid		
		<b>Only for final readings</b>	<b>Sulphide (mg/L)</b>	/	0.80 → Rashed limit
			<b>Turbidity (NTU) Au</b>	/	900 Au
		<b>Interval Purge Volume (L)</b>	/		
		<b>Cumulative Purge Volume (L):</b>	/		
<b>YSI ID</b>	951-DC-053	<b>Sample Method:</b>	<input type="checkbox"/> Waterra <input checked="" type="checkbox"/> Peristaltic <input type="checkbox"/> Disp. Bailer <input type="checkbox"/> Other		
<b>Logged Field Parameters</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Time logged on YSI (24hr)</b>	16:38		
<b>Sample Time (24hr)</b>	16:30				

\* 14:30 on 30-Aug-16

DIRECT SAMPLE

SEE NOTES ON BACK



Sample Site (Con't): GSI-DC-~~00~~B/A

Sample Date (Con't): Aug-29/2016 \* 30-Aug-16 @ 14:30 <sup>Sample</sup> ~~DATE~~  
*time (see notes)*

Well Head Seal:  J-Plug  PVC Cap  Not Sealed  Other \_\_\_\_\_

Seal Replaced:  J-Plug  PVC Cap  Not required  Other \_\_\_\_\_

Well properly sealed for gas monitoring:  Yes  No Details: \_\_\_\_\_

*↳ A is sealed in plastic bag.*

**Head Space Gas Measurements**

	Units	Values	
Methane (CH4)	%LEL	0	0
Oxygen (O2)	%	20.9	20.9
Carbon Dioxide (CO2)	PPM	500	300

Priority	Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
1a	120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)	100	<i>Sample Date: 30-Aug-16 @ 14:30</i>
1b	40 ml (glass)	Dissolved Mercury	15 mL	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HCL (Hydrochloric)	15	
2	500 ml (plastic)	General Chemistry	100 ml	-	-	100	
3	145 ml (plastic)	Cyanide (total, free, weak acid dissociable)	100 ml	-	<input checked="" type="checkbox"/> NaOH (Sodium Hydroxide)	100	
4	120 ml (glass)	Ammonia (NH <sub>3</sub> )	60 ml	-	<input checked="" type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> (Sulfuric)	60	
5	120 ml (plastic)	Thiocyanate (SCN)	50 ml	-	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)	50	
6	120 ml (glass amber)	Total Inorganic Carbon (TIC)	50 ml	-	-	50	

**General Notes and Observations:**

- DO reading may not be accurate due to air bubbles.  
 - well dry after parameters taken.  
 30-Aug-16 → attempt recanister to collect more representative samples (instead of direct sample).  
 → DTW 0.795m  
 14:30.  
 → Sample time ~~14:30~~ on 30 Aug-16

\* Sample will be used from 30-Aug-16; direct sample from 29-Aug-16 will not be submitted to the lab. (Aug 30 more representative, purged dry & sampled)

**Consumables Used:**

- 1/4" HDPE (peristaltic pump tubing) 9 ft
- 3/8" HDPE (microwaterra tubing) — ft
- 5/8" HDPE (waterra tubing) — ft
- 1/4" Silicon tubing 0.5 ft
- High Capacity .45 micron filters —
- D-25 (for 2" wells, use with 5/8") foot valves —
- D-16 (for 1" wells, use with 5/8") foot valves —
- SS-10 (for 5/8" wells, use with 3/8") foot valves —
- 1" bailer —
- 2" bailer —
- other (describe) —



# GROUNDWATER SAMPLE COLLECTION SHEET

<b>Sample Site</b>	GSI-DC-06 B/A	<b>Project Number</b>	1343-005.22 .28	<b>Date</b>	31-Aug-16	
<b>Piezometer Diameter</b>	1" DP	<b>Client</b>	GY - AAM	<b>Samplers</b>	AN/MM	
<b>UTM Location</b>	Z: 088 E: 038787 N: 6880567	<b>Project Name</b>	Mount Nansen 2016 GW Sampling Program	<b>Weather/Temperature</b>	sun/cloud	
<b>Waypoint</b>	GPS: AN Name: N/A			<b>Recovery</b>	<input type="checkbox"/> Good <input type="checkbox"/> Bad	
<b>Photos</b>	Cam: 1 Nos: 0480-0482	<b>Purge Method</b>				
<b>Duplicate Collected</b>	<input type="checkbox"/> Yes Name:	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>	
<b>Field Blank Collected</b>	<input type="checkbox"/> Yes Name:		X			
<b>Initial Depth to Water (m)</b>	0.720 B/A 1.816	<b>Purge Start Time:</b>	10:43	<b>Purge End Time:</b>	<del>10:55</del> 11:05	
<b>Depth to Bottom (m)</b>	2.910 B/A 2.001	<b>Purge Interval Time (5) min / Vol. ( ) L</b>	10:45	10:50	10:55	
<b>Submerged Tubing Depth (m)</b>	~2.0	<b>Depth to water (m)</b>	/	/	/	
<b>Well Stick-up Height (m)</b>	0.49 B/A 0.835	<b>Temperature (°C) 3%</b>	3.7	3.1	2.8	
<b>Estimated Water Volume (L)</b>	1.1	<b>pH (pH Units) ±0.1</b>	7.71	7.45	7.48	
<p>(DTB - DTW) x (πr<sup>2</sup>) 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</p> <p>Calculations:  <math display="block">\frac{2.910 - 0.720}{2.190} \times 0.5 = 1.1</math></p>	<b>Cond. (µs/cm) 3%</b>	607	585	576	574	
	<b>Specific Cond. (µs/cm) 3%</b>	1630	1006	999	996	
	<b>Redox (mV) 10%</b>	-113.7	-135.9	-143.2	-146.9	
	<b>DO (mg/L) 10%</b>	3.93	0.62	0.41	0.41	
	<b>DO (%) 10%</b>	286	4.6	2.9	3.0	
	<b>Appearance &amp; Odour (Clear, Silty, HC odours, etc.)</b>	slightly turbid	same	same	same	
	<b>Only for final readings</b>	<b>Sulphide (mg/L)</b>	/	/	/	0.06
		<b>Turbidity (NTU)</b>	/	/	/	42.7
		<b>Interval Purge Volume (L)</b>	/	0.6	0.6	0.6
		<b>Cumulative Purge Volume (L):</b>	/	1.01	2.217	2.9
<b>YSI ID</b>	GSI-DC-06B	<b>Sample Method:</b> <i>tip w/ 100s - the pen from 2016</i>				
<b>Logged Field Parameters</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>	
<b>Time logged on YSI (24hr)</b>	11:06		X			
<b>Sample Time (24hr)</b>	<del>10:35</del> 11:10					

Sample Site (Con't): GSI-DC-06B/A

Sample Date (Con't): 31-Aug-16 @ 11:10

Well Head Seal:  J-Plug  PVC Cap  Not Sealed  Other \_\_\_\_\_

Seal Replaced:  J-Plug  PVC Cap  Not required  Other \_\_\_\_\_

Well properly sealed for gas monitoring:  Yes  No Details: \_\_\_\_\_

**Head Space Gas Measurements**

	Units	B Values	A
Methane (CH4)	%LEL	0	0
Oxygen (O2)	%	20.9	20.9
Carbon Dioxide (CO2)	PPM	300	300

Priority	Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
1a	120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)	120	
1b	40 ml (glass)	Dissolved Mercury	15 mL	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HCL (Hydrochloric)	46	
2	500 ml (plastic)	General Chemistry	100 ml	-	-	500	
3	145 ml (plastic)	Cyanide (total, free, weak acid dissociable)	100 ml	-	<input checked="" type="checkbox"/> NaOH (Sodium Hydroxide)	145	} Full Aug 31 @ 11:10
4	120 ml (glass)	Ammonia (NH3)	60 ml	-	<input checked="" type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> (Sulfuric)	120	
5	120 ml (plastic)	Thiocyanate (SCN)	50 ml	-	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)	120	
6	120 ml (glass amber)	Total Inorganic Carbon (TIC)	50 ml	-	-	120	

**General Notes and Observations:**

- Attempt to direct sample; able to fill gen chem bottle (500ml)  
 Will attempt to purge normally.  
 ↳ attempt successful; sample collected as per purge protocol

**Consumables Used:**

- 1/4" HDPE (peristaltic pump tubing) 11.5 ft
- 3/8" HDPE (microwaterra tubing) \_\_\_\_\_ ft
- 5/8" HDPE (waterra tubing) \_\_\_\_\_ ft
- 1/4" Silicon tubing 0.5 ft
- High Capacity .45 micron filters \_\_\_\_\_
- D-25 (for 2" wells, use with 5/8") foot valves \_\_\_\_\_
- D-16 (for 1" wells, use with 5/8") foot valves \_\_\_\_\_
- SS-10 (for 5/8" wells, use with 3/8") foot valves \_\_\_\_\_
- 1" bailer \_\_\_\_\_
- 2" bailer \_\_\_\_\_
- other (describe) \_\_\_\_\_

# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site	GSI-DC-07B/A.		Project Number	1343-00527.28		Date	Aug. 31/2016.			
Piezometer Diameter	1" DP		Client	GY - AAM		Samplers	AN, MM			
UTM Location	Z: 08W E: 0390064 N: 6800041		Project Name	Mount Nansen 2016 GW Sampling Program		Weather/Temperature	Sunny ~ 13°C			
Waypoint	GPS: AN Name: N/A					Recovery	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad			
Photos	Cam: / Nos: 080483-6485		Purge Method							
Duplicate Collected	<input type="checkbox"/> Yes Name:		Waterra	Peristaltic	Disp. Bailer	Other				
Field Blank Collected	<input type="checkbox"/> Yes Name:		X							
Initial Depth to Water (m)	A	B	Purge Start Time:	11:57		Purge End Time:	12:23		Pen or YSI:	<input checked="" type="checkbox"/> YSI Pro Plus
	1.845	1.370								<input type="checkbox"/> Pen Unit
Depth to Bottom (m)	1.853	3.770	Purge Interval Time (5) min / Vol. ( ) L	11:58	10:03	12:08	12:13	12:18	12:23	
Submerged Tubing Depth (m)	/	2.3	Depth to water (m)	/	/	/	/	/	/	
Well Stick-up Height (m)	1.055	1.046	Temperature (°C) 3%	5.9	4.1	3.3	3.1	3.0	2.8	
Estimated Water Volume (L)	/	1.2	pH (pH Units) ±0.1	7.50	7.06	6.99	6.98	6.98	6.96	
<p>Calculations:</p> $\frac{3.770 - 1.370}{2.4} * 0.5 = 1.2$ <p>#3 = 3.6</p>	(DTB - DTW) x (πr <sup>2</sup> ) 1000 (for well diameter) = 1 well volume		Cond. (µs/cm) 3%	649	612	603	593	592	590	
	(DTB - DTW) x 8.1 (for 4" well diameter) = 1 well volume		Specific Cond. (µs/cm) 3%	1029	1021	1024	1023	1023	1022	
	(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume		Redox (mV) 10%	-44.3	-54.4	-58.5	-60.9	-63.0	-64.2	
	(DTB-DTW) x 1.1 (for 1.5" diameter) = 1 well volume		DO (mg/L) 10%	1.81	0.47	0.66	0.77	0.87	0.97	
	(DTB-DTW) x 0.5 (for 1" diameter) = 1 well volume		DO (%) 10%	14.2	3.6	4.9	5.8	6.4	7.2	
	Appearance & Odour (Clear, Silty, HC odours, etc.)		Appearance & Odour (Clear, Silty, HC odours, etc.)	slightly turbid	same	same	same	clearer	same	
	Only for final readings		Sulphide (mg/L)	/	/	/	/	/	/	0.05
			Turbidity (NTU)	/	/	/	/	/	/	8.74
	Interval Purge Volume (L)		Interval Purge Volume (L)	/	0.7	0.7	0.7	0.7	0.7	
	Cumulative Purge Volume (L):		Cumulative Purge Volume (L):	0.5	1.2	1.9	2.6	3.3	4.0	
YSI ID	GSI-DC-07B		Sample Method: 4.0ml gen chem (500ml)							
Logged Field Parameters	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Waterra	Peristaltic	Disp. Bailer	Other				
Time logged on YSI (24hr)	12:23									
Sample Time (24hr)	<del>11:55</del> 12:23		X							

12:23

Sample Site (Con't): GSI-DC-0731A

Sample Date (Con't): 31-Aug-16 @ 12:25

Well Head Seal:  J-Plug  PVC Cap  Not Sealed  Other \_\_\_\_\_

Seal Replaced:  J-Plug  PVC Cap  Not required  Other \_\_\_\_\_

Well properly sealed for gas monitoring:  Yes  No Details: Cap not tightened

could effect data quality. | well sealed w nitrile glove.

**Head Space Gas Measurements**

	Units	Values
Methane (CH4)	%LEL	0   0
Oxygen (O2)	%	20.9   20.9
Carbon Dioxide (CO2)	PPM	400   300

Priority	Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
1a	120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)	120	} Aug 31 @ 12:25
1b	40 ml (glass)	Dissolved Mercury	15 mL	<input checked="" type="checkbox"/> Field Filtered	<input type="checkbox"/> HCL (Hydrochloric)	40	
2	500 ml (plastic)	General Chemistry	100 ml	-	-	500	
3	145 ml (plastic)	Cyanide (total, free, weak acid dissociable)	100 ml	-	<input checked="" type="checkbox"/> NaOH (Sodium Hydroxide)	145	
4	120 ml (glass)	Ammonia (NH3)	60 ml	-	<input checked="" type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> (Sulfuric)	60	
5	120 ml (plastic)	Thiocyanate (SCN)	50 ml	-	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)	60	
6	120 ml (glass amber)	Total Inorganic Carbon (TIC)	50 ml	-	-	120	

**General Notes and Observations:**

- Attempt direct sample → able to fill entire gen chem / bottle (500ml)  
∴ will attempt a purge  
↳ able to purge & collect full samples as per purge protocol.

**Consumables Used:**

- 1/4" HDPE (peristaltic pump tubing) 0.5 ft
- 3/8" HDPE (microwaterra tubing) \_\_\_\_\_ ft
- 5/8" HDPE (waterra tubing) \_\_\_\_\_ ft
- 1/4" Silicon tubing 0.5 ft
- High Capacity .45 micron filters \_\_\_\_\_
- D-25 (for 2" wells, use with 5/8") foot valves \_\_\_\_\_
- D-16 (for 1" wells, use with 5/8") foot valves \_\_\_\_\_
- SS-10 (for 5/8" wells, use with 3/8") foot valves \_\_\_\_\_
- 1" bailer \_\_\_\_\_
- 2" bailer \_\_\_\_\_
- other (describe) \_\_\_\_\_

# GROUNDWATER SAMPLE COLLECTION SHEET

<b>Sample Site</b>	GSI - DL - 008 / A	<b>Project Number</b>	1343-005.28	<b>Date</b>	Aug 31 2016	
<b>Piezometer Diameter</b>	1" Drive point	<b>Client</b>	GY - AAM	<b>Samplers</b>	JL NB	
<b>UTM Location</b>	Z: 08 E: 0390312 N: 6880588	<b>Project Name</b>	Mount Nansen 2016 GW Sampling Program	<b>Weather/Temperature</b>	12° Sunny	
<b>Waypoint</b>	GPS: ECR Name: N/A			<b>Recovery</b>	<input type="checkbox"/> Good <input checked="" type="checkbox"/> Bad	
<b>Photos</b>	Cam: ECR Nos: 0224 - 0226	<b>Purge Method</b>				
<b>Duplicate Collected</b>	<input type="checkbox"/> Yes Name: _____	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>	
<b>Field Blank Collected</b>	<input type="checkbox"/> Yes Name: _____		✓			
<b>Initial Depth to Water (m)</b>	B: 0.796   A: 7.309	<b>Purge Start Time:</b>	14:50	<b>Purge End Time:</b>	15:00	
				<b>Pen or YSI:</b>	<input checked="" type="checkbox"/> YSI Pro Plus YSI Pro Plus <input checked="" type="checkbox"/> Pen Unit	
<b>Depth to Bottom (m)</b>	B: 2.902   A: 2.008	<b>Purge Interval Time ( ) min / Vol. ( ) L</b>	15:34			
<b>Submerged Tubing Depth (m)</b>	0.796	<b>Depth to water (m)</b>	-			
<b>Well Stick-up Height (m)</b>	B: 0.46   A: 6.05	<b>Temperature (°C) 3%</b>	8.8			
<b>Estimated Water Volume (L)</b>	~ 1.1 L	<b>pH (pH Units) ±0.1</b>	6.59			
<p>Calculations:</p> <p>(DTB - DTW) x (πr<sup>2</sup>) 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</p>	<b>Cond. (µs/cm) 3%</b>	823				
	<b>Specific Cond. (µs/cm) 3%</b>	1202				
	<b>Redox (mV) 10%</b>	-27.8				
	<b>DO (mg/L) 10%</b>	4.00				
	<b>DO (%) 10%</b>	32.4				
	<b>Appearance &amp; Odour (Clear, Silty, HC odours, etc.)</b>	trans. & black.				
	<b>Only for final readings</b>	<b>Sulphide (mg/L)</b>	0.806 limit			
		<b>Turbidity (NTU)</b>	1549			
		<b>Interval Purge Volume (L)</b>	0.2			
		<b>Cumulative Purge Volume (L):</b>	0.2			
<b>YSI ID</b>	023981	<b>Sample Method:</b>				
<b>Logged Field Parameters</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>	
<b>Time logged on YSI (24hr)</b>	15:36		✓			
<b>Sample Time (24hr)</b>	15:10					

Direct Sample

Sample Site (Con't): CFI-DC-08 B/A

Sample Date (Con't): Aug 31 2016

Well Head Seal:  J-Plug  PVC Cap  Not Sealed  Other \_\_\_\_\_

Seal Replaced:  J-Plug  PVC Cap  Not required  Other \_\_\_\_\_

Well properly sealed for gas monitoring:  Yes  No Details: \_\_\_\_\_

**Head Space Gas Measurements**

	Units	Values
Methane (CH4)	%LEL	B: 0   A: 0
Oxygen (O2)	%	B: 20.7   A: 20.7
Carbon Dioxide (CO2)	PPM	B: 200   A: 300

Priority	Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
1a	120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)	100	— microvolume
1b	40 ml (glass)	Dissolved Mercury	15 mL	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HCL (Hydrochloric)	20	— microvolume
2	500 ml (plastic)	General Chemistry	100 ml	-	-	350	—
3	145 ml (plastic)	Cyanide (total, free, weak acid dissociable)	100 ml	-	<input type="checkbox"/> NaOH (Sodium Hydroxide)	145	—
4	120 ml (glass)	Ammonia (NH <sub>3</sub> )	60 ml	-	<input type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> (Sulfuric)	100	—
5	120 ml (plastic)	Thiocyanate (SCN)	50 ml	-	<input type="checkbox"/> HNO <sub>3</sub> (Nitric)	100	—
6	120 ml (glass amber)	Total Inorganic Carbon (TIC)	50 ml	-	-	80	—

**General Notes and Observations:**

- Well has very slow recharge.  
 - 1st parameter reading taken from sample.  
 - 25 Filters used to filter.

**Consumables Used:**

- 1/4" HDPE (peristaltic pump tubing) 1 ft
- 3/8" HDPE (microwaterra tubing) \_\_\_\_\_ ft
- 5/8" HDPE (waterra tubing) \_\_\_\_\_ ft
- 1/4" Silicon tubing 0.5 ft
- High Capacity .45 micron filters \_\_\_\_\_
- D-25 (for 2" wells, use with 5/8") foot valves \_\_\_\_\_
- D-16 (for 1" wells, use with 5/8") foot valves \_\_\_\_\_
- SS-10 (for 5/8" wells, use with 3/8") foot valves \_\_\_\_\_
- 1" bailer \_\_\_\_\_
- 2" bailer \_\_\_\_\_
- other (describe) \_\_\_\_\_

# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site	L75L-06-09 B 1A		Project Number	1343-005.28		Date	Aug 31 2016				
Piezometer Diameter	1"		Client	GY - AAM		Samplers	3L NB				
UTM Location	Z: 08 E: 6390614 N: 6880490		Project Name	Mount Nansen 2016 GW Sampling Program		Weather/Temperature	9° Sunny				
Waypoint	GPS: ECR Name: N/A					Recovery	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad				
Photos	Cam: ECR Nos: 0221 - 0223		Purge Method								
Duplicate Collected	<input type="checkbox"/> Yes Name: _____		Waterra	Peristaltic		Disp. Bailer		Other			
Field Blank Collected	<input type="checkbox"/> Yes Name: _____										
Initial Depth to Water (m)	B: 1.125   A: 1.136		Purge Start Time:	13:50		Purge End Time:	14:10		Pen or YSI:	<input checked="" type="checkbox"/> YSI Pro Plus <input type="checkbox"/> Pen Unit	
Depth to Bottom (m)	B: 3.852   A: 2.000		Purge Interval Time (4) min / Vol. (0.5) L	13:50	14:01	14:04	14:07	14:10			
Submerged Tubing Depth (m)	3.852		Depth to water (m)	1.375	Same	Same	Same	Same			
Well Stick-up Height (m)	B: 0.910   A: 0.94		Temperature (°C) 3%	3.7	3.2	2.9	2.8	2.7			
Estimated Water Volume (L)	1.36L		pH (pH Units) ±0.1	7.10	7.10	7.11	7.12	7.13			
Calculations: (DTB - DTW) x (πr <sup>2</sup> ) * 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) 3%		243.1	234.0	224.2	221.2	219.1				
	Specific Cond. (µs/cm) 3%		49.	400.9	388.3	384.1	381.5				
	Redox (mV) 10%		-55.0	-55.0	-60.3	-64.6	-65.5				
	DO (mg/L) 10%		Under Range	Same	Same	Same	Same				
	DO (%) 10%		Under Range	Same	Same	Same	Same				
	Appearance & Odour (Clear, Silty, HC odours, etc.)		Slightly turbid	clearly up	same	same	clear				
	Only for final readings		Sulphide (mg/L)	-	-	-	0.06				
			Turbidity (NTU)	-	-	-	8.44				
			Interval Purge Volume (L)	1.0	0.5	0.5	0.5	0.5			
			Cumulative Purge Volume (L):	1.0	1.5	2.0	2.5	3.0			
YSI ID	02281 Pine.		Sample Method:								
Logged Field Parameters	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Waterra	Peristaltic		Disp. Bailer		Other			
Time logged on YSI (24hr)	14:10										
Sample Time (24hr)	14:15										



Sample Site (Con't): GSI-DC-09 B/A

Sample Date (Con't): Aug 31 2016

Well Head Seal:  J-Plug  PVC Cap  Not Sealed  Other \_\_\_\_\_

Seal Replaced:  J-Plug  PVC Cap  Not required  Other \_\_\_\_\_

Well properly sealed for gas monitoring:  Yes  No Details: \_\_\_\_\_

**Head Space Gas Measurements**

	Units	Values
Methane (CH <sub>4</sub> )	%LEL	B: 0   A: 0
Oxygen (O <sub>2</sub> )	%	B: 20.7   A: 20.7
Carbon Dioxide (CO <sub>2</sub> )	PPM	B: 300   A: 300

Priority	Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
1a	120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)	120	—
1b	40 ml (glass)	Dissolved Mercury	15 mL	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HCL (Hydrochloric)	40	—
2	500 ml (plastic)	General Chemistry	100 ml	-	-	500	—
3	145 ml (plastic)	Cyanide (total, free, weak acid dissociable)	100 ml	-	<input checked="" type="checkbox"/> NaOH (Sodium Hydroxide)	145	—
4	120 ml (glass)	Ammonia (NH <sub>3</sub> )	60 ml	-	<input checked="" type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> (Sulfuric)	120	—
5	120 ml (plastic)	Thiocyanate (SCN)	50 ml	-	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)	120	—
6	120 ml (glass amber)	Total Inorganic Carbon (TIC)	50 ml	-	-	120	—

**General Notes and Observations:**

- DO during parameter stabilization was under Range  
ie >0.00 / >0% DO. Marked as under range.

**Consumables Used:**

- 1/4" HDPE (peristaltic pump tubing) 1 ft
- 3/8" HDPE (microwaterra tubing) \_\_\_\_\_ ft
- 5/8" HDPE (waterra tubing) \_\_\_\_\_ ft
- 1/4" Silicon tubing 0.5 ft
- High Capacity .45 micron filters \_\_\_\_\_
- D-25 (for 2" wells, use with 5/8") foot valves \_\_\_\_\_
- D-16 (for 1" wells, use with 5/8") foot valves \_\_\_\_\_
- SS-10 (for 5/8" wells, use with 3/8") foot valves \_\_\_\_\_
- 1" bailer \_\_\_\_\_
- 2" bailer \_\_\_\_\_
- other (describe) \_\_\_\_\_



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site	GSI-DC-10B / A	Project Number	1343-005.28	Date	Aug 31 2016
Piezometer Diameter	1" Drive Point	Client	GY - AAM	Samplers	SC NB
UTM Location	Z: 08 E: 0390859 N: 6880448	Project Name	Mount Nansen 2016 GW Sampling Program	Weather/Temperature	100° Sunny
Waypoint	GPS: ECR Name: N/A			Recovery	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad
Photos	Cam: ELR2 Nos: 0218 - 0220	Purge Method			
Duplicate Collected	<input type="checkbox"/> Yes Name:	Waterra	Peristaltic	Disp. Bailer	Other
Field Blank Collected	<input type="checkbox"/> Yes Name:		<input checked="" type="checkbox"/>		
Initial Depth to Water (m)	B: 1.121   A: 1.060	Purge Start Time:	12:45	Purge End Time:	13:10
				Pen or YSI:	<input checked="" type="checkbox"/> YSI Pro Plus <input type="checkbox"/> Pen Unit
Depth to Bottom (m)	B: 3.794   A: 2.009	Purge Interval Time (4) min / Vol. (0.5) L	12:56	13:00	13:02
Submerged Tubing Depth (m)	3.794	Depth to water (m)	2.095	Same	Same
Well Stick-up Height (m)	B: 1.022   A: 1.29	Temperature (°C) 3%	2.1	2.0	1.9
Estimated Water Volume (L)	1.3L	pH (pH Units) ±0.1	6.81	6.69	6.67
Calculations: (DTB - DTW) x (πr <sup>2</sup> ) 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) 3%	700	699	698	696
	Specific Cond. (µs/cm) 3%	1248	1248	1249	1251
	Redox (mV) 10%	-30.8	-38.3	-41.3	-43.5
	DO (mg/L) 10%	0.98	0.47	0.22	0.29
	DO (%) 10%	6.7	2.2	2.3	2.0
	Appearance & Odour (Clear, Silty, HC odours, etc.)	Clear	Clear	Clear	Clear
	Only for final readings	Sulphide (mg/L)	-	-	-
	Turbidity (NTU)	-	-	-	6.56
	Interval Purge Volume (L)	0.0	0.5	0.5	0.5
	Cumulative Purge Volume (L):	1.0	1.5	2.0	2.5
YSI ID	023981	Sample Method:			
Logged Field Parameters	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Waterra	Peristaltic	Disp. Bailer	Other
Time logged on YSI (24hr)	13:09		<input checked="" type="checkbox"/>		
Sample Time (24hr)	13:00				



Sample Site (Con't): GSI-DC-103 1A

Sample Date (Con't): Aug 31 2016.

Well Head Seal:  J-Plug  PVC Cap  Not Sealed  Other \_\_\_\_\_

Seal Replaced:  J-Plug  PVC Cap  Not required  Other \_\_\_\_\_

Well properly sealed for gas monitoring:  Yes  No Details: \_\_\_\_\_

**Head Space Gas Measurements**

	Units	Values
Methane (CH4)	%LEL	B: 0   A: 0
Oxygen (O2)	%	B: 20.7   A: 20.7
Carbon Dioxide (CO2)	PPM	B: 300   A: 300

Priority	Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
1a	120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)	120	—
1b	40 ml (glass)	Dissolved Mercury	15 mL	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HCL (Hydrochloric)	40	—
2	500 ml (plastic)	General Chemistry	100 ml	-	-	500	—
3	145 ml (plastic)	Cyanide (total, free, weak acid dissociable)	100 ml	-	<input checked="" type="checkbox"/> NaOH (Sodium Hydroxide)	145	✓
4	120 ml (glass)	Ammonia (NH3)	60 ml	-	<input checked="" type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> (Sulfuric)	120	—
5	120 ml (plastic)	Thiocyanate (SCN)	50 ml	-	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)	120	—
6	120 ml (glass amber)	Total Inorganic Carbon (TIC)	50 ml	-	-	120	—

**General Notes and Observations:**

Well has good recharge, full sample set + parameters acquired

**Consumables Used:**

- 1/4" HDPE (peristaltic pump tubing) 1 ft
- 3/8" HDPE (microwaterra tubing) — ft
- 5/8" HDPE (waterra tubing) — ft
- 1/4" Silicon tubing 0.5 ft
- High Capacity .45 micron filters —
- D-25 (for 2" wells, use with 5/8") foot valves —
- D-16 (for 1" wells, use with 5/8") foot valves —
- SS-10 (for 5/8" wells, use with 3/8") foot valves —
- 1" bailer —
- 2" bailer —
- other (describe) —

# GROUNDWATER SAMPLE COLLECTION SHEET

<b>Sample Site</b>	GSI-HA-01A	<b>Project Number</b>	1343-005.2 <sup>B</sup>	<b>Date</b>	29-Aug-16 / Aug.30	
<b>Piezometer Diameter</b>	1" DP	<b>Client</b>	GY - AAM	<b>Samplers</b>	AN/MR	
<b>UTM Location</b>	Z: 210 <sup>081</sup> E: 0387835 N: 6881127	<b>Project Name</b>	Mount Nansen 2016 GW Sampling Program	<b>Weather/Temperature</b>	Sunny	
<b>Waypoint</b>	GPS: AN Name: 095			<b>Recovery</b>	<input type="checkbox"/> Good <input type="checkbox"/> Bad	
<b>Photos</b>	Cam: 1 Nos: 0400-0402	<b>Purge Method</b>				
<b>Duplicate Collected</b>	<input type="checkbox"/> Yes Name: _____	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>	
<b>Field Blank Collected</b>	<input type="checkbox"/> Yes Name: _____		X			
<b>Initial Depth to Water (m)</b>	2.065	<b>Purge Start Time:</b>	09:50 09:45	<b>Purge End Time:</b>		
<b>Depth to Bottom (m)</b>	3.130	<b>Purge Interval Time ( ) min / Vol. ( ) L</b>	09:52 09:54	<b>Pen or YSI:</b>	<input type="checkbox"/> YSI Pro-Plus <input type="checkbox"/> Pen Unit	
<b>Submerged Tubing Depth (m)</b>	NS	<b>Depth to water (m)</b>	/			
<b>Well Stick-up Height (m)</b>	1.231	<b>Temperature (°C) 3%</b>	5.0 4.2			
<b>Estimated Water Volume (L)</b>	0.53	<b>pH (pH Units) ±0.1</b>	7.48 7.10			
(DTB - DTW) x (πr <sup>2</sup> ) 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: $\frac{3.130 - 1.231}{1.065} = 40.5$	<b>Cond. (µs/cm) 3%</b>	672 662				
	<b>Specific Cond. (µs/cm) 3%</b>	1095 1098				
	<b>Redox (mV) 10%</b>	4.9 -17.3				
	<b>DO (mg/L) 10%</b>	4.61 4.3				
	<b>DO (%) 10%</b>	33.8 31.9				
	<b>Appearance &amp; Odour (Clear, Silty, HC odours, etc.)</b>	Turbid same				
	<b>Only for final readings</b>	<b>Sulphide (mg/L)</b>	/	/		
		<b>Turbidity (NTU)</b>	/	/		
		<b>Interval Purge Volume (L)</b>	/	/		
		<b>Cumulative Purge Volume (L):</b>	/	/		
<b>YSI ID</b>	GSI-HA-01A	<b>Sample Method:</b>				
<b>Logged Field Parameters</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>	
<b>Time logged on YSI (24hr)</b>	09:55		X			
<b>Sample Time (24hr)</b>	09:40					

Note: 5 measurements collected on Aug-29.  
 DIRECT SAMPLE  
 re-sampled on Aug. 30

Sample Site (Con't): GSD-HA-01A

Sample Date (Con't): 29-Aug-16 @ 09:40

Well Head Seal:  J-Plug  PVC Cap  Not Sealed  Other slotted cap

Seal Replaced:  J-Plug  PVC Cap  Not required  Other \_\_\_\_\_

Well properly sealed for gas monitoring:  Yes  No Details: \_\_\_\_\_

**Head Space Gas Measurements**

	Units	Values
Methane (CH4)	%LEL	0
Oxygen (O2)	%	20.9
Carbon Dioxide (CO2)	PPM	400

Priority	Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)		Comments
						Aug-29	Aug-30	
1a	120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)	100	100	full set of min. vol. collected on each date.
1b	40 ml (glass)	Dissolved Mercury	15 mL	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HCL (Hydrochloric)	15	15	
2	500 ml (plastic)	General Chemistry	100 ml	-	-	100	100	
3	145 ml (plastic)	Cyanide (total, free, weak acid dissociable)	100 ml	-	<input checked="" type="checkbox"/> NaOH (Sodium Hydroxide)	100	100	
4	120 ml (glass)	Ammonia (NH3)	60 ml	-	<input checked="" type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> (Sulfuric)	60	60	
5	120 ml (plastic)	Thiocyanate (SCN)	50 ml	-	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)	50	50	
6	120 ml (glass amber)	Total Inorganic Carbon (TIC)	50 ml	-	-	50	50	

**General Notes and Observations:**

- Direct sample attempted.
- able to get full min. vol.
- well went dry after parameter collection.

Re-visit well to replace/resample to improve sample quality.  
 Sample Date: Aug. 30/2016 @  
 DTW: 2.055m (well fully re-charged). not enough vol. for sulphide or turbid.  
 Sample Time: 13:10  
 full sample set (min. vol.s collected)

**Consumables Used:**

- 1/4" HDPE (peristaltic pump tubing) 6.0 ft
- 3/8" HDPE (microwaterra tubing) \_\_\_\_\_ ft
- 5/8" HDPE (waterra tubing) \_\_\_\_\_ ft
- 1/4" Silicon tubing 1.0 ft
- High Capacity .45 micron filters \_\_\_\_\_
- D-25 (for 2" wells, use with 5/8") foot valves \_\_\_\_\_
- D-16 (for 1" wells, use with 5/8") foot valves \_\_\_\_\_
- SS-10 (for 5/8" wells, use with 3/8") foot valves \_\_\_\_\_
- 1" bailer \_\_\_\_\_
- 2" bailer \_\_\_\_\_
- other (describe) \_\_\_\_\_

*Return*



# GROUNDWATER SAMPLE COLLECTION SHEET

<b>Sample Site</b>	GSI - HA - 03A	<b>Project Number</b>	1343-005.278	<b>Date</b>	Aug 29 2016 / Avg. 30
<b>Piezometer Diameter</b>	1.5" 1.0"	<b>Client</b>	GY - AAM	<b>Samplers</b>	SL NB
<b>UTM Location</b>	Z: 08V E: 0387876 N: 6881122	<b>Project Name</b>	Mount Nansen 2016 GW Sampling Program	<b>Weather/Temperature</b>	50 Sunny
<b>Waypoint</b>	GPS: ELR Name: N/A			<b>Recovery</b>	<input type="checkbox"/> Good <input checked="" type="checkbox"/> Bad
<b>Photos</b>	Cam: ELR Nos: 103-D128 103-D130	<b>Purge Method</b>			
<b>Duplicate Collected</b>	<input type="checkbox"/> Yes Name: -	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>
<b>Field Blank Collected</b>	<input type="checkbox"/> Yes Name: -				
<b>Initial Depth to Water (m)</b>	1.141	<b>Purge Start Time:</b>		<b>Purge End Time:</b>	
				<b>Pen or YSI:</b>	<input type="checkbox"/> YSI Pro Plus <input type="checkbox"/> Pen Unit
<b>Depth to Bottom (m)</b>	2.190	<b>Purge Interval Time ( ) min / Vol. ( ) L</b>			
<b>Submerged Tubing Depth (m)</b>	2.187	<b>Depth to water (m)</b>			
<b>Well Stick-up Height (m)</b>	1.00	<b>Temperature (°C) 3%</b>			
<b>Estimated Water Volume (L)</b>	~400 ul	<b>pH (pH Units) ±0.1</b>			
(DTB - DTW) x (πr <sup>2</sup> ) 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:	<b>Cond. (µs/cm) 3%</b>				
	<b>Specific Cond. (µs/cm) 3%</b>				
	<b>Redox (mV) 10%</b>				
	<b>DO (mg/L) 10%</b>				
	<b>DO (%) 10%</b>				
	<b>Appearance &amp; Odour (Clear, Silty, HC odours, etc.)</b>				
	<b>Only for final readings</b>	<b>Sulphide (mg/L)</b>			
		<b>Turbidity (NTU)</b>			
	<b>Interval Purge Volume (L)</b>				
	<b>Cumulative Purge Volume (L):</b>				
<b>YSI ID</b>	N/A	<b>Sample Method:</b>			
<b>Logged Field Parameters</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>
<b>Time logged on YSI (24hr)</b>	N/A				
<b>Sample Time (24hr)</b>	09:20				

*DIRECT SAMPLING*

Sample Site (Con't): GSI - HA - 03A

Sample Date (Con't): Aug 29 2016

Well Head Seal:  J-Plug  PVC Cap  Not Sealed  Other \_\_\_\_\_

Seal Replaced:  J-Plug  PVC Cap  Not required  Other \_\_\_\_\_

Well properly sealed for gas monitoring:  Yes  No Details: \_\_\_\_\_

**Head Space Gas Measurements**

	Units	Values
Methane (CH4)	%LEL	0
Oxygen (O2)	%	20.9
Carbon Dioxide (CO2)	PPM	300

Priority	Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
1a	120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)	100 ✓	16/08/29
1b	40 ml (glass)	Dissolved Mercury	15 mL	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HCL (Hydrochloric)	15 ✓	16/08/29
2	500 ml (plastic)	General Chemistry	100 ml	-	-	100 ✓	16/08/29
3	145 ml (plastic)	Cyanide (total, free, weak acid dissociable)	100 ml	-	<input checked="" type="checkbox"/> NaOH (Sodium Hydroxide)	120 ✓	16/08/29
4	120 ml (glass)	Ammonia (NH3)	60 ml	-	<input checked="" type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> (Sulfuric)	60 ✓	16/08/30 14:00
5	120 ml (plastic)	Thiocyanate (SCN)	50 ml	-	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)	50 ✓	16/08/30 14:00
6	120 ml (glass amber)	Total Inorganic Carbon (TIC)	50 ml	-	-	50 ✓	16/08/30 14:00

**General Notes and Observations:**

Limited volume (Aug 29 (16))

Aug 30, 2016 → DTW 1.602 m → returned to address attempt to complete sampling @ 13:57 → Sample Time on Aug 31 14:00.

↳ able to collect min vols of NH<sub>3</sub>, SCN + TIC.

**Consumables Used:**

- 1/4" HDPE (peristaltic pump tubing) 6 ft
- 3/8" HDPE (microwaterra tubing) — ft
- 5/8" HDPE (waterra tubing) — ft
- 1/4" Silicon tubing 6" ft (0.5')
- High Capacity .45 micron filters —
- D-25 (for 2" wells, use with 5/8") foot valves —
- D-16 (for 1" wells, use with 5/8") foot valves —
- SS-10 (for 5/8" wells, use with 3/8") foot valves —
- 1" bailer —
- 2" bailer —
- other (describe) —

# GROUNDWATER SAMPLE COLLECTION SHEET

<b>Sample Site</b>	GSI - HA - 04A	<b>Project Number</b>	1343-005.2728	<b>Date</b>	Aug 29 2016	
<b>Piezometer Diameter</b>	1"	<b>Client</b>	GY - AAM	<b>Samplers</b>	SC NB	
<b>UTM Location</b>	Z: 08 E: 0387914 N: 6881132	<b>Project Name</b>	Mount Nansen 2016 GW Sampling Program	<b>Weather/Temperature</b>	4° Sunny.	
<b>Waypoint</b>	GPS: FLR Name: N/A			<b>Recovery</b>	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad	
<b>Photos</b>	Cam: FLR2 Nos: 10134-0136	<b>Purge Method</b>				
<b>Duplicate Collected</b>	<input type="checkbox"/> Yes Name:	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>	
<b>Field Blank Collected</b>	<input type="checkbox"/> Yes Name:		<input checked="" type="checkbox"/>			
<b>Initial Depth to Water (m)</b>	1.015	<b>Purge Start Time:</b>	10:32	<b>Purge End Time:</b>	10:47	
				<b>Pen or YSI:</b>	<input checked="" type="checkbox"/> YSI Pro Plus <input type="checkbox"/> Pen Unit	
<b>Depth to Bottom (m)</b>	2.194	<b>Purge Interval Time (min) / Vol. (L)</b>	10:36	10:40	10:43	10:46
<b>Submerged Tubing Depth (m)</b>	2.194	<b>Depth to water (m)</b>	1.201	1.80	2.00	1.994
<b>Well Stick-up Height (m)</b>	0.677	<b>Temperature (°C) 3%</b>	4.2	4.1	4.0	4.0
<b>Estimated Water Volume (L)</b>	1.6	<b>pH (pH Units) ±0.1</b>	6.74	6.74	6.69	6.66
Calculations: (DTB - DTW) x (πr <sup>2</sup> ) 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	<b>Cond. (µs/cm) 3%</b>	517	511	525	525	
	<b>Specific Cond. (µs/cm) 3%</b>	857	853	878	877	
	<b>Redox (mV) 10%</b>	404	-36.4	-274	-26.6	
	<b>DO (mg/L) 10%</b>	0.33	0.77	1.08	0.98	
	<b>DO (%) 10%</b>	23	5.8	7.1	7.7	
	<b>Appearance &amp; Odour (Clear, Silty, HC odours, etc.)</b>	turbid Brown	clearing up	clear	clear	
	<b>Only for final readings</b>	<b>Sulphide (mg/L)</b>	0.06	→		
		<b>Turbidity (NTU)</b>	2.80	→		
		<b>Interval Purge Volume (L)</b>	0.5	0.5	0.5	0.5
		<b>Cumulative Purge Volume (L):</b>	0.5	1.0	1.5	2.0
<b>YSI ID</b>		<b>Sample Method:</b>				
<b>Logged Field Parameters</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>	
<b>Time logged on YSI (24hr)</b>	used field stick parameters		<input checked="" type="checkbox"/>			
<b>Sample Time (24hr)</b>	10:30					

Sample Site (Con't): GSI-11A-04A

Sample Date (Con't): Aug 29 2016

Well Head Seal:  J-Plug  PVC Cap  Not Sealed  Other \_\_\_\_\_

Seal Replaced:  J-Plug  PVC Cap  Not required  Other \_\_\_\_\_

Well properly sealed for gas monitoring:  Yes  No Details: Slit in cap.

**Head Space Gas Measurements**

	Units	Values
Methane (CH4)	%LEL	0
Oxygen (O2)	%	20.9
Carbon Dioxide (CO2)	PPM	300

Priority	Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
1a	120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)	120	
1b	40 ml (glass)	Dissolved Mercury	15 mL	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HCL (Hydrochloric)	40	
2	500 ml (plastic)	General Chemistry	100 ml	-	-	500	
3	145 ml (plastic)	Cyanide (total, free, weak acid dissociable)	100 ml	-	<input checked="" type="checkbox"/> NaOH (Sodium Hydroxide)	165	
4	120 ml (glass)	Ammonia (NH3)	60 ml	-	<input checked="" type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> (Sulfuric)	120	
5	120 ml (plastic)	Thiocyanate (SCN)	50 ml	-	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)	120	
6	120 ml (glass amber)	Total Inorganic Carbon (TIC)	50 ml	-	-	120	

**General Notes and Observations:**

- Full parameters and Full sample set collected.
- Recharge OK.

**Consumables Used:**

- 1/4" HDPE (peristaltic pump tubing) \_\_\_\_\_ ft
- 3/8" HDPE (microwaterra tubing) \_\_\_\_\_ ft
- 5/8" HDPE (waterra tubing) \_\_\_\_\_ ft
- 1/4" Silicon tubing 0.5 ft
- High Capacity .45 micron filters \_\_\_\_\_
- D-25 (for 2" wells, use with 5/8") foot valves \_\_\_\_\_
- D-16 (for 1" wells, use with 5/8") foot valves \_\_\_\_\_
- SS-10 (for 5/8" wells, use with 3/8") foot valves \_\_\_\_\_
- 1" bailer \_\_\_\_\_
- 2" bailer \_\_\_\_\_
- other (describe) \_\_\_\_\_



# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site	GSI-HA-05A	Project Number	1343-005.288	Date	29 Aug 2016 <sup>30-Aug-16</sup>	
Piezometer Diameter	1.0"	Client	GY - AAM	Samplers	JC & NB	
UTM Location	Z:08V E: 0538195 N: 6879488	Project Name	Mount Nansen 2016 GW Sampling Program	Weather/Temperature	W4E Sunny	
Waypoint	GPS: 08V Name: VA			Recovery	<input type="checkbox"/> Good <input checked="" type="checkbox"/> Bad	
Photos	Cam: ELR 2 Nos: 103-0131/103-0133	Purge Method				
Duplicate Collected	<input type="checkbox"/> Yes Name: -	Waterra	Peristaltic	Disp. Bailer	Other	
Field Blank Collected	<input type="checkbox"/> Yes Name: -					
Initial Depth to Water (m)	1.340	Purge Start Time:	10:11	Purge End Time:		
Depth to Bottom (m)	2.189	Purge Interval Time ( ) min / Vol. ( ) L		Pen or YSI:	<input type="checkbox"/> YSI Pro Plus <input type="checkbox"/> Pen Unit	
Submerged Tubing Depth (m)	2.189	Depth to water (m)	0			
Well Stick-up Height (m)	1.140	Temperature (°C) 3%	6.8			
Estimated Water Volume (L)	1.1	pH (pH Units) ±0.1	6.62			
Calculations: (DTB - DTW) x (πr <sup>2</sup> )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) 3%	182	Measurements collected on Aug 29 Direct Sampled on Aug 29 Re-sampled on Aug 30.			
	Specific Cond. (µs/cm) 3%	1002				
	Redox (mV) 10%	-91.9				
	DO (mg/L) 10%	7.07				
	DO (%) 10%	57.9				
	Appearance & Odour (Clear, Silty, HC odours, etc.)	Slightly turbid.				
	Only for final readings	Sulphide (mg/L)		0.15		
		Turbidity (NTU)		42.1		
		Interval Purge Volume (L)		250ml		
		Cumulative Purge Volume (L):		250ml		
YSI ID	Pine 02 3981	Sample Method:				
Logged Field Parameters	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Waterra	Peristaltic	Disp. Bailer	Other	
Time logged on YSI (24hr)	10:13					
Sample Time (24hr)	09:50					

Sample Site (Con't): GSI-HA-05A

Sample Date (Con't): 29 Aug 2016

Well Head Seal:  J-Plug  PVC Cap  Not Sealed  Other \_\_\_\_\_

Seal Replaced:  J-Plug  PVC Cap  Not required  Other \_\_\_\_\_

Well properly sealed for gas monitoring:  Yes  No Details: Slit in cap

### Head Space Gas Measurements

	Units	Values
Methane (CH <sub>4</sub> )	%LEL	0.0
Oxygen (O <sub>2</sub> )	%	20.9
Carbon Dioxide (CO <sub>2</sub> )	PPM	300

Priority	Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
1a	120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)	110 / 100	
1b	40 ml (glass)	Dissolved Mercury	15 mL	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HCL (Hydrochloric)	40 / 15	
2	500 ml (plastic)	General Chemistry	100 ml	-	-	500 / 100	full sample set (min. vol.)
3	145 ml (plastic)	Cyanide (total, free, weak acid dissociable)	100 ml	-	<input checked="" type="checkbox"/> NaOH (Sodium Hydroxide)	145 / 100	set collected on both dates
4	120 ml (glass)	Ammonia (NH <sub>3</sub> )	60 ml	-	<input checked="" type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> (Sulfuric)	120 / 60	
5	120 ml (plastic)	Thiocyanate (SCN)	50 ml	-	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)	120 / 50	
6	120 ml (glass amber)	Total Inorganic Carbon (TIC)	50 ml	-	-	120 / 50	

### General Notes and Observations:

- Full sample set collected.
- very slow recharge
- direct sampled well from historical information, was able to get a parameter reading with YSI.

30-Aug-16 → ~~attempt~~ returned to attempt to re-sample entire set to collect better quality sample → DTW → 1.0m  
Sample time 14:00

### Consumables Used:

- 1/4" HDPE (peristaltic pump tubing) \_\_\_\_\_ ft
- 3/8" HDPE (microwaterra tubing) \_\_\_\_\_ ft
- 5/8" HDPE (waterra tubing) \_\_\_\_\_ ft
- 1/4" Silicon tubing 0.6 ft
- High Capacity .45 micron filters \_\_\_\_\_
- D-25 (for 2" wells, use with 5/8" foot valves) \_\_\_\_\_
- D-16 (for 1" wells, use with 5/8" foot valves) \_\_\_\_\_
- SS-10 (for 5/8" wells, use with 3/8" foot valves) \_\_\_\_\_
- 1" bailer \_\_\_\_\_
- 2" bailer \_\_\_\_\_
- other (describe) \_\_\_\_\_

# GROUNDWATER SAMPLE COLLECTION SHEET

<b>Sample Site</b>	GSE-PL-03B 1A	<b>Project Number</b>	1343-005.28	<b>Date</b>	Aug 31 2016	
<b>Piezometer Diameter</b>	7/4 Drive point	<b>Client</b>	GY - AAM	<b>Samplers</b>	JL NB	
<b>UTM Location</b>	Z: 08 E: 0389259 N: 6881710	<b>Project Name</b>	Mount Nansen 2016 GW Sampling Program	<b>Weather/Temperature</b>	8° Sunny	
<b>Waypoint</b>	GPS: CLR Name: N/A			<b>Recovery</b>	<input type="checkbox"/> Good <input checked="" type="checkbox"/> Bad	
<b>Photos</b>	Cam: FLR2 Nos: 30209-0211	<b>Purge Method</b>				
<b>Duplicate Collected</b>	<input type="checkbox"/> Yes Name: A0212-0214	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>	
<b>Field Blank Collected</b>	<input type="checkbox"/> Yes Name:					
<b>Initial Depth to Water (m)</b>	B: 1.972   A: 1.016	<b>Purge Start Time:</b>		<b>Purge End Time:</b>		
				<b>Pen or YSI:</b>	<input type="checkbox"/> YSI Pro Plus <input type="checkbox"/> Pen Unit	
<b>Depth to Bottom (m)</b>	B: 2.834   A: 2.002	<b>Purge Interval Time ( ) min / Vol. ( ) L</b>				
<b>Submerged Tubing Depth (m)</b>	2.834	<b>Depth to water (m)</b>				
<b>Well Stick-up Height (m)</b>	B: 0.955   A: 0.970	<b>Temperature (°C) 3%</b>				
<b>Estimated Water Volume (L)</b>	~ 300ml	<b>pH (pH Units) ±0.1</b>				
<p>(DTB - DTW) x (πr<sup>2</sup>) 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</p> <p>Calculations:</p>	<b>Cond. (µs/cm) 3%</b>					
	<b>Specific Cond. (µs/cm) 3%</b>					
	<b>Redox (mV) 10%</b>					
	<b>DO (mg/L) 10%</b>					
	<b>DO (%) 10%</b>					
	<b>Appearance &amp; Odour (Clear, Silty, HC odours, etc.)</b>					
	<b>Only for final readings</b>	<b>Sulphide (mg/L)</b>				
		<b>Turbidity (NTU)</b>				
	<b>Interval Purge Volume (L)</b>					
	<b>Cumulative Purge Volume (L):</b>					
<b>YSI ID</b>		<b>Sample Method:</b>				
<b>Logged Field Parameters</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>	
<b>Time logged on YSI (24hr)</b>						
<b>Sample Time (24hr)</b>	10:00					



Sample Site (Con't): GSI-PC-03B1A

Sample Date (Con't): Aug 31 2016.

Well Head Seal:  J-Plug  PVC Cap  Not Sealed  Other \_\_\_\_\_

Seal Replaced:  J-Plug  PVC Cap  Not required  Other \_\_\_\_\_

Well properly sealed for gas monitoring:  Yes  No Details: \_\_\_\_\_

**Head Space Gas Measurements**

	Units	Values	
Methane (CH4)	%LEL	B: 0	A: 0
Oxygen (O2)	%	B: 20.9	A: 20.9
Carbon Dioxide (CO2)	PPM	B: 300	A: 300

Priority	Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
1a	120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)	100	Aug 31
1b	40 ml (glass)	Dissolved Mercury	15 mL	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HCL (Hydrochloric)	15	Aug 31
2	500 ml (plastic)	General Chemistry	100 ml	-	-	100	Aug 31
3	145 ml (plastic)	Cyanide (total, free, weak acid dissociable)	100 ml	-	<input type="checkbox"/> NaOH (Sodium Hydroxide)		
4	120 ml (glass)	Ammonia (NH3)	60 ml	-	<input type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> (Sulfuric)		
5	120 ml (plastic)	Thiocyanate (SCN)	50 ml	-	<input type="checkbox"/> HNO <sub>3</sub> (Nitric)		
6	120 ml (glass amber)	Total Inorganic Carbon (TIC)	50 ml	-	-		

**General Notes and Observations:**

- Well has very low recharge rate. ~ 200 ml of water  
 - Returned Sept 1 @ 9:00 well was dry.

**Consumables Used:**

- 1/4" HDPE (peristaltic pump tubing) 1 ft
- 3/8" HDPE (microwaterra tubing) \_\_\_\_\_ ft
- 5/8" HDPE (waterra tubing) \_\_\_\_\_ ft
- 1/4" Silicon tubing 0.5 ft
- High Capacity .45 micron filters \_\_\_\_\_
- D-25 (for 2" wells, use with 5/8") foot valves \_\_\_\_\_
- D-16 (for 1" wells, use with 5/8") foot valves \_\_\_\_\_
- SS-10 (for 5/8" wells, use with 3/8") foot valves \_\_\_\_\_
- 1" bailer \_\_\_\_\_
- 2" bailer \_\_\_\_\_
- other (describe) \_\_\_\_\_

# GROUNDWATER SAMPLE COLLECTION SHEET

<b>Sample Site</b>	<del>1150</del> 68-PC-04B/A	<b>Project Number</b>	1343-005.28	<b>Date</b>	31-Aug-16
<b>Piezometer Diameter</b>	1" OP	<b>Client</b>	GY - AAM	<b>Samplers</b>	AN/MM
<b>UTM Location</b>	Z: 088 E: 0389584 N: 6881656	<b>Project Name</b>	Mount Nansen 2016 GW Sampling Program	<b>Weather/Temperature</b>	Clear/21°C
<b>Waypoint</b>	GPS: AN Name: N/A			<b>Recovery</b>	<input type="checkbox"/> Good <input checked="" type="checkbox"/> Bad
<b>Photos</b>	Cam: 1 Nos: 074-076	<b>Purge Method</b>			
<b>Duplicate Collected</b>	<input type="checkbox"/> Yes Name:	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>
<b>Field Blank Collected</b>	<input type="checkbox"/> Yes Name:				
<b>Initial Depth to Water (m)</b>	1.850 <sup>B</sup>   1.342 <sup>A</sup>	<b>Purge Start Time:</b>		<b>Purge End Time:</b>	
<b>Depth to Bottom (m)</b>	2.900 <sup>B</sup>   <sup>A</sup> or dry frozen	<b>Purge Interval Time ( ) min / Vol. ( ) L</b>			
<b>Submerged Tubing Depth (m)</b>		<b>Depth to water (m)</b>			
<b>Well Stick-up Height (m)</b>	1.05 <sup>B</sup>   0.98 <sup>A</sup>	<b>Temperature (°C) 3%</b>			
<b>Estimated Water Volume (L)</b>	0.53	<b>pH (pH Units) ±0.1</b>			
<p>(DTB - DTW) x (πr<sup>2</sup>*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</p> <p>Calculations:  <math display="block">\frac{2.900 - 1.850}{1.050} \times 0.5</math></p>	<b>Cond. (µs/cm) 3%</b>				
	<b>Specific Cond. (µs/cm) 3%</b>				
	<b>Redox (mV) 10%</b>				
	<b>DO (mg/L) 10%</b>				
	<b>DO (%) 10%</b>				
	<b>Appearance &amp; Odour (Clear, Silty, HC odours, etc.)</b>				
	<b>Only for final readings</b>	<b>Sulphide (mg/L)</b>			
		<b>Turbidity (NTU)</b>			
	<b>Interval Purge Volume (L)</b>				
	<b>Cumulative Purge Volume (L):</b>				
<b>YSI ID</b>		<b>Sample Method:</b>			
<b>Logged Field Parameters</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>
<b>Time logged on YSI (24hr)</b>					
<b>Sample Time (24hr)</b>	09:00		X		

Sample Site (Con't): GSI-PC-CHB1A

Sample Date (Con't): 31-Aug-16

Well Head Seal:  J-Plug  PVC Cap  Not Sealed  Other \_\_\_\_\_

Seal Replaced:  J-Plug  PVC Cap  Not required  Other \_\_\_\_\_

Well properly sealed for gas monitoring:  Yes  No Details: \_\_\_\_\_

**Head Space Gas Measurements**

	Units	B Values	A
Methane (CH4)	%LEL	0	0
Oxygen (O2)	%	20.9	20.9
Carbon Dioxide (CO2)	PPM	300	300

Priority	Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
1a	120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)	100 ✓	Aug 31 @ 09:00
1b	40 ml (glass)	Dissolved Mercury	15 mL	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HCL (Hydrochloric)	15 ✓	Aug 31 @ 09:00
2	500 ml (plastic)	General Chemistry	100 ml	-	-	100 ✓	Aug 31 @ 09:00
3	145 ml (plastic)	Cyanide (total, free, weak acid dissociable)	100 ml	-	<input checked="" type="checkbox"/> NaOH (Sodium Hydroxide)	20 ml insufficient	Sept 1 @ 8:40
4	120 ml (glass)	Ammonia (NH3)	60 ml	-	<input type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> (Sulfuric)		
5	120 ml (plastic)	Thiocyanate (SCN)	50 ml	-	<input type="checkbox"/> HNO <sub>3</sub> (Nitric)		
6	120 ml (glass amber)	Total Inorganic Carbon (TIC)	50 ml	-	-		

**General Notes and Observations:**

A- either frozen on dry @ 1.342m - most likely frozen due to ice found on tubing from stick-up B

B- ice found in stick-up B; attempt to clear out w/ existing per tubing; attempt successful; feels as though top layer is slush - ice in tubing ∴ tubing replaced.  
- attempt direct sample ~~is~~ able to collect min vol of diss metals + Hg + gen chem.

NOTE: samples water could potentially be ice melt due to presence of slush, ~~no~~ <sup>previously</sup> only DTB records says 43m so assume @ bottom (measured 2.9m)

Revisited Sept 1 collected 20ml for Cyanide

**Consumables Used:**

- 1/4" HDPE (peristaltic pump tubing) 11.5 ft
- 3/8" HDPE (microwaterra tubing) \_\_\_\_\_ ft
- 5/8" HDPE (waterra tubing) \_\_\_\_\_ ft
- 1/4" Silicon tubing 0.5 ft
- High Capacity .45 micron filters \_\_\_\_\_
- D-25 (for 2" wells, use with 5/8") foot valves \_\_\_\_\_
- D-16 (for 1" wells, use with 5/8") foot valves \_\_\_\_\_
- SS-10 (for 5/8" wells, use with 3/8") foot valves \_\_\_\_\_
- 1" bailer \_\_\_\_\_
- 2" bailer \_\_\_\_\_
- other (describe) \_\_\_\_\_

# GROUNDWATER SAMPLE COLLECTION SHEET

<b>Sample Site</b>	GSI-PC-0501A		<b>Project Number</b>	1343-005.28	<b>Date</b>	31-Aug-16.	
<b>Piezometer Diameter</b>	1" DP		<b>Client</b>	GY - AAM	<b>Samplers</b>	AN/MP	
<b>UTM Location</b>	Z: 8 E: 6389712 N: 6881661		<b>Project Name</b>	Mount Nansen 2016 GW Sampling Program	<b>Weather/Temperature</b>	cloudy	
<b>Waypoint</b>	GPS: AN Name: N/A				<b>Recovery</b>	<input type="checkbox"/> Good <input checked="" type="checkbox"/> Bad ?	
<b>Photos</b>	Cam: 1 Nos: 477-479.		<b>Purge Method</b>				
<b>Duplicate Collected</b>	<input type="checkbox"/> Yes Name:		<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>	
<b>Field Blank Collected</b>	<input checked="" type="checkbox"/> Yes Name:		Not Sampled.				
<b>Initial Depth to Water (m)</b>	A	B	<b>Purge Start Time:</b>	<b>Purge End Time:</b>	<b>Pen or YSI:</b>	<input type="checkbox"/> YSI Pro Plus	
	DRY	DRY				<input type="checkbox"/> Pen Unit	
<b>Depth to Bottom (m)</b>	2.0	3.715	<b>Purge Interval Time ( ) min / Vol. ( ) L</b>				
<b>Submerged Tubing Depth (m)</b>	N/A	N/A	<b>Depth to water (m)</b>				
<b>Well Stick-up Height (m)</b>	0.892	0.890	<b>Temperature (°C) 3%</b>				
<b>Estimated Water Volume (L)</b>	0	0	<b>pH (pH Units) ±0.1</b>				
<p>(DTB - DTW) x (πr<sup>2</sup>) 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</p> <p>Calculations:</p>			<b>Cond. (µs/cm) 3%</b>				
			<b>Specific Cond. (µs/cm) 3%</b>				
			<b>Redox (mV) 10%</b>				
			<b>DO (mg/L) 10%</b>				
			<b>DO (%) 10%</b>				
			<b>Appearance &amp; Odour (Clear, Silty, HC odours, etc.)</b>				
			<b>Only for final readings</b>	<b>Sulphide (mg/L)</b>			
				<b>Turbidity (NTU)</b>			
			<b>Interval Purge Volume (L)</b>				
			<b>Cumulative Purge Volume (L):</b>				
<b>YSI ID</b>			<b>Sample Method:</b>				
<b>Logged Field Parameters</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No		<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>	
<b>Time logged on YSI (24hr)</b>							
<b>Sample Time (24hr)</b>			Not Sampled.				



\* unit automatically switched to % vol. units, likely due to high concentrations of CO2

Sample Site (Con't): GSI-PC-OSA/B

Sample Date (Con't): Not Sampled (visited on Aug. 31/2016)

Well Head Seal:  J-Plug  PVC Cap  Not Sealed  Other \_\_\_\_\_

Seal Replaced:  J-Plug  PVC Cap  Not required  Other \_\_\_\_\_

Well properly sealed for gas monitoring:  Yes  No Details: \_\_\_\_\_

### Head Space Gas Measurements

	Units	A	Values	B
Methane (CH4)	%LEL	0		0
Oxygen (O2)	%	20.6		9.0
Carbon Dioxide (CO2)	PPM	1000		6500

or \*1.93% vol.

Priority	Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
1a	120 ml (plastic)	Dissolved Metals	100 ml	<input type="checkbox"/> Field Filtered	<input type="checkbox"/> HNO <sub>3</sub> (Nitric)		
1b	40 ml (glass)	Dissolved Mercury	15 mL	<input type="checkbox"/> Field Filtered	<input type="checkbox"/> HCL (Hydrochloric)		
2	500 ml (plastic)	General Chemistry	100 ml	-	-		
3	145 ml (plastic)	Cyanide (total, free, weak acid dissociable)	100 ml	-	<input type="checkbox"/> NaOH (Sodium Hydroxide)		
4	120 ml (glass)	Ammonia (NH3)	60 ml	-	<input type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> (Sulfuric)		
5	120 ml (plastic)	Thiocyanate (SCN)	50 ml	-	<input type="checkbox"/> HNO <sub>3</sub> (Nitric)		
6	120 ml (glass amber)	Total Inorganic Carbon (TIC)	50 ml	-	-		

### General Notes and Observations:

Sediment found on the tip of WL meter while measuring DTB of A well. Confirmation that well was DRY not FROZEN.

Sediment also observed on WL tip while dipping B well.

Both wells found DRY during time of sampling.

### Consumables Used:

- 1/4" HDPE (peristaltic pump tubing) \_\_\_\_\_ ft
- 3/8" HDPE (microwaterra tubing) \_\_\_\_\_ ft
- 5/8" HDPE (waterra tubing) \_\_\_\_\_ ft
- 1/4" Silicon tubing \_\_\_\_\_ ft
- High Capacity .45 micron filters \_\_\_\_\_
- D-25 (for 2" wells, use with 5/8") foot valves \_\_\_\_\_
- D-16 (for 1" wells, use with 5/8") foot valves \_\_\_\_\_
- SS-10 (for 5/8" wells, use with 3/8") foot valves \_\_\_\_\_
- 1" bailer \_\_\_\_\_
- 2" bailer \_\_\_\_\_
- other (describe) \_\_\_\_\_



# GROUNDWATER SAMPLE COLLECTION SHEET

<b>Sample Site</b>	MP09-03	<b>Project Number</b>	1343-005.27	<b>Date</b>	Aug 31 2016
<b>Piezometer Diameter</b>	1/2" Drive point	<b>Client</b>	GY - AAM	<b>Samplers</b>	JZ / NB
<b>UTM Location</b>	Z08V E: 0388964 N: 6881754	<b>Project Name</b>	Mount Nansen 2016 GW Sampling Program	<b>Weather/Temperature</b>	70 Sunny
<b>Waypoint</b>	GPS: Name:			<b>Recovery</b>	<input type="checkbox"/> Good <input checked="" type="checkbox"/> Bad
<b>Photos</b>	Cam: FLK2-Nos: 0202-0205	<b>Purge Method</b>			
<b>Duplicate Collected</b>	<input type="checkbox"/> Yes Name: _____	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>
<b>Field Blank Collected</b>	<input type="checkbox"/> Yes Name: _____				
<b>Initial Depth to Water (m)</b>	1.058	<b>Purge Start Time:</b>		<b>Purge End Time:</b>	
				<b>Pen or YSI:</b>	<input type="checkbox"/> YSI Pro Plus <input type="checkbox"/> Pen Unit
<b>Depth to Bottom (m)</b>	1.980	<b>Purge Interval Time ( ) min / Vol. ( ) L</b>			
<b>Submerged Tubing Depth (m)</b>	1.980	<b>Depth to water (m)</b>			
<b>Well Stick-up Height (m)</b>		<b>Temperature (°C) 3%</b>			
<b>Estimated Water Volume (L)</b>	~100ml	<b>pH (pH Units) ±0.1</b>			
<p>Calculations:</p> <p>(DTB - DTW) x (πr<sup>2</sup>) * 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</p>	<b>Cond. (µs/cm) 3%</b>				
	<b>Specific Cond. (µs/cm) 3%</b>				
	<b>Redox (mV) 10%</b>				
	<b>DO (mg/L) 10%</b>				
	<b>DO (%) 10%</b>				
	<b>Appearance &amp; Odour (Clear, Silty, HC odours, etc.)</b>				
	<b>Only for final readings</b>	<b>Sulphide (mg/L)</b>			
		<b>Turbidity (NTU)</b>			
	<b>Interval Purge Volume (L)</b>				
	<b>Cumulative Purge Volume (L):</b>				
<b>YSI ID</b>		<b>Sample Method:</b>			
<b>Logged Field Parameters</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>
<b>Time logged on YSI (24hr)</b>					
<b>Sample Time (24hr)</b>	8:45				

Direct Sample

Sample Site (Con't): MPO9-03

Sample Date (Con't): Aug 31 2016

Well Head Seal:  J-Plug  PVC Cap  Not Sealed  Other \_\_\_\_\_

Seal Replaced:  J-Plug  PVC Cap  Not required  Other well is cast iron with

Well properly sealed for gas monitoring:  Yes  No Details: no proper cap

**Head Space Gas Measurements**

	Units	Values
Methane (CH4)	%LEL	0
Oxygen (O2)	%	20.9
Carbon Dioxide (CO2)	PPM	200

Priority	Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
1a	120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)	100	Aug 31 8:45
1b	40 ml (glass)	Dissolved Mercury	15 mL	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HCL (Hydrochloric)	15	Aug 31 8:45
2	500 ml (plastic)	General Chemistry	100 ml	-	-	100	Aug 31 8:45
3	145 ml (plastic)	Cyanide (total, free, weak acid dissociable)	100 ml	-	<input checked="" type="checkbox"/> NaOH (Sodium Hydroxide)	100	Sept 1 8:08
4	120 ml (glass)	Ammonia (NH3)	60 ml	-	<input type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> (Sulfuric)		
5	120 ml (plastic)	Thiocyanate (SCN)	50 ml	-	<input type="checkbox"/> HNO <sub>3</sub> (Nitric)		
6	120 ml (glass amber)	Total Inorganic Carbon (TIC)	50 ml	-	-		

**General Notes and Observations:**

- well opening was covered in mud with tubing sticking out
- no cover on cap
- Able to collect Diss metals (mercury) (mlb Filters)
- water very turbid.
- water will recharge but very slow and very low water column.
- Plaster miners working up gradient of sampling point
- Returned Sept 1<sup>st</sup> collected cyanide bottle @ 8:08

**Consumables Used:**

- 1/4" HDPE (peristaltic pump tubing) 8 ft
- 3/8" HDPE (microwaterra tubing) — ft
- 5/8" HDPE (waterra tubing) — ft
- 1/4" Silicon tubing 0.5 ft
- High Capacity .45 micron filters —
- D-25 (for 2" wells, use with 5/8") foot valves —
- D-16 (for 1" wells, use with 5/8") foot valves —
- SS-10 (for 5/8" wells, use with 3/8") foot valves —
- 1" bailer —
- 2" bailer —
- other (describe) —

# GROUNDWATER SAMPLE COLLECTION SHEET

<b>Sample Site</b>	MPO9-04	<b>Project Number</b>	1343-005-27228	<b>Date</b>	30-Aug-16	
<b>Piezometer Diameter</b>	1.5"	<b>Client</b>	GY - AAM	<b>Samplers</b>	AN/MU	
<b>UTM Location</b>	Z080 E: 0380576 N: 6080610	<b>Project Name</b>	Mount Nansen 2016 GW Sampling Program	<b>Weather/Temperature</b>	Sunny & Dreeze.	
<b>Waypoint</b>	GPS: AN Name: N/A			<b>Recovery</b>	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad	
<b>Photos</b>	Cam: 1 Nos: 460-463	<b>Purge Method</b>				
<b>Duplicate Collected</b>	<input type="checkbox"/> Yes Name:	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>	
<b>Field Blank Collected</b>	<input type="checkbox"/> Yes Name:		X			
<b>Initial Depth to Water (m)</b>	2.070	<b>Purge Start Time:</b>	09:40	<b>Purge End Time:</b>	10:01	
				<b>Pen or YSI:</b>	<input checked="" type="checkbox"/> YSI Pro Plus <input type="checkbox"/> Pen Unit	
<b>Depth to Bottom (m)</b>	3.080	<b>Purge Interval Time (S) min / Vol. (L)</b>	09:41	09:46	09:51	
			09:56	10:01		
<b>Submerged Tubing Depth (m)</b>	~2.8	<b>Depth to water (m)</b>	2.150	2.106	2.153	
<b>Well Stick-up Height (m)</b>	1.195	<b>Temperature (°C) 3%</b>	2.9	2.9	2.8	
<b>Estimated Water Volume (L)</b>	1.1	<b>pH (pH Units) ±0.1</b>	6.97	6.98	6.99	
(DTB - DTW) x (πr <sup>2</sup> ) 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:  $\frac{3.080 - 2.070}{1.010} \times 1.1 = 1.111$	<b>Cond. (µs/cm) 3%</b>	666	645	655	657	
	<b>Specific Cond. (µs/cm) 3%</b>	1133	1112	1133	1139	
	<b>Redox (mV) 10%</b>	51.3	65.1	74.0	80.7	
	<b>DO (mg/L) 10%</b>	4.7	2.19	1.99	1.99	
	<b>DO (%) 10%</b>	32.0	65.1	14.8	14.7	
	<b>Appearance &amp; Odour (Clear, Silty, HC odours, etc.)</b>	slightly turbid	same	clear	same	
	<b>Only for final readings</b>	<b>Sulphide (mg/L)</b>	/	/	/	0.01
		<b>Turbidity (NTU)</b>	/	/	/	2.43
		<b>Interval Purge Volume (L)</b>	/	1.0	1.25	1.0
		<b>Cumulative Purge Volume (L):</b>	/	1.0	2.25	3.25
<b>YSI ID</b>	MPO9-04	<b>Sample Method:</b>				
<b>Logged Field Parameters</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>	
<b>Time logged on YSI (24hr)</b>	10:01		X			
<b>Sample Time (24hr)</b>	10:05					



Sample Site (Con't): MD09-04

Sample Date (Con't): 30 Aug-16

Well Head Seal:  J-Plug  PVC Cap  Not Sealed  Other \_\_\_\_\_

Seal Replaced:  J-Plug  PVC Cap  Not required  Other \_\_\_\_\_

Well properly sealed for gas monitoring:  Yes  No Details: \_\_\_\_\_

**Head Space Gas Measurements**

	Units	Values
Methane (CH4)	%LEL	0
Oxygen (O2)	%	20.9
Carbon Dioxide (CO2)	PPM	500

Priority	Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
1a	120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)	120	
1b	40 ml (glass)	Dissolved Mercury	15 mL	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HCL (Hydrochloric)	40	
2	500 ml (plastic)	General Chemistry	100 ml	-	-	500	
3	145 ml (plastic)	Cyanide (total, free, weak acid dissociable)	100 ml	-	<input checked="" type="checkbox"/> NaOH (Sodium Hydroxide)	145	
4	120 ml (glass)	Ammonia (NH3)	60 ml	-	<input checked="" type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> (Sulfuric)	120	
5	120 ml (plastic)	Thiocyanate (SCN)	50 ml	-	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)	120	
6	120 ml (glass amber)	Total Inorganic Carbon (TIC)	50 ml	-	-	120	

**General Notes and Observations:**

- water <sup>level</sup> in seepage pond low  
 - good recovery; purged 3 well volumes.

**Consumables Used:**

- 1/4" HDPE (peristaltic pump tubing) 3.5 ft
- 3/8" HDPE (microwaterra tubing)      ft
- 5/8" HDPE (waterra tubing)      ft
- 1/4" Silicon tubing 0.5 ft
- High Capacity .45 micron filters
- D-25 (for 2" wells, use with 5/8") foot valves
- D-16 (for 1" wells, use with 5/8") foot valves
- SS-10 (for 5/8" wells, use with 3/8") foot valves
- 1" bailer
- 2" bailer
- other (describe)

# GROUNDWATER SAMPLE COLLECTION SHEET

<b>Sample Site</b>	MP09-05	<b>Project Number</b>	1343-005.28	<b>Date</b>	30 Aug-16					
<b>Piezometer Diameter</b>	1.5"	<b>Client</b>	GY - AAM	<b>Samplers</b>	AN, min.					
<b>UTM Location</b>	Z: 08 E: 0389547 N: 6880590	<b>Project Name</b>	Mount Nansen 2016 GW Sampling Program	<b>Weather/Temperature</b>	Sunny ~12°C					
<b>Waypoint</b>	GPS: AN Name: N/A			<b>Recovery</b>	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad					
<b>Photos</b>	Cam: ELR 1 Nos: 467-469	<b>Purge Method</b>								
<b>Duplicate Collected</b>	<input type="checkbox"/> Yes Name:	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>					
<b>Field Blank Collected</b>	<input type="checkbox"/> Yes Name:									
<b>Initial Depth to Water (m)</b>	1.386	<b>Purge Start Time:</b>	10:34	<b>Purge End Time:</b>	10:56					
				<b>Pen or YSI:</b>	<input checked="" type="checkbox"/> YSI Pro Plus <input type="checkbox"/> Pen Unit					
<b>Depth to Bottom (m)</b>	1.838	<b>Purge Interval Time (S) min / Vol. ( ) L</b>	10:37	10:39	10:44	10:49	10:54			
<b>Submerged Tubing Depth (m)</b>	~1.6	<b>Depth to water (m)</b>	1.455	1.450	1.450	1.460	1.460			
<b>Well Stick-up Height (m)</b>	1.16	<b>Temperature (°C) 3%</b>	6.9	6.6	6.7	6.7	6.4			
<b>Estimated Water Volume (L)</b>	~0.5	<b>pH (pH Units) ±0.1</b>	6.79	6.71	6.69	6.70	6.68			
Calculations: (DTB - DTW) x (πr <sup>2</sup> ) * 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	<b>Cond. (µs/cm) 3%</b>	1171	1192	1218	1233	1218				
	<b>Specific Cond. (µs/cm) 3%</b>	1796	1835	1875	1895	1896				
	<b>Redox (mV) 10%</b>	31.8	28.6	26.2	28.2	24.0				
	<b>DO (mg/L) 10%</b>	1.66	0.64	0.91	1.22	1.53				
	<b>DO (%) 10%</b>	12.7	5.1	7.6	10.1	12.4				
	<b>Appearance &amp; Odour (Clear, Silty, HC odours, etc.)</b>	Rusty, Suspend Solids	Same	Reduced TSS	Same	same				
	<b>Only for final readings</b>	<b>Sulphide (mg/L)</b>	—	—	—	—	0.03			
		<b>Turbidity (NTU)</b>	—	—	—	—	5.44			
		<b>Interval Purge Volume (L)</b>	—	0.5	0.55	0.65	0.65			
		<b>Cumulative Purge Volume (L):</b>	—	0.5	1.05	1.7				
<b>YSI ID</b>	MP09-05	<b>Sample Method:</b>								
<b>Logged Field Parameters</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>					
<b>Time logged on YSI (24hr)</b>	10:55									
<b>Sample Time (24hr)</b>	10:55		X							

Sample Site (Con't): MP09-05

Sample Date (Con't): 30 Aug-16 @ 10:55

Well Head Seal:  J-Plug  PVC Cap  Not Sealed  Other \_\_\_\_\_

Seal Replaced:  J-Plug  PVC Cap  Not required  Other \_\_\_\_\_

Well properly sealed for gas monitoring:  Yes  No Details: \_\_\_\_\_

**Head Space Gas Measurements**

	Units	Values
Methane (CH4)	%LEL	0
Oxygen (O2)	%	20.9
Carbon Dioxide (CO2)	PPM	1400

Priority	Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
1a	120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)	120	
1b	40 ml (glass)	Dissolved Mercury	15 mL	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HCL (Hydrochloric)	40	
2	500 ml (plastic)	General Chemistry	100 ml	-	-	500	
3	145 ml (plastic)	Cyanide (total, free, weak acid dissociable)	100 ml	-	<input checked="" type="checkbox"/> NaOH (Sodium Hydroxide)	145	
4	120 ml (glass)	Ammonia (NH3)	60 ml	-	<input checked="" type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> (Sulfuric)	120	
5	120 ml (plastic)	Thiocyanate (SCN)	50 ml	-	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)	120	
6	120 ml (glass amber)	Total Inorganic Carbon (TIC)	50 ml	-	-	120	

**General Notes and Observations:**

- slow purging, able to sample fully

did use →

**Consumables Used:**

- ~~1/4" HDPE (peristaltic pump tubing) 0.5 ft~~ 0.5 ft HDPE
- 3/8" HDPE (microwaterra tubing) \_\_\_\_\_ ft
- 5/8" HDPE (waterra tubing) \_\_\_\_\_ ft
- 1/4" Silicon tubing 0.5 ft
- High Capacity .45 micron filters \_\_\_\_\_
- D-25 (for 2" wells, use with 5/8") foot valves \_\_\_\_\_
- D-16 (for 1" wells, use with 5/8") foot valves \_\_\_\_\_
- SS-10 (for 5/8" wells, use with 3/8") foot valves \_\_\_\_\_
- 1" bailer \_\_\_\_\_
- 2" bailer \_\_\_\_\_
- other (describe) \_\_\_\_\_

# GROUNDWATER SAMPLE COLLECTION SHEET

<b>Sample Site</b>	MP09-08	<b>Project Number</b>	1343-005.28	<b>Date</b>	Aug 31 2016.	
<b>Piezometer Diameter</b>	5/8 (water inside)	<b>Client</b>	GY - AAM	<b>Samplers</b>	SC NB	
<b>UTM Location</b>	Z: 08 E: 0389160 N: 6881726	<b>Project Name</b>	Mount Nansen 2016 GW Sampling Program	<b>Weather/Temperature</b>	70 Sunny	
<b>Waypoint</b>	GPS: ELR Name: N/A			<b>Recovery</b>	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad	
<b>Photos</b>	Cam: ELR. Nos: 0215-0217	<b>Purge Method</b>				
<b>Duplicate Collected</b>	<input checked="" type="checkbox"/> Yes Name: DUP-4	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>	
<b>Field Blank Collected</b>	<input checked="" type="checkbox"/> Yes Name: FB- <del>4</del> 3		<input checked="" type="checkbox"/>			
<b>Initial Depth to Water (m)</b>	0.450 <small>with log 252016</small>	<b>Purge Start Time:</b>	10:30	<b>Purge End Time:</b>	10:59	
				<b>Pen or YSI:</b>	<input checked="" type="checkbox"/> YSI Pro Plus <input type="checkbox"/> Pen Unit	
<b>Depth to Bottom (m)</b>	1.974	<b>Purge Interval Time (4) min / Vol. (0.5) L</b>	10:40	10:44	10:47	
			10:51	10:54	10:57	
<b>Submerged Tubing Depth (m)</b>	1.974	<b>Depth to water (m)</b>	-	-	-	
<b>Well Stick-up Height (m)</b>	0.570	<b>Temperature (°C) 3%</b>	1.4	1.1	1.2	
			1.1	1.2	1.1	
<b>Estimated Water Volume (L)</b>	~ 750 ml	<b>pH (pH Units) ±0.1</b>	7.53	7.29	7.21	
			7.16	7.15	7.14	
<p>Calculations:</p> <p>(DTB - DTW) x (πr<sup>2</sup>) * 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</p>	<b>Cond. (µs/cm) 3%</b>	462.4	450.4	458.6	457.8	
			459.7	458.1		
	<b>Specific Cond. (µs/cm) 3%</b>	842.9	843.6	842.0	841.5	841.0
			841.7			
	<b>Redox (mV) 10%</b>	65.4	16.9	6.0	-3.5	-10.8
			-16.0			
	<b>DO (mg/L) 10%</b>	1.00	0.43	0.30	0.22	0.21
			0.23			
	<b>DO (%) 10%</b>	7.0	2.9	2.1	1.8	1.5
			1.5			
<b>Appearance &amp; Odour (Clear, Silty, HC odours, etc.)</b>	Silty Blank	clear up	clear	clear	clear	
		clear				
<b>Only for final readings</b>	<b>Sulphide (mg/L)</b>	-	-	-	-	
		0.05				
	<b>Turbidity (NTU)</b>	-	-	-	-	
		2.63				
<b>Interval Purge Volume (L)</b>	1.0	0.5	0.5	0.5	0.5	
		0.5				
<b>Cumulative Purge Volume (L):</b>	1.0	1.5	2.0	2.5	3.0	
		3.5				
<b>YSI ID</b>	023981	<b>Sample Method:</b>				
<b>Logged Field Parameters</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>	
<b>Time logged on YSI (24hr)</b>	10:58		<input checked="" type="checkbox"/>			
<b>Sample Time (24hr)</b>	11:00					

Sample Site (Con't): MPO9-08

Sample Date (Con't): Aug 31 2016

Well Head Seal:  J-Plug  PVC Cap  Not Sealed  Other \_\_\_\_\_

Seal Replaced:  J-Plug  PVC Cap  Not required  Other \_\_\_\_\_

Well properly sealed for gas monitoring:  Yes  No Details: Well is cast iron and no cap will fit.

**Head Space Gas Measurements**

	Units	Values
Methane (CH4)	%LEL	0
Oxygen (O2)	%	20.3
Carbon Dioxide (CO2)	PPM	500

Priority	Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
1a	120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)	120	—
1b	40 ml (glass)	Dissolved Mercury	15 mL	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HCL (Hydrochloric)	40	—
2	500 ml (plastic)	General Chemistry	100 ml	-	-	500	—
3	145 ml (plastic)	Cyanide (total, free, weak acid dissociable)	100 ml	-	<input type="checkbox"/> NaOH (Sodium Hydroxide)	145	—
4	120 ml (glass)	Ammonia (NH3)	60 ml	-	<input type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> (Sulfuric)	120	—
5	120 ml (plastic)	Thiocyanate (SCN)	50 ml	-	<input type="checkbox"/> HNO <sub>3</sub> (Nitric)	120	—
6	120 ml (glass amber)	Total Inorganic Carbon (TIC)	50 ml	-	-	120	—

**General Notes and Observations:**

- well has very good recharge.  
 - Dup-4 taken @ location + FB-3

**Consumables Used:**

- 1/4" HDPE (peristaltic pump tubing) 1 ft
- 3/8" HDPE (microwaterra tubing) — ft
- 5/8" HDPE (waterra tubing) — ft
- 1/4" Silicon tubing 0.5 ft
- High Capacity .45 micron filters 1
- D-25 (for 2" wells, use with 5/8") foot valves —
- D-16 (for 1" wells, use with 5/8") foot valves —
- SS-10 (for 5/8" wells, use with 3/8") foot valves —
- 1" bailer —
- 2" bailer —
- other (describe) —



# GROUNDWATER SAMPLE COLLECTION SHEET

<b>Sample Site</b>	MP09-09	<b>Project Number</b>	1343-005.28	<b>Date</b>	Aug 30 2016				
<b>Piezometer Diameter</b>	1 1/2"	<b>Client</b>	GY - AAM	<b>Samplers</b>	SC NB				
<b>UTM Location</b>	Z: 08 E: 0389239 N: 6880681	<b>Project Name</b>	Mount Nansen 2016 GW Sampling Program	<b>Weather/Temperature</b>	80 Overcast				
<b>Waypoint</b>	GPS: EUR Name: NA			<b>Recovery</b>	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad				
<b>Photos</b>	Cam: ECR Nos: 0199-0201	<b>Purge Method</b>							
<b>Duplicate Collected</b>	<input checked="" type="checkbox"/> Yes Name: DUP-3	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>				
<b>Field Blank Collected</b>	<input type="checkbox"/> Yes Name: _____		<input checked="" type="checkbox"/>						
<b>Initial Depth to Water (m)</b>	3.782	<b>Purge Start Time:</b>	16:28	<b>Purge End Time:</b>	17:07				
				<b>Pen or YSI:</b>	<input checked="" type="checkbox"/> YSI Pro Plus <input type="checkbox"/> Pen Unit				
<b>Depth to Bottom (m)</b>	5.653	<b>Purge Interval Time ( ) min / Vol. (0.5) L</b>	16:33	16:38	16:44	16:50	16:56	17:01	17:06
<b>Submerged Tubing Depth (m)</b>	5.500	<b>Depth to water (m)</b>	4.444	4.77	4.622	4.677	4.709	4.734	4.737
<b>Well Stick-up Height (m)</b>	2.59	<b>Temperature (°C) 3%</b>	6.2	6.7	6.3	6.2	6.2	6.0	6.2
<b>Estimated Water Volume (L)</b>	3.7 L	<b>pH (pH Units) ±0.1</b>	9.49	9.49	8.52	9.48	9.52	9.53	9.52
Calculations: (DTB - DTW) x (πr <sup>2</sup> ) * 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	<b>Cond. (µs/cm) 3%</b>	344.0	349.0	346.1	348.8	343.4	341.6	344.1	
	<b>Specific Cond. (µs/cm) 3%</b>	536.9	536.4	537	537.3	537.2	536.2	537.3	
	<b>Redox (mV) 10%</b>	2.4	-6.3	-4.0	-17.7	-12.2	-23.4	-25.0	
	<b>DO (mg/L) 10%</b>	0.21	0.22	0.16	0.17	0.18	0.17	0.10	
	<b>DO (%) 10%</b>	1.7	1.9	1.2	1.4	1.3	1.2	0.9	
	<b>Appearance &amp; Odour (Clear, Silty, HC odours, etc.)</b>	milky turbid orange	same	clearly up	clearly up	same	same	same	
	<b>Only for final readings</b>	<b>Sulphide (mg/L)</b>	-	✓	-	-	-	✓	0.31
	<b>Turbidity (NTU)</b>	-	✓	✓	-	-	-	✓	98.2
	<b>Interval Purge Volume (L)</b>	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
	<b>Cumulative Purge Volume (L):</b>	0.5	1.0	1.5	2.0	2.5	3.0	3.5	
<b>YSI ID</b>	Rhe 023981	<b>Sample Method:</b>							
<b>Logged Field Parameters</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>				
<b>Time logged on YSI (24hr)</b>	17:06		<input checked="" type="checkbox"/>						
<b>Sample Time (24hr)</b>	17:00								

Sample Site (Con't): MP09-09

Sample Date (Con't): Aug 30 2016

Well Head Seal:  J-Plug  PVC Cap  Not Sealed  Other \_\_\_\_\_

Seal Replaced:  J-Plug  PVC Cap  Not required  Other \_\_\_\_\_

Well properly sealed for gas monitoring:  Yes  No Details: \_\_\_\_\_

**Head Space Gas Measurements**

	Units	Values
Methane (CH4)	%LEL	0
Oxygen (O2)	%	20.7
Carbon Dioxide (CO2)	PPM	300

Priority	Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
1a	120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)	120	-
1b	40 ml (glass)	Dissolved Mercury	15 mL	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HCL (Hydrochloric)	40	-
2	500 ml (plastic)	General Chemistry	100 ml	-	-	500	-
3	145 ml (plastic)	Cyanide (total, free, weak acid dissociable)	100 ml	-	<input checked="" type="checkbox"/> NaOH (Sodium Hydroxide)	145	-
4	120 ml (glass)	Ammonia (NH3)	60 ml	-	<input checked="" type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> (Sulfuric)	120	-
5	120 ml (plastic)	Thiocyanate (SCN)	50 ml	-	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)	120	-
6	120 ml (glass amber)	Total Inorganic Carbon (TIC)	50 ml	-	-	120	-

**General Notes and Observations:**

Good productivity well  
collected Dup -3

**Consumables Used:**

- 1/4" HDPE (peristaltic pump tubing) 26 ft
- 3/8" HDPE (microwaterra tubing) \_\_\_\_\_ ft
- 5/8" HDPE (waterra tubing) \_\_\_\_\_ ft
- 1/4" Silicon tubing 0.5 ft
- High Capacity .45 micron filters 1
- D-25 (for 2" wells, use with 5/8") foot valves \_\_\_\_\_
- D-16 (for 1" wells, use with 5/8") foot valves \_\_\_\_\_
- SS-10 (for 5/8" wells, use with 3/8") foot valves \_\_\_\_\_
- 1" bailer \_\_\_\_\_
- 2" bailer \_\_\_\_\_
- other (describe) \_\_\_\_\_

# GROUNDWATER SAMPLE COLLECTION SHEET

<b>Sample Site</b>	MP09-10	<b>Project Number</b>	1343-005.28	<b>Date</b>	30 Aug 2016
<b>Piezometer Diameter</b>	1 1/2"	<b>Client</b>	GY - AAM	<b>Samplers</b>	JC & NB
<b>UTM Location</b>	Z: 08 E: 0389237 N: 6880683	<b>Project Name</b>	Mount Nansen 2016 GW Sampling Program	<b>Weather/Temperature</b>	Overcast / windy etc
<b>Waypoint</b>	GPS: ECR Name: N/A.			<b>Recovery</b>	<input type="checkbox"/> Good <input checked="" type="checkbox"/> Bad
<b>Photos</b>	Cam: Nos: 0196 / 0198	<b>Purge Method</b>			
<b>Duplicate Collected</b>	<input type="checkbox"/> Yes Name: _____	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>
<b>Field Blank Collected</b>	<input type="checkbox"/> Yes Name: _____	_____	_____	_____	_____
<b>Initial Depth to Water (m)</b>	3.446	<b>Purge Start Time:</b>	_____	<b>Purge End Time:</b>	_____
<b>Depth to Bottom (m)</b>	3.952 Frozen	<b>Pen or YSI:</b>	<input type="checkbox"/> YSI Pro Plus	<input type="checkbox"/> Pen Unit	
<b>Submerged Tubing Depth (m)</b>	_____	<b>Purge Interval Time ( ) min / Vol. ( ) L</b>			
<b>Well Stick-up Height (m)</b>	2310	<b>Depth to water (m)</b>			
<b>Estimated Water Volume (L)</b>	_____	<b>Temperature (°C) 3%</b>			
Calculations: (DTB - DTW) x (πr <sup>2</sup> ) 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	<b>pH (pH Units) ±0.1</b>				
	<b>Cond. (µs/cm) 3%</b>				
	<b>Specific Cond. (µs/cm) 3%</b>				
	<b>Redox (mV) 10%</b>				
	<b>DO (mg/L) 10%</b>				
	<b>DO (%) 10%</b>				
	<b>Appearance &amp; Odour (Clear, Silty, HC odours, etc.)</b>				
	<b>Only for final readings</b>	<b>Sulphide (mg/L)</b>			
		<b>Turbidity (NTU)</b>			
		<b>Interval Purge Volume (L)</b>			
	<b>Cumulative Purge Volume (L):</b>				
<b>YSI ID</b>		<b>Sample Method:</b>			
<b>Logged Field Parameters</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>
<b>Time logged on YSI (24hr)</b>	_____	_____	_____	_____	_____
<b>Sample Time (24hr)</b>	_____	_____	_____	_____	_____

Sample Site (Con't): 30 Aug 2016

Sample Date (Con't): MP09-10

Well Head Seal:  J-Plug  PVC Cap  Not Sealed  Other \_\_\_\_\_

Seal Replaced:  J-Plug  PVC Cap  Not required  Other \_\_\_\_\_

Well properly sealed for gas monitoring:  Yes  No Details: \_\_\_\_\_

**Head Space Gas Measurements**

	Units	Values
Methane (CH4)	%LEL	0
Oxygen (O2)	%	20.7
Carbon Dioxide (CO2)	PPM	200

Priority	Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
1a	120 ml (plastic)	Dissolved Metals	100 ml	<input type="checkbox"/> Field Filtered	<input type="checkbox"/> HNO <sub>3</sub> (Nitric)	_____	_____
1b	40 ml (glass)	Dissolved Mercury	15 mL	<input type="checkbox"/> Field Filtered	<input type="checkbox"/> HCL (Hydrochloric)	_____	_____
2	500 ml (plastic)	General Chemistry	100 ml	-	-	_____	_____
3	145 ml (plastic)	Cyanide (total, free, weak acid dissociable)	100 ml	-	<input type="checkbox"/> NaOH (Sodium Hydroxide)	_____	_____
4	120 ml (glass)	Ammonia (NH3)	60 ml	-	<input type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> (Sulfuric)	_____	_____
5	120 ml (plastic)	Thiocyanate (SCN)	50 ml	-	<input type="checkbox"/> HNO <sub>3</sub> (Nitric)	_____	_____
6	120 ml (glass amber)	Total Inorganic Carbon (TIC)	50 ml	-	-	_____	_____

**General Notes and Observations:**

- Depth to water was 3.446 and the bottom of the well was 3.952, from historical data, Actual DTB for MP09-10 was ~5.3m deep.  
 - ~0.5m of water on top of Frozen Ice, did not sample standing water

**Consumables Used:**

- 1/4" HDPE (peristaltic pump tubing) \_\_\_\_\_ ft
- 3/8" HDPE (microwaterra tubing) \_\_\_\_\_ ft
- 5/8" HDPE (waterra tubing) \_\_\_\_\_ ft
- 1/4" Silicon tubing \_\_\_\_\_ ft
- High Capacity .45 micron filters \_\_\_\_\_
- D-25 (for 2" wells, use with 5/8") foot valves \_\_\_\_\_
- D-16 (for 1" wells, use with 5/8") foot valves \_\_\_\_\_
- SS-10 (for 5/8" wells, use with 3/8") foot valves \_\_\_\_\_
- 1" bailer \_\_\_\_\_
- 2" bailer \_\_\_\_\_
- other (describe) \_\_\_\_\_

# GROUNDWATER SAMPLE COLLECTION SHEET

<b>Sample Site</b>	MP09-11	<b>Project Number</b>	1343-005-27: 28	<b>Date</b>	30-Aug-16	
<b>Piezometer Diameter</b>	1.5	<b>Client</b>	GY - AAM	<b>Samplers</b>	AN/MM	
<b>UTM Location</b>	Z: 09 E: 6389213 N: 6880618	<b>Project Name</b>	Mount Nansen 2016 GW Sampling Program	<b>Weather/Temperature</b>	windy + overcast	
<b>Waypoint</b>	GPS: AN Name: N/A			<b>Recovery</b>	<input type="checkbox"/> Good <input type="checkbox"/> Bad <span style="float: right;">Okay</span>	
<b>Photos</b>	Cam: 1 Nos: 0470 - 0473	<b>Purge Method</b>				
<b>Duplicate Collected</b>	<input type="checkbox"/> Yes Name:	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>	
<b>Field Blank Collected</b>	<input type="checkbox"/> Yes Name:		X			
<b>Initial Depth to Water (m)</b>	2.115	<b>Purge Start Time:</b>	18:07	<b>Purge End Time:</b>	18:34	
<b>Depth to Bottom (m)</b>	4.959	<b>Pen or YSI:</b>	<input checked="" type="checkbox"/> YSI Pro Plus <input type="checkbox"/> Pen Unit			
<b>Submerged Tubing Depth (m)</b>	~3.9	<b>Purge Interval Time (5) min / Vol. ( ) L</b>	18:09	18:14	18:19	
<b>Well Stick-up Height (m)</b>	2.1	<b>Depth to water (m)</b>	/	2.585	2.690	
<b>Estimated Water Volume (L)</b>	4.33.1	<b>Temperature (°C) 3%</b>	8.6	8.0	7.4	
(DTB - DTW) x (πr <sup>2</sup> *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: $\frac{4.959 \times 1.1}{2.115} \times 1.5 = 2.690$ $\frac{2.115}{0.575} = 3.68$	<b>pH (pH Units) ±0.1</b>	7.93	7.76	7.80	7.83	
	<b>Cond. (µs/cm) 3%</b>	438.7	446.7	458.4	462.8	470.5
	<b>Specific Cond. (µs/cm) 3%</b>	649.1	661.3	691.0	699.5	768.0
	<b>Redox (mV) 10%</b>	-60.6	-85.8	-110.5	-122.4	-128.5
	<b>DO (mg/L) 10%</b>	*30.3	0.51	0.25	0.32	0.59
	<b>DO (%) 10%</b>	*3.54	4.3	2.1	2.7	5.0
	<b>Appearance &amp; Odour (Clear, Silty, HC odours, etc.)</b>	Very turbid rusty color	same	same	same	same
	<b>Only for final readings</b>	<b>Sulphide (mg/L)</b>	/	/	/	/
	<b>Turbidity (NTU)</b>	/	/	/	/	83.1
	<b>Interval Purge Volume (L)</b>	/	0.4	0.6	0.4	0.5
<b>Cumulative Purge Volume (L):</b>	/	0.4	1.0	1.4	1.9	
<b>YSI ID</b>	MP09-11	<b>Sample Method:</b>				
<b>Logged Field Parameters</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>	
<b>Time logged on YSI (24hr)</b>	18:35		X			
<b>Sample Time (24hr)</b>	18:35		X			

Sample Site (Con't): MP09-11

Sample Date (Con't): 30-14 Aug-16 @ 18:35

Well Head Seal:  J-Plug  PVC Cap  Not Sealed  Other \_\_\_\_\_

Seal Replaced:  J-Plug  PVC Cap  Not required  Other \_\_\_\_\_

Well properly sealed for gas monitoring:  Yes  No Details: \_\_\_\_\_

**Head Space Gas Measurements**

	Units	Values
Methane (CH4)	%LEL	14
Oxygen (O2)	%	19.9
Carbon Dioxide (CO2)	PPM	3000

Priority	Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
1a	120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)	120	
1b	40 ml (glass)	Dissolved Mercury	15 mL	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HCL (Hydrochloric)	40	
2	500 ml (plastic)	General Chemistry	100 ml	-	-	500	
3	145 ml (plastic)	Cyanide (total, free, weak acid dissociable)	100 ml	-	<input checked="" type="checkbox"/> NaOH (Sodium Hydroxide)	145	
4	120 ml (glass)	Ammonia (NH3)	60 ml	-	<input checked="" type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> (Sulfuric)	120	
5	120 ml (plastic)	Thiocyanate (SCN)	50 ml	-	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)	120	
6	120 ml (glass amber)	Total Inorganic Carbon (TIC)	50 ml	-	-	120	

**General Notes and Observations:**

@ 18:09 purging stopped due to hole in tubing; DO readings at this time not accurate.  
 - purge was very slow; still ~~waiting~~ recharging; able to purge & collect sample.

**Consumables Used:**

- 1/4" HDPE (peristaltic pump tubing) 0.5 ft
- 3/8" HDPE (microwaterra tubing) \_\_\_\_\_ ft
- 5/8" HDPE (waterra tubing) \_\_\_\_\_ ft
- 1/4" Silicon tubing 0.5 ft
- High Capacity .45 micron filters \_\_\_\_\_
- D-25 (for 2" wells, use with 5/8" foot valves) \_\_\_\_\_
- D-16 (for 1" wells, use with 5/8" foot valves) \_\_\_\_\_
- SS-10 (for 5/8" wells, use with 3/8" foot valves) \_\_\_\_\_
- 1" bailer \_\_\_\_\_
- 2" bailer \_\_\_\_\_
- other (describe) \_\_\_\_\_

# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site	MPO9-12	Project Number	1343-005 <del>27</del> 28.	Date	30-Aug-16 / Aug 31	
Piezometer Diameter	1.5	Client	GY - AAM	Samplers	AN/MM	
UTM Location	Z082 E: 0389203 N: 6880618	Project Name	Mount Nansen 2016 GW Sampling Program	Weather/Temperature	windy	
Waypoint	GPS: AN Name: N/A	Purge Method	<input type="checkbox"/> Waterra <input checked="" type="checkbox"/> Peristaltic <input type="checkbox"/> Disp. Bailer <input type="checkbox"/> Other			
Photos	Cam: 1 Nos: 0470-0473	Duplicate Collected	<input type="checkbox"/> Yes Name: / <input checked="" type="checkbox"/> Yes Name: FB-4 @ 9:35			
Field Blank Collected		Purge Start Time:	18:00	Purge End Time:		
Initial Depth to Water (m)	2.170 <small>Batch Aug 25 2016</small>	Purge Interval Time (5) min / Vol. ( ) L	18:01	Pen or YSI:	<input checked="" type="checkbox"/> YSI Pro Plus <input type="checkbox"/> Pen Unit	
Depth to Bottom (m)	4.240	Depth to water (m)	✓			
Submerged Tubing Depth (m)	~ 3.5	Temperature (°C) 3%	8.4			
Well Stick-up Height (m)	2.01	pH (pH Units) ±0.1	8.04			
Estimated Water Volume (L)	3.1	Cond. (µs/cm) 3%	459.8			
(DTB - DTW) x (πr <sup>2</sup> )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: $\frac{4.240 - 2.170}{2.170} \times 1.5 = 3.105$	Specific Cond. (µs/cm) 3%	6902	} Measurements taken on Aug. 30, during initial visit.			
	Redox (mV) 10%	-75.6				
	DO (mg/L) 10%	1.1				
	DO (%) 10%	11.3				
	Appearance & Odour (Clear, Silty, HC odours, etc.)	very turbid				
	Only for final readings	Sulphide (mg/L)	0.80	} measurements taken on Aug. 31 during sample collection.		
		Turbidity (NTU) AV	3050 (AV)			
		Interval Purge Volume (L)	0.2			
		Cumulative Purge Volume (L):	0.2			
	YSI ID	<del>           Sample Method:  <input type="checkbox"/> Waterra    <input type="checkbox"/> Peristaltic    <input type="checkbox"/> Disp. Bailer    <input type="checkbox"/> Other         </del>				
Logged Field Parameters	<input type="checkbox"/> Yes <input type="checkbox"/> No					
Time logged on YSI (24hr)						
Sample Time (24hr)	13:20					

\* YSI not logged.

Sulphide meter flashing "Limit" Sample too turbid for accurate reading



Sample Site (Con't): MP09-12.

Sample Date (Con't): 31 - Aug - 16 @ 13:20

Well Head Seal:  J-Plug  PVC Cap  Not Sealed  Other \_\_\_\_\_

Seal Replaced:  J-Plug  PVC Cap  Not required  Other \_\_\_\_\_

Well properly sealed for gas monitoring:  Yes  No Details: \_\_\_\_\_

**Head Space Gas Measurements**

	Units	Values
Methane (CH4)	%LEL	0
Oxygen (O2)	%	20.9
Carbon Dioxide (CO2)	PPM	400

Priority	Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
1a	120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)	120	<p>Sample collected * direct sample on Aug. 31 full set. (Discarded) Samples recollected Sept 1 @ 9:35</p>
1b	40 ml (glass)	Dissolved Mercury	15 mL	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HCL (Hydrochloric)	40	
2	500 ml (plastic)	General Chemistry	100 ml	-	-	500	
3	145 ml (plastic)	Cyanide (total, free, weak acid dissociable)	100 ml	-	<input checked="" type="checkbox"/> NaOH (Sodium Hydroxide)	145	
4	120 ml (glass)	Ammonia (NH3)	60 ml	-	<input checked="" type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> (Sulfuric)	120	
5	120 ml (plastic)	Thiocyanate (SCN)	50 ml	-	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)	120	
6	120 ml (glass amber)	Total Inorganic Carbon (TIC)	50 ml	-	-	120	

**General Notes and Observations:**

Aug 30  
 - Notes from Sept. 2015 state that well was direct sample; other years well was good. Attempted to purge well normally, water level was dropping very consistently, so stopped purging.  
 - will return tomorrow to direct sample due to holding times of the samples

Aug 31  
 - Attempt direct sample -  
 - Full sample set collected, including sulphide + turbidity in situ.

Sept 1 - Recollected Full sample set for MP09-12 -  
 - Collected FB-4 @ 9:35  
 - No winds on turbidity, anticipate good FB

**Consumables Used:**

- 1/4" HDPE (peristaltic pump tubing) 1.0 ft
- 3/8" HDPE (microwaterra tubing) \_\_\_\_\_ ft
- 5/8" HDPE (waterra tubing) \_\_\_\_\_ ft
- 1/4" Silicon tubing 1.5 ft
- High Capacity .45 micron filters \_\_\_\_\_
- D-25 (for 2" wells, use with 5/8") foot valves \_\_\_\_\_
- D-16 (for 1" wells, use with 5/8") foot valves \_\_\_\_\_
- SS-10 (for 5/8" wells, use with 3/8") foot valves \_\_\_\_\_
- 1" bailer \_\_\_\_\_
- 2" bailer \_\_\_\_\_
- other (describe) \_\_\_\_\_



Return



# GROUNDWATER SAMPLE COLLECTION SHEET

<b>Sample Site</b>	MPO9-14	<b>Project Number</b>	1343-005.2B	<b>Date</b>	29 Aug-16 / Aug-31
<b>Piezometer Diameter</b>	1" DP	<b>Client</b>	GY - AAM	<b>Samplers</b>	AN/MM
<b>UTM Location</b>	Z: 08, E: 0389140 N: 680030	<b>Project Name</b>	Mount Nansen 2016 GW Sampling Program	<b>Weather/Temperature</b>	Rainy / Windy
<b>Waypoint</b>	GPS: AN Name: N/A			<b>Recovery</b>	<input type="checkbox"/> Good <input checked="" type="checkbox"/> Bad
<b>Photos</b>	Cam:   Nos: 0445-0447	<b>Purge Method</b>			
<b>Duplicate Collected</b>	<input type="checkbox"/> Yes Name:	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>
<b>Field Blank Collected</b>	<input type="checkbox"/> Yes Name:		<del>X</del>		
<b>Initial Depth to Water (m)</b>	0.752	<b>Purge Start Time:</b>		<b>Purge End Time:</b>	
				<b>Pen or YSI:</b>	<input type="checkbox"/> YSI Pro Plus <input type="checkbox"/> Pen Unit
<b>Depth to Bottom (m)</b>	1.610	<b>Purge Interval Time ( ) min / Vol. ( ) L</b>			
<b>Submerged Tubing Depth (m)</b>	~1.5	<b>Depth to water (m)</b>			
<b>Well Stick-up Height (m)</b>	0.731 from H <sub>2</sub> O surface	<b>Temperature (°C) 3%</b>			
<b>Estimated Water Volume (L)</b>	0.489	<b>pH (pH Units) ±0.1</b>			
<p>(DTB - DTW) x (πr<sup>2</sup>) 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</p> <p>Calculations:  <math display="block">\frac{0.752 \times 1.610}{0.858} \approx 0.5</math></p>	<b>Cond. (µs/cm) 3%</b>				
	<b>Specific Cond. (µs/cm) 3%</b>				
	<b>Redox (mV) 10%</b>				
	<b>DO (mg/L) 10%</b>				
	<b>DO (%) 10%</b>				
	<b>Appearance &amp; Odour (Clear, Silty, HC odours, etc.)</b>				
	<b>Only for final readings</b>	<b>Sulphide (mg/L)</b>			
		<b>Turbidity (NTU)</b>			
	<b>Interval Purge Volume (L)</b>				
	<b>Cumulative Purge Volume (L):</b>				
<b>YSI ID</b>		<b>Sample Method:</b>			
<b>Logged Field Parameters</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>
<b>Time logged on YSI (24hr)</b>	NO in situ collected				
<b>Sample Time (24hr)</b>			X		

DIRECT SAMPLE

Sample Site (Con't): MP09-14

Sample Date (Con't): 29 Aug-16

Well Head Seal:  J-Plug  PVC Cap  Not Sealed  Other plastic bag

Seal Replaced:  J-Plug  PVC Cap  Not required  Other cap did not fit

Well properly sealed for gas monitoring:  Yes  No Details: plastic bag

**Head Space Gas Measurements**

	Units	Values
Methane (CH <sub>4</sub> )	%LEL	0
Oxygen (O <sub>2</sub> )	%	20.9
Carbon Dioxide (CO <sub>2</sub> )	PPM	300

Priority	Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
1a	120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)	100	← collected Aug-29 17:30
1b	40 ml (glass)	Dissolved Mercury	15 mL	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HCL (Hydrochloric)	- 15	← collected Aug-31 14:05
2	500 ml (plastic)	General Chemistry	100 ml	-	-	- 60ml	← collected Aug 31 14:05
3	145 ml (plastic)	Cyanide (total, free, weak acid dissociable)	100 ml	-	<input type="checkbox"/> NaOH (Sodium Hydroxide)	-	
4	120 ml (glass)	Ammonia (NH <sub>3</sub> )	60 ml	-	<input type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> (Sulfuric)	-	
5	120 ml (plastic)	Thiocyanate (SCN)	50 ml	-	<input type="checkbox"/> HNO <sub>3</sub> (Nitric)	-	
6	120 ml (glass amber)	Total Inorganic Carbon (TIC)	50 ml	-	-	-	

**General Notes and Observations:**

- standing water around well; rainbow sheen on water surface;  
 - attempt direct sample sampling  
 \* lots of organics in the water being pumped out; not a representative GW sample → stick up for 1000 + more.  
 - well is as thick as water tubing that is in the DP  
 - second visit to well on Aug. 31 @ 14:05. DTW @ time of sample was 0.801m. Collected Dis. Mercury (15 mL). Well went DRY.

**Consumables Used:**

- 1/4" HDPE (peristaltic pump tubing) \_\_\_\_\_ ft 2m
- 3/8" HDPE (microwaterra tubing) \_\_\_\_\_ ft
- 5/8" HDPE (waterra tubing) \_\_\_\_\_ ft
- 1/4" Silicon tubing 6.5 ft
- High Capacity .45 micron filters \_\_\_\_\_
- D-25 (for 2" wells, use with 5/8") foot valves \_\_\_\_\_
- D-16 (for 1" wells, use with 5/8") foot valves \_\_\_\_\_
- SS-10 (for 5/8" wells, use with 3/8") foot valves \_\_\_\_\_
- 1" bailer \_\_\_\_\_
- 2" bailer \_\_\_\_\_
- other (describe) \_\_\_\_\_

# GROUNDWATER SAMPLE COLLECTION SHEET

<b>Sample Site</b>	MW09-02	<b>Project Number</b>	1343-005.28	<b>Date</b>	Aug 30 2016
<b>Piezometer Diameter</b>	2"	<b>Client</b>	GY - AAM	<b>Samplers</b>	SL NB
<b>UTM Location</b>	Z: 08 E: 0389394 N: 6880561	<b>Project Name</b>	Mount Nansen 2016 GW Sampling Program	<b>Weather/Temperature</b>	7° cloudy
<b>Waypoint</b>	GPS: ECR Name: N/A	<b>Recovery</b>	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad		
<b>Photos</b>	Cam: ECR Nos: 0185-0188	<b>Purge Method</b>			
<b>Duplicate Collected</b>	<input type="checkbox"/> Yes Name:	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>
<b>Field Blank Collected</b>	<input type="checkbox"/> Yes Name:		✓		
<b>Initial Depth to Water (m)</b>	2.888	<b>Purge Start Time:</b>	13:13	<b>Purge End Time:</b>	13:36
		<b>Pen or YSI:</b>	<input checked="" type="checkbox"/> YSI Pro Plus <input type="checkbox"/> Pen Unit		
<b>Depth to Bottom (m)</b>	4.737	<b>Purge Interval Time (3) min / Vol. (0.5) L</b>	13:17	13:21	13:26
<b>Submerged Tubing Depth (m)</b>	4.600	<b>Depth to water (m)</b>	3.17	3.94	3.49
<b>Well Stick-up Height (m)</b>	0.729	<b>Temperature (°C) 3%</b>	4.3	4.3	4.2
<b>Estimated Water Volume (L)</b>	3.6	<b>pH (pH Units) ±0.1</b>	7.54	7.38	7.25
(DTB - DTW) x (πr <sup>2</sup> * 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:	<b>Cond. (µs/cm) 3%</b>	1499	1497	1501	1493
	<b>Specific Cond. (µs/cm) 3%</b>	2473	2475	2487	2473
	<b>Redox (mV) 10%</b>	-87.3	-86.2	-84.0	-80.3
	<b>DO (mg/L) 10%</b>	0.13	0.07	0.06	0.03
	<b>DO (%) 10%</b>	1.0	0.6	0.2	0.3
	<b>Appearance &amp; Odour (Clear, Silty, HC odours, etc.)</b>	Slightly turbid	Same	Same	Clearly up
	<b>Only for final readings</b>	<b>Sulphide (mg/L)</b>			0.02
		<b>Turbidity (NTU)</b>			6.51
	<b>Interval Purge Volume (L)</b>	0.5	0.5	0.5	0.5
	<b>Cumulative Purge Volume (L):</b>	0.5	1.0	1.5	2.0
<b>YSI ID</b>	023981	<b>Sample Method:</b>			
<b>Logged Field Parameters</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>
<b>Time logged on YSI (24hr)</b>	13:34		✓		
<b>Sample Time (24hr)</b>	13:40				

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

Sample Date (Con't): Aug 30 2016

Well Head Seal:  J-Plug  PVC Cap  Not Sealed  Other \_\_\_\_\_

Seal Replaced:  J-Plug  PVC Cap  Not required  Other \_\_\_\_\_

Well properly sealed for gas monitoring:  Yes  No Details: \_\_\_\_\_

**Head Space Gas Measurements**

	Units	Values
Methane (CH4)	%LEL	0
Oxygen (O2)	%	20.7
Carbon Dioxide (CO2)	PPM	500

Priority	Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
1a	120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)	120 ml	
1b	40 ml (glass)	Dissolved Mercury	15 mL	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HCL (Hydrochloric)	40 ml	
2	500 ml (plastic)	General Chemistry	100 ml	-	-	<del>100</del> 500 ml	
3	145 ml (plastic)	Cyanide (total, free, weak acid dissociable)	100 ml	-	<input checked="" type="checkbox"/> NaOH (Sodium Hydroxide)	145 ml	
4	120 ml (glass)	Ammonia (NH3)	60 ml	-	<input checked="" type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> (Sulfuric)	120 ml	
5	120 ml (plastic)	Thiocyanate (SCN)	50 ml	-	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)	120 ml	
6	120 ml (glass amber)	Total Inorganic Carbon (TIC)	50 ml	-	-	120 ml	

**General Notes and Observations:**

- well has slow recharge but full parameters + and stabilization

**Consumables Used:**

- 1/4" HDPE (peristaltic pump tubing) \_\_\_\_\_ ft
- 3/8" HDPE (microwaterra tubing) \_\_\_\_\_ ft
- 5/8" HDPE (waterra tubing) \_\_\_\_\_ ft
- 1/4" Silicon tubing 0.5 ft
- High Capacity .45 micron filters \_\_\_\_\_
- D-25 (for 2" wells, use with 5/8") foot valves \_\_\_\_\_
- D-16 (for 1" wells, use with 5/8") foot valves \_\_\_\_\_
- SS-10 (for 5/8" wells, use with 3/8") foot valves \_\_\_\_\_
- 1" bailer \_\_\_\_\_
- 2" bailer \_\_\_\_\_
- other (describe) \_\_\_\_\_

~10m



# GROUNDWATER SAMPLE COLLECTION SHEET

<b>Sample Site</b>	11W09-03	<b>Project Number</b>	1343-005.28	<b>Date</b>	30 Aug 2016	
<b>Piezometer Diameter</b>	2"	<b>Client</b>	GY - AAM	<b>Samplers</b>	JC & NB	
<b>UTM Location</b>	Z: 08V E: 0389420 N: 6880557	<b>Project Name</b>	Mount Nansen 2016 GW Sampling Program	<b>Weather/Temperature</b>	Sunny 10°C	
<b>Waypoint</b>	GPS: ELR Name: N/A	<b>Purge Method</b>				
<b>Photos</b>	Cam: ELR2 Nos: 0179 / 0181	<b>Recovery</b>	<input type="checkbox"/> Good <input checked="" type="checkbox"/> Bad			
<b>Duplicate Collected</b>	<input type="checkbox"/> Yes Name: _____	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>	
<b>Field Blank Collected</b>	<input type="checkbox"/> Yes Name: _____		✓			
<b>Initial Depth to Water (m)</b>	6.356	<b>Purge Start Time:</b>	11:12	<b>Purge End Time:</b>	11:33	
<b>Depth to Bottom (m)</b>	9.962	<b>Pen or YSI:</b>	<input checked="" type="checkbox"/> YSI Pro Plus <input type="checkbox"/> Pen Unit			
<b>Submerged Tubing Depth (m)</b>	0.3	<b>Purge Interval Time (5) min / Vol. (0.5) L</b>	11:17	11:22	11:28	
<b>Well Stick-up Height (m)</b>	0.38	<b>Depth to water (m)</b>	6.507	6.515	6.514	
<b>Estimated Water Volume (L)</b>	7.2	<b>Temperature (°C) 3%</b>	3.4	3.4	3.5	
<p>(DTB - DTW) x (πr<sup>2</sup>) 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</p> <p>Calculations:  <math>\frac{9.962 - 6.356}{2} \times 2 = 7.2</math></p>	<b>pH (pH Units) ±0.1</b>	8.43	8.45	8.40	8.30	
	<b>Cond. (µs/cm) 3%</b>	1544	1548	1550	1547	
	<b>Specific Cond. (µs/cm) 3%</b>	2616	2633	2631	2639	
	<b>Redox (mV) 10%</b>	-64.3	-73.7	-76.8	-74.8	
	<b>DO (mg/L) 10%</b>	0.13	0.10	0.10	0.09	
	<b>DO (%) 10%</b>	1.1	0.7	0.6	0.5	
	<b>Appearance &amp; Odour (Clear, Silty, HC odours, etc.)</b>	Clear	Same	Same	Same	
	<b>Only for final readings</b>	<b>Sulphide (mg/L)</b>				0.00
		<b>Turbidity (NTU)</b>				10.80
		<b>Interval Purge Volume (L)</b>	0.5	0.5	0.5	0.5
	<b>Cumulative Purge Volume (L):</b>	0.5	1.0	1.5	2.0	
<b>YSI ID</b>	023981 (Pine)	<b>Sample Method:</b>				
<b>Logged Field Parameters</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>	
<b>Time logged on YSI (24hr)</b>	11:33		✓			
<b>Sample Time (24hr)</b>	11:20					



Sample Site (Con't): rw09-03

Sample Date (Con't): 30 Aug 2016

Well Head Seal:  J-Plug  PVC Cap  Not Sealed  Other \_\_\_\_\_

Seal Replaced:  J-Plug  PVC Cap  Not required  Other \_\_\_\_\_

Well properly sealed for gas monitoring:  Yes  No Details: \_\_\_\_\_

**Head Space Gas Measurements**

	Units	Values
Methane (CH4)	%LEL	0
Oxygen (O2)	%	20.9
Carbon Dioxide (CO2)	PPM	300

Priority	Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
1a	120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)	120	
1b	40 ml (glass)	Dissolved Mercury	15 mL	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HCL (Hydrochloric)	40	
2	500 ml (plastic)	General Chemistry	100 ml	-	-	500	
3	145 ml (plastic)	Cyanide (total, free, weak acid dissociable)	100 ml	-	<input checked="" type="checkbox"/> NaOH (Sodium Hydroxide)	145	
4	120 ml (glass)	Ammonia (NH3)	60 ml	-	<input checked="" type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> (Sulfuric)	120	
5	120 ml (plastic)	Thiocyanate (SCN)	50 ml	-	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)	120	
6	120 ml (glass amber)	Total Inorganic Carbon (TIC)	50 ml	-	-	120	

**General Notes and Observations:**

*Average recharge*

**Consumables Used:**

- 1/4" HDPE (peristaltic pump tubing) \_\_\_\_\_ ft
- 3/8" HDPE (microwaterra tubing) \_\_\_\_\_ ft
- 5/8" HDPE (waterra tubing) \_\_\_\_\_ ft
- 1/4" Silicon tubing \_\_\_\_\_ ft
- High Capacity .45 micron filters \_\_\_\_\_
- D-25 (for 2" wells, use with 5/8") foot valves \_\_\_\_\_
- D-16 (for 1" wells, use with 5/8") foot valves \_\_\_\_\_
- SS-10 (for 5/8" wells, use with 3/8") foot valves \_\_\_\_\_
- 1" bailer \_\_\_\_\_
- 2" bailer \_\_\_\_\_
- other (describe) \_\_\_\_\_

# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site	FW09-04	Project Number	1343-005.28	Date	30 Aug 2016
Piezometer Diameter		Client	GY - AAM	Samplers	JC / NB
UTM Location	Z: 08V E: 0289420 N: 6880557	Project Name	Mount Nansen 2016 GW Sampling Program	Weather/Temperature	Sunny / un/hazy 20°C
Waypoint	GPS: <del>EBR</del> Name: N/A			Recovery	<input type="checkbox"/> Good <input checked="" type="checkbox"/> Bad
Photos	Cam: Nos: 0182 / 0184	Purge Method			
Duplicate Collected	<input type="checkbox"/> Yes Name: _____	Waterra	Peristaltic <input checked="" type="checkbox"/>	Disp. Bailer	Other
Field Blank Collected	<input type="checkbox"/> Yes Name: _____				
Initial Depth to Water (m)	3.926	Purge Start Time:	11:52	Purge End Time:	
Depth to Bottom (m)	7.694	Purge Interval Time ( ) min / Vol. (0.5) L	11:56	12:00	12:04
Submerged Tubing Depth (m)	7.100	Depth to water (m)	4.231	4.462	4.594
Well Stick-up Height (m)	0.24	Temperature (°C) 3%	3.7	4.0	4.3
Estimated Water Volume (L)	7.5	pH (pH Units) ±0.1	8.26	8.27	8.34
(DTB - DTW) x (πr <sup>2</sup> ) 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: 3.768 x 2 = 7.536	Cond. (µs/cm) 3%	1549	1558	1595	1602
	Specific Cond. (µs/cm) 3%	2607	2593	2621	2627
	Redox (mV) 10%	-25.0	-32.9	41.7	-48.7
	DO (mg/L) 10%	0.18	0.06	0.06	0.08
	DO (%) 10%	1.4	0.5	0.6	0.6
	Appearance & Odour (Clear, Silty, HC odours, etc.)	Clear	Same	Same	Same
	<u>Only for final readings</u>	Sulphide (mg/L)			
		Turbidity (NTU)			0.45
	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 ID	<del>023981</del> 023981 (PINE)	Sample Method:			
Logged Field Parameters	<input type="checkbox"/> Yes <input type="checkbox"/> No	Waterra	Peristaltic <input checked="" type="checkbox"/>	Disp. Bailer	Other
Time logged on YSI (24hr)	Sample not logged; use field sheet data				
Sample Time (24hr)	11:50				



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

Sample Date (Con't): 30 Aug 2016

Well Head Seal:  J-Plug  PVC Cap  Not Sealed  Other \_\_\_\_\_

Seal Replaced:  J-Plug  PVC Cap  Not required  Other \_\_\_\_\_

Well properly sealed for gas monitoring:  Yes  No Details: \_\_\_\_\_

**Head Space Gas Measurements**

	Units	Values
Methane (CH4)	%LEL	0
Oxygen (O2)	%	20.7
Carbon Dioxide (CO2)	PPM	300

Priority	Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
1a	120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)	120	
1b	40 ml (glass)	Dissolved Mercury	15 mL	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HCl (Hydrochloric)	40	
2	500 ml (plastic)	General Chemistry	100 ml	-	-	500	
3	145 ml (plastic)	Cyanide (total, free, weak acid dissociable)	100 ml	-	<input checked="" type="checkbox"/> NaOH (Sodium Hydroxide)	145	
4	120 ml (glass)	Ammonia (NH <sub>3</sub> )	60 ml	-	<input checked="" type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> (Sulfuric)	120	
5	120 ml (plastic)	Thiocyanate (SCN)	50 ml	-	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)	120	
6	120 ml (glass amber)	Total Inorganic Carbon (TIC)	50 ml	-	-	120	

**General Notes and Observations:**

**Consumables Used:**

- 1/4" HDPE (peristaltic pump tubing)      ft
- 3/8" HDPE (microwaterra tubing)      ft
- 5/8" HDPE (waterra tubing)      ft
- 1/4" Silicon tubing      ft
- High Capacity .45 micron filters
- D-25 (for 2" wells, use with 5/8") foot valves
- D-16 (for 1" wells, use with 5/8") foot valves
- SS-10 (for 5/8" wells, use with 3/8") foot valves
- 1" bailer
- 2" bailer
- other (describe)



# GROUNDWATER SAMPLE COLLECTION SHEET

<b>Sample Site</b>	MW09-05	<b>Project Number</b>	1343-005.28	<b>Date</b>	30 Aug 2016
<b>Piezometer Diameter</b>	2"	<b>Client</b>	GY - AAM	<b>Samplers</b>	JC dNB
<b>UTM Location</b>	Z: 08V E: 0389410 N: 6880653	<b>Project Name</b>	Mount Nansen 2016 GW Sampling Program	<b>Weather/Temperature</b>	Overcast / windy 5°C
<b>Waypoint</b>	GPS: ER Name: N/A			<b>Recovery</b>	<input type="checkbox"/> Good <input type="checkbox"/> Bad
<b>Photos</b>	Cam: 2 Nos: 0192 / 0194	<b>Purge Method</b>			
<b>Duplicate Collected</b>	<input type="checkbox"/> Yes Name: _____	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>
<b>Field Blank Collected</b>	<input type="checkbox"/> Yes Name: _____				
<b>Initial Depth to Water (m)</b>	— DRY	<b>Purge Start Time:</b>		<b>Purge End Time:</b>	
<b>Depth to Bottom (m)</b>	7.572	<b>Pen or YSI:</b>	<input type="checkbox"/> YSI Pro Plus	<input type="checkbox"/> Pen Unit	
<b>Submerged Tubing Depth (m)</b>	—	<b>Purge Interval Time ( ) min / Vol. ( ) L</b>			
<b>Well Stick-up Height (m)</b>	1.45	<b>Depth to water (m)</b>			
<b>Estimated Water Volume (L)</b>	—	<b>Temperature (°C) 3%</b>			
<p>Calculations:</p> <p>(DTB - DTW) x (πr<sup>2</sup>) 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</p>	<b>pH (pH Units) ±0.1</b>				
	<b>Cond. (µs/cm) 3%</b>				
	<b>Specific Cond. (µs/cm) 3%</b>				
	<b>Redox (mV) 10%</b>				
	<b>DO (mg/L) 10%</b>				
	<b>DO (%) 10%</b>				
	<b>Appearance &amp; Odour (Clear, Silty, HC odours, etc.)</b>				
	<b>Only for final readings</b>	<b>Sulphide (mg/L)</b>			
		<b>Turbidity (NTU)</b>			
		<b>Interval Purge Volume (L)</b>			
	<b>Cumulative Purge Volume (L):</b>				
<b>YSI ID</b>		<b>Sample Method:</b>			
<b>Logged Field Parameters</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>
<b>Time logged on YSI (24hr)</b>					
<b>Sample Time (24hr)</b>					



Sample Site (Con't): MW09-05

Sample Date (Con't): 30 Aug 2016

Well Head Seal:  J-Plug  PVC Cap  Not Sealed  Other \_\_\_\_\_

Seal Replaced:  J-Plug  PVC Cap  Not required  Other \_\_\_\_\_

Well properly sealed for gas monitoring:  Yes  No Details: \_\_\_\_\_

**Head Space Gas Measurements**

	Units	Values
Methane (CH4)	%LEL	0
Oxygen (O2)	%	10.8
Carbon Dioxide (CO2)	PPM	7900

Priority	Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
1a	120 ml (plastic)	Dissolved Metals	100 ml	<input type="checkbox"/> Field Filtered	<input type="checkbox"/> HNO <sub>3</sub> (Nitric)		
1b	40 ml (glass)	Dissolved Mercury	15 mL	<input checked="" type="checkbox"/> Field Filtered	<input type="checkbox"/> HCL (Hydrochloric)		
2	500 ml (plastic)	General Chemistry	100 ml	-	-		
3	145 ml (plastic)	Cyanide (total, free, weak acid dissociable)	100 ml	-	<input type="checkbox"/> NaOH (Sodium Hydroxide)		
4	120 ml (glass)	Ammonia (NH <sub>3</sub> )	60 ml	-	<input type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> (Sulfuric)		
5	120 ml (plastic)	Thiocyanate (SCN)	50 ml	-	<input type="checkbox"/> HNO <sub>3</sub> (Nitric)		
6	120 ml (glass amber)	Total Inorganic Carbon (TIC)	50 ml	-	-		

**General Notes and Observations:**

Slit cap  
Well dry

**Consumables Used:**

- 1/4" HDPE (peristaltic pump tubing) \_\_\_\_\_ ft
- 3/8" HDPE (microwaterra tubing) \_\_\_\_\_ ft
- 5/8" HDPE (waterra tubing) \_\_\_\_\_ ft
- 1/4" Silicon tubing \_\_\_\_\_ ft
- High Capacity .45 micron filters \_\_\_\_\_
- D-25 (for 2" wells, use with 5/8") foot valves \_\_\_\_\_
- D-16 (for 1" wells, use with 5/8") foot valves \_\_\_\_\_
- SS-10 (for 5/8" wells, use with 3/8") foot valves \_\_\_\_\_
- 1" bailer \_\_\_\_\_
- 2" bailer \_\_\_\_\_
- other (describe) \_\_\_\_\_

# GROUNDWATER SAMPLE COLLECTION SHEET

<b>Sample Site</b>	MW09-06	<b>Project Number</b>	1343-005.28	<b>Date</b>	30 Aug 2016					
<b>Piezometer Diameter</b>	2"	<b>Client</b>	GY - AAM	<b>Samplers</b>	JC of NB					
<b>UTM Location</b>	Z:08V E: 0389411 N:6880652	<b>Project Name</b>	Mount Nansen 2016 GW Sampling Program	<b>Weather/Temperature</b>	overcast 5°C					
<b>Waypoint</b>	GPS: ELR Name: N/A			<b>Recovery</b>	<input type="checkbox"/> Good <input checked="" type="checkbox"/> Bad <i>ok</i>					
<b>Photos</b>	Cam: 2 Nos: 0189/0191	<b>Purge Method</b>								
<b>Duplicate Collected</b>	<input type="checkbox"/> Yes Name: _____	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>					
<b>Field Blank Collected</b>	<input type="checkbox"/> Yes Name: _____		✓							
<b>Initial Depth to Water (m)</b>	3.809	<b>Purge Start Time:</b>	14:30	<b>Purge End Time:</b>	15:11					
				<b>Pen or YSI:</b>	<input checked="" type="checkbox"/> YSI Pro Plus <input type="checkbox"/> Pen Unit					
<b>Depth to Bottom (m)</b>	6.055	<b>Purge Interval Time (5) min / Vol. (0.5) L</b>	14:35	14:39	14:43	14:47	14:51	14:55	15:00	15:10
<b>Submerged Tubing Depth (m)</b>	5.5m	<b>Depth to water (m)</b>	⊗	⊗	⊗	⊗	⊗	⊗	⊗	4.013
<b>Well Stick-up Height (m)</b>	2.37m ags	<b>Temperature (°C) 3%</b>	7.7	7.9	8.1	8.2	8.3	8.4	8.5	8.5
<b>Estimated Water Volume (L)</b>	4.5	<b>pH (pH Units) ±0.1</b>	7.31	7.30	7.30	7.30	7.30	7.30	7.30	7.32
Calculations: $(DTB - DTW) \times (\pi r^2) \times 1000$ (for well diameter) = 1 well volume $(DTB - DTW) \times 8.1$ (for 4" well diameter) = 1 well volume $(DTB - DTW) \times 2$ (for 2" well diameter) = 1 well volume $(DTB - DTW) \times 1.1$ (for 1.5" diameter) = 1 well volume $(DTB - DTW) \times 0.5$ (for 1" diameter) = 1 well volume  $\frac{2.246 \times 2}{4.492 L}$  ⊗ PVC sticking too high to safely measure D <sub>btw</sub>	<b>Cond. (µs/cm) 3%</b>	1097	1095	1102	1104	1103	1099	1083	1031	
	<b>Specific Cond. (µs/cm) 3%</b>	1639	1627	1625	1624	1621	1614	1576	1504	
	<b>Redox (mV) 10%</b>	-2.5	1.6	6.5	9.9	13.7	16.5	18.8	24.8	
	<b>DO (mg/L) 10%</b>	0.19	0.13	0.11	0.14	0.16	0.22	0.35	1.10	
	<b>DO (%) 10%</b>	1.6	1.2	1.1	1.2	1.6	1.9	3.2	9.5	
	<b>Appearance &amp; Odour (Clear, Silty, HC odours, etc.)</b>	clear	same	same	same	same	same	same	same	
	<b>Only for final readings</b>	<b>Sulphide (mg/L)</b>	-	-	-	-	-	-	-	0.01
	<b>Turbidity (NTU)</b>	-	-	-	-	-	-	-	-	7.06
	<b>Interval Purge Volume (L)</b>	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1.0
	<b>Cumulative Purge Volume (L):</b>	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.5	
<b>YSI ID</b>	023981 (PINE)	<b>Sample Method:</b>								
<b>Logged Field Parameters</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>					
<b>Time logged on YSI (24hr)</b>	15:15		✓							
<b>Sample Time (24hr)</b>	14:45									

Sample Site (Con't): MW09-06

Sample Date (Con't): Aug 30 2016

Well Head Seal:  J-Plug  PVC Cap  Not Sealed  Other \_\_\_\_\_

Seal Replaced:  J-Plug  PVC Cap  Not required  Other \_\_\_\_\_

Well properly sealed for gas monitoring:  Yes  No Details: \_\_\_\_\_

**Head Space Gas Measurements**

	Units	Values
Methane (CH4)	%LEL	0
Oxygen (O2)	%	20.6
Carbon Dioxide (CO2)	PPM	300

Priority	Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
1a	120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)	120	
1b	40 ml (glass)	Dissolved Mercury	15 mL	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HCL (Hydrochloric)	40	
2	500 ml (plastic)	General Chemistry	100 ml	-	-	500	
3	145 ml (plastic)	Cyanide (total, free, weak acid dissociable)	100 ml	-	<input checked="" type="checkbox"/> NaOH (Sodium Hydroxide)	145	
4	120 ml (glass)	Ammonia (NH <sub>3</sub> )	60 ml	-	<input checked="" type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> (Sulfuric)	120	
5	120 ml (plastic)	Thiocyanate (SCN)	50 ml	-	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)	120	
6	120 ml (glass amber)	Total Inorganic Carbon (TIC)	50 ml	-	-	120	

**General Notes and Observations:**

- PVC cap slit
- ORP and conductivity not stabilizing after 7 readings.
  - Full well volume removed and water level is stable ~ well has ok Recharge.
  - sampled after 7 readings
  - well must use barrel to stand on to sample.

**Consumables Used:**

- 1/4" HDPE (peristaltic pump tubing) \_\_\_\_\_ ft
- 3/8" HDPE (microwaterra tubing) \_\_\_\_\_ ft
- 5/8" HDPE (waterra tubing) \_\_\_\_\_ ft
- 1/4" Silicon tubing \_\_\_\_\_ ft
- High Capacity .45 micron filters \_\_\_\_\_
- D-25 (for 2" wells, use with 5/8") foot valves \_\_\_\_\_
- D-16 (for 1" wells, use with 5/8") foot valves \_\_\_\_\_
- SS-10 (for 5/8" wells, use with 3/8") foot valves \_\_\_\_\_
- 1" bailer \_\_\_\_\_
- 2" bailer \_\_\_\_\_
- other (describe) \_\_\_\_\_

# GROUNDWATER SAMPLE COLLECTION SHEET

<b>Sample Site</b>	MW09-07	<b>Project Number</b>	1343-005-27 28	<b>Date</b>	Aug 29 2016
<b>Piezometer Diameter</b>	8"	<b>Client</b>	GY - AAM	<b>Samplers</b>	JL NB
<b>UTM Location</b>	Z: 08 E: 0389322 N: 6880699	<b>Project Name</b>	Mount Nansen 2016 GW Sampling Program	<b>Weather/Temperature</b>	9° Cloudy
<b>Waypoint</b>	GPS: ELR Name: N/A			<b>Recovery</b>	<input type="checkbox"/> Good <input checked="" type="checkbox"/> Bad
<b>Photos</b>	Cam: ELR2 Nos: 0161 - 0163	<b>Purge Method</b>			
<b>Duplicate Collected</b>	<input type="checkbox"/> Yes Name: _____	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>
<b>Field Blank Collected</b>	<input type="checkbox"/> Yes Name: _____				
<b>Initial Depth to Water (m)</b>	Dry	<b>Purge Start Time:</b>		<b>Purge End Time:</b>	
<b>Depth to Bottom (m)</b>	3.399	<b>Purge Interval Time ( ) min / Vol. ( ) L</b>		<b>Pen or YSI:</b>	<input type="checkbox"/> YSI Pro Plus <input type="checkbox"/> Pen Unit
<b>Submerged Tubing Depth (m)</b>	—	<b>Depth to water (m)</b>			
<b>Well Stick-up Height (m)</b>	1.260	<b>Temperature (°C) 3%</b>			
<b>Estimated Water Volume (L)</b>	—	<b>pH (pH Units) ±0.1</b>			
<p>Calculations:</p> <p>(DTB – DTW) x (πr<sup>2</sup>)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</p>	<b>Cond. (µs/cm) 3%</b>				
	<b>Specific Cond. (µs/cm) 3%</b>				
	<b>Redox (mV) 10%</b>				
	<b>DO (mg/L) 10%</b>				
	<b>DO (%) 10%</b>				
	<b>Appearance &amp; Odour (Clear, Silty, HC odours, etc.)</b>				
	<b>Only for final readings</b>	<b>Sulphide (mg/L)</b>			
		<b>Turbidity (NTU)</b>			
	<b>Interval Purge Volume (L)</b>				
	<b>Cumulative Purge Volume (L):</b>				
<b>YSI ID</b>		<b>Sample Method:</b>			
<b>Logged Field Parameters</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>
<b>Time logged on YSI (24hr)</b>					
<b>Sample Time (24hr)</b>					

Sample Site (Con't): MW09-07

Sample Date (Con't): Aug 29 2016

Well Head Seal:  J-Plug  PVC Cap  Not Sealed  Other \_\_\_\_\_

Seal Replaced:  J-Plug  PVC Cap  Not required  Other \_\_\_\_\_

Well properly sealed for gas monitoring:  Yes  No Details: \_\_\_\_\_

**Head Space Gas Measurements**

	Units	Values
Methane (CH4)	%LEL	0
Oxygen (O2)	%	20.9
Carbon Dioxide (CO2)	PPM	900

Priority	Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
1a	120 ml (plastic)	Dissolved Metals	100 ml	<input type="checkbox"/> Field Filtered	<input type="checkbox"/> HNO <sub>3</sub> (Nitric)		
1b	40 ml (glass)	Dissolved Mercury	15 mL	<input type="checkbox"/> Field Filtered	<input type="checkbox"/> HCL (Hydrochloric)		
2	500 ml (plastic)	General Chemistry	100 ml	-	-		
3	145 ml (plastic)	Cyanide (total, free, weak acid dissociable)	100 ml	-	<input type="checkbox"/> NaOH (Sodium Hydroxide)		
4	120 ml (glass)	Ammonia (NH3)	60 ml	-	<input type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> (Sulfuric)		
5	120 ml (plastic)	Thiocyanate (SCN)	50 ml	-	<input type="checkbox"/> HNO <sub>3</sub> (Nitric)		
6	120 ml (glass amber)	Total Inorganic Carbon (TIC)	50 ml	-	-		

**General Notes and Observations:**

- Well is Dry

**Consumables Used:**

- 1/4" HDPE (peristaltic pump tubing) \_\_\_\_\_ ft
- 3/8" HDPE (microwaterra tubing) \_\_\_\_\_ ft
- 5/8" HDPE (waterra tubing) \_\_\_\_\_ ft
- 1/4" Silicon tubing \_\_\_\_\_ ft
- High Capacity .45 micron filters \_\_\_\_\_
- D-25 (for 2" wells, use with 5/8") foot valves \_\_\_\_\_
- D-16 (for 1" wells, use with 5/8") foot valves \_\_\_\_\_
- SS-10 (for 5/8" wells, use with 3/8") foot valves \_\_\_\_\_
- 1" bailer \_\_\_\_\_
- 2" bailer \_\_\_\_\_
- other (describe) \_\_\_\_\_

# GROUNDWATER SAMPLE COLLECTION SHEET

<b>Sample Site</b>	MW09-08	<b>Project Number</b>	1343-005.28	<b>Date</b>	30 Aug-16					
<b>Piezometer Diameter</b>	2"	<b>Client</b>	GY - AAM	<b>Samplers</b>	AN/MM					
<b>UTM Location</b>	Z: 09 E: 0389609 N: 6880587	<b>Project Name</b>	Mount Nansen 2016 GW Sampling Program	<b>Weather/Temperature</b>	sunny					
<b>Waypoint</b>	GPS: AN Name: N/A			<b>Recovery</b>	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad					
<b>Photos</b>	Cam: 1 Nos: 0434-0456	<b>Purge Method</b>								
<b>Duplicate Collected</b>	<input type="checkbox"/> Yes Name: /	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>					
<b>Field Blank Collected</b>	<input checked="" type="checkbox"/> Yes Name: /		X							
<b>Initial Depth to Water (m)</b>	1.167	<b>Purge Start Time:</b>	8:43	<b>Purge End Time:</b>	09:09					
				<b>Pen or YSI:</b>	<input checked="" type="checkbox"/> YSI Pro Plus <input type="checkbox"/> Pen Unit					
<b>Depth to Bottom (m)</b>	3.900	<b>Purge Interval Time (5) min / Vol. ( ) L</b>	8:44	08:49	08:54	08:59	09:04	09:09		
<b>Submerged Tubing Depth (m)</b>	~ 3.2	<b>Depth to water (m)</b>	/	1.275	1.260	1.259	1.260	1.260		
<b>Well Stick-up Height (m)</b>	1.14	<b>Temperature (°C) 3%</b>	5.7	4.7	4.8	4.7	4.7	4.7		
<b>Estimated Water Volume (L)</b>	5.5	<b>pH (pH Units) ±0.1</b>	7.27	6.79	6.72	6.72	6.72	6.72		
(DTB - DTW) x (πr <sup>2</sup> ) * 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: $\begin{array}{r} 3.900 \\ 1.167 \\ \hline 2.733 \end{array} \times 2 = 5.466$	<b>Cond. (µs/cm) 3%</b>	218.2	184.9	175.6	167.9	162.4	160.7			
	<b>Specific Cond. (µs/cm) 3%</b>	344.1	322.4	285.8	273.9	266.2	262.7			
	<b>Redox (mV) 10%</b>	-82.9	-86.3	-90.2	-92.3	-95.6	-98.0			
	<b>DO (mg/L) 10%</b>	1.48	0.41	0.84	1.75	1.98	2.00			
	<b>DO (%) 10%</b>	11.0	3.3	6.6	13.6	15.5	15.4			
	<b>Appearance &amp; Odour (Clear, Silty, HC odours, etc.)</b>		Turbid, no silty, no HC odours	silty	same	same	same	same		
	<b>Only for final readings</b>	<b>Sulphide (mg/L)</b>	/	/	/	/	/	0.04		
		<b>Turbidity (NTU)</b>	/	/	/	/	/	4.17		
		<b>Interval Purge Volume (L)</b>	/	1.4	1.3	1.0	1.2	1.3		
		<b>Cumulative Purge Volume (L):</b>	/	1.4	2.7	3.7	4.9	6.2		
<b>YSI ID</b>	MW09-08	<b>Sample Method:</b>								
<b>Logged Field Parameters</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>					
<b>Time logged on YSI (24hr)</b>	09:10		X							
<b>Sample Time (24hr)</b>	08:10 09:10									

Sample Site (Con't): MW09-08

Sample Date (Con't): 30 Aug-16 @ 09:10

Well Head Seal:  J-Plug  PVC Cap  Not Sealed  Other \_\_\_\_\_

Seal Replaced:  J-Plug  PVC Cap  Not required  Other \_\_\_\_\_

Well properly sealed for gas monitoring:  Yes  No Details: electrical tape around slits

**Head Space Gas Measurements**

	Units	Values
Methane (CH4)	%LEL	19
Oxygen (O2)	%	20.1
Carbon Dioxide (CO2)	PPM	4900 <del>5</del>

Priority	Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
1a	120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)	120	
1b	40 ml (glass)	Dissolved Mercury	15 mL	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HCL (Hydrochloric)	40	
2	500 ml (plastic)	General Chemistry	100 ml	-	-	500	
3	145 ml (plastic)	Cyanide (total, free, weak acid dissociable)	100 ml	-	<input checked="" type="checkbox"/> NaOH (Sodium Hydroxide)	145	
4	120 ml (glass)	Ammonia (NH3)	60 ml	-	<input checked="" type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> (Sulfuric)	120	
5	120 ml (plastic)	Thiocyanate (SCN)	50 ml	-	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)	120	
6	120 ml (glass amber)	Total Inorganic Carbon (TIC)	50 ml	-	-	120	

**General Notes and Observations:**

-ground spongy + saturated around well.

**Consumables Used:**

- 1/4" HDPE (peristaltic pump tubing) 0.5 ft
- 3/8" HDPE (microwaterra tubing) — ft
- 5/8" HDPE (waterra tubing) — ft
- 1/4" Silicon tubing 0.5 ft
- High Capacity .45 micron filters —
- D-25 (for 2" wells, use with 5/8") foot valves —
- D-16 (for 1" wells, use with 5/8") foot valves —
- SS-10 (for 5/8" wells, use with 3/8") foot valves —
- 1" bailer —
- 2" bailer —
- other (describe) —



# GROUNDWATER SAMPLE COLLECTION SHEET

<b>Sample Site</b>	MW09-11	<b>Project Number</b>	1343-005.28	<b>Date</b>	29-Aug-16	
<b>Piezometer Diameter</b>	2"	<b>Client</b>	GY - AAM	<b>Samplers</b>	ANIMM	
<b>UTM Location</b>	Z: 08, E: 0289039 N: 6880711	<b>Project Name</b>	Mount Nansen 2016 GW Sampling Program	<b>Weather/Temperature</b>	Rainy / overcast	
<b>Waypoint</b>	GPS: AN Name: N/A			<b>Recovery</b>	<input type="checkbox"/> Good <input type="checkbox"/> Bad	
<b>Photos</b>	Cam: 1 Nos: 0451-0453	<b>Purge Method</b>				
<b>Duplicate Collected</b>	<input type="checkbox"/> Yes Name: /	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>	
<b>Field Blank Collected</b>	<input type="checkbox"/> Yes Name: /					
<b>Initial Depth to Water (m)</b>	DRY	<b>Purge Start Time:</b>		<b>Purge End Time:</b>		
				<b>Pen or YSI:</b>	<input type="checkbox"/> YSI Pro Plus <input type="checkbox"/> Pen Unit	
<b>Depth to Bottom (m)</b>	4.930	<b>Purge Interval Time ( ) min / Vol. ( ) L</b>				
<b>Submerged Tubing Depth (m)</b>	/	<b>Depth to water (m)</b>				
<b>Well Stick-up Height (m)</b>	0.85	<b>Temperature (°C) 3%</b>				
<b>Estimated Water Volume (L)</b>		<b>pH (pH Units) ±0.1</b>				
<p>(DTB - DTW) x (πr<sup>2</sup>) * 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</p> <p>Calculations:</p>		<b>Cond. (µs/cm) 3%</b>				
			<b>Specific Cond. (µs/cm) 3%</b>			
			<b>Redox (mV) 10%</b>			
			<b>DO (mg/L) 10%</b>			
			<b>DO (%) 10%</b>			
			<b>Appearance &amp; Odour (Clear, Silty, HC odours, etc.)</b>			
			<b>Only for final readings</b>	<b>Sulphide (mg/L)</b>		
				<b>Turbidity (NTU)</b>		
			<b>Interval Purge Volume (L)</b>			
			<b>Cumulative Purge Volume (L):</b>			
<b>YSI ID</b>		<b>Sample Method:</b>				
<b>Logged Field Parameters</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>	
<b>Time logged on YSI (24hr)</b>	/					
<b>Sample Time (24hr)</b>	/					

Sample Site (Con't): MW09-11

Sample Date (Con't): 29 Aug-16

Well Head Seal:  J-Plug  PVC Cap  Not Sealed  Other \_\_\_\_\_

Seal Replaced:  J-Plug  PVC Cap  Not required  Other \_\_\_\_\_

Well properly sealed for gas monitoring:  Yes  No Details: slight PVC cap is covering slits.

**Head Space Gas Measurements**

	Units	Values
Methane (CH4)	%LEL	0
Oxygen (O2)	%	20.9
Carbon Dioxide (CO2)	PPM	1000

Priority	Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
1a	120 ml (plastic)	Dissolved Metals	100 ml	<input type="checkbox"/> Field Filtered	<input type="checkbox"/> HNO <sub>3</sub> (Nitric)	}	
1b	40 ml (glass)	Dissolved Mercury	15 mL	<input type="checkbox"/> Field Filtered	<input type="checkbox"/> HCL (Hydrochloric)		
2	500 ml (plastic)	General Chemistry	100 ml	-	-		
3	145 ml (plastic)	Cyanide (total, free, weak acid dissociable)	100 ml	-	<input type="checkbox"/> NaOH (Sodium Hydroxide)		
4	120 ml (glass)	Ammonia (NH3)	60 ml	-	<input type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> (Sulfuric)		
5	120 ml (plastic)	Thiocyanate (SCN)	50 ml	-	<input type="checkbox"/> HNO <sub>3</sub> (Nitric)		
6	120 ml (glass amber)	Total Inorganic Carbon (TIC)	50 ml	-	-		

**General Notes and Observations:**

- Dry @ 4.930 → sand found on the tip of water level tape → normally dry

**Consumables Used:**

- 1/4" HDPE (peristaltic pump tubing) \_\_\_\_\_ ft
- 3/8" HDPE (microwaterra tubing) \_\_\_\_\_ ft
- 5/8" HDPE (waterra tubing) \_\_\_\_\_ ft
- 1/4" Silicon tubing \_\_\_\_\_ ft
- High Capacity .45 micron filters \_\_\_\_\_
- D-25 (for 2" wells, use with 5/8" foot valves \_\_\_\_\_
- D-16 (for 1" wells, use with 5/8" foot valves \_\_\_\_\_
- SS-10 (for 5/8" wells, use with 3/8" foot valves \_\_\_\_\_
- 1" bailer \_\_\_\_\_
- 2" bailer \_\_\_\_\_
- other (describe) \_\_\_\_\_

# GROUNDWATER SAMPLE COLLECTION SHEET

<b>Sample Site</b>	MNO9-13	<b>Project Number</b>	1343-005.28	<b>Date</b>	29-Aug-16	
<b>Piezometer Diameter</b>	2"	<b>Client</b>	GY - AAM	<b>Samplers</b>	AN/MM	
<b>UTM Location</b>	Z: 0389006 N: 6881664	<b>Project Name</b>	Mount Nansen 2016 GW Sampling Program	<b>Weather/Temperature</b>	Sunny, 17°C, breezy	
<b>Waypoint</b>	GPS: AN Name: 099			<b>Recovery</b>	<input type="checkbox"/> Good <input type="checkbox"/> Bad	
<b>Photos</b>	Cam: 1 Nos: 0432-0434	<b>Purge Method</b>				
<b>Duplicate Collected</b>	<input type="checkbox"/> Yes Name:	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>	
<b>Field Blank Collected</b>	<input checked="" type="checkbox"/> Yes Name:					
<b>Initial Depth to Water (m)</b>	8.710 <sup>ice</sup> <del>8.710</del>	<b>Purge Start Time:</b>		<b>Purge End Time:</b>		
				<b>Pen or YSI:</b>	<input type="checkbox"/> YSI Pro Plus <input type="checkbox"/> Pen Unit	
<b>Depth to Bottom (m)</b>	N/A	<b>Purge Interval Time ( ) min / Vol. ( ) L</b>				
<b>Submerged Tubing Depth (m)</b>	N/A	<b>Depth to water (m)</b>				
<b>Well Stick-up Height (m)</b>	0.764	<b>Temperature (°C) 3%</b>				
<b>Estimated Water Volume (L)</b>	N/A	<b>pH (pH Units) ±0.1</b>				
<p>(DTB - DTW) x (πr<sup>2</sup>) * 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</p> <p>Calculations:</p>		<b>Cond. (µs/cm) 3%</b>				
			<b>Specific Cond. (µs/cm) 3%</b>			
			<b>Redox (mV) 10%</b>			
			<b>DO (mg/L) 10%</b>			
			<b>DO (%) 10%</b>			
			<b>Appearance &amp; Odour (Clear, Silty, HC odours, etc.)</b>			
			<b>Only for final readings</b>	<b>Sulphide (mg/L)</b>		
				<b>Turbidity (NTU)</b>		
			<b>Interval Purge Volume (L)</b>			
			<b>Cumulative Purge Volume (L):</b>			
<b>YSI ID</b>		<b>Sample Method:</b>				
<b>Logged Field Parameters</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>	
<b>Time logged on YSI (24hr)</b>						
<b>Sample Time (24hr)</b>						

Sample Site (Con't): MN09-13

Sample Date (Con't): 29 Aug - 15

Well Head Seal:  J-Plug  PVC Cap  Not Sealed  Other \_\_\_\_\_

Seal Replaced:  J-Plug  PVC Cap  Not required  Other \_\_\_\_\_

Well properly sealed for gas monitoring:  Yes  No Details: slits below cap in PVC

**Head Space Gas Measurements**

	Units	Values
Methane (CH4)	%LEL	0
Oxygen (O2)	%	20.3
Carbon Dioxide (CO2)	PPM	3500

Priority	Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
1a	120 ml (plastic)	Dissolved Metals	100 ml	<input type="checkbox"/> Field Filtered	<input type="checkbox"/> HNO <sub>3</sub> (Nitric)		
1b	40 ml (glass)	Dissolved Mercury	15 mL	<input type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HCL (Hydrochloric)		
2	500 ml (plastic)	General Chemistry	100 ml	-	-		
3	145 ml (plastic)	Cyanide (total, free, weak acid dissociable)	100 ml	-	<input type="checkbox"/> NaOH (Sodium Hydroxide)		
4	120 ml (glass)	Ammonia (NH <sub>3</sub> )	60 ml	-	<input type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> (Sulfuric)		
5	120 ml (plastic)	Thiocyanate (SCN)	50 ml	-	<input type="checkbox"/> HNO <sub>3</sub> (Nitric)		
6	120 ml (glass amber)	Total Inorganic Carbon (TIC)	50 ml	-	-		

**General Notes and Observations:**

~~possible obs~~  
 - frozen → ice @ 8.710 m → ice found on tip of water level tape. → no thawing attempt was made ~~due to possibly permafrost well~~ due to gas present thought that there may be water present under ice; unable to break through ice plug → possible permafrost well?

**Consumables Used:**

- 1/4" HDPE (peristaltic pump tubing) \_\_\_\_\_ ft
- 3/8" HDPE (microwaterra tubing) \_\_\_\_\_ ft
- 5/8" HDPE (waterra tubing) \_\_\_\_\_ ft
- 1/4" Silicon tubing \_\_\_\_\_ ft
- High Capacity .45 micron filters \_\_\_\_\_
- D-25 (for 2" wells, use with 5/8") foot valves \_\_\_\_\_
- D-16 (for 1" wells, use with 5/8") foot valves \_\_\_\_\_
- SS-10 (for 5/8" wells, use with 3/8") foot valves \_\_\_\_\_
- 1" bailer \_\_\_\_\_
- 2" bailer \_\_\_\_\_
- other (describe) \_\_\_\_\_

# GROUNDWATER SAMPLE COLLECTION SHEET

<b>Sample Site</b>	MW09-14	<b>Project Number</b>	1343-005.28	<b>Date</b>	29-Aug-16
<b>Piezometer Diameter</b>	2"	<b>Client</b>	GY - AAM	<b>Samplers</b>	AN / JM
<b>UTM Location</b>	Z: 08v E: 6389067 N: 6501663.	<b>Project Name</b>	Mount Nansen 2016 GW Sampling Program	<b>Weather/Temperature</b>	~4°C, Sunny / Dried
<b>Waypoint</b>	GPS: AN Name: 100			<b>Recovery</b>	<input type="checkbox"/> Good <input type="checkbox"/> Bad
<b>Photos</b>	Cam: 1 Nos: 0432-0434	<b>Purge Method</b>			
<b>Duplicate Collected</b>	<input type="checkbox"/> Yes Name:	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>
<b>Field Blank Collected</b>	<input type="checkbox"/> Yes Name:				
<b>Initial Depth to Water (m)</b>	6.835 ice	<b>Purge Start Time:</b>		<b>Purge End Time:</b>	
<b>Depth to Bottom (m)</b>	N/A	<b>Purge Interval Time ( ) min / Vol. ( ) L</b>			
<b>Submerged Tubing Depth (m)</b>	N/A	<b>Depth to water (m)</b>			
<b>Well Stick-up Height (m)</b>	0.744	<b>Temperature (°C) 3%</b>			
<b>Estimated Water Volume (L)</b>	N/A	<b>pH (pH Units) ±0.1</b>			
<p>Calculations:</p> <p>(DTB - DTW) x (πr<sup>2</sup>) * 1000 (for well diameter) = 1 well volume</p> <p>(DTB - DTW) x 8.1 (for 4" well diameter) = 1 well volume</p> <p>(DTB - DTW) x 2 (for 2" well diameter) = 1 well volume</p> <p>(DTB - DTW) x 1.1 (for 1.5" diameter) = 1 well volume</p> <p>(DTB - DTW) x 0.5 (for 1" diameter) = 1 well volume</p>	<b>Cond. (µs/cm) 3%</b>				
	<b>Specific Cond. (µs/cm) 3%</b>				
	<b>Redox (mV) 10%</b>				
	<b>DO (mg/L) 10%</b>				
	<b>DO (%) 10%</b>				
	<b>Appearance &amp; Odour (Clear, Silty, HC odours, etc.)</b>				
	<b>Only for final readings</b>	<b>Sulphide (mg/L)</b>			
		<b>Turbidity (NTU)</b>			
	<b>Interval Purge Volume (L)</b>				
	<b>Cumulative Purge Volume (L):</b>				
<b>YSI ID</b>		<b>Sample Method:</b>			
<b>Logged Field Parameters</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>
<b>Time logged on YSI (24hr)</b>					
<b>Sample Time (24hr)</b>					

Sample Site (Con't): MW09-14

Sample Date (Con't): 29-Aug-16

Well Head Seal:  J-Plug  PVC Cap  Not Sealed  Other \_\_\_\_\_

Seal Replaced:  J-Plug  PVC Cap  Not required  Other \_\_\_\_\_

Well properly sealed for gas monitoring:  Yes  No Details: \_\_\_\_\_

**Head Space Gas Measurements**

	Units	Values
Methane (CH4)	%LEL	0
Oxygen (O2)	%	26.7
Carbon Dioxide (CO2)	PPM	500

Priority	Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
1a	120 ml (plastic)	Dissolved Metals	100 ml	<input type="checkbox"/> Field Filtered	<input type="checkbox"/> HNO <sub>3</sub> (Nitric)		
1b	40 ml (glass)	Dissolved Mercury	15 mL	<input type="checkbox"/> Field Filtered	<input type="checkbox"/> HCL (Hydrochloric)		
2	500 ml (plastic)	General Chemistry	100 ml	-	-		
3	145 ml (plastic)	Cyanide (total, free, weak acid dissociable)	100 ml	-	<input type="checkbox"/> NaOH (Sodium Hydroxide)		
4	120 ml (glass)	Ammonia (NH3)	60 ml	-	<input type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> (Sulfuric)		
5	120 ml (plastic)	Thiocyanate (SCN)	50 ml	-	<input type="checkbox"/> HNO <sub>3</sub> (Nitric)		
6	120 ml (glass amber)	Total Inorganic Carbon (TIC)	50 ml	-	-		

**General Notes and Observations:**

- existing tubing frozen in well; ice @ 6.835m. → no drawing was attempted → possibly a permafrost well?

**Consumables Used:**

- 1/4" HDPE (peristaltic pump tubing) \_\_\_\_\_ ft
- 3/8" HDPE (microwaterra tubing) \_\_\_\_\_ ft
- 5/8" HDPE (waterra tubing) \_\_\_\_\_ ft
- 1/4" Silicon tubing \_\_\_\_\_ ft
- High Capacity .45 micron filters \_\_\_\_\_
- D-25 (for 2" wells, use with 5/8") foot valves \_\_\_\_\_
- D-16 (for 1" wells, use with 5/8") foot valves \_\_\_\_\_
- SS-10 (for 5/8" wells, use with 3/8") foot valves \_\_\_\_\_
- 1" bailer \_\_\_\_\_
- 2" bailer \_\_\_\_\_
- other (describe) \_\_\_\_\_

# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site	MW09-15	Project Number	1343-005. <del>27</del> 28	Date	Aug 29 2016
Piezometer Diameter	2"	Client	GY - AAM	Samplers	JC
UTM Location	Z: 08 E: 0388920 N: 6881724	Project Name	Mount Nansen 2016 GW Sampling Program	Weather/Temperature	10° Sunny
Waypoint	GPS: ELR Name: N/A			Recovery	<input type="checkbox"/> Good <input checked="" type="checkbox"/> Bad
Photos	Cam: ELR Nos: 0152-0154	Purge Method			
Duplicate Collected	<input type="checkbox"/> Yes Name: _____	Waterra	Peristaltic	Disp. Bailer	Other
Field Blank Collected	<input type="checkbox"/> Yes Name: _____	_____	_____	_____	_____
Initial Depth to <del>Water</del> <sup>Ice</sup> (m)	14.161	Purge Start Time:	_____	Purge End Time:	_____
		Pen or YSI:	<input type="checkbox"/> YSI Pro Plus <input checked="" type="checkbox"/> Pen Unit		
Depth to Bottom (m)	14.161 Frozen	Purge Interval Time ( ) min / Vol. ( ) L			
Submerged Tubing Depth (m)	_____	Depth to water (m)			
Well Stick-up Height (m)		Temperature (°C) 3%			
Estimated Water Volume (L)	_____	pH (pH Units) ±0.1			
Calculations: $(DTB - DTW) \times (\pi r^2) \times 1000$ (for well diameter) = 1 well volume $(DTB - DTW) \times 8.1$ (for 4" well diameter) = 1 well volume $(DTB - DTW) \times 2$ (for 2" well diameter) = 1 well volume $(DTB - DTW) \times 1.1$ (for 1.5" diameter) = 1 well volume $(DTB - DTW) \times 0.5$ (for 1" diameter) = 1 well volume		Cond. (µs/cm) 3%			
		Specific Cond. (µs/cm) 3%			
		Redox (mV) 10%			
		DO (mg/L) 10%			
		DO (%) 10%			
		Appearance & Odour (Clear, Silty, HC odours, etc.)			
		Only for final readings	Sulphide (mg/L)		
			Turbidity (NTU)		
		Interval Purge Volume (L)			
		Cumulative Purge Volume (L):			
YSI ID		Sample Method:			
Logged Field Parameters	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Waterra	Peristaltic	Disp. Bailer	Other
Time logged on YSI (24hr)	_____	_____	_____	_____	_____
Sample Time (24hr)		_____	_____	_____	_____

Sample Site (Con't): MW09-15

Sample Date (Con't): Aug 29 2016

Well Head Seal:  J-Plug  PVC Cap  Not Sealed  Other \_\_\_\_\_

Seal Replaced:  J-Plug  PVC Cap  Not required  Other \_\_\_\_\_

Well properly sealed for gas monitoring:  Yes  No Details: \_\_\_\_\_

**Head Space Gas Measurements**

	Units	Values
Methane (CH4)	%LEL	0
Oxygen (O2)	%	20.7
Carbon Dioxide (CO2)	PPM	300

Priority	Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
1a	120 ml (plastic)	Dissolved Metals	100 ml	<input type="checkbox"/> Field Filtered	<input type="checkbox"/> HNO <sub>3</sub> (Nitric)		
1b	40 ml (glass)	Dissolved Mercury	15 mL	<input type="checkbox"/> Field Filtered	<input type="checkbox"/> HCL (Hydrochloric)		
2	500 ml (plastic)	General Chemistry	100 ml	-	-		
3	145 ml (plastic)	Cyanide (total, free, weak acid dissociable)	100 ml	-	<input type="checkbox"/> NaOH (Sodium Hydroxide)		
4	120 ml (glass)	Ammonia (NH3)	60 ml	-	<input type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> (Sulfuric)		
5	120 ml (plastic)	Thiocyanate (SCN)	50 ml	-	<input type="checkbox"/> HNO <sub>3</sub> (Nitric)		
6	120 ml (glass amber)	Total Inorganic Carbon (TIC)	50 ml	-	-		

**General Notes and Observations:**

- well has 10cm of water above frozen ice  
 - did not sample standing water.

**Consumables Used:**

- 1/4" HDPE (peristaltic pump tubing) \_\_\_\_\_ ft
- 3/8" HDPE (microwaterra tubing) \_\_\_\_\_ ft
- 5/8" HDPE (waterra tubing) \_\_\_\_\_ ft
- 1/4" Silicon tubing \_\_\_\_\_ ft
- High Capacity .45 micron filters \_\_\_\_\_
- D-25 (for 2" wells, use with 5/8") foot valves \_\_\_\_\_
- D-16 (for 1" wells, use with 5/8") foot valves \_\_\_\_\_
- SS-10 (for 5/8" wells, use with 3/8") foot valves \_\_\_\_\_
- 1" bailer \_\_\_\_\_
- 2" bailer \_\_\_\_\_
- other (describe) \_\_\_\_\_



# GROUNDWATER SAMPLE COLLECTION SHEET

<b>Sample Site</b>	MW09-16	<b>Project Number</b>	1343-005.20	<b>Date</b>	29-Aug-16	
<b>Piezometer Diameter</b>	2"	<b>Client</b>	GY - AAM	<b>Samplers</b>	AN/MM	
<b>UTM Location</b>	Z08v E: 0387991 N: 6081095	<b>Project Name</b>	Mount Nansen 2016 GW Sampling Program	<b>Weather/Temperature</b>	Sunny	
<b>Waypoint</b>	GPS: AN Name: 097			<b>Recovery</b>	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad	
<b>Photos</b>	Cam: 1 Nos: 0424-0426	<b>Purge Method</b>				
<b>Duplicate Collected</b>	<input checked="" type="checkbox"/> Yes Name: Dup-1	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>	
<b>Field Blank Collected</b>	<input checked="" type="checkbox"/> Yes Name: FB-1		X			
<b>Initial Depth to Water (m)</b>	1.922	<b>Purge Start Time:</b>	11:07	<b>Purge End Time:</b>		
<b>Depth to Bottom (m)</b>	2.730	<b>Purge Interval Time ( 5 ) min / Vol. ( ) L</b>	11:09	11:14	11:19	
<b>Submerged Tubing Depth (m)</b>	~2.5	<b>Depth to water (m)</b>	1.922	1.922	1.922	
<b>Well Stick-up Height (m)</b>	1.389	<b>Temperature (°C) 3%</b>	6.9	6.5	6.6	
<b>Estimated Water Volume (L)</b>	1.6	<b>pH (pH Units) ±0.1</b>	6.77	6.65	6.63	
<p>(DTB - DTW) x (πr<sup>2</sup>) * 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</p> <p>Calculations:  <math>\frac{2.530 - 1.922}{0.808} \times 2 = 1.616</math></p>	<b>Cond. (µs/cm) 3%</b>	1089	1079	1084	1086	
	<b>Specific Cond. (µs/cm) 3%</b>	1664	1670	1673	1674	
	<b>Redox (mV) 10%</b>	163.6	144.2	160.1	169.4	
	<b>DO (mg/L) 10%</b>	3.96	2.82	2.56	2.30	
	<b>DO (%) 10%</b>	31.7	23.0	21.0	18.8	
	<b>Appearance &amp; Odour (Clear, Silty, HC odours, etc.)</b>	Clear	same	same	same	
	<b>Only for final readings</b>	<b>Sulphide (mg/L)</b>	/	/	/	0.01
		<b>Turbidity (NTU)</b>	/	/	/	0.17
	<b>Interval Purge Volume (L)</b>	/	1.65	1.65	1.65	
	<b>Cumulative Purge Volume (L):</b>	/	1.65	2.3	3.95	
<b>YSI ID</b>	MW09-16	<b>Sample Method:</b>				
<b>Logged Field Parameters</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>	
<b>Time logged on YSI (24hr)</b>	11:05		X			
<b>Sample Time (24hr)</b>	11:25					

Sample Site (Con't): MW09-16

Sample Date (Con't): 29-Aug-16

Well Head Seal:  J-Plug  PVC Cap  Not Sealed  Other \_\_\_\_\_

Seal Replaced:  J-Plug  PVC Cap  Not required  Other \_\_\_\_\_

Well properly sealed for gas monitoring:  Yes  No Details: slits, cap was covering slits.

**Head Space Gas Measurements**

	Units	Values
Methane (CH4)	%LEL	0
Oxygen (O2)	%	24.97
Carbon Dioxide (CO2)	PPM	1900

Priority	Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
1a	120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)	120	
1b	40 ml (glass)	Dissolved Mercury	15 mL	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HCL (Hydrochloric)	40	
2	500 ml (plastic)	General Chemistry	100 ml	-	-	500	
3	145 ml (plastic)	Cyanide (total, free, weak acid dissociable)	100 ml	-	<input checked="" type="checkbox"/> NaOH (Sodium Hydroxide)	145	
4	120 ml (glass)	Ammonia (NH3)	60 ml	-	<input checked="" type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> (Sulfuric)	120	
5	120 ml (plastic)	Thiocyanate (SCN)	50 ml	-	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)	120	
6	120 ml (glass amber)	Total Inorganic Carbon (TIC)	50 ml	-	-	120	

**General Notes and Observations:**

- very good recharge.
- slight breeze while taking ~~5~~ FB.
- no obvious signs of contamination.
- used DI water provided by ALS. Batch: 25 AUG 2016.

**Consumables Used:**

- 1/4" HDPE (peristaltic pump tubing) 2.5 ft
- 3/8" HDPE (microwaterra tubing) \_\_\_\_\_ ft
- 5/8" HDPE (waterra tubing) \_\_\_\_\_ ft
- 1/4" Silicon tubing 25 ft
- High Capacity .45 micron filters \_\_\_\_\_
- D-25 (for 2" wells, use with 5/8") foot valves \_\_\_\_\_
- D-16 (for 1" wells, use with 5/8") foot valves \_\_\_\_\_
- SS-10 (for 5/8" wells, use with 3/8") foot valves \_\_\_\_\_
- 1" bailer \_\_\_\_\_
- 2" bailer \_\_\_\_\_
- other (describe) \_\_\_\_\_

# GROUNDWATER SAMPLE COLLECTION SHEET

<b>Sample Site</b>	MW09-17	<b>Project Number</b>	1343-005 <del>27</del> 28	<b>Date</b>	Aug 29 2016
<b>Piezometer Diameter</b>	2"	<b>Client</b>	GY - AAM	<b>Samplers</b>	SC/NB
<b>UTM Location</b>	Z: 08 E: 0388073 N: 6880972	<b>Project Name</b>	Mount Nansen 2016 GW Sampling Program	<b>Weather/Temperature</b>	9° Sunny
<b>Waypoint</b>	GPS: ECR Name: MIA			<b>Recovery</b>	<input type="checkbox"/> Good <input checked="" type="checkbox"/> Bad
<b>Photos</b>	Cam: ECR Nos: 0137-0140	<b>Purge Method</b>			
<b>Duplicate Collected</b>	<input checked="" type="checkbox"/> Yes Name:	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>
<b>Field Blank Collected</b>	<input type="checkbox"/> Yes Name:				
<b>Initial Depth to Water (m)</b>	5.725	<b>Purge Start Time:</b>		<b>Purge End Time:</b>	
				<b>Pen or YSI:</b>	<input type="checkbox"/> YSI Pro Plus <input type="checkbox"/> Pen Unit
<b>Depth to Bottom (m)</b>	5.725 bentonite	<b>Purge Interval Time ( ) min / Vol. ( ) L</b>			
<b>Submerged Tubing Depth (m)</b>	-	<b>Depth to water (m)</b>			
<b>Well Stick-up Height (m)</b>	-	<b>Temperature (°C) 3%</b>			
<b>Estimated Water Volume (L)</b>	-	<b>pH (pH Units) ±0.1</b>			
<p>(DTB - DTW) x (πr<sup>2</sup>) * 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</p> <p>Calculations:</p>	<b>Cond. (µs/cm) 3%</b>				
	<b>Specific Cond. (µs/cm) 3%</b>				
	<b>Redox (mV) 10%</b>				
	<b>DO (mg/L) 10%</b>				
	<b>DO (%) 10%</b>				
	<b>Appearance &amp; Odour (Clear, Silty, HC odours, etc.)</b>				
	<b>Only for final readings</b>	<b>Sulphide (mg/L)</b>			
		<b>Turbidity (NTU)</b>			
	<b>Interval Purge Volume (L)</b>				
	<b>Cumulative Purge Volume (L):</b>				
<b>YSI ID</b>		<b>Sample Method:</b>			
<b>Logged Field Parameters</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>
<b>Time logged on YSI (24hr)</b>					
<b>Sample Time (24hr)</b>					

Well clogged w/ Bentonite. Cannot sample.

Sample Site (Con't): MWD9 - 17

Sample Date (Con't): Aug 29 2016

Well Head Seal:  J-Plug  PVC Cap  Not Sealed  Other \_\_\_\_\_

Seal Replaced:  J-Plug  PVC Cap  Not required  Other \_\_\_\_\_

Well properly sealed for gas monitoring:  Yes  No Details: \_\_\_\_\_

**Head Space Gas Measurements**

	Units	Values
Methane (CH4)	%LEL	0
Oxygen (O2)	%	4.2
Carbon Dioxide (CO2)	PPM	427

Priority	Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
1a	120 ml (plastic)	Dissolved Metals	100 ml	<input type="checkbox"/> Field Filtered	<input type="checkbox"/> HNO <sub>3</sub> (Nitric)		
1b	40 ml (glass)	Dissolved Mercury	15 mL	<input type="checkbox"/> Field Filtered	<input type="checkbox"/> HCL (Hydrochloric)		
2	500 ml (plastic)	General Chemistry	100 ml	-	-		
3	145 ml (plastic)	Cyanide (total, free, weak acid dissociable)	100 ml	-	<input type="checkbox"/> NaOH (Sodium Hydroxide)		
4	120 ml (glass)	Ammonia (NH3)	60 ml	-	<input type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> (Sulfuric)		
5	120 ml (plastic)	Thiocyanate (SCN)	50 ml	-	<input type="checkbox"/> HNO <sub>3</sub> (Nitric)		
6	120 ml (glass amber)	Total Inorganic Carbon (TIC)	50 ml	-	-		

**General Notes and Observations:**

- Well clogged w/ Bentonite (Pic 0141-0142) @ 5.725 m cannot be sampled.

**Consumables Used:**

- 1/4" HDPE (peristaltic pump tubing) \_\_\_\_\_ ft
- 3/8" HDPE (microwaterra tubing) \_\_\_\_\_ ft
- 5/8" HDPE (waterra tubing) \_\_\_\_\_ ft
- 1/4" Silicon tubing \_\_\_\_\_ ft
- High Capacity .45 micron filters \_\_\_\_\_
- D-25 (for 2" wells, use with 5/8") foot valves \_\_\_\_\_
- D-16 (for 1" wells, use with 5/8") foot valves \_\_\_\_\_
- SS-10 (for 5/8" wells, use with 3/8") foot valves \_\_\_\_\_
- 1" bailer \_\_\_\_\_
- 2" bailer \_\_\_\_\_
- other (describe) \_\_\_\_\_

# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site	MW09-18	Project Number	1343-005 <del>28</del> 28	Date	Aug 29 2016	
Piezometer Diameter	2"	Client	GY - AAM	Samplers	Sc NB	
UTM Location	Z: 08 E: 6788054 N: 6880984	Project Name	Mount Nansen 2016 GW Sampling Program	Weather/Temperature	100 Overcast	
Waypoint	GPS: ELR Name: N/A			Recovery	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad	
Photos	Cam: ECR Nos: 0143-0145	Purge Method				
Duplicate Collected	<input type="checkbox"/> Yes Name:	Waterra	Peristaltic	Disp. Bailer	Other	
Field Blank Collected	<input type="checkbox"/> Yes Name:		✓			
Initial Depth to Water (m)	<del>3.4</del> 4.48 4.460	Purge Start Time:	12:29	Purge End Time:	12:42	
Depth to Bottom (m)	<del>7.803</del> 7.794	Purge Interval Time (3) min / Vol. (0.5) L	12:31	12:34	12:37	
Submerged Tubing Depth (m)	7.550	Depth to water (m)	4.465	same	same	
Well Stick-up Height (m)	0.88	Temperature (°C) 3%	2.0	1.7	1.7	
Estimated Water Volume (L)	6.6L	pH (pH Units) ±0.1	6.91	6.88	6.89	
Calculations: (DTB - DTW) x (πr <sup>2</sup> * 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	Conductivity (µs/cm) 3%	1556	1579	1590	1590	
	Specific Cond. (µs/cm) 3%	2773	2849	2861	2874	
	Redox (mV) 10%	35.9	39.3	40.1	38.7	
	DO (mg/L) 10%	0.43	0.15	0.13	0.15	
	DO (%) 10%	2.8	1.0	0.9	1.0	
	Appearance & Odour (Clear, Silty, HC odours, etc.)	Brown Reddish	clear	clear	clear	
	Only for final readings	Sulphide (mg/L)	-	-	-	0.01
	Turbidity (NTU)	-	-	-	7.07	
	Interval Purge Volume (L)	0.5	0.5	0.5	0.5	
	Cumulative Purge Volume (L):	0.5	1.00	1.5	2.0	
YSI ID	02491 Pine	Sample Method:				
Logged Field Parameters	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Waterra	Peristaltic	Disp. Bailer	Other	
Time logged on YSI (24hr)	12:43		✓			
Sample Time (24hr)	12:35					

Sample Site (Con't): MW09-18

Sample Date (Con't): Aug 29 2016

Well Head Seal:  J-Plug  PVC Cap  Not Sealed  Other \_\_\_\_\_

Seal Replaced:  J-Plug  PVC Cap  Not required  Other \_\_\_\_\_

Well properly sealed for gas monitoring:  Yes  No Details: \_\_\_\_\_

**Head Space Gas Measurements**

	Units	Values
Methane (CH4)	%LEL	0
Oxygen (O2)	%	20.9
Carbon Dioxide (CO2)	PPM	800

Priority	Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
1a	120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)	120	-
1b	40 ml (glass)	Dissolved Mercury	15 mL	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HCL (Hydrochloric)	40	-
2	500 ml (plastic)	General Chemistry	100 ml	-	-	500	-
3	145 ml (plastic)	Cyanide (total, free, weak acid dissociable)	100 ml	-	<input checked="" type="checkbox"/> NaOH (Sodium Hydroxide)	145	-
4	120 ml (glass)	Ammonia (NH3)	60 ml	-	<input checked="" type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> (Sulfuric)	120	-
5	120 ml (plastic)	Thiocyanate (SCN)	50 ml	-	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)	120	-
6	120 ml (glass amber)	Total Inorganic Carbon (TIC)	50 ml	-	-	120	-

**General Notes and Observations:**

- Full parameters + Full sample set

**Consumables Used:**

- 1/4" HDPE (peristaltic pump tubing) \_\_\_\_\_ ft
- 3/8" HDPE (microwaterra tubing) \_\_\_\_\_ ft
- 5/8" HDPE (waterra tubing) \_\_\_\_\_ ft
- 1/4" Silicon tubing 0.5 ft
- High Capacity .45 micron filters \_\_\_\_\_
- D-25 (for 2" wells, use with 5/8") foot valves \_\_\_\_\_
- D-16 (for 1" wells, use with 5/8") foot valves \_\_\_\_\_
- SS-10 (for 5/8" wells, use with 3/8") foot valves \_\_\_\_\_
- 1" bailer \_\_\_\_\_
- 2" bailer \_\_\_\_\_
- other (describe) \_\_\_\_\_

# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site	MW09-19	Project Number	1343-005 <del>22</del> 28	Date	Aug 29 2016				
Piezometer Diameter	2"	Client	GY - AAM	Samplers	SC NB				
UTM Location	Z: 08 E: 6388048 N: 6881019	Project Name	Mount Nansen 2016 GW Sampling Program	Weather/Temperature	80 <del>at Mount Overcast</del>				
Waypoint	GPS: ELR Name: NA			Recovery	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad				
Photos	Cam: ELR Nos: 0146 - 0148	Purge Method							
Duplicate Collected	<input checked="" type="checkbox"/> Yes Name:	Waterra	Peristaltic	Disp. Bailer	Other				
Field Blank Collected	<input checked="" type="checkbox"/> Yes Name:		✓						
Initial Depth to Water (m)	2.400	Purge Start Time:	13:28	Purge End Time:	13:50				
				Pen or YSI:	<input checked="" type="checkbox"/> YSI Pro Plus <input type="checkbox"/> Pen Unit				
Depth to Bottom (m)	5.900	Purge Interval Time (3) min / Vol. (0.5) L	13:31	13:34	13:37	13:40	13:43	13:46	13:49
Submerged Tubing Depth (m)	5.750	Depth to water (m)	2.726	2.778	2.837	2.874	2.896	2.902	2.912
Well Stick-up Height (m)	0.99	Temperature (°C) 3%	3.9	4.4	4.3	4.1	4.2	4.2	4.1
Estimated Water Volume (L)	7.00L	pH (pH Units) ±0.1	6.84	6.79	6.75	6.76	6.76	6.76	6.75
Calculations: (DTB - DTW) x (πr <sup>2</sup> ) 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) 3%	1323	1343	1341	1347	1357	1359	1360	
	Specific Cond. (µs/cm) 3%	2218	2214	2220	2239	2255	2261	2268	
	Redox (mV) 10%	7.2	-3.2	-15.2	-214	24.5	-27.1	-29.0	
	DO (mg/L) 10%	0.14	0.13	0.16	0.16	0.25	0.36	0.28	
	DO (%) 10%	1.0	1.0	1.0	1.2	1.9	2.7	2.0	
	Appearance & Odour (Clear, Silty, HC odours, etc.)	Clear	Slightly turbid	clear	clear	clear	clear	clear	
	Only for final readings	Sulphide (mg/L)	-	-	-	-	-	-	0.15
	Turbidity (NTU)	-	-	-	-	-	-	-	2.57
	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 ID	028981 Pine	Sample Method:							
Logged Field Parameters	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Waterra	Peristaltic	Disp. Bailer	Other				
Time logged on YSI (24hr)	13:49		✓						
Sample Time (24hr)	13:45		✓						

Sample Site (Con't): MWD9-19

Sample Date (Con't): Aug 29 2016

Well Head Seal:  J-Plug  PVC Cap  Not Sealed  Other \_\_\_\_\_

Seal Replaced:  J-Plug  PVC Cap  Not required  Other \_\_\_\_\_

Well properly sealed for gas monitoring:  Yes  No Details: \_\_\_\_\_

**Head Space Gas Measurements**

	Units	Values
Methane (CH4)	%LEL	0
Oxygen (O2)	%	20.9
Carbon Dioxide (CO2)	PPM	300

Priority	Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
1a	120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)	120	—
1b	40 ml (glass)	Dissolved Mercury	15 mL	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HCL (Hydrochloric)	40	—
2	500 ml (plastic)	General Chemistry	100 ml	-	-	500	—
3	145 ml (plastic)	Cyanide (total, free, weak acid dissociable)	100 ml	-	<input checked="" type="checkbox"/> NaOH (Sodium Hydroxide)	145	—
4	120 ml (glass)	Ammonia (NH3)	60 ml	-	<input checked="" type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> (Sulfuric)	120	—
5	120 ml (plastic)	Thiocyanate (SCN)	50 ml	-	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)	120	—
6	120 ml (glass amber)	Total Inorganic Carbon (TIC)	50 ml	-	-	120	—

**General Notes and Observations:**

Full parameters + full sample set

**Consumables Used:**

- 1/4" HDPE (peristaltic pump tubing) 22 ft
- 3/8" HDPE (microwaterra tubing) — ft
- 5/8" HDPE (waterra tubing) — ft
- 1/4" Silicon tubing 0.5 ft
- High Capacity .45 micron filters —
- D-25 (for 2" wells, use with 5/8") foot valves —
- D-16 (for 1" wells, use with 5/8") foot valves —
- SS-10 (for 5/8" wells, use with 3/8") foot valves —
- 1" bailer —
- 2" bailer —
- other (describe) —



# GROUNDWATER SAMPLE COLLECTION SHEET

<b>Sample Site</b>	MW09-20	<b>Project Number</b>	1343-005.28	<b>Date</b>	29-Aug-16
<b>Piezometer Diameter</b>	2"	<b>Client</b>	GY - AAM	<b>Samplers</b>	AN/MM
<b>UTM Location</b>	Z: 08J E: 0389571 N: 6880587	<b>Project Name</b>	Mount Nansen 2016 GW Sampling Program	<b>Weather/Temperature</b>	Sunny
<b>Waypoint</b>	GPS: 4N Name: N/A			<b>Recovery</b>	<input type="checkbox"/> Good <input type="checkbox"/> Bad
<b>Photos</b>	Cam: 1 Nos: 0457-0459.	<b>Purge Method</b>			
<b>Duplicate Collected</b>	<input type="checkbox"/> Yes Name:	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>
<b>Field Blank Collected</b>	<input type="checkbox"/> Yes Name:				
<b>Initial Depth to Water (m)</b>	3.690 twice	<b>Purge Start Time:</b>		<b>Purge End Time:</b>	
<b>Depth to Bottom (m)</b>	FROZEN	<b>Pen or YSI:</b>	<input type="checkbox"/> YSI Pro Plus	<input type="checkbox"/> Pen Unit	
<b>Submerged Tubing Depth (m)</b>		<b>Purge Interval Time ( ) min / Vol. ( ) L</b>			
<b>Well Stick-up Height (m)</b>	6.925	<b>Depth to water (m)</b>			
<b>Estimated Water Volume (L)</b>		<b>Temperature (°C) 3%</b>			
(DTB - DTW) x (πr <sup>2</sup> ) 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:		<b>pH (pH Units) ±0.1</b>			
		<b>Cond. (µs/cm) 3%</b>			
		<b>Specific Cond. (µs/cm) 3%</b>			
		<b>Redox (mV) 10%</b>			
		<b>DO (mg/L) 10%</b>			
		<b>DO (%) 10%</b>			
		<b>Appearance &amp; Odour (Clear, Silty, HC odours, etc.)</b>			
		<b>Only for final readings</b>	<b>Sulphide (mg/L)</b>		
			<b>Turbidity (NTU)</b>		
		<b>Interval Purge Volume (L)</b>			
	<b>Cumulative Purge Volume (L):</b>				
<b>YSI ID</b>		<b>Sample Method:</b>			
<b>Logged Field Parameters</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>
<b>Time logged on YSI (24hr)</b>					
<b>Sample Time (24hr)</b>					

Sample Site (Con't): MW09-20

 Sample Date (Con't): 09-Aug-16

 Well Head Seal:  J-Plug  PVC Cap  Not Sealed  Other \_\_\_\_\_

 Seal Replaced:  J-Plug  PVC Cap  Not required  Other \_\_\_\_\_

 Well properly sealed for gas monitoring:  Yes  No Details: electrical tape covering SHS.
**Head Space Gas Measurements**

	Units	Values
Methane (CH4)	%LEL	0
Oxygen (O2)	%	20.9
Carbon Dioxide (CO2)	PPM	1400

Priority	Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
1a	120 ml (plastic)	Dissolved Metals	100 ml	<input type="checkbox"/> Field Filtered	<input type="checkbox"/> HNO <sub>3</sub> (Nitric)		
1b	40 ml (glass)	Dissolved Mercury	15 mL	<input type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HCL (Hydrochloric)		
2	500 ml (plastic)	General Chemistry	100 ml	-	-		
3	145 ml (plastic)	Cyanide (total, free, weak acid dissociable)	100 ml	-	<input type="checkbox"/> NaOH (Sodium Hydroxide)		
4	120 ml (glass)	Ammonia (NH <sub>3</sub> )	60 ml	-	<input type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> (Sulfuric)		
5	120 ml (plastic)	Thiocyanate (SCN)	50 ml	-	<input type="checkbox"/> HNO <sub>3</sub> (Nitric)		
6	120 ml (glass amber)	Total Inorganic Carbon (TIC)	50 ml	-	-		

**General Notes and Observations:**

Ice @ 3.690 m → well historically frozen → permafrost well?

**Consumables Used:**

- 1/4" HDPE (peristaltic pump tubing) \_\_\_\_\_ ft
- 3/8" HDPE (microwaterra tubing) \_\_\_\_\_ ft
- 5/8" HDPE (waterra tubing) \_\_\_\_\_ ft
- 1/4" Silicon tubing \_\_\_\_\_ ft
- High Capacity .45 micron filters \_\_\_\_\_
- D-25 (for 2" wells, use with 5/8") foot valves \_\_\_\_\_
- D-16 (for 1" wells, use with 5/8") foot valves \_\_\_\_\_
- SS-10 (for 5/8" wells, use with 3/8") foot valves \_\_\_\_\_
- 1" bailer \_\_\_\_\_
- 2" bailer \_\_\_\_\_
- other (describe) \_\_\_\_\_

# GROUNDWATER SAMPLE COLLECTION SHEET

<b>Sample Site</b>		MNO9-21		<b>Project Number</b>		1343-00527.28		<b>Date</b>		30-Aug-16			
<b>Piezometer Diameter</b>		2"		<b>Client</b>		GY - AAM		<b>Samplers</b>		AN/MM			
<b>UTM Location</b>		Z: 08 E: 0389536 N: 6880578		<b>Project Name</b>		Mount Nansen 2016 GW Sampling Program		<b>Weather/Temperature</b>		sunny			
<b>Waypoint</b>		GPS: AN Name: N/A		<b>Purge Method</b>				<b>Recovery</b>		<input type="checkbox"/> Good <input type="checkbox"/> Bad <span style="float: right;">shay</span>			
<b>Photos</b>		Cam: 1 Nos: 0464-0466		<b>Waterra</b>				<b>Peristaltic</b>					
<b>Duplicate Collected</b>		<input type="checkbox"/> Yes Name:		<b>Disp. Bailer</b>				<b>Other</b>					
<b>Field Blank Collected</b>		<input type="checkbox"/> Yes Name:											
<b>Initial Depth to Water (m)</b>		1.704		<b>Purge Start Time:</b>		11:17		<b>Purge End Time:</b>		11:53			
				<b>Pen or YSI:</b>				<input checked="" type="checkbox"/> YSI Pro Plus		<input type="checkbox"/> Pen Unit			
<b>Depth to Bottom (m)</b>		3.603		<b>Purge Interval Time (5) min / Vol. ( ) L</b>		11:18		11:23		11:28			
<b>Submerged Tubing Depth (m)</b>		~3.0		<b>Depth to water (m)</b>		/		1.785		1.760			
<b>Well Stick-up Height (m)</b>		0.740		<b>Temperature (°C) 3%</b>		4.6		4.9		5.0			
<b>Estimated Water Volume (L)</b>		3.6		<b>pH (pH Units) ±0.1</b>		7.03		6.80		6.79			
<p>(DTB - DTW) x (πr<sup>2</sup>) 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</p> <p>Calculations:  <math display="block">\begin{array}{r} 2.15 \\ 3.403 \\ 1.704 \\ \hline 1.809 \end{array} \times 2 = 3.618</math></p>		<b>Cond. (µs/cm) 3%</b>		903		955		987		1039			
		<b>Specific Cond. (µs/cm) 3%</b>		1480		1551		1598		1695		1738	
		<b>Redox (mV) 10%</b>		21.6		19.8		8.7		-8.4		-16.4	
		<b>DO (mg/L) 10%</b>		1.95		0.39		0.30		0.40		0.75	
		<b>DO (%) 10%</b>		14.4		3.0		0.3		3.2		5.9	
		<b>Appearance &amp; Odour (Clear, Silty, HC odours, etc.)</b>		weird purple/blue tinge		same		same		same		same	
		<b>Only for final readings</b>		<b>Sulphide (mg/L)</b>		/		/		/		/	
				<b>Turbidity (NTU)</b>		/		/		/		/	
				<b>Interval Purge Volume (L)</b>		/		0.8		1.0		0.7	
				<b>Cumulative Purge Volume (L):</b>		/		1.0		1.8		2.5	
<b>YSI ID</b>		MNO9-21		<b>Sample Method:</b>									
<b>Logged Field Parameters</b>		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<b>Waterra</b>				<b>Peristaltic</b>					
<b>Time logged on YSI (24hr)</b>		11:54		<b>Disp. Bailer</b>				<b>Other</b>					
<b>Sample Time (24hr)</b>		11:55											



Sample Site (Con't): MW09-21

Sample Date (Con't): 30-Aug-16

Well Head Seal:  J-Plug  PVC Cap  Not Sealed  Other \_\_\_\_\_

Seal Replaced:  J-Plug  PVC Cap  Not required  Other \_\_\_\_\_

Well properly sealed for gas monitoring:  Yes  No Details: transducer preventing cap from sitting properly.

**Head Space Gas Measurements**

	Units	Values
Methane (CH4)	%LEL	0
Oxygen (O2)	%	20.7
Carbon Dioxide (CO2)	PPM	300

Priority	Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
1a	120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)		
1b	40 ml (glass)	Dissolved Mercury	15 mL	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HCL (Hydrochloric)		
2	500 ml (plastic)	General Chemistry	100 ml	-	-		
3	145 ml (plastic)	Cyanide (total, free, weak acid dissociable)	100 ml	-	<input checked="" type="checkbox"/> NaOH (Sodium Hydroxide)		
4	120 ml (glass)	Ammonia (NH3)	60 ml	-	<input checked="" type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> (Sulfuric)		
5	120 ml (plastic)	Thiocyanate (SCN)	50 ml	-	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)		
6	120 ml (glass amber)	Total Inorganic Carbon (TIC)	50 ml	-	-		

**General Notes and Observations:**

~~the~~ a ~~trans~~ transducer is present in <sup>the</sup> well; it was left in during sample.

**Consumables Used:**

- 1/4" HDPE (peristaltic pump tubing) 3.5 ft
- 3/8" HDPE (microwaterra tubing)      ft
- 5/8" HDPE (waterra tubing)      ft
- 1/4" Silicon tubing 0.5 ft
- High Capacity .45 micron filters
- D-25 (for 2" wells, use with 5/8" foot valves)
- D-16 (for 1" wells, use with 5/8" foot valves)
- SS-10 (for 5/8" wells, use with 3/8" foot valves)
- 1" bailer
- 2" bailer
- other (describe)

# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site	MW09-22	Project Number	1343-005.28	Date	Aug 29 2016	
Piezometer Diameter	2"	Client	GY - AAM	Samplers	3C / NB	
UTM Location	Z:08 E:0389496 N:6880549	Project Name	Mount Nansen 2016 GW Sampling Program	Weather/Temperature	8° Cloudy	
Waypoint	GPS: ELR Name: NA			Recovery	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad	
Photos	Cam: ELR2 Nos: 0158 - 0160	Purge Method				
Duplicate Collected	<input type="checkbox"/> Yes - Name: _____	Waterra	Peristaltic	Disp. Bailer	Other	
Field Blank Collected	<input type="checkbox"/> Yes - Name: _____		✓			
Initial Depth to Water (m)	4.224	Purge Start Time:	16:54	Purge End Time:	17:00	
				Pen or YSI:	<input checked="" type="checkbox"/> YSI Pro Plus <input type="checkbox"/> Pen Unit	
Depth to Bottom (m)	5.299	Purge Interval Time (3) min / Vol. ( ) L	17:01	17:04	17:08	
Submerged Tubing Depth (m)	5.1	Depth to water (m)	4.544	4.586	4.628	
Well Stick-up Height (m)	0.87	Temperature (°C) 3%	4.4	4.7	4.5	
Estimated Water Volume (L)	2 L	pH (pH Units) ±0.1	6.61	6.52	6.47	
Calculations: (DTB - DTW) x (πr <sup>2</sup> ) 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) 3%	402.8	398.0	397.0	395.6	
	Specific Cond. (µs/cm) 3%	660.0	656.4	652.5	654.1	
	Redox (mV) 10%	6.1	8.1	9.7	9.9	
	DO (mg/L) 10%	0.60	0.62	0.56	0.55	
	DO (%) 10%	4.8	4.6	4.4	4.2	
	Appearance & Odour (Clear, Silty, HC odours, etc.)	Clear Red.	Silty Red	Silty Red	Same	
	Only for final readings	Sulphide (mg/L)	-	-	-	0.08
	Turbidity (NTU)	-	-	-	-	21.3
	Interval Purge Volume (L)	0.3	0.1	0.3	0.4	
	Cumulative Purge Volume (L):	0.3	0.4	0.7	1.1	
YSI ID	Pine 023981	Sample Method:				
Logged Field Parameters	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Waterra	Peristaltic	Disp. Bailer	Other	
Time logged on YSI (24hr)	17:19		✓			
Sample Time (24hr)	17:20					

Sample Site (Con't): MW09-22

Sample Date (Con't): Aug 29 2016

Well Head Seal:  J-Plug  PVC Cap  Not Sealed  Other \_\_\_\_\_

Seal Replaced:  J-Plug  PVC Cap  Not required  Other \_\_\_\_\_

Well properly sealed for gas monitoring:  Yes  No Details: \_\_\_\_\_

**Head Space Gas Measurements**

	Units	Values
Methane (CH <sub>4</sub> )	%LEL	0
Oxygen (O <sub>2</sub> )	%	20.9
Carbon Dioxide (CO <sub>2</sub> )	PPM	400

Priority	Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
1a	120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)	120	
1b	40 ml (glass)	Dissolved Mercury	15 mL	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HCL (Hydrochloric)	40	
2	500 ml (plastic)	General Chemistry	100 ml	-	-	500	
3	145 ml (plastic)	Cyanide (total, free, weak acid dissociable)	100 ml	-	<input checked="" type="checkbox"/> NaOH (Sodium Hydroxide)	145	
4	120 ml (glass)	Ammonia (NH <sub>3</sub> )	60 ml	-	<input checked="" type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> (Sulfuric)	120	
5	120 ml (plastic)	Thiocyanate (SCN)	50 ml	-	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)	120	
6	120 ml (glass amber)	Total Inorganic Carbon (TIC)	50 ml	-	-	120	

**General Notes and Observations:**

Well has slow recharge but is able to produce for full parameters + full sample set

**Consumables Used:**

- 1/4" HDPE (peristaltic pump tubing) 2 ft
- 3/8" HDPE (microwaterra tubing) \_\_\_\_\_ ft
- 5/8" HDPE (waterra tubing) \_\_\_\_\_ ft
- 1/4" Silicon tubing \_\_\_\_\_ ft
- High Capacity .45 micron filters \_\_\_\_\_
- D-25 (for 2" wells, use with 5/8") foot valves \_\_\_\_\_
- D-16 (for 1" wells, use with 5/8") foot valves \_\_\_\_\_
- SS-10 (for 5/8" wells, use with 3/8") foot valves \_\_\_\_\_
- 1" bailer \_\_\_\_\_
- 2" bailer \_\_\_\_\_
- other (describe) \_\_\_\_\_

# GROUNDWATER SAMPLE COLLECTION SHEET

<b>Sample Site</b>	MW09-23	<b>Project Number</b>	1343-005.28	<b>Date</b>	Aug 30 2016					
<b>Piezometer Diameter</b>	3"	<b>Client</b>	GY - AAM	<b>Samplers</b>	JC NB					
<b>UTM Location</b>	Z: 08 E: 0389457 N: 6880557	<b>Project Name</b>	Mount Nansen 2016 GW Sampling Program	<b>Weather/Temperature</b>	6° Sunny					
<b>Waypoint</b>	GPS: ELR Name: MIA			<b>Recovery</b>	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad					
<b>Photos</b>	Cam: ELR Nos: 0176 / 0178	<b>Purge Method</b>								
<b>Duplicate Collected</b>	<input type="checkbox"/> Yes Name: _____	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>					
<b>Field Blank Collected</b>	<input type="checkbox"/> Yes Name: _____	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>							
<b>Initial Depth to Water (m)</b>	12.614	<b>Purge Start Time:</b>	10:12	<b>Purge End Time:</b>	10:41					
				<b>Pen or YSI:</b>	<input type="checkbox"/> YSI Pro Plus <input type="checkbox"/> Pen Unit					
<b>Depth to Bottom (m)</b>	15.842	<b>Purge Interval Time ( ) min / Vol. (L)</b>	10:15	10:19	10:24	10:29	10:34	10:40		
<b>Submerged Tubing Depth (m)</b>	15.842	<b>Depth to water (m)</b>	12.58	same	same	same	same	same		
<b>Well Stick-up Height (m)</b>	0.18	<b>Temperature (°C) 3%</b>	1.2	1.2	1.0	1.1	1.2	1.1		
<b>Estimated Water Volume (L)</b>	6.456	<b>pH (pH Units) ±0.1</b>	7.29	7.23	7.18	7.18	7.21	7.08		
<p>Calculations:</p> <p>(DTB - DTW) x (πr<sup>2</sup>) * 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</p>	<b>Cond. (µs/cm) 3%</b>	741	792	780	814	827	776			
	<b>Specific Cond. (µs/cm) 3%</b>	1359	1454	1408	1499	1512	1427			
	<b>Redox (mV) 10%</b>	12.8	-55.8	-59.2	-64.2	-71.5	-67.1			
	<b>DO (mg/L) 10%</b>	3.10	2.92	1.67	2.57	2.69	2.24			
	<b>DO (%) 10%</b>	22.1	21.0	11.8	17.8	19.1	16.0			
	<b>Appearance &amp; Odour (Clear, Silty, HC odours, etc.)</b>	Slightly turbid	same	same	Clear	same	same			
	<b>Only for final readings</b>	<b>Sulphide (mg/L)</b>	-	-	-	-	-	0.05		
	<b>Turbidity (NTU)</b>	-	-	-	-	-	-	11.7		
	<b>Interval Purge Volume (L)</b>	10	10	10	10	10	10			
	<b>Cumulative Purge Volume (L):</b>	10	20	30	40	50	60			
<b>YSI ID</b>	023981 Pine.	<b>Sample Method:</b>								
<b>Logged Field Parameters</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>					
<b>Time logged on YSI (24hr)</b>	10:41	<input checked="" type="checkbox"/>								
<b>Sample Time (24hr)</b>	10:30	<input checked="" type="checkbox"/>								



Sample Site (Con't): MW09-23

Sample Date (Con't): Aug 30 2016

Well Head Seal:  J-Plug  PVC Cap  Not Sealed  Other \_\_\_\_\_

Seal Replaced:  J-Plug  PVC Cap  Not required  Other \_\_\_\_\_

Well properly sealed for gas monitoring:  Yes  No Details: \_\_\_\_\_

**Head Space Gas Measurements**

	Units	Values
Methane (CH4)	%LEL	0
Oxygen (O2)	%	20.9
Carbon Dioxide (CO2)	PPM	300

Priority	Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
1a	120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)	120	
1b	40 ml (glass)	Dissolved Mercury	15 mL	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HCL (Hydrochloric)	40	
2	500 ml (plastic)	General Chemistry	100 ml	-	-	500	
3	145 ml (plastic)	Cyanide (total, free, weak acid dissociable)	100 ml	-	<input checked="" type="checkbox"/> NaOH (Sodium Hydroxide)	145	
4	120 ml (glass)	Ammonia (NH3)	60 ml	-	<input checked="" type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> (Sulfuric)	120	
5	120 ml (plastic)	Thiocyanate (SCN)	50 ml	-	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)	120	
6	120 ml (glass amber)	Total Inorganic Carbon (TIC)	50 ml	-	-	120	

**General Notes and Observations:**

*Good producing well*

**Consumables Used:**

- 1/4" HDPE (peristaltic pump tubing) \_\_\_\_\_ ft
- 3/8" HDPE (microwaterra tubing) \_\_\_\_\_ ft
- 5/8" HDPE (waterra tubing) \_\_\_\_\_ ft
- 1/4" Silicon tubing \_\_\_\_\_ ft
- High Capacity .45 micron filters \_\_\_\_\_
- D-25 (for 2" wells, use with 5/8") foot valves \_\_\_\_\_
- D-16 (for 1" wells, use with 5/8") foot valves \_\_\_\_\_
- SS-10 (for 5/8" wells, use with 3/8") foot valves \_\_\_\_\_
- 1" bailer \_\_\_\_\_
- 2" bailer \_\_\_\_\_
- other (describe) \_\_\_\_\_

# GROUNDWATER SAMPLE COLLECTION SHEET

<b>Sample Site</b>	MW09-24	<b>Project Number</b>	1343-005.28	<b>Date</b>	Aug 30 2016	
<b>Piezometer Diameter</b>	2"	<b>Client</b>	GY - AAM	<b>Samplers</b>	JC NB	
<b>UTM Location</b>	Z: 08 E: 0389558 N: 6880624	<b>Project Name</b>	Mount Nansen 2016 GW Sampling Program	<b>Weather/Temperature</b>	7 <sup>th</sup> Sunny	
<b>Waypoint</b>	GPS: CLR Name: N/A			<b>Recovery</b>	<input checked="" type="checkbox"/> Good <input type="checkbox"/> Bad	
<b>Photos</b>	Cam: FLN Nos: 0173 - 0175	<b>Purge Method</b>				
<b>Duplicate Collected</b>	<input checked="" type="checkbox"/> Yes Name: DUP-2	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>	
<b>Field Blank Collected</b>	<input checked="" type="checkbox"/> Yes Name: FB-2	✓				
<b>Initial Depth to Water (m)</b>	9.628	<b>Purge Start Time:</b>	09:00	<b>Purge End Time:</b>	9:31	
				<b>Pen or YSI:</b>	<input checked="" type="checkbox"/> YSI Pro Plus <input type="checkbox"/> Pen Unit	
<b>Depth to Bottom (m)</b>	11.945	<b>Purge Interval Time (—) min / Vol. (L) L</b>	9:06 9:11 9:15 9:19 9:23 9:28 9:29			
<b>Submerged Tubing Depth (m)</b>	11.945	<b>Depth to water (m)</b>	9.6 Same Same Same Same Same Same			
<b>Well Stick-up Height (m)</b>	0.67	<b>Temperature (°C) 3%</b>	1.0 0.8 0.7 0.7 0.6 0.5 0.6			
<b>Estimated Water Volume (L)</b>	4.634L	<b>pH (pH Units) ±0.1</b>	7.59 7.30 7.22 7.21 7.23 7.23 7.24			
<p>Calculations:</p> <p>(DTB - DTW) x (πr<sup>2</sup>) 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</p>	<b>Cond. (µs/cm) 3%</b>	481.9 469.8 406.8 419.1 450.3 462.8 454.5				
	<b>Specific Cond. (µs/cm) 3%</b>	889.0 875.0 759.9 782.2 805.0 859.0 899.8				
	<b>Redox (mV) 10%</b>	222.0 213.0 208.5 204.4 201.4 199.6 197.2				
	<b>DO (mg/L) 10%</b>	13.14 7.13 5.22 4.86 4.90 5.51 5.01				
	<b>DO (%) 10%</b>	87.0 50.0 36.4 34.0 34.1 38.1 35.6				
	<b>Appearance &amp; Odour (Clear, Silty, HC odours, etc.)</b>	slightly turbid Same Same clearing Same Same Same Clear				
	<b>Only for final readings</b>	<b>Sulphide (mg/L)</b>	— — — — — — — 0.09			
		<b>Turbidity (NTU)</b>	— — — — — — — 28.4			
		<b>Interval Purge Volume (L)</b>	10 10 10 10 10 10 10			
		<b>Cumulative Purge Volume (L):</b>	10 20 30 40 50 60 70			
<b>YSI ID</b>	023981	<b>Sample Method:</b>				
<b>Logged Field Parameters</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>	
<b>Time logged on YSI (24hr)</b>	9:30	✓				
<b>Sample Time (24hr)</b>	9:35					

Sample Site (Con't): MW09-24

Sample Date (Con't): Aug 30 2016

Well Head Seal:  J-Plug  PVC Cap  Not Sealed  Other \_\_\_\_\_

Seal Replaced:  J-Plug  PVC Cap  Not required  Other \_\_\_\_\_

Well properly sealed for gas monitoring:  Yes  No Details: \_\_\_\_\_

**Head Space Gas Measurements**

	Units	Values
Methane (CH4)	%LEL	0
Oxygen (O2)	%	20.9
Carbon Dioxide (CO2)	PPM	1400

Priority	Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
1a	120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)	120 ml	—
1b	40 ml (glass)	Dissolved Mercury	15 mL	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HCL (Hydrochloric)	40 ml	—
2	500 ml (plastic)	General Chemistry	100 ml	-	-	500 ml	—
3	145 ml (plastic)	Cyanide (total, free, weak acid dissociable)	100 ml	-	<input checked="" type="checkbox"/> NaOH (Sodium Hydroxide)	145 ml	—
4	120 ml (glass)	Ammonia (NH <sub>3</sub> )	60 ml	-	<input checked="" type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> (Sulfuric)	120 ml	—
5	120 ml (plastic)	Thiocyanate (SCN)	50 ml	-	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)	120 ml	—
6	120 ml (glass amber)	Total Inorganic Carbon (TIC)	50 ml	-	-	120 ml	—

**General Notes and Observations:**

- parameters collected in purge bucket

**Consumables Used:**

- 1/4" HDPE (peristaltic pump tubing) \_\_\_\_\_ ft
- 3/8" HDPE (microwaterra tubing) \_\_\_\_\_ ft
- 5/8" HDPE (waterra-tubing) \_\_\_\_\_ ft
- 1/4" Silicon tubing \_\_\_\_\_ ft
- High Capacity .45 micron filters 1
- D-25 (for 2" wells; use with 5/8") foot valves \_\_\_\_\_
- D-16 (for 1" wells; use with 5/8") foot valves \_\_\_\_\_
- SS-10 (for 5/8" wells; use with 3/8") foot valves \_\_\_\_\_
- 1" bailer \_\_\_\_\_
- 2" bailer \_\_\_\_\_
- other (describe) \_\_\_\_\_

# GROUNDWATER SAMPLE COLLECTION SHEET

<b>Sample Site</b>	W14103083 B401	<b>Project Number</b>	1343-005.28	<b>Date</b>	Aug 30 2016
<b>Piezometer Diameter</b>	2"	<b>Client</b>	GY - AAM	<b>Samplers</b>	SC NB
<b>UTM Location</b>	Z: 08 E: 0389521 N: 6880666	<b>Project Name</b>	Mount Nansen 2016 GW Sampling Program	<b>Weather/Temperature</b>	70 Sunny
<b>Waypoint</b>	GPS: ELR Name: NA			<b>Recovery</b>	<input type="checkbox"/> Good <input checked="" type="checkbox"/> Bad
<b>Photos</b>	Cam: ELR Nos: 0170 - 0177	<b>Purge Method</b>			
<b>Duplicate Collected</b>	<input type="checkbox"/> Yes Name: _____	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>
<b>Field Blank Collected</b>	<input type="checkbox"/> Yes Name: _____				
<b>Initial Depth to <sup>ICE</sup>Water (m)</b>	6.496	<b>Purge Start Time:</b>	<b>Purge End Time:</b>	<b>Pen or YSI:</b>	<input type="checkbox"/> YSI Pro Plus <input checked="" type="checkbox"/> Pen Unit
<b>Depth to Bottom (m)</b>	6.496 Frozen.	<b>Purge Interval Time ( ) min / Vol. ( ) L</b>			
<b>Submerged Tubing Depth (m)</b>	_____	<b>Depth to water (m)</b>			
<b>Well Stick-up Height (m)</b>	0.65	<b>Temperature (°C) 3%</b>			
<b>Estimated Water Volume (L)</b>	_____	<b>pH (pH Units) ±0.1</b>			
<p>Calculations:</p> <p>(DTB - DTW) x (πr<sup>2</sup>) * 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</p>	<b>Cond. (µs/cm) 3%</b>				
	<b>Specific Cond. (µs/cm) 3%</b>				
	<b>Redox (mV) 10%</b>				
	<b>DO (mg/L) 10%</b>				
	<b>DO (%) 10%</b>				
	<b>Appearance &amp; Odour (Clear, Silty, HC odours, etc.)</b>				
	<b>Only for final readings</b>	<b>Sulphide (mg/L)</b>			
		<b>Turbidity (NTU)</b>			
		<b>Interval Purge Volume (L)</b>			
		<b>Cumulative Purge Volume (L):</b>			
<b>YSI ID</b>		<b>Sample Method:</b>			
<b>Logged Field Parameters</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>
<b>Time logged on YSI (24hr)</b>	_____				
<b>Sample Time (24hr)</b>	_____				

Sample Site (Con't): W14103083 BH01

Sample Date (Con't): Aug 30 2016

Well Head Seal:  J-Plug  PVC Cap  Not Sealed  Other \_\_\_\_\_

Seal Replaced:  J-Plug  PVC Cap  Not required  Other \_\_\_\_\_

Well properly sealed for gas monitoring:  Yes  No Details: well has instruments down well.

**Head Space Gas Measurements**

	Units	Values
Methane (CH <sub>4</sub> )	%LEL	0
Oxygen (O <sub>2</sub> )	%	20.9
Carbon Dioxide (CO <sub>2</sub> )	PPM	500

Priority	Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
1a	120 ml (plastic)	Dissolved Metals	100 ml	<input type="checkbox"/> Field Filtered	<input type="checkbox"/> HNO <sub>3</sub> (Nitric)		
1b	40 ml (glass)	Dissolved Mercury	15 mL	<input type="checkbox"/> Field Filtered	<input type="checkbox"/> HCL (Hydrochloric)		
2	500 ml (plastic)	General Chemistry	100 ml	-	-		
3	145 ml (plastic)	Cyanide (total, free, weak acid dissociable)	100 ml	-	<input type="checkbox"/> NaOH (Sodium Hydroxide)		
4	120 ml (glass)	Ammonia (NH <sub>3</sub> )	60 ml	-	<input type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> (Sulfuric)		
5	120 ml (plastic)	Thiocyanate (SCN)	50 ml	-	<input type="checkbox"/> HNO <sub>3</sub> (Nitric)		
6	120 ml (glass amber)	Total Inorganic Carbon (TIC)	50 ml	-	-		

**General Notes and Observations:**

Well is Frozen

**Consumables Used:**

- 1/4" HDPE (peristaltic pump tubing) \_\_\_\_\_ ft
- 3/8" HDPE (microwaterra tubing) \_\_\_\_\_ ft
- 5/8" HDPE (waterra tubing) \_\_\_\_\_ ft
- 1/4" Silicon tubing \_\_\_\_\_ ft
- High Capacity .45 micron filters \_\_\_\_\_
- D-25 (for 2" wells, use with 5/8") foot valves \_\_\_\_\_
- D-16 (for 1" wells, use with 5/8") foot valves \_\_\_\_\_
- SS-10 (for 5/8" wells, use with 3/8") foot valves \_\_\_\_\_
- 1" bailer \_\_\_\_\_
- 2" bailer \_\_\_\_\_
- other (describe) \_\_\_\_\_

# GROUNDWATER SAMPLE COLLECTION SHEET

<b>Sample Site</b>	W14103083BH02	<b>Project Number</b>	1343-005.28	<b>Date</b>	Aug 30 2016	
<b>Piezometer Diameter</b>	2"	<b>Client</b>	GY - AAM	<b>Samplers</b>	SC NB	
<b>UTM Location</b>	Z: 08 E: 0389563 N: 6880667	<b>Project Name</b>	Mount Nansen 2016 GW Sampling Program	<b>Weather/Temperature</b>	7° Sunny	
<b>Waypoint</b>	GPS: ELR Name: N/A			<b>Recovery</b>	<input type="checkbox"/> Good <input checked="" type="checkbox"/> Bad	
<b>Photos</b>	Cam: FLR Nos: 0167-0169	<b>Purge Method</b>				
<b>Duplicate Collected</b>	<input type="checkbox"/> Yes Name: _____	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>	
<b>Field Blank Collected</b>	<input type="checkbox"/> Yes Name: _____					
<b>Initial Depth to <sup>ICE</sup>Water (m)</b>	6.705	<b>Purge Start Time:</b>		<b>Purge End Time:</b>		
				<b>Pen or YSI:</b>	<input type="checkbox"/> YSI Pro Plus <input type="checkbox"/> Pen Unit	
<b>Depth to Bottom (m)</b>	6.705 Frozen	<b>Purge Interval Time ( ) min / Vol. ( ) L</b>				
<b>Submerged Tubing Depth (m)</b>	_____	<b>Depth to water (m)</b>				
<b>Well Stick-up Height (m)</b>	0.78	<b>Temperature (°C) 3%</b>				
<b>Estimated Water Volume (L)</b>	_____	<b>pH (pH Units) ±0.1</b>				
<p>(DTB - DTW) x (πr<sup>2</sup>)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</p> <p>Calculations:</p>		<b>Cond. (µs/cm) 3%</b>				
			<b>Specific Cond. (µs/cm) 3%</b>			
			<b>Redox (mV) 10%</b>			
			<b>DO (mg/L) 10%</b>			
			<b>DO (%) 10%</b>			
			<b>Appearance &amp; Odour (Clear, Silty, HC odours, etc.)</b>			
			<b>Only for final readings</b>	<b>Sulphide (mg/L)</b>		
				<b>Turbidity (NTU)</b>		
			<b>Interval Purge Volume (L)</b>			
			<b>Cumulative Purge Volume (L):</b>			
<b>YSI ID</b>		<b>Sample Method:</b>				
<b>Logged Field Parameters</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>	
<b>Time logged on YSI (24hr)</b>						
<b>Sample Time (24hr)</b>						

FROZEN

Sample Site (Con't): W14103 083 B402

 Sample Date (Con't): Aug 30 2016

 Well Head Seal:  J-Plug  PVC Cap  Not Sealed  Other \_\_\_\_\_

 Seal Replaced:  J-Plug  PVC Cap  Not required  Other \_\_\_\_\_

 Well properly sealed for gas monitoring:  Yes  No Details: Well has instruments down well.
**Head Space Gas Measurements**

	Units	Values
Methane (CH4)	%LEL	0
Oxygen (O2)	%	20.9
Carbon Dioxide (CO2)	PPM	300

Priority	Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
1a	120 ml (plastic)	Dissolved Metals	100 ml	<input type="checkbox"/> Field Filtered	<input type="checkbox"/> HNO <sub>3</sub> (Nitric)		
1b	40 ml (glass)	Dissolved Mercury	15 mL	<input type="checkbox"/> Field Filtered	<input type="checkbox"/> HCL (Hydrochloric)		
2	500 ml (plastic)	General Chemistry	100 ml	-	-		
3	145 ml (plastic)	Cyanide (total, free, weak acid dissociable)	100 ml	-	<input type="checkbox"/> NaOH (Sodium Hydroxide)		
4	120 ml (glass)	Ammonia (NH3)	60 ml	-	<input type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> (Sulfuric)		
5	120 ml (plastic)	Thiocyanate (SCN)	50 ml	-	<input type="checkbox"/> HNO <sub>3</sub> (Nitric)		
6	120 ml (glass amber)	Total Inorganic Carbon (TIC)	50 ml	-	-		

**General Notes and Observations:**

15cm of water on top of Ice  
did not sample standing water

**Consumables Used:**

- 1/4" HDPE (peristaltic pump tubing) \_\_\_ ft
- 3/8" HDPE (microwaterra tubing) \_\_\_ ft
- 5/8" HDPE (waterra tubing) \_\_\_ ft
- 1/4" Silicon tubing \_\_\_ ft
- High Capacity .45 micron filters \_\_\_
- D-25 (for 2" wells, use with 5/8") foot valves \_\_\_
- D-16 (for 1" wells, use with 5/8") foot valves \_\_\_
- SS-10 (for 5/8" wells, use with 3/8") foot valves \_\_\_
- 1" bailer \_\_\_
- 2" bailer \_\_\_
- other (describe) \_\_\_\_\_



# GROUNDWATER SAMPLE COLLECTION SHEET

<b>Sample Site</b>	W141030838H03	<b>Project Number</b>	1343-005.2 <del>3</del>	<b>Date</b>	29-Aug-16
<b>Piezometer Diameter</b>	2"	<b>Client</b>	GY - AAM	<b>Samplers</b>	AN/MM.
<b>UTM Location</b>	Z: 08, E: 0389131 N: 6880730	<b>Project Name</b>	Mount Nansen 2016 GW Sampling Program	<b>Weather/Temperature</b>	Rainy
<b>Waypoint</b>	GPS: AN Name: N/A			<b>Recovery</b>	<input type="checkbox"/> Good <input type="checkbox"/> Bad
<b>Photos</b>	Cam: Nos: 448-450	<b>Purge Method</b>			
<b>Duplicate Collected</b>	<input type="checkbox"/> Yes Name:	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>
<b>Field Blank Collected</b>	<input type="checkbox"/> Yes Name:				
<b>Initial Depth to Water (m)</b>	1.865 to 4.560 / 4.560 m ice	<b>Purge Start Time:</b>	<b>Purge End Time:</b>	<b>Pen or YSI:</b>	<input type="checkbox"/> YSI Pro Plus <input type="checkbox"/> Pen Unit
<b>Depth to Bottom (m)</b>	FROZEN	<b>Purge Interval Time ( ) min / Vol. ( ) L</b>			
<b>Submerged Tubing Depth (m)</b>	N/A	<b>Depth to water (m)</b>			
<b>Well Stick-up Height (m)</b>	6.795	<b>Temperature (°C) 3%</b>			
<b>Estimated Water Volume (L)</b>	N/A	<b>pH (pH Units) ±0.1</b>			
<p>(DTB - DTW) x (πr<sup>2</sup>) 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</p> <p>Calculations:</p>	<b>Cond. (µs/cm) 3%</b>				
	<b>Specific Cond. (µs/cm) 3%</b>				
	<b>Redox (mV) 10%</b>				
	<b>DO (mg/L) 10%</b>				
	<b>DO (%) 10%</b>				
	<b>Appearance &amp; Odour (Clear, Silty, HC odours, etc.)</b>				
	<b>Only for final readings</b>	<b>Sulphide (mg/L)</b>			
		<b>Turbidity (NTU)</b>			
	<b>Interval Purge Volume (L)</b>				
	<b>Cumulative Purge Volume (L):</b>				
<b>YSI ID</b>		<b>Sample Method:</b>			
<b>Logged Field Parameters</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>
<b>Time logged on YSI (24hr)</b>					
<b>Sample Time (24hr)</b>					

Sample Site (Con't): W1410 30 R38H03

Sample Date (Con't): 29-Aug-16

Well Head Seal:  J-Plug  PVC Cap  Not Sealed  Other \_\_\_\_\_

Seal Replaced:  J-Plug  PVC Cap  Not required  Other \_\_\_\_\_

Well properly sealed for gas monitoring:  Yes  No Details: not cap not on properly

**Head Space Gas Measurements**

	Units	Values
Methane (CH4)	%LEL	0
Oxygen (O2)	%	20.9
Carbon Dioxide (CO2)	PPM	500

Priority	Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
1a	120 ml (plastic)	Dissolved Metals	100 ml	<input type="checkbox"/> Field Filtered	<input type="checkbox"/> HNO <sub>3</sub> (Nitric)		
1b	40 ml (glass)	Dissolved Mercury	15 mL	<input type="checkbox"/> Field Filtered	<input type="checkbox"/> HCL (Hydrochloric)		
2	500 ml (plastic)	General Chemistry	100 ml	-	-		
3	145 ml (plastic)	Cyanide (total, free, weak acid dissociable)	100 ml	-	<input type="checkbox"/> NaOH (Sodium Hydroxide)		
4	120 ml (glass)	Ammonia (NH3)	60 ml	-	<input type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> (Sulfuric)		
5	120 ml (plastic)	Thiocyanate (SCN)	50 ml	-	<input type="checkbox"/> HNO <sub>3</sub> (Nitric)		
6	120 ml (glass amber)	Total Inorganic Carbon (TIC)	50 ml	-	-		

**General Notes and Observations:**

- water found @ 1.85m sitting above ice @ which was found @ 4.560; historical DTB is 10m  
 - well classified as frozen + permafrost well?

**Consumables Used:**

- 1/4" HDPE (peristaltic pump tubing) \_\_\_\_\_ ft
- 3/8" HDPE (microwaterra tubing) \_\_\_\_\_ ft
- 5/8" HDPE (waterra tubing) \_\_\_\_\_ ft
- 1/4" Silicon tubing \_\_\_\_\_ ft
- High Capacity .45 micron filters \_\_\_\_\_
- D-25 (for 2" wells, use with 5/8") foot valves \_\_\_\_\_
- D-16 (for 1" wells, use with 5/8") foot valves \_\_\_\_\_
- SS-10 (for 5/8" wells, use with 3/8") foot valves \_\_\_\_\_
- 1" bailer \_\_\_\_\_
- 2" bailer \_\_\_\_\_
- other (describe) \_\_\_\_\_

# GROUNDWATER SAMPLE COLLECTION SHEET

<b>Sample Site</b>	W14103083BH04	<b>Project Number</b>	1343-005.28	<b>Date</b>	Aug 30 2016
<b>Piezometer Diameter</b>	2"	<b>Client</b>	GY - AAM	<b>Samplers</b>	JC NB
<b>UTM Location</b>	Z: 08 E: 0389544 N: 6880665	<b>Project Name</b>	Mount Nansen 2016 GW Sampling Program	<b>Weather/Temperature</b>	70 Sunny
<b>Waypoint</b>	GPS: FLR Name: N/A			<b>Recovery</b>	<input type="checkbox"/> Good <input checked="" type="checkbox"/> Bad
<b>Photos</b>	Cam: EUR Nos: 0164-0166	<b>Purge Method</b>			
<b>Duplicate Collected</b>	<input type="checkbox"/> Yes Name: _____	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>
<b>Field Blank Collected</b>	<input type="checkbox"/> Yes Name: _____				
<b>Initial Depth to Water (m)</b>	ICE 6.570	<b>Purge Start Time:</b>		<b>Purge End Time:</b>	
				<b>Pen or YSI:</b>	<input type="checkbox"/> YSI Pro.Plus <input type="checkbox"/> Pen Unit
<b>Depth to Bottom (m)</b>	6.570 Frozen	<b>Purge Interval Time ( ) min / Vol. ( ) L</b>			
<b>Submerged Tubing Depth (m)</b>	—	<b>Depth to water (m)</b>			
<b>Well Stick-up Height (m)</b>	0.77	<b>Temperature (°C) 3%</b>			
<b>Estimated Water Volume (L)</b>	—	<b>pH (pH Units) ±0.1</b>			
<p>(DTB – DTW) x (πr<sup>2</sup>) * 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</p> <p>Calculations: _____</p>	<b>Cond. (µs/cm) 3%</b>				
	<b>Specific Cond. (µs/cm) 3%</b>				
	<b>Redox (mV) 10%</b>				
	<b>DO (mg/L) 10%</b>				
	<b>DO (%) 10%</b>				
	<b>Appearance &amp; Odour (Clear, Silty, HC odours, etc.)</b>				
	<b>Only for final readings</b>	<b>Sulphide (mg/L)</b>			
		<b>Turbidity (NTU)</b>			
	<b>Interval Purge Volume (L)</b>				
	<b>Cumulative Purge Volume (L):</b>				
<b>YSI ID</b>	_____	<b>Sample Method:</b>			
<b>Logged Field Parameters</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Waterra</b>	<b>Peristaltic</b>	<b>Disp. Bailer</b>	<b>Other</b>
<b>Time logged on YSI (24hr)</b>	_____				
<b>Sample Time (24hr)</b>	_____				

Sample Site (Con't): W 14103083 B1104

 Sample Date (Con't): Aug 30 2016

 Well Head Seal:  J-Plug  PVC Cap  Not Sealed  Other \_\_\_\_\_

 Seal Replaced:  J-Plug  PVC Cap  Not required  Other \_\_\_\_\_

 Well properly sealed for gas monitoring:  Yes  No Details: Wells have instruments installed down well
**Head Space Gas Measurements**

	Units	Values
Methane (CH4)	%LEL	0
Oxygen (O2)	%	20.9
Carbon Dioxide (CO2)	PPM	300

Priority	Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
1a	120 ml (plastic)	Dissolved Metals	100 ml	<input type="checkbox"/> Field Filtered	<input type="checkbox"/> HNO <sub>3</sub> (Nitric)		<del>_____</del>
1b	40 ml (glass)	Dissolved Mercury	15 mL	<input type="checkbox"/> Field Filtered	<input type="checkbox"/> HCL (Hydrochloric)		
2	500 ml (plastic)	General Chemistry	100 ml	-	-		
3	145 ml (plastic)	Cyanide (total, free, weak acid dissociable)	100 ml	-	<input type="checkbox"/> NaOH (Sodium Hydroxide)		
4	120 ml (glass)	Ammonia (NH3)	60 ml	-	<input type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> (Sulfuric)		
5	120 ml (plastic)	Thiocyanate (SCN)	50 ml	-	<input type="checkbox"/> HNO <sub>3</sub> (Nitric)		
6	120 ml (glass amber)	Total Inorganic Carbon (TIC)	50 ml	-	-		

**General Notes and Observations:**

- 4cm of water over ice, did not sample standing water

**Consumables Used:**

- 1/4" HDPE (peristaltic pump tubing) \_\_\_\_\_ ft
- 3/8" HDPE (microwaterra tubing) \_\_\_\_\_ ft
- 5/8" HDPE (waterra tubing) \_\_\_\_\_ ft
- 1/4" Silicon tubing \_\_\_\_\_ ft
- High Capacity .45 micron filters \_\_\_\_\_
- D-25 (for 2" wells, use with 5/8") foot valves \_\_\_\_\_
- D-16 (for 1" wells, use with 5/8") foot valves \_\_\_\_\_
- SS-10 (for 5/8" wells, use with 3/8") foot valves \_\_\_\_\_
- 1" bailer \_\_\_\_\_
- 2" bailer \_\_\_\_\_
- other (describe) \_\_\_\_\_

# GROUNDWATER SAMPLE COLLECTION SHEET

Sample Site	GSI-HA-02A	Project Number	1343-005.2B	Date	29-Aug-16. / Avg.30
Piezometer Diameter	1" DP	Client	GY - AAM	Samplers	AN/MM
UTM Location	Z: 08V E: 0387861 N: 6881129	Project Name	Mount Nansen 2016 GW Sampling Program	Weather/Temperature	sunny
Waypoint	GPS: AN Name: <del>096</del>			Recovery	<input type="checkbox"/> Good <input checked="" type="checkbox"/> Bad
Photos	Cam: 1 Nos: 0423-0425	Purge Method			
Duplicate Collected	<input type="checkbox"/> Yes Name: _____	Waterra	Peristaltic	Disp. Bailer	Other
Field Blank Collected	<input type="checkbox"/> Yes Name: _____		X		
Initial Depth to Water (m)	1.828	Purge Start Time:	10:29	Purge End Time:	
				Pen or YSI:	<input checked="" type="checkbox"/> YSI Pro Plus <input type="checkbox"/> Pen Unit
Depth to Bottom (m)	2.785	Purge Interval Time ( ) min / Vol. ( ) L	10:29		
Submerged Tubing Depth (m)	2.225	Depth to water (m)	/		
Well Stick-up Height (m)	1.544	Temperature (°C) 3%	6.6		
Estimated Water Volume (L)	0.480	pH (pH Units) ±0.1	7.01		
(DTB - DTW) x (πr <sup>2</sup> ) * 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: $\frac{2.785 - 1.828}{0.5} = 1.957$	Cond. (µs/cm) 3%	689			
	Specific Cond. (µs/cm) 3%	1073			
	Redox (mV) 10%	-34.0			
	DO (mg/L) 10%	1.37			
	DO (%) 10%	10.7			
	Appearance & Odour (Clear, Silty, HC odours, etc.)	slightly turbid			
	Only for final readings	Sulphide (mg/L)	/		
		Turbidity (NTU)	/		
	Interval Purge Volume (L)				
	Cumulative Purge Volume (L):	/			
YSI ID	GSI-HA-02A	Sample Method:			
Logged Field Parameters	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Waterra	Peristaltic	Disp. Bailer	Other
Time logged on YSI (24hr)	10:30		X		
Sample Time (24hr)	10:15				

DIRECT SAMPLED

Re-sampled on Aug. 30.

Sample Site (Con't): GSI-HA-02A

Sample Date (Con't): 29 Aug-16 @ 10:15

Well Head Seal:  J-Plug  PVC Cap  Not Sealed  Other SCF

Seal Replaced:  J-Plug  PVC Cap  Not required  Other \_\_\_\_\_

Well properly sealed for gas monitoring:  Yes  No Details: \_\_\_\_\_

**Head Space Gas Measurements**

	Units	Values
Methane (CH4)	%LEL	0
Oxygen (O2)	%	20.9
Carbon Dioxide (CO2)	PPM	360

Priority	Bottle Type	Parameters Analyzed	Min. Volume	Treatment <input checked="" type="checkbox"/>	Preservative Added <input checked="" type="checkbox"/>	Vol. Collected (ml)	Comments
1a	120 ml (plastic)	Dissolved Metals	100 ml	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)	100   100	
1b	40 ml (glass)	Dissolved Mercury	15 mL	<input checked="" type="checkbox"/> Field Filtered	<input checked="" type="checkbox"/> HCL (Hydrochloric)	15   15	
2	500 ml (plastic)	General Chemistry	100 ml	-	-	100   100	
3	145 ml (plastic)	Cyanide (total, free, weak acid dissociable)	100 ml	-	<input checked="" type="checkbox"/> NaOH (Sodium Hydroxide)	100   100	
4	120 ml (glass)	Ammonia (NH3)	60 ml	-	<input checked="" type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> (Sulfuric)	60   60	
5	120 ml (plastic)	Thiocyanate (SCN)	50 ml	-	<input checked="" type="checkbox"/> HNO <sub>3</sub> (Nitric)	50   50	
6	120 ml (glass amber)	Total Inorganic Carbon (TIC)	50 ml	-	-	50   50	

**General Notes and Observations:**

- Attempted direct sample → full min vols collected.
- Dry after parameters were taken

Returned to re-sample on Aug. 30/2016. In order to improve sample quality.  
 Sample Date: Aug. 30/2016.  
 DTW: 1.807 (well has fully recharged).  
 Sample time: 13:45  
 Full sample set collected (min. vol.)

not enough vol. to complete sulphide and turbidity measurements.

**Consumables Used:**

- 1/4" HDPE (peristaltic pump tubing) 20 ft
- 3/8" HDPE (microwaterra tubing)      ft
- 5/8" HDPE (waterra tubing)      ft
- 1/4" Silicon tubing 1.6 ft
- High Capacity .45 micron filters
- D-25 (for 2" wells, use with 5/8") foot valves
- D-16 (for 1" wells, use with 5/8") foot valves
- SS-10 (for 5/8" wells, use with 3/8") foot valves
- 1" bailer
- 2" bailer
- other (describe)