

**Snow Sampling Field Sheet**

**Area:** 8000  
**Effective Date:** 26-Mar-2012  
**Task:** Snow Sampling Field Sheet  
**No:** ENVI-177-0312  
**Revision:** R9  
**By:** D. Dul  
**Page:** 1 of 3  
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**GENERAL**

**LOCATION NAME:** SS EBW **DATE (yyyy-mm-dd):** 2020-04-17 **TIME (24:00):** 0930  
**SAMPLED BY:** SS2 GC **TYPE OF SAMPLE:** Dust  Water Quality  **QAQC:** EBW  
**GPS COORDINATES (UTM):** \_\_\_\_\_ E \_\_\_\_\_ N (zone) \_\_\_\_\_  
**DESCRIPTION:** Distance to Diavik \_\_\_\_\_ km & Direction \_\_\_\_\_ On: Land  &/or Lake

**CLIMATE CONDITIONS**

**Air Temp:** \_\_\_\_\_ °C **Wind Direction:** \_\_\_\_\_ **Wind Speed:** \_\_\_\_\_ kts.  
**Dust in Area:** Visible  Not Visible  **Cloud Cover:** 0% / 10% / 25% / 50% / 75% / 100%  
**Precipitation:** Rain / Mist / Snow / N/A **Snow Condition:** Crystallized  Packed  Wet  Dry

Dust Cores	Core Number	Depth of Snow (cm)	Length of Snow Core (cm)	Weight of Tube & Core-SWE (cm)	Weight of Empty Tube-SWE (cm)	Water Content-SWE (cm)	Dust Present Yes/No	Comments (core weighed, bag #, changes in snow condition)
	1							
2							Y N	
3							Y N	
4							Y N	
Dust (Min. of 3 cores – Total Water Content SWE => 25)								
Water Quality Cores	1						Y N	
	2						Y N	
	3						Y N	
	4						Y N	
	5						Y N	
	6						Y N	
	7						Y N	
	8						Y N	
	9						Y N	
	10						Y N	
	11						Y N	
	12						Y N	
Water Quality (Min. of 3 cores – Total Water Content SWE => 100)								

**\*\* Water Content<sub>SWE</sub> = Wt. of Tube & Core<sub>SWE</sub> – Wt. of Empty Tube<sub>SWE</sub> \*\***

<b>Snow Sampling Field Sheet</b>			
<b>Area:</b>	8000	<b>No:</b>	ENVI-177-0312
<b>Effective Date:</b>	26-Mar-2012	<b>Revision:</b>	R9
<b>Task:</b>	Snow Sampling Field Sheet	<b>By:</b>	D. Dul
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**Dust Sample Filters**

Total Volume of Melted Snow: 1740 (mL)

Filter #	Weight of Filter (mg)	Filter + Residue (mg)	Residue Weight (mg)	Comments
1	116.8	116.8	0.0	2x bagged, no leakage
2				
3				
4				
<b>Totals</b>	116.8	116.8	0.0	

**Water Quality Bottles**

Total Volume of Melted Snow: 2365 (mL)

Filling Order	Analysis	Bottle Type	Triple Rinse	Sample Type *	Sample Type *	Sample Type *	Sample Comments <b>DI Batch # for QAQC,</b> Location preserved if not in field, label changes
				FBW			
1	Metals Total	60 mL Falcon Tube (x2)	Y	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2	Metals Dissolved	60 mL Falcon Tube (x2)	Y	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3	Total Mercury	40 mL clear glass (pre-preserved)	N	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4	Nutrients	120 mL plastic (pre-preserved)	N	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5	Ammonia	40 mL glass vial (pre-preserved)	N	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6	Routine	1000 mL plastic	Y	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7	TSS/Turb/pH	1000 mL plastic	Y	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

\*Sample Type: GW, DUPW1/DUPW2, FBW, TBW, EBW, REP1/REP2, Filter Blank

**Additional Information**

Sample color, odor if applicable: (equipment issues, safety concerns, weather problems, changes during sampling event, follow-up actions etc.)

DI Lot # 200312

**Snow Sampling Field Sheet**

Area: 8000  
 Effective Date: 26-Mar-2012  
 Task: Snow Sampling Field Sheet

No: ENVI-177-0312  
 Revision: R9  
 By: D. Dul

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**GENERAL**

LOCATION NAME: 55 Bay DATE (yyyy-mm-dd): 2020-04-17 TIME (24:00): 0933

SAMPLED BY: 552 GC TYPE OF SAMPLE: Dust  Water Quality  QAQC: EBW

GPS COORDINATES (UTM): \_\_\_\_\_ E \_\_\_\_\_ N (zone) \_\_\_\_\_

DESCRIPTION: Distance to Diavik \_\_\_\_\_ km & Direction \_\_\_\_\_ On: Land  &/or Lake

**CLIMATE CONDITIONS**

Air Temp: \_\_\_\_\_ °C Wind Direction: \_\_\_\_\_ Wind Speed: \_\_\_\_\_ kts.

Dust in Area: Visible  Not Visible

Cloud Cover: 0% / 10% / 25% / 50% / 75% / 100%

Precipitation: Rain / Mist / Snow / N/A

Snow Condition: Crystallized  Packed  Wet  Dry

Dust Cores	Core Number	Depth of Snow (cm)	Length of Snow Core (cm)	Weight of Tube & Core-SWE (cm)	Weight of Empty Tube-SWE (cm)	Water Content-SWE (cm)	Dust Present Yes/No	Comments (core weighed, bag #, changes in snow condition)
	1							Y N
2							Y N	
3							Y N	
4							Y N	
<b>Dust (Min. of 3 cores – Total Water Content SWE =&gt; 25)</b>								
Water Quality Cores	1						Y N	
	2						Y N	
	3						Y N	
	4						Y N	
	5						Y N	
	6						Y N	
	7						Y N	
	8						Y N	
	9						Y N	
	10						Y N	
	11						Y N	
	12						Y N	
<b>Water Quality (Min. of 3 cores – Total Water Content SWE =&gt; 100)</b>								

**\*\* Water Content<sub>SWE</sub> = Wt. of Tube & Core<sub>SWE</sub> – Wt. of Empty Tube<sub>SWE</sub> \*\***



<b>Snow Sampling Field Sheet</b>			
<b>Area:</b>	8000	<b>No:</b>	ENVI-177-0312
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**Dust Sample Filters**

Total Volume of Melted Snow: 1625 (mL)

Filter #	Weight of Filter (mg)	Filter + Residue (mg)	Residue Weight (mg)	Comments
1	118.7	118.7	0.0	2x bagged, no leakage
2				
3				
4				
<b>Totals</b>	118.7	118.7	0.0	

**Water Quality Bottles**

Total Volume of Melted Snow: 2425 (mL)

Filling Order	Analysis	Bottle Type	Triple Rinse	Sample Type *	Sample Type *	Sample Type *	Sample Comments <b>DI Batch # for QAQC,</b> Location preserved if not in field, label changes
				EBW			
1	Metals Total	60 mL Falcon Tube (x2)	Y	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2	Metals Dissolved	60 mL Falcon Tube (x2)	Y	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3	Total Mercury	40 mL clear glass (pre-preserved)	N	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4	Nutrients	120 mL plastic (pre-preserved)	N	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5	Ammonia	40 mL glass vial (pre-preserved)	N	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6	Routine	1000 mL plastic	Y	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7	TSS/Turb/pH	<sup>500</sup> 4000 mL plastic	Y	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

\*Sample Type: GW, DUPW1/DUPW2, FBW, TBW, EBW, REP1/REP2, Filter Blank

**Additional Information**

Sample color, odor if applicable: (equipment issues, safety concerns, weather problems, changes during sampling event, follow-up actions etc.)

DI Lot # 200312  
WQ - did not leak, double bagged

## **APPENDIX D      SNOW WATER CHEMISTRY ANALYTICAL RESULTS**

**Appendix D: Snow Water Chemistry Analytical Results**

Parameter	Unit	Sample Point	Date	Data Point	Graphable Value	Lab Ref	Sample Type
Acidity (pH 4.5)	mg/L	CONTROL 1	4/13/2020	<1.0	0.5	XR5671	GW
	mg/L	CONTROL 2	4/14/2020	<1.0	0.5	XR5672	GW
	mg/L	CONTROL 3	4/13/2020	<1.0	0.5	XR5673	GW
	mg/L	SS BAG	4/17/2020	<1.0	0.5	XR5674	EBW
	mg/L	SS BAG	4/17/2020	<1.0	0.5	XR5675	GW
	mg/L	SS1-4	4/12/2020	<1.0	0.5	XR6022	DUPW1
	mg/L	SS1-4	4/12/2020	<1.0	0.5	XR6023	DUPW2
	mg/L	SS1-5	4/12/2020	<1.0	0.5	XR6024	GW
	mg/L	SS2-1	4/12/2020	<1.0	0.5	XR5777	GW
	mg/L	SS2-2	4/12/2020	<1.0	0.5	XR5778	GW
	mg/L	SS2-3	4/12/2020	<1.0	0.5	XR5779	DUPW1
	mg/L	SS2-3	4/12/2020	<1.0	0.5	XR5780	DUPW2
	mg/L	SS2-4	4/11/2020	<1.0	0.5	XR5781	GW
	mg/L	SS3-4	4/13/2020	<1.0	0.5	XR6031	GW
	mg/L	SS3-5	4/13/2020	<1.0	0.5	XR6032	GW
	mg/L	SS3-6	4/13/2020	<1.0	0.5	XR6033	DUPW1
	mg/L	SS3-6	4/13/2020	<1.0	0.5	XR6034	DUPW2
	mg/L	SS3-7	4/13/2020	<1.0	0.5	XR6035	GW
	mg/L	SS3-8	4/13/2020	<1.0	0.5	XR6036	GW
	Acidity (pH 8.3)	mg/L	CONTROL 1	4/13/2020	<1.0	0.5	XR5671
mg/L		CONTROL 2	4/14/2020	<1.0	0.5	XR5672	GW
mg/L		CONTROL 3	4/13/2020	1.1	1.1	XR5673	GW
mg/L		SS BAG	4/17/2020	<1.0	0.5	XR5674	EBW
mg/L		SS BAG	4/17/2020	<1.0	0.5	XR5675	GW
mg/L		SS1-4	4/12/2020	<1.0	0.5	XR6022	DUPW1
mg/L		SS1-4	4/12/2020	<1.0	0.5	XR6023	DUPW2
mg/L		SS1-5	4/12/2020	<1.0	0.5	XR6024	GW
mg/L		SS2-1	4/12/2020	<1.0	0.5	XR5777	GW
mg/L		SS2-2	4/12/2020	<1.0	0.5	XR5778	GW
mg/L		SS2-3	4/12/2020	<1.0	0.5	XR5779	DUPW1
mg/L		SS2-3	4/12/2020	<1.0	0.5	XR5780	DUPW2
mg/L		SS2-4	4/11/2020	<1.0	0.5	XR5781	GW
mg/L		SS3-4	4/13/2020	1.2	1.2	XR6031	GW
mg/L		SS3-5	4/13/2020	<1.0	0.5	XR6032	GW
mg/L		SS3-6	4/13/2020	1.2	1.2	XR6033	DUPW1
mg/L		SS3-6	4/13/2020	2.3	2.3	XR6034	DUPW2
mg/L		SS3-7	4/13/2020	<1.0	0.5	XR6035	GW
mg/L		SS3-8	4/13/2020	1.1	1.1	XR6036	GW
mg/L		SS4-4	4/14/2020	<1.0	0.5	XR5669	GW
mg/L	SS4-5	4/14/2020	1.0	1	XR5670	GW	
mg/L	SS5-3	4/13/2020	<1.0	0.5	XR6025	GW	
mg/L	SS5-4	4/13/2020	<1.0	0.5	XR6026	GW	
mg/L	SS5-5	4/13/2020	<1.0	0.5	XR6027	GW	

## Appendix D: Snow Water Chemistry Analytical Results

Parameter	Unit	Sample Point	Date	Data Point	Graphable Value	Lab Ref	Sample Type
Alkalinity (PP as CaCO <sub>3</sub> )	mg/L	CONTROL 1	4/13/2020	<0.50	0.25	XR5671	GW
	mg/L	CONTROL 2	4/14/2020	<0.50	0.25	XR5672	GW
	mg/L	CONTROL 3	4/13/2020	<0.50	0.25	XR5673	GW
	mg/L	SS BAG	4/17/2020	<0.50	0.25	XR5674	EBW
	mg/L	SS BAG	4/17/2020	<0.50	0.25	XR5675	GW
	mg/L	SS1-4	4/12/2020	<0.50	0.25	XR6022	DUPW1
	mg/L	SS1-4	4/12/2020	<0.50	0.25	XR6023	DUPW2
	mg/L	SS1-5	4/12/2020	<0.50	0.25	XR6024	GW
	mg/L	SS2-1	4/12/2020	<0.50	0.25	XR5777	GW
	mg/L	SS2-2	4/12/2020	<0.50	0.25	XR5778	GW
	mg/L	SS2-3	4/12/2020	<0.50	0.25	XR5779	DUPW1
	mg/L	SS2-3	4/12/2020	<0.50	0.25	XR5780	DUPW2
	mg/L	SS2-4	4/11/2020	<0.50	0.25	XR5781	GW
	mg/L	SS3-4	4/13/2020	<0.50	0.25	XR6031	GW
	mg/L	SS3-5	4/13/2020	<0.50	0.25	XR6032	GW
	mg/L	SS3-6	4/13/2020	<0.50	0.25	XR6033	DUPW1
	mg/L	SS3-6	4/13/2020	<0.50	0.25	XR6034	DUPW2
	mg/L	SS3-7	4/13/2020	<0.50	0.25	XR6035	GW
	mg/L	SS3-8	4/13/2020	<0.50	0.25	XR6036	GW
	Alkalinity (Total as CaCO <sub>3</sub> ) - Total	mg/L	CONTROL 1	4/13/2020	<0.50	0.25	XR5671
mg/L		CONTROL 2	4/14/2020	<0.50	0.25	XR5672	GW
mg/L		CONTROL 3	4/13/2020	<0.50	0.25	XR5673	GW
mg/L		SS BAG	4/17/2020	<0.50	0.25	XR5674	EBW
mg/L		SS BAG	4/17/2020	<0.50	0.25	XR5675	GW
mg/L		SS1-4	4/12/2020	0.53	0.53	XR6022	DUPW1
mg/L		SS1-4	4/12/2020	<0.50	0.25	XR6023	DUPW2
mg/L		SS1-5	4/12/2020	<0.50	0.25	XR6024	GW
mg/L		SS2-1	4/12/2020	<0.50	0.25	XR5777	GW
mg/L		SS2-2	4/12/2020	<0.50	0.25	XR5778	GW
mg/L		SS2-3	4/12/2020	0.59	0.59	XR5779	DUPW1
mg/L		SS2-3	4/12/2020	0.68	0.68	XR5780	DUPW2
mg/L		SS2-4	4/11/2020	<0.50	0.25	XR5781	GW
mg/L		SS3-4	4/13/2020	1.28	1.28	XR6031	GW
mg/L		SS3-5	4/13/2020	0.65	0.65	XR6032	GW
mg/L		SS3-6	4/13/2020	3.24	3.24	XR6033	DUPW1
mg/L		SS3-6	4/13/2020	3.15	3.15	XR6034	DUPW2
mg/L		SS3-7	4/13/2020	4.25	4.25	XR6035	GW
mg/L		SS3-8	4/13/2020	2.77	2.77	XR6036	GW
mg/L		SS4-4	4/14/2020	0.52	0.52	XR5669	GW
mg/L	SS4-5	4/14/2020	<0.50	0.25	XR5670	GW	
mg/L	SS5-3	4/13/2020	0.64	0.64	XR6025	GW	
mg/L	SS5-4	4/13/2020	<0.50	0.25	XR6026	GW	
mg/L	SS5-5	4/13/2020	<0.50	0.25	XR6027	GW	

## Appendix D: Snow Water Chemistry Analytical Results

Parameter	Unit	Sample Point	Date	Data Point	Graphable Value	Lab Ref	Sample Type
Aluminum (Al) - Dissolved	ug/L	CONTROL 1	4/13/2020	10.5	10.5	XR5671	GW
	ug/L	CONTROL 2	4/14/2020	14.0	14	XR5672	GW
	ug/L	CONTROL 3	4/13/2020	19.3	19.3	XR5673	GW
	ug/L	SS BAG	4/17/2020	0.66	0.66	XR5674	EBW
	ug/L	SS BAG	4/17/2020	0.78	0.78	XR5675	GW
	ug/L	SS1-4	4/12/2020	2.75	2.75	XR6022	DUPW1
	ug/L	SS1-4	4/12/2020	2.16	2.16	XR6023	DUPW2
	ug/L	SS1-5	4/12/2020	4.15	4.15	XR6024	GW
	ug/L	SS2-1	4/12/2020	2.35	2.35	XR5777	GW
	ug/L	SS2-2	4/12/2020	7.29	7.29	XR5778	GW
	ug/L	SS2-3	4/12/2020	3.91	3.91	XR5779	DUPW1
	ug/L	SS2-3	4/12/2020	3.21	3.21	XR5780	DUPW2
	ug/L	SS2-4	4/11/2020	4.17	4.17	XR5781	GW
	ug/L	SS3-4	4/13/2020	8.68	8.68	XR6031	GW
	ug/L	SS3-5	4/13/2020	5.37	5.37	XR6032	GW
	ug/L	SS3-6	4/13/2020	9.15	9.15	XR6033	DUPW1
	ug/L	SS3-6	4/13/2020	16.5	16.5	XR6034	DUPW2
	ug/L	SS3-7	4/13/2020	25.7	25.7	XR6035	GW
	ug/L	SS3-8	4/13/2020	16.1	16.1	XR6036	GW
	ug/L	SS4-4	4/14/2020	9.51	9.51	XR5669	GW
	ug/L	SS4-5	4/14/2020	8.89	8.89	XR5670	GW
	ug/L	SS5-3	4/13/2020	8.53	8.53	XR6025	GW
	ug/L	SS5-4	4/13/2020	7.46	7.46	XR6026	GW
ug/L	SS5-5	4/13/2020	2.95	2.95	XR6027	GW	
Aluminum (Al) - Total	ug/L	CONTROL 1	4/13/2020	10.7	10.7	XR5671	GW
	ug/L	CONTROL 2	4/14/2020	11.5	11.5	XR5672	GW
	ug/L	CONTROL 3	4/13/2020	21.8	21.8	XR5673	GW
	ug/L	SS BAG	4/17/2020	0.46	0.46	XR5674	EBW
	ug/L	SS BAG	4/17/2020	<0.20	0.1	XR5675	GW
	ug/L	SS1-4	4/12/2020	13.0	13	XR6022	DUPW1
	ug/L	SS1-4	4/12/2020	14.9	14.9	XR6023	DUPW2
	ug/L	SS1-5	4/12/2020	4.71	4.71	XR6024	GW
	ug/L	SS2-1	4/12/2020	7.16	7.16	XR5777	GW
	ug/L	SS2-2	4/12/2020	11.9	11.9	XR5778	GW
	ug/L	SS2-3	4/12/2020	9.11	9.11	XR5779	DUPW1
	ug/L	SS2-3	4/12/2020	8.01	8.01	XR5780	DUPW2
	ug/L	SS2-4	4/11/2020	4.61	4.61	XR5781	GW
	ug/L	SS3-4	4/13/2020	26.4	26.4	XR6031	GW
	ug/L	SS3-5	4/13/2020	10.7	10.7	XR6032	GW
	ug/L	SS3-6	4/13/2020	49.6	49.6	XR6033	DUPW1
	ug/L	SS3-6	4/13/2020	57.5	57.5	XR6034	DUPW2
	ug/L	SS3-7	4/13/2020	65.0	65	XR6035	GW
	ug/L	SS3-8	4/13/2020	48.3	48.3	XR6036	GW
	ug/L	SS4-4	4/14/2020	3.86	3.86	XR5669	GW
	ug/L	SS4-5	4/14/2020	18.1	18.1	XR5670	GW
	ug/L	SS5-3	4/13/2020	75.6	75.6	XR6025	GW
	ug/L	SS5-4	4/13/2020	17.9	17.9	XR6026	GW
ug/L	SS5-5	4/13/2020	17.5	17.5	XR6027	GW	



## Appendix D: Snow Water Chemistry Analytical Results

Parameter	Unit	Sample Point	Date	Data Point	Graphable Value	Lab Ref	Sample Type
Ammonia (N)	mg/L	CONTROL 1	4/13/2020	0.067	0.067	XR5671	GW
	mg/L	CONTROL 2	4/14/2020	0.079	0.079	XR5672	GW
	mg/L	CONTROL 3	4/13/2020	0.055	0.055	XR5673	GW
	mg/L	SS BAG	4/17/2020	0.0086	0.0086	XR5674	EBW
	mg/L	SS BAG	4/17/2020	0.042	0.042	XR5675	GW
	mg/L	SS1-4	4/12/2020	0.050	0.05	XR6022	DUPW1
	mg/L	SS1-4	4/12/2020	0.046	0.046	XR6023	DUPW2
	mg/L	SS1-5	4/12/2020	0.036	0.036	XR6024	GW
	mg/L	SS2-1	4/12/2020	0.049	0.049	XR5777	GW
	mg/L	SS2-2	4/12/2020	0.053	0.053	XR5778	GW
	mg/L	SS2-3	4/12/2020	0.050	0.05	XR5779	DUPW1
	mg/L	SS2-3	4/12/2020	0.050	0.05	XR5780	DUPW2
	mg/L	SS2-4	4/11/2020	0.036	0.036	XR5781	GW
	mg/L	SS3-4	4/13/2020	0.069	0.069	XR6031	GW
	mg/L	SS3-5	4/13/2020	0.064	0.064	XR6032	GW
	mg/L	SS3-6	4/13/2020	0.071	0.071	XR6033	DUPW1
	mg/L	SS3-6	4/13/2020	0.074	0.074	XR6034	DUPW2
	mg/L	SS3-7	4/13/2020	0.088	0.088	XR6035	GW
	mg/L	SS3-8	4/13/2020	0.13	0.13	XR6036	GW
	Antimony (Sb) - Dissolved	ug/L	CONTROL 1	4/13/2020	<0.020	0.01	XR5671
ug/L		CONTROL 2	4/14/2020	<0.020	0.01	XR5672	GW
ug/L		CONTROL 3	4/13/2020	<0.020	0.01	XR5673	GW
ug/L		SS BAG	4/17/2020	<0.020	0.01	XR5674	EBW
ug/L		SS BAG	4/17/2020	<0.020	0.01	XR5675	GW
ug/L		SS1-4	4/12/2020	<0.020	0.01	XR6022	DUPW1
ug/L		SS1-4	4/12/2020	<0.020	0.01	XR6023	DUPW2
ug/L		SS1-5	4/12/2020	<0.020	0.01	XR6024	GW
ug/L		SS2-1	4/12/2020	<0.020	0.01	XR5777	GW
ug/L		SS2-2	4/12/2020	<0.020	0.01	XR5778	GW
ug/L		SS2-3	4/12/2020	<0.020	0.01	XR5779	DUPW1
ug/L		SS2-3	4/12/2020	<0.020	0.01	XR5780	DUPW2
ug/L		SS2-4	4/11/2020	<0.020	0.01	XR5781	GW
ug/L		SS3-4	4/13/2020	<0.020	0.01	XR6031	GW
ug/L		SS3-5	4/13/2020	<0.020	0.01	XR6032	GW
ug/L		SS3-6	4/13/2020	<0.020	0.01	XR6033	DUPW1
ug/L		SS3-6	4/13/2020	<0.020	0.01	XR6034	DUPW2
ug/L		SS3-7	4/13/2020	<0.020	0.01	XR6035	GW
ug/L		SS3-8	4/13/2020	<0.020	0.01	XR6036	GW
ug/L		SS4-4	4/14/2020	0.020	0.02	XR5669	GW
ug/L	SS4-5	4/14/2020	<0.020	0.01	XR5670	GW	
ug/L	SS5-3	4/13/2020	0.040	0.04	XR6025	GW	
ug/L	SS5-4	4/13/2020	<0.020	0.01	XR6026	GW	
ug/L	SS5-5	4/13/2020	<0.020	0.01	XR6027	GW	

## Appendix D: Snow Water Chemistry Analytical Results

Parameter	Unit	Sample Point	Date	Data Point	Graphable Value	Lab Ref	Sample Type
Antimony (Sb) - Total	ug/L	CONTROL 1	4/13/2020	<0.020	0.01	XR5671	GW
	ug/L	CONTROL 2	4/14/2020	<0.020	0.01	XR5672	GW
	ug/L	CONTROL 3	4/13/2020	<0.020	0.01	XR5673	GW
	ug/L	SS BAG	4/17/2020	<0.020	0.01	XR5674	EBW
	ug/L	SS BAG	4/17/2020	<0.020	0.01	XR5675	GW
	ug/L	SS1-4	4/12/2020	<0.020	0.01	XR6022	DUPW1
	ug/L	SS1-4	4/12/2020	<0.020	0.01	XR6023	DUPW2
	ug/L	SS1-5	4/12/2020	<0.020	0.01	XR6024	GW
	ug/L	SS2-1	4/12/2020	<0.020	0.01	XR5777	GW
	ug/L	SS2-2	4/12/2020	<0.020	0.01	XR5778	GW
	ug/L	SS2-3	4/12/2020	<0.020	0.01	XR5779	DUPW1
	ug/L	SS2-3	4/12/2020	<0.020	0.01	XR5780	DUPW2
	ug/L	SS2-4	4/11/2020	<0.020	0.01	XR5781	GW
	ug/L	SS3-4	4/13/2020	<0.020	0.01	XR6031	GW
	ug/L	SS3-5	4/13/2020	<0.020	0.01	XR6032	GW
	ug/L	SS3-6	4/13/2020	<0.020	0.01	XR6033	DUPW1
	ug/L	SS3-6	4/13/2020	<0.020	0.01	XR6034	DUPW2
	ug/L	SS3-7	4/13/2020	<0.020	0.01	XR6035	GW
	ug/L	SS3-8	4/13/2020	<0.020	0.01	XR6036	GW
	ug/L	SS4-4	4/14/2020	<0.020	0.01	XR5669	GW
	ug/L	SS4-5	4/14/2020	<0.020	0.01	XR5670	GW
	ug/L	SS5-3	4/13/2020	0.039	0.039	XR6025	GW
	ug/L	SS5-4	4/13/2020	<0.020	0.01	XR6026	GW
ug/L	SS5-5	4/13/2020	<0.020	0.01	XR6027	GW	
Arsenic (As) - Dissolved	ug/L	CONTROL 1	4/13/2020	0.033	0.033	XR5671	GW
	ug/L	CONTROL 2	4/14/2020	0.024	0.024	XR5672	GW
	ug/L	CONTROL 3	4/13/2020	0.052	0.052	XR5673	GW
	ug/L	SS BAG	4/17/2020	<0.020	0.01	XR5674	EBW
	ug/L	SS BAG	4/17/2020	0.023	0.023	XR5675	GW
	ug/L	SS1-4	4/12/2020	0.032	0.032	XR6022	DUPW1
	ug/L	SS1-4	4/12/2020	0.028	0.028	XR6023	DUPW2
	ug/L	SS1-5	4/12/2020	<0.020	0.01	XR6024	GW
	ug/L	SS2-1	4/12/2020	0.041	0.041	XR5777	GW
	ug/L	SS2-2	4/12/2020	0.029	0.029	XR5778	GW
	ug/L	SS2-3	4/12/2020	<0.020	0.01	XR5779	DUPW1
	ug/L	SS2-3	4/12/2020	<0.020	0.01	XR5780	DUPW2
	ug/L	SS2-4	4/11/2020	<0.020	0.01	XR5781	GW
	ug/L	SS3-4	4/13/2020	0.065	0.065	XR6031	GW
	ug/L	SS3-5	4/13/2020	0.041	0.041	XR6032	GW
	ug/L	SS3-6	4/13/2020	0.065	0.065	XR6033	DUPW1
	ug/L	SS3-6	4/13/2020	0.081	0.081	XR6034	DUPW2
	ug/L	SS3-7	4/13/2020	0.075	0.075	XR6035	GW
	ug/L	SS3-8	4/13/2020	0.067	0.067	XR6036	GW
	ug/L	SS4-4	4/14/2020	0.023	0.023	XR5669	GW
	ug/L	SS4-5	4/14/2020	0.022	0.022	XR5670	GW
	ug/L	SS5-3	4/13/2020	0.070	0.07	XR6025	GW
	ug/L	SS5-4	4/13/2020	0.044	0.044	XR6026	GW
ug/L	SS5-5	4/13/2020	0.050	0.05	XR6027	GW	

## Appendix D: Snow Water Chemistry Analytical Results

Parameter	Unit	Sample Point	Date	Data Point	Graphable Value	Lab Ref	Sample Type
Arsenic (As) - Total	ug/L	CONTROL 1	4/13/2020	0.029	0.029	XR5671	GW
	ug/L	CONTROL 2	4/14/2020	0.047	0.047	XR5672	GW
	ug/L	CONTROL 3	4/13/2020	0.035	0.035	XR5673	GW
	ug/L	SS BAG	4/17/2020	<0.020	0.01	XR5674	EBW
	ug/L	SS BAG	4/17/2020	0.032	0.032	XR5675	GW
	ug/L	SS1-4	4/12/2020	0.048	0.048	XR6022	DUPW1
	ug/L	SS1-4	4/12/2020	0.061	0.061	XR6023	DUPW2
	ug/L	SS1-5	4/12/2020	0.021	0.021	XR6024	GW
	ug/L	SS2-1	4/12/2020	0.039	0.039	XR5777	GW
	ug/L	SS2-2	4/12/2020	0.037	0.037	XR5778	GW
	ug/L	SS2-3	4/12/2020	<0.020	0.01	XR5779	DUPW1
	ug/L	SS2-3	4/12/2020	<0.020	0.01	XR5780	DUPW2
	ug/L	SS2-4	4/11/2020	<0.020	0.01	XR5781	GW
	ug/L	SS3-4	4/13/2020	0.040	0.04	XR6031	GW
	ug/L	SS3-5	4/13/2020	0.039	0.039	XR6032	GW
	ug/L	SS3-6	4/13/2020	0.045	0.045	XR6033	DUPW1
	ug/L	SS3-6	4/13/2020	0.053	0.053	XR6034	DUPW2
	ug/L	SS3-7	4/13/2020	0.090	0.09	XR6035	GW
	ug/L	SS3-8	4/13/2020	0.059	0.059	XR6036	GW
	Barium (Ba) - Dissolved	ug/L	CONTROL 1	4/13/2020	0.647	0.647	XR5671
ug/L		CONTROL 2	4/14/2020	1.33	1.33	XR5672	GW
ug/L		CONTROL 3	4/13/2020	1.15	1.15	XR5673	GW
ug/L		SS BAG	4/17/2020	0.030	0.03	XR5674	EBW
ug/L		SS BAG	4/17/2020	0.029	0.029	XR5675	GW
ug/L		SS1-4	4/12/2020	3.37	3.37	XR6022	DUPW1
ug/L		SS1-4	4/12/2020	1.64	1.64	XR6023	DUPW2
ug/L		SS1-5	4/12/2020	0.784	0.784	XR6024	GW
ug/L		SS2-1	4/12/2020	1.15	1.15	XR5777	GW
ug/L		SS2-2	4/12/2020	1.01	1.01	XR5778	GW
ug/L		SS2-3	4/12/2020	1.50	1.5	XR5779	DUPW1
ug/L		SS2-3	4/12/2020	0.756	0.756	XR5780	DUPW2
ug/L		SS2-4	4/11/2020	0.686	0.686	XR5781	GW
ug/L		SS3-4	4/13/2020	3.59	3.59	XR6031	GW
ug/L		SS3-5	4/13/2020	0.882	0.882	XR6032	GW
ug/L		SS3-6	4/13/2020	4.61	4.61	XR6033	DUPW1
ug/L		SS3-6	4/13/2020	3.66	3.66	XR6034	DUPW2
ug/L		SS3-7	4/13/2020	5.53	5.53	XR6035	GW
ug/L		SS3-8	4/13/2020	4.72	4.72	XR6036	GW
ug/L		SS4-4	4/14/2020	1.61	1.61	XR5669	GW
ug/L	SS4-5	4/14/2020	0.939	0.939	XR5670	GW	
ug/L	SS5-3	4/13/2020	2.03	2.03	XR6025	GW	
ug/L	SS5-4	4/13/2020	1.15	1.15	XR6026	GW	
ug/L	SS5-5	4/13/2020	1.56	1.56	XR6027	GW	

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Parameter	Unit	Sample Point	Date	Data Point	Graphable Value	Lab Ref	Sample Type
Barium (Ba) - Total	ug/L	CONTROL 1	4/13/2020	0.611	0.611	XR5671	GW
	ug/L	CONTROL 2	4/14/2020	1.45	1.45	XR5672	GW
	ug/L	CONTROL 3	4/13/2020	1.28	1.28	XR5673	GW
	ug/L	SS BAG	4/17/2020	0.080	0.08	XR5674	EBW
	ug/L	SS BAG	4/17/2020	0.053	0.053	XR5675	GW
	ug/L	SS1-4	4/12/2020	4.35	4.35	XR6022	DUPW1
	ug/L	SS1-4	4/12/2020	2.01	2.01	XR6023	DUPW2
	ug/L	SS1-5	4/12/2020	0.897	0.897	XR6024	GW
	ug/L	SS2-1	4/12/2020	1.27	1.27	XR5777	GW
	ug/L	SS2-2	4/12/2020	1.14	1.14	XR5778	GW
	ug/L	SS2-3	4/12/2020	0.868	0.868	XR5779	DUPW1
	ug/L	SS2-3	4/12/2020	0.819	0.819	XR5780	DUPW2
	ug/L	SS2-4	4/11/2020	0.713	0.713	XR5781	GW
	ug/L	SS3-4	4/13/2020	3.52	3.52	XR6031	GW
	ug/L	SS3-5	4/13/2020	1.09	1.09	XR6032	GW
	ug/L	SS3-6	4/13/2020	4.67	4.67	XR6033	DUPW1
	ug/L	SS3-6	4/13/2020	5.34	5.34	XR6034	DUPW2
	ug/L	SS3-7	4/13/2020	7.09	7.09	XR6035	GW
	ug/L	SS3-8	4/13/2020	6.39	6.39	XR6036	GW
	ug/L	SS4-4	4/14/2020	3.25	3.25	XR5669	GW
	ug/L	SS4-5	4/14/2020	3.15	3.15	XR5670	GW
	ug/L	SS5-3	4/13/2020	3.54	3.54	XR6025	GW
	ug/L	SS5-4	4/13/2020	1.24	1.24	XR6026	GW
ug/L	SS5-5	4/13/2020	2.02	2.02	XR6027	GW	
Beryllium (Be) - Dissolved	ug/L	CONTROL 1	4/13/2020	<0.010	0.005	XR5671	GW
	ug/L	CONTROL 2	4/14/2020	<0.010	0.005	XR5672	GW
	ug/L	CONTROL 3	4/13/2020	<0.010	0.005	XR5673	GW
	ug/L	SS BAG	4/17/2020	<0.010	0.005	XR5674	EBW
	ug/L	SS BAG	4/17/2020	<0.010	0.005	XR5675	GW
	ug/L	SS1-4	4/12/2020	<0.010	0.005	XR6022	DUPW1
	ug/L	SS1-4	4/12/2020	<0.010	0.005	XR6023	DUPW2
	ug/L	SS1-5	4/12/2020	<0.010	0.005	XR6024	GW
	ug/L	SS2-1	4/12/2020	<0.010	0.005	XR5777	GW
	ug/L	SS2-2	4/12/2020	<0.010	0.005	XR5778	GW
	ug/L	SS2-3	4/12/2020	<0.010	0.005	XR5779	DUPW1
	ug/L	SS2-3	4/12/2020	<0.010	0.005	XR5780	DUPW2
	ug/L	SS2-4	4/11/2020	<0.010	0.005	XR5781	GW
	ug/L	SS3-4	4/13/2020	<0.010	0.005	XR6031	GW
	ug/L	SS3-5	4/13/2020	<0.010	0.005	XR6032	GW
	ug/L	SS3-6	4/13/2020	<0.010	0.005	XR6033	DUPW1
	ug/L	SS3-6	4/13/2020	<0.010	0.005	XR6034	DUPW2
	ug/L	SS3-7	4/13/2020	<0.010	0.005	XR6035	GW
	ug/L	SS3-8	4/13/2020	<0.010	0.005	XR6036	GW
	ug/L	SS4-4	4/14/2020	<0.010	0.005	XR5669	GW
	ug/L	SS4-5	4/14/2020	<0.010	0.005	XR5670	GW
	ug/L	SS5-3	4/13/2020	<0.010	0.005	XR6025	GW
	ug/L	SS5-4	4/13/2020	<0.010	0.005	XR6026	GW
ug/L	SS5-5	4/13/2020	<0.010	0.005	XR6027	GW	

**Appendix D: Snow Water Chemistry Analytical Results**

Parameter	Unit	Sample Point	Date	Data Point	Graphable Value	Lab Ref	Sample Type
Beryllium (Be) - Total	ug/L	CONTROL 1	4/13/2020	<0.010	0.005	XR5671	GW
	ug/L	CONTROL 2	4/14/2020	<0.010	0.005	XR5672	GW
	ug/L	CONTROL 3	4/13/2020	<0.010	0.005	XR5673	GW
	ug/L	SS BAG	4/17/2020	<0.010	0.005	XR5674	EBW
	ug/L	SS BAG	4/17/2020	<0.010	0.005	XR5675	GW
	ug/L	SS1-4	4/12/2020	<0.010	0.005	XR6022	DUPW1
	ug/L	SS1-4	4/12/2020	<0.010	0.005	XR6023	DUPW2
	ug/L	SS1-5	4/12/2020	<0.010	0.005	XR6024	GW
	ug/L	SS2-1	4/12/2020	<0.010	0.005	XR5777	GW
	ug/L	SS2-2	4/12/2020	<0.010	0.005	XR5778	GW
	ug/L	SS2-3	4/12/2020	<0.010	0.005	XR5779	DUPW1
	ug/L	SS2-3	4/12/2020	<0.010	0.005	XR5780	DUPW2
	ug/L	SS2-4	4/11/2020	<0.010	0.005	XR5781	GW
	ug/L	SS3-4	4/13/2020	<0.010	0.005	XR6031	GW
	ug/L	SS3-5	4/13/2020	<0.010	0.005	XR6032	GW
	ug/L	SS3-6	4/13/2020	<0.010	0.005	XR6033	DUPW1
	ug/L	SS3-6	4/13/2020	<0.010	0.005	XR6034	DUPW2
	ug/L	SS3-7	4/13/2020	<0.010	0.005	XR6035	GW
	ug/L	SS3-8	4/13/2020	<0.010	0.005	XR6036	GW
	ug/L	SS4-4	4/14/2020	<0.010	0.005	XR5669	GW
	ug/L	SS4-5	4/14/2020	<0.010	0.005	XR5670	GW
	ug/L	SS5-3	4/13/2020	<0.010	0.005	XR6025	GW
	ug/L	SS5-4	4/13/2020	<0.010	0.005	XR6026	GW
ug/L	SS5-5	4/13/2020	<0.010	0.005	XR6027	GW	
Bicarbonate (HCO <sub>3</sub> )	mg/L	CONTROL 1	4/13/2020	<0.50	0.25	XR5671	GW
	mg/L	CONTROL 2	4/14/2020	<0.50	0.25	XR5672	GW
	mg/L	CONTROL 3	4/13/2020	<0.50	0.25	XR5673	GW
	mg/L	SS BAG	4/17/2020	<0.50	0.25	XR5674	EBW
	mg/L	SS BAG	4/17/2020	<0.50	0.25	XR5675	GW
	mg/L	SS1-4	4/12/2020	0.65	0.65	XR6022	DUPW1
	mg/L	SS1-4	4/12/2020	<0.50	0.25	XR6023	DUPW2
	mg/L	SS1-5	4/12/2020	<0.50	0.25	XR6024	GW
	mg/L	SS2-1	4/12/2020	<0.50	0.25	XR5777	GW
	mg/L	SS2-2	4/12/2020	<0.50	0.25	XR5778	GW
	mg/L	SS2-3	4/12/2020	0.72	0.72	XR5779	DUPW1
	mg/L	SS2-3	4/12/2020	0.83	0.83	XR5780	DUPW2
	mg/L	SS2-4	4/11/2020	<0.50	0.25	XR5781	GW
	mg/L	SS3-4	4/13/2020	1.57	1.57	XR6031	GW
	mg/L	SS3-5	4/13/2020	0.80	0.8	XR6032	GW
	mg/L	SS3-6	4/13/2020	3.95	3.95	XR6033	DUPW1
	mg/L	SS3-6	4/13/2020	3.84	3.84	XR6034	DUPW2
	mg/L	SS3-7	4/13/2020	5.18	5.18	XR6035	GW
	mg/L	SS3-8	4/13/2020	3.37	3.37	XR6036	GW
	mg/L	SS4-4	4/14/2020	0.64	0.64	XR5669	GW
	mg/L	SS4-5	4/14/2020	<0.50	0.25	XR5670	GW
	mg/L	SS5-3	4/13/2020	0.78	0.78	XR6025	GW
	mg/L	SS5-4	4/13/2020	<0.50	0.25	XR6026	GW
mg/L	SS5-5	4/13/2020	<0.50	0.25	XR6027	GW	



**Appendix D: Snow Water Chemistry Analytical Results**

Parameter	Unit	Sample Point	Date	Data Point	Graphable Value	Lab Ref	Sample Type
Bismuth (Bi) - Dissolved	ug/L	CONTROL 1	4/13/2020	<0.0050	0.0025	XR5671	GW
	ug/L	CONTROL 2	4/14/2020	<0.0050	0.0025	XR5672	GW
	ug/L	CONTROL 3	4/13/2020	<0.0050	0.0025	XR5673	GW
	ug/L	SS BAG	4/17/2020	<0.0050	0.0025	XR5674	EBW
	ug/L	SS BAG	4/17/2020	<0.0050	0.0025	XR5675	GW
	ug/L	SS1-4	4/12/2020	<0.0050	0.0025	XR6022	DUPW1
	ug/L	SS1-4	4/12/2020	<0.0050	0.0025	XR6023	DUPW2
	ug/L	SS1-5	4/12/2020	<0.0050	0.0025	XR6024	GW
	ug/L	SS2-1	4/12/2020	<0.0050	0.0025	XR5777	GW
	ug/L	SS2-2	4/12/2020	<0.0050	0.0025	XR5778	GW
	ug/L	SS2-3	4/12/2020	<0.0050	0.0025	XR5779	DUPW1
	ug/L	SS2-3	4/12/2020	<0.0050	0.0025	XR5780	DUPW2
	ug/L	SS2-4	4/11/2020	<0.0050	0.0025	XR5781	GW
	ug/L	SS3-4	4/13/2020	<0.0050	0.0025	XR6031	GW
	ug/L	SS3-5	4/13/2020	<0.0050	0.0025	XR6032	GW
	ug/L	SS3-6	4/13/2020	<0.0050	0.0025	XR6033	DUPW1
	ug/L	SS3-6	4/13/2020	<0.0050	0.0025	XR6034	DUPW2
	ug/L	SS3-7	4/13/2020	<0.0050	0.0025	XR6035	GW
	ug/L	SS3-8	4/13/2020	<0.0050	0.0025	XR6036	GW
	ug/L	SS4-4	4/14/2020	<0.0050	0.0025	XR5669	GW
	ug/L	SS4-5	4/14/2020	<0.0050	0.0025	XR5670	GW
	ug/L	SS5-3	4/13/2020	<0.0050	0.0025	XR6025	GW
	ug/L	SS5-4	4/13/2020	<0.0050	0.0025	XR6026	GW
ug/L	SS5-5	4/13/2020	<0.0050	0.0025	XR6027	GW	
Bismuth (Bi) - Total	ug/L	CONTROL 1	4/13/2020	<0.0050	0.0025	XR5671	GW
	ug/L	CONTROL 2	4/14/2020	<0.0050	0.0025	XR5672	GW
	ug/L	CONTROL 3	4/13/2020	<0.0050	0.0025	XR5673	GW
	ug/L	SS BAG	4/17/2020	<0.0050	0.0025	XR5674	EBW
	ug/L	SS BAG	4/17/2020	<0.0050	0.0025	XR5675	GW
	ug/L	SS1-4	4/12/2020	<0.0050	0.0025	XR6022	DUPW1
	ug/L	SS1-4	4/12/2020	<0.0050	0.0025	XR6023	DUPW2
	ug/L	SS1-5	4/12/2020	<0.0050	0.0025	XR6024	GW
	ug/L	SS2-1	4/12/2020	<0.0050	0.0025	XR5777	GW
	ug/L	SS2-2	4/12/2020	<0.0050	0.0025	XR5778	GW
	ug/L	SS2-3	4/12/2020	<0.0050	0.0025	XR5779	DUPW1
	ug/L	SS2-3	4/12/2020	<0.0050	0.0025	XR5780	DUPW2
	ug/L	SS2-4	4/11/2020	<0.0050	0.0025	XR5781	GW
	ug/L	SS3-4	4/13/2020	<0.0050	0.0025	XR6031	GW
	ug/L	SS3-5	4/13/2020	<0.0050	0.0025	XR6032	GW
	ug/L	SS3-6	4/13/2020	<0.0050	0.0025	XR6033	DUPW1
	ug/L	SS3-6	4/13/2020	<0.0050	0.0025	XR6034	DUPW2
	ug/L	SS3-7	4/13/2020	0.0052	0.0052	XR6035	GW
	ug/L	SS3-8	4/13/2020	0.0064	0.0064	XR6036	GW
	ug/L	SS4-4	4/14/2020	<0.0050	0.0025	XR5669	GW
	ug/L	SS4-5	4/14/2020	<0.0050	0.0025	XR5670	GW
	ug/L	SS5-3	4/13/2020	0.0227	0.0227	XR6025	GW
	ug/L	SS5-4	4/13/2020	<0.0050	0.0025	XR6026	GW
ug/L	SS5-5	4/13/2020	<0.0050	0.0025	XR6027	GW	

## Appendix D: Snow Water Chemistry Analytical Results

Parameter	Unit	Sample Point	Date	Data Point	Graphable Value	Lab Ref	Sample Type
Boron (B) - Dissolved	ug/L	CONTROL 1	4/13/2020	<5.0	2.5	XR5671	GW
	ug/L	CONTROL 2	4/14/2020	<5.0	2.5	XR5672	GW
	ug/L	CONTROL 3	4/13/2020	<5.0	2.5	XR5673	GW
	ug/L	SS BAG	4/17/2020	<5.0	2.5	XR5674	EBW
	ug/L	SS BAG	4/17/2020	<5.0	2.5	XR5675	GW
	ug/L	SS1-4	4/12/2020	<5.0	2.5	XR6022	DUPW1
	ug/L	SS1-4	4/12/2020	<5.0	2.5	XR6023	DUPW2
	ug/L	SS1-5	4/12/2020	<5.0	2.5	XR6024	GW
	ug/L	SS2-1	4/12/2020	<5.0	2.5	XR5777	GW
	ug/L	SS2-2	4/12/2020	<5.0	2.5	XR5778	GW
	ug/L	SS2-3	4/12/2020	<5.0	2.5	XR5779	DUPW1
	ug/L	SS2-3	4/12/2020	<5.0	2.5	XR5780	DUPW2
	ug/L	SS2-4	4/11/2020	<5.0	2.5	XR5781	GW
	ug/L	SS3-4	4/13/2020	<5.0	2.5	XR6031	GW
	ug/L	SS3-5	4/13/2020	<5.0	2.5	XR6032	GW
	ug/L	SS3-6	4/13/2020	<5.0	2.5	XR6033	DUPW1
	ug/L	SS3-6	4/13/2020	<5.0	2.5	XR6034	DUPW2
	ug/L	SS3-7	4/13/2020	<5.0	2.5	XR6035	GW
	ug/L	SS3-8	4/13/2020	<5.0	2.5	XR6036	GW
	ug/L	SS4-4	4/14/2020	<5.0	2.5	XR5669	GW
	ug/L	SS4-5	4/14/2020	<5.0	2.5	XR5670	GW
	ug/L	SS5-3	4/13/2020	<5.0	2.5	XR6025	GW
	ug/L	SS5-4	4/13/2020	<5.0	2.5	XR6026	GW
	ug/L	SS5-5	4/13/2020	<5.0	2.5	XR6027	GW
Boron (B) - Total	ug/L	CONTROL 1	4/13/2020	<5.0	2.5	XR5671	GW
	ug/L	CONTROL 2	4/14/2020	<5.0	2.5	XR5672	GW
	ug/L	CONTROL 3	4/13/2020	<5.0	2.5	XR5673	GW
	ug/L	SS BAG	4/17/2020	<5.0	2.5	XR5674	EBW
	ug/L	SS BAG	4/17/2020	<5.0	2.5	XR5675	GW
	ug/L	SS1-4	4/12/2020	<5.0	2.5	XR6022	DUPW1
	ug/L	SS1-4	4/12/2020	<5.0	2.5	XR6023	DUPW2
	ug/L	SS1-5	4/12/2020	<5.0	2.5	XR6024	GW
	ug/L	SS2-1	4/12/2020	<5.0	2.5	XR5777	GW
	ug/L	SS2-2	4/12/2020	<5.0	2.5	XR5778	GW
	ug/L	SS2-3	4/12/2020	<5.0	2.5	XR5779	DUPW1
	ug/L	SS2-3	4/12/2020	<5.0	2.5	XR5780	DUPW2
	ug/L	SS2-4	4/11/2020	<5.0	2.5	XR5781	GW
	ug/L	SS3-4	4/13/2020	<5.0	2.5	XR6031	GW
	ug/L	SS3-5	4/13/2020	<5.0	2.5	XR6032	GW
	ug/L	SS3-6	4/13/2020	<5.0	2.5	XR6033	DUPW1
	ug/L	SS3-6	4/13/2020	<5.0	2.5	XR6034	DUPW2
	ug/L	SS3-7	4/13/2020	<5.0	2.5	XR6035	GW
	ug/L	SS3-8	4/13/2020	<5.0	2.5	XR6036	GW
	ug/L	SS4-4	4/14/2020	<5.0	2.5	XR5669	GW
	ug/L	SS4-5	4/14/2020	<5.0	2.5	XR5670	GW
	ug/L	SS5-3	4/13/2020	<5.0	2.5	XR6025	GW
	ug/L	SS5-4	4/13/2020	<5.0	2.5	XR6026	GW
	ug/L	SS5-5	4/13/2020	<5.0	2.5	XR6027	GW

**Appendix D: Snow Water Chemistry Analytical Results**

Parameter	Unit	Sample Point	Date	Data Point	Graphable Value	Lab Ref	Sample Type
Cadmium (Cd) - Dissolved	ug/L	CONTROL 1	4/13/2020	0.0054	0.0054	XR5671	GW
	ug/L	CONTROL 2	4/14/2020	<0.0050	0.0025	XR5672	GW
	ug/L	CONTROL 3	4/13/2020	<0.0050	0.0025	XR5673	GW
	ug/L	SS BAG	4/17/2020	<0.0050	0.0025	XR5674	EBW
	ug/L	SS BAG	4/17/2020	<0.0050	0.0025	XR5675	GW
	ug/L	SS1-4	4/12/2020	<0.0050	0.0025	XR6022	DUPW1
	ug/L	SS1-4	4/12/2020	<0.0050	0.0025	XR6023	DUPW2
	ug/L	SS1-5	4/12/2020	<0.0050	0.0025	XR6024	GW
	ug/L	SS2-1	4/12/2020	<0.0050	0.0025	XR5777	GW
	ug/L	SS2-2	4/12/2020	<0.0050	0.0025	XR5778	GW
	ug/L	SS2-3	4/12/2020	<0.0050	0.0025	XR5779	DUPW1
	ug/L	SS2-3	4/12/2020	<0.0050	0.0025	XR5780	DUPW2
	ug/L	SS2-4	4/11/2020	<0.0050	0.0025	XR5781	GW
	ug/L	SS3-4	4/13/2020	<0.0050	0.0025	XR6031	GW
	ug/L	SS3-5	4/13/2020	<0.0050	0.0025	XR6032	GW
	ug/L	SS3-6	4/13/2020	<0.0050	0.0025	XR6033	DUPW1
	ug/L	SS3-6	4/13/2020	<0.0050	0.0025	XR6034	DUPW2
	ug/L	SS3-7	4/13/2020	<0.0050	0.0025	XR6035	GW
	ug/L	SS3-8	4/13/2020	<0.0050	0.0025	XR6036	GW
	Cadmium (Cd) - Total	ug/L	CONTROL 1	4/13/2020	<0.0050	0.0025	XR5671
ug/L		CONTROL 2	4/14/2020	<0.0050	0.0025	XR5672	GW
ug/L		CONTROL 3	4/13/2020	<0.0050	0.0025	XR5673	GW
ug/L		SS BAG	4/17/2020	<0.0050	0.0025	XR5674	EBW
ug/L		SS BAG	4/17/2020	<0.0050	0.0025	XR5675	GW
ug/L		SS1-4	4/12/2020	<0.0050	0.0025	XR6022	DUPW1
ug/L		SS1-4	4/12/2020	<0.0050	0.0025	XR6023	DUPW2
ug/L		SS1-5	4/12/2020	<0.0050	0.0025	XR6024	GW
ug/L		SS2-1	4/12/2020	<0.0050	0.0025	XR5777	GW
ug/L		SS2-2	4/12/2020	<0.0050	0.0025	XR5778	GW
ug/L		SS2-3	4/12/2020	<0.0050	0.0025	XR5779	DUPW1
ug/L		SS2-3	4/12/2020	<0.0050	0.0025	XR5780	DUPW2
ug/L		SS2-4	4/11/2020	<0.0050	0.0025	XR5781	GW
ug/L		SS3-4	4/13/2020	<0.0050	0.0025	XR6031	GW
ug/L		SS3-5	4/13/2020	<0.0050	0.0025	XR6032	GW
ug/L		SS3-6	4/13/2020	<0.0050	0.0025	XR6033	DUPW1
ug/L		SS3-6	4/13/2020	<0.0050	0.0025	XR6034	DUPW2
ug/L		SS3-7	4/13/2020	<0.0050	0.0025	XR6035	GW
ug/L		SS3-8	4/13/2020	<0.0050	0.0025	XR6036	GW
ug/L		SS4-4	4/14/2020	<0.0050	0.0025	XR5669	GW
ug/L	SS4-5	4/14/2020	<0.0050	0.0025	XR5670	GW	
ug/L	SS5-3	4/13/2020	<0.0050	0.0025	XR6025	GW	
ug/L	SS5-4	4/13/2020	<0.0050	0.0025	XR6026	GW	
ug/L	SS5-5	4/13/2020	<0.0050	0.0025	XR6027	GW	

**Appendix D: Snow Water Chemistry Analytical Results**

Parameter	Unit	Sample Point	Date	Data Point	Graphable Value	Lab Ref	Sample Type
Calcium (Ca) - Dissolved	mg/L	CONTROL 1	4/13/2020	0.150	0.15	XR5671	GW
	mg/L	CONTROL 2	4/14/2020	0.136	0.136	XR5672	GW
	mg/L	CONTROL 3	4/13/2020	0.152	0.152	XR5673	GW
	mg/L	SS BAG	4/17/2020	0.027	0.027	XR5674	EBW
	mg/L	SS BAG	4/17/2020	0.019	0.019	XR5675	GW
	mg/L	SS1-4	4/12/2020	0.137	0.137	XR6022	DUPW1
	mg/L	SS1-4	4/12/2020	0.149	0.149	XR6023	DUPW2
	mg/L	SS1-5	4/12/2020	0.169	0.169	XR6024	GW
	mg/L	SS2-1	4/12/2020	0.214	0.214	XR5777	GW
	mg/L	SS2-2	4/12/2020	0.183	0.183	XR5778	GW
	mg/L	SS2-3	4/12/2020	0.167	0.167	XR5779	DUPW1
	mg/L	SS2-3	4/12/2020	0.129	0.129	XR5780	DUPW2
	mg/L	SS2-4	4/11/2020	0.087	0.087	XR5781	GW
	mg/L	SS3-4	4/13/2020	0.626	0.626	XR6031	GW
	mg/L	SS3-5	4/13/2020	0.198	0.198	XR6032	GW
	mg/L	SS3-6	4/13/2020	1.39	1.39	XR6033	DUPW1
	mg/L	SS3-6	4/13/2020	1.45	1.45	XR6034	DUPW2
	mg/L	SS3-7	4/13/2020	1.76	1.76	XR6035	GW
	mg/L	SS3-8	4/13/2020	1.23	1.23	XR6036	GW
	Calcium (Ca) - Total	mg/L	CONTROL 1	4/13/2020	0.125	0.125	XR5671
mg/L		CONTROL 2	4/14/2020	0.128	0.128	XR5672	GW
mg/L		CONTROL 3	4/13/2020	0.146	0.146	XR5673	GW
mg/L		SS BAG	4/17/2020	<0.010	0.005	XR5674	EBW
mg/L		SS BAG	4/17/2020	<0.010	0.005	XR5675	GW
mg/L		SS1-4	4/12/2020	0.137	0.137	XR6022	DUPW1
mg/L		SS1-4	4/12/2020	0.147	0.147	XR6023	DUPW2
mg/L		SS1-5	4/12/2020	0.159	0.159	XR6024	GW
mg/L		SS2-1	4/12/2020	0.197	0.197	XR5777	GW
mg/L		SS2-2	4/12/2020	0.153	0.153	XR5778	GW
mg/L		SS2-3	4/12/2020	0.154	0.154	XR5779	DUPW1
mg/L		SS2-3	4/12/2020	0.112	0.112	XR5780	DUPW2
mg/L		SS2-4	4/11/2020	0.070	0.07	XR5781	GW
mg/L		SS3-4	4/13/2020	0.565	0.565	XR6031	GW
mg/L		SS3-5	4/13/2020	0.169	0.169	XR6032	GW
mg/L		SS3-6	4/13/2020	1.34	1.34	XR6033	DUPW1
mg/L		SS3-6	4/13/2020	1.22	1.22	XR6034	DUPW2
mg/L		SS3-7	4/13/2020	1.83	1.83	XR6035	GW
mg/L		SS3-8	4/13/2020	1.25	1.25	XR6036	GW
mg/L		SS4-4	4/14/2020	0.331	0.331	XR5669	GW
mg/L	SS4-5	4/14/2020	0.155	0.155	XR5670	GW	
mg/L	SS5-3	4/13/2020	0.299	0.299	XR6025	GW	
mg/L	SS5-4	4/13/2020	0.121	0.121	XR6026	GW	
mg/L	SS5-5	4/13/2020	0.117	0.117	XR6027	GW	

## Appendix D: Snow Water Chemistry Analytical Results

Parameter	Unit	Sample Point	Date	Data Point	Graphable Value	Lab Ref	Sample Type
Carbonate (CO <sub>3</sub> )	mg/L	CONTROL 1	4/13/2020	<0.50	0.25	XR5671	GW
	mg/L	CONTROL 2	4/14/2020	<0.50	0.25	XR5672	GW
	mg/L	CONTROL 3	4/13/2020	<0.50	0.25	XR5673	GW
	mg/L	SS BAG	4/17/2020	<0.50	0.25	XR5674	EBW
	mg/L	SS BAG	4/17/2020	<0.50	0.25	XR5675	GW
	mg/L	SS1-4	4/12/2020	<0.50	0.25	XR6022	DUPW1
	mg/L	SS1-4	4/12/2020	<0.50	0.25	XR6023	DUPW2
	mg/L	SS1-5	4/12/2020	<0.50	0.25	XR6024	GW
	mg/L	SS2-1	4/12/2020	<0.50	0.25	XR5777	GW
	mg/L	SS2-2	4/12/2020	<0.50	0.25	XR5778	GW
	mg/L	SS2-3	4/12/2020	<0.50	0.25	XR5779	DUPW1
	mg/L	SS2-3	4/12/2020	<0.50	0.25	XR5780	DUPW2
	mg/L	SS2-4	4/11/2020	<0.50	0.25	XR5781	GW
	mg/L	SS3-4	4/13/2020	<0.50	0.25	XR6031	GW
	mg/L	SS3-5	4/13/2020	<0.50	0.25	XR6032	GW
	mg/L	SS3-6	4/13/2020	<0.50	0.25	XR6033	DUPW1
	mg/L	SS3-6	4/13/2020	<0.50	0.25	XR6034	DUPW2
	mg/L	SS3-7	4/13/2020	<0.50	0.25	XR6035	GW
	mg/L	SS3-8	4/13/2020	<0.50	0.25	XR6036	GW
	Chloride (Cl) - Dissolved	mg/L	CONTROL 1	4/13/2020	<0.50	0.5	XR5671
mg/L		CONTROL 2	4/14/2020	0.59	0.59	XR5672	GW
mg/L		CONTROL 3	4/13/2020	1.0	1	XR5673	GW
mg/L		SS BAG	4/17/2020	0.87	0.87	XR5674	EBW
mg/L		SS BAG	4/17/2020	<0.50	0.5	XR5675	GW
mg/L		SS1-4	4/12/2020	0.76	0.76	XR6022	DUPW1
mg/L		SS1-4	4/12/2020	0.80	0.8	XR6023	DUPW2
mg/L		SS1-5	4/12/2020	<0.50	0.5	XR6024	GW
mg/L		SS2-1	4/12/2020	0.73	0.73	XR5777	GW
mg/L		SS2-2	4/12/2020	0.62	0.62	XR5778	GW
mg/L		SS2-3	4/12/2020	0.58	0.58	XR5779	DUPW1
mg/L		SS2-3	4/12/2020	0.79	0.79	XR5780	DUPW2
mg/L		SS2-4	4/11/2020	0.79	0.79	XR5781	GW
mg/L		SS3-4	4/13/2020	0.83	0.83	XR6031	GW
mg/L		SS3-5	4/13/2020	0.79	0.79	XR6032	GW
mg/L		SS3-6	4/13/2020	0.97	0.97	XR6033	DUPW1
mg/L		SS3-6	4/13/2020	0.93	0.93	XR6034	DUPW2
mg/L		SS3-7	4/13/2020	1.1	1.1	XR6035	GW
mg/L		SS3-8	4/13/2020	1.1	1.1	XR6036	GW
mg/L		SS4-4	4/14/2020	0.76	0.76	XR5669	GW
mg/L	SS4-5	4/14/2020	0.98	0.98	XR5670	GW	
mg/L	SS5-3	4/13/2020	1.3	1.3	XR6025	GW	
mg/L	SS5-4	4/13/2020	<0.50	0.5	XR6026	GW	
mg/L	SS5-5	4/13/2020	0.94	0.94	XR6027	GW	



**Appendix D: Snow Water Chemistry Analytical Results**

Parameter	Unit	Sample Point	Date	Data Point	Graphable Value	Lab Ref	Sample Type
Chromium (Cr) - Dissolved	ug/L	CONTROL 1	4/13/2020	<0.050	0.025	XR5671	GW
	ug/L	CONTROL 2	4/14/2020	0.100	0.1	XR5672	GW
	ug/L	CONTROL 3	4/13/2020	0.083	0.083	XR5673	GW
	ug/L	SS BAG	4/17/2020	<0.050	0.025	XR5674	EBW
	ug/L	SS BAG	4/17/2020	<0.050	0.025	XR5675	GW
	ug/L	SS1-4	4/12/2020	<0.050	0.025	XR6022	DUPW1
	ug/L	SS1-4	4/12/2020	<0.050	0.025	XR6023	DUPW2
	ug/L	SS1-5	4/12/2020	<0.050	0.025	XR6024	GW
	ug/L	SS2-1	4/12/2020	<0.050	0.025	XR5777	GW
	ug/L	SS2-2	4/12/2020	0.054	0.054	XR5778	GW
	ug/L	SS2-3	4/12/2020	<0.050	0.025	XR5779	DUPW1
	ug/L	SS2-3	4/12/2020	<0.050	0.025	XR5780	DUPW2
	ug/L	SS2-4	4/11/2020	<0.050	0.025	XR5781	GW
	ug/L	SS3-4	4/13/2020	0.058	0.058	XR6031	GW
	ug/L	SS3-5	4/13/2020	<0.050	0.025	XR6032	GW
	ug/L	SS3-6	4/13/2020	0.163	0.163	XR6033	DUPW1
	ug/L	SS3-6	4/13/2020	0.145	0.145	XR6034	DUPW2
	ug/L	SS3-7	4/13/2020	0.180	0.18	XR6035	GW
	ug/L	SS3-8	4/13/2020	0.132	0.132	XR6036	GW
	Chromium (Cr) - Total	ug/L	CONTROL 1	4/13/2020	0.051	0.051	XR5671
ug/L		CONTROL 2	4/14/2020	0.071	0.071	XR5672	GW
ug/L		CONTROL 3	4/13/2020	0.104	0.104	XR5673	GW
ug/L		SS BAG	4/17/2020	<0.050	0.025	XR5674	EBW
ug/L		SS BAG	4/17/2020	<0.050	0.025	XR5675	GW
ug/L		SS1-4	4/12/2020	0.083	0.083	XR6022	DUPW1
ug/L		SS1-4	4/12/2020	0.074	0.074	XR6023	DUPW2
ug/L		SS1-5	4/12/2020	<0.050	0.025	XR6024	GW
ug/L		SS2-1	4/12/2020	<0.050	0.025	XR5777	GW
ug/L		SS2-2	4/12/2020	0.058	0.058	XR5778	GW
ug/L		SS2-3	4/12/2020	0.062	0.062	XR5779	DUPW1
ug/L		SS2-3	4/12/2020	0.062	0.062	XR5780	DUPW2
ug/L		SS2-4	4/11/2020	<0.050	0.025	XR5781	GW
ug/L		SS3-4	4/13/2020	0.173	0.173	XR6031	GW
ug/L		SS3-5	4/13/2020	0.070	0.07	XR6032	GW
ug/L		SS3-6	4/13/2020	0.251	0.251	XR6033	DUPW1
ug/L		SS3-6	4/13/2020	0.282	0.282	XR6034	DUPW2
ug/L		SS3-7	4/13/2020	0.385	0.385	XR6035	GW
ug/L		SS3-8	4/13/2020	0.301	0.301	XR6036	GW
ug/L		SS4-4	4/14/2020	<0.050	0.025	XR5669	GW
ug/L	SS4-5	4/14/2020	0.060	0.06	XR5670	GW	
ug/L	SS5-3	4/13/2020	0.205	0.205	XR6025	GW	
ug/L	SS5-4	4/13/2020	0.054	0.054	XR6026	GW	
ug/L	SS5-5	4/13/2020	0.086	0.086	XR6027	GW	

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Parameter	Unit	Sample Point	Date	Data Point	Graphable Value	Lab Ref	Sample Type
Cobalt (Co) - Dissolved	ug/L	CONTROL 1	4/13/2020	0.0840	0.084	XR5671	GW
	ug/L	CONTROL 2	4/14/2020	0.0373	0.0373	XR5672	GW
	ug/L	CONTROL 3	4/13/2020	0.0377	0.0377	XR5673	GW
	ug/L	SS BAG	4/17/2020	<0.0050	0.0025	XR5674	EBW
	ug/L	SS BAG	4/17/2020	<0.0050	0.0025	XR5675	GW
	ug/L	SS1-4	4/12/2020	0.0404	0.0404	XR6022	DUPW1
	ug/L	SS1-4	4/12/2020	0.0388	0.0388	XR6023	DUPW2
	ug/L	SS1-5	4/12/2020	0.0119	0.0119	XR6024	GW
	ug/L	SS2-1	4/12/2020	0.0351	0.0351	XR5777	GW
	ug/L	SS2-2	4/12/2020	0.0355	0.0355	XR5778	GW
	ug/L	SS2-3	4/12/2020	0.0235	0.0235	XR5779	DUPW1
	ug/L	SS2-3	4/12/2020	0.0198	0.0198	XR5780	DUPW2
	ug/L	SS2-4	4/11/2020	0.0123	0.0123	XR5781	GW
	ug/L	SS3-4	4/13/2020	0.0503	0.0503	XR6031	GW
	ug/L	SS3-5	4/13/2020	0.0262	0.0262	XR6032	GW
	ug/L	SS3-6	4/13/2020	0.0483	0.0483	XR6033	DUPW1
	ug/L	SS3-6	4/13/2020	0.0422	0.0422	XR6034	DUPW2
	ug/L	SS3-7	4/13/2020	0.0213	0.0213	XR6035	GW
	ug/L	SS3-8	4/13/2020	0.0495	0.0495	XR6036	GW
	Cobalt (Co) - Total	ug/L	CONTROL 1	4/13/2020	0.0281	0.0281	XR5671
ug/L		CONTROL 2	4/14/2020	0.0274	0.0274	XR5672	GW
ug/L		CONTROL 3	4/13/2020	0.0378	0.0378	XR5673	GW
ug/L		SS BAG	4/17/2020	<0.0050	0.0025	XR5674	EBW
ug/L		SS BAG	4/17/2020	<0.0050	0.0025	XR5675	GW
ug/L		SS1-4	4/12/2020	0.0478	0.0478	XR6022	DUPW1
ug/L		SS1-4	4/12/2020	0.0565	0.0565	XR6023	DUPW2
ug/L		SS1-5	4/12/2020	0.0205	0.0205	XR6024	GW
ug/L		SS2-1	4/12/2020	0.0542	0.0542	XR5777	GW
ug/L		SS2-2	4/12/2020	0.0335	0.0335	XR5778	GW
ug/L		SS2-3	4/12/2020	0.0249	0.0249	XR5779	DUPW1
ug/L		SS2-3	4/12/2020	0.0229	0.0229	XR5780	DUPW2
ug/L		SS2-4	4/11/2020	0.0107	0.0107	XR5781	GW
ug/L		SS3-4	4/13/2020	0.0550	0.055	XR6031	GW
ug/L		SS3-5	4/13/2020	0.0452	0.0452	XR6032	GW
ug/L		SS3-6	4/13/2020	0.0566	0.0566	XR6033	DUPW1
ug/L		SS3-6	4/13/2020	0.0670	0.067	XR6034	DUPW2
ug/L		SS3-7	4/13/2020	0.0829	0.0829	XR6035	GW
ug/L		SS3-8	4/13/2020	0.0884	0.0884	XR6036	GW
ug/L		SS4-4	4/14/2020	0.0233	0.0233	XR5669	GW
ug/L	SS4-5	4/14/2020	0.0354	0.0354	XR5670	GW	
ug/L	SS5-3	4/13/2020	0.150	0.15	XR6025	GW	
ug/L	SS5-4	4/13/2020	0.0410	0.041	XR6026	GW	
ug/L	SS5-5	4/13/2020	0.0400	0.04	XR6027	GW	

**Appendix D: Snow Water Chemistry Analytical Results**

Parameter	Unit	Sample Point	Date	Data Point	Graphable Value	Lab Ref	Sample Type
Conductivity	us/cm	CONTROL 1	4/13/2020	2.3	2.3	XR5671	GW
	us/cm	CONTROL 2	4/14/2020	2.1	2.1	XR5672	GW
	us/cm	CONTROL 3	4/13/2020	2.2	2.2	XR5673	GW
	us/cm	SS BAG	4/17/2020	<1.0	0.5	XR5674	EBW
	us/cm	SS BAG	4/17/2020	<1.0	0.5	XR5675	GW
	us/cm	SS1-4	4/12/2020	2.1	2.1	XR6022	DUPW1
	us/cm	SS1-4	4/12/2020	2.2	2.2	XR6023	DUPW2
	us/cm	SS1-5	4/12/2020	3.1	3.1	XR6024	GW
	us/cm	SS2-1	4/12/2020	2.0	2	XR5777	GW
	us/cm	SS2-2	4/12/2020	2.1	2.1	XR5778	GW
	us/cm	SS2-3	4/12/2020	1.9	1.9	XR5779	DUPW1
	us/cm	SS2-3	4/12/2020	2.1	2.1	XR5780	DUPW2
	us/cm	SS2-4	4/11/2020	2.3	2.3	XR5781	GW
	us/cm	SS3-4	4/13/2020	4.4	4.4	XR6031	GW
	us/cm	SS3-5	4/13/2020	2.3	2.3	XR6032	GW
	us/cm	SS3-6	4/13/2020	9.8	9.8	XR6033	DUPW1
	us/cm	SS3-6	4/13/2020	10.0	10	XR6034	DUPW2
	us/cm	SS3-7	4/13/2020	13.1	13.1	XR6035	GW
	us/cm	SS3-8	4/13/2020	9.2	9.2	XR6036	GW
	us/cm	SS4-4	4/14/2020	3.7	3.7	XR5669	GW
	us/cm	SS4-5	4/14/2020	1.9	1.9	XR5670	GW
	us/cm	SS5-3	4/13/2020	3.6	3.6	XR6025	GW
	us/cm	SS5-4	4/13/2020	2.1	2.1	XR6026	GW
us/cm	SS5-5	4/13/2020	2.3	2.3	XR6027	GW	
Copper (Cu) - Dissolved	ug/L	CONTROL 1	4/13/2020	0.101	0.101	XR5671	GW
	ug/L	CONTROL 2	4/14/2020	0.073	0.073	XR5672	GW
	ug/L	CONTROL 3	4/13/2020	0.092	0.092	XR5673	GW
	ug/L	SS BAG	4/17/2020	<0.050	0.025	XR5674	EBW
	ug/L	SS BAG	4/17/2020	<0.050	0.025	XR5675	GW
	ug/L	SS1-4	4/12/2020	0.121	0.121	XR6022	DUPW1
	ug/L	SS1-4	4/12/2020	0.139	0.139	XR6023	DUPW2
	ug/L	SS1-5	4/12/2020	0.094	0.094	XR6024	GW
	ug/L	SS2-1	4/12/2020	0.095	0.095	XR5777	GW
	ug/L	SS2-2	4/12/2020	0.148	0.148	XR5778	GW
	ug/L	SS2-3	4/12/2020	0.132	0.132	XR5779	DUPW1
	ug/L	SS2-3	4/12/2020	0.056	0.056	XR5780	DUPW2
	ug/L	SS2-4	4/11/2020	0.120	0.12	XR5781	GW
	ug/L	SS3-4	4/13/2020	<0.050	0.025	XR6031	GW
	ug/L	SS3-5	4/13/2020	0.056	0.056	XR6032	GW
	ug/L	SS3-6	4/13/2020	<0.050	0.025	XR6033	DUPW1
	ug/L	SS3-6	4/13/2020	0.078	0.078	XR6034	DUPW2
	ug/L	SS3-7	4/13/2020	0.062	0.062	XR6035	GW
	ug/L	SS3-8	4/13/2020	<0.050	0.025	XR6036	GW
	ug/L	SS4-4	4/14/2020	<0.050	0.025	XR5669	GW
	ug/L	SS4-5	4/14/2020	<0.050	0.025	XR5670	GW
	ug/L	SS5-3	4/13/2020	0.185	0.185	XR6025	GW
	ug/L	SS5-4	4/13/2020	0.075	0.075	XR6026	GW
ug/L	SS5-5	4/13/2020	0.084	0.084	XR6027	GW	

**Appendix D: Snow Water Chemistry Analytical Results**

Parameter	Unit	Sample Point	Date	Data Point	Graphable Value	Lab Ref	Sample Type
Copper (Cu) - Total	ug/L	CONTROL 1	4/13/2020	0.070	0.07	XR5671	GW
	ug/L	CONTROL 2	4/14/2020	0.096	0.096	XR5672	GW
	ug/L	CONTROL 3	4/13/2020	0.105	0.105	XR5673	GW
	ug/L	SS BAG	4/17/2020	0.089	0.089	XR5674	EBW
	ug/L	SS BAG	4/17/2020	<0.050	0.025	XR5675	GW
	ug/L	SS1-4	4/12/2020	0.149	0.149	XR6022	DUPW1
	ug/L	SS1-4	4/12/2020	0.163	0.163	XR6023	DUPW2
	ug/L	SS1-5	4/12/2020	0.193	0.193	XR6024	GW
	ug/L	SS2-1	4/12/2020	0.315	0.315	XR5777	GW
	ug/L	SS2-2	4/12/2020	0.115	0.115	XR5778	GW
	ug/L	SS2-3	4/12/2020	0.067	0.067	XR5779	DUPW1
	ug/L	SS2-3	4/12/2020	0.064	0.064	XR5780	DUPW2
	ug/L	SS2-4	4/11/2020	0.135	0.135	XR5781	GW
	ug/L	SS3-4	4/13/2020	0.128	0.128	XR6031	GW
	ug/L	SS3-5	4/13/2020	0.065	0.065	XR6032	GW
	ug/L	SS3-6	4/13/2020	0.095	0.095	XR6033	DUPW1
	ug/L	SS3-6	4/13/2020	0.119	0.119	XR6034	DUPW2
	ug/L	SS3-7	4/13/2020	0.180	0.18	XR6035	GW
	ug/L	SS3-8	4/13/2020	0.216	0.216	XR6036	GW
	Fluoride (F)	mg/L	CONTROL 1	4/13/2020	<0.010	0.005	XR5671
mg/L		CONTROL 2	4/14/2020	<0.010	0.005	XR5672	GW
mg/L		CONTROL 3	4/13/2020	0.016	0.016	XR5673	GW
mg/L		SS BAG	4/17/2020	<0.010	0.005	XR5674	EBW
mg/L		SS BAG	4/17/2020	<0.010	0.005	XR5675	GW
mg/L		SS1-4	4/12/2020	<0.010	0.005	XR6022	DUPW1
mg/L		SS1-4	4/12/2020	0.010	0.01	XR6023	DUPW2
mg/L		SS1-5	4/12/2020	<0.010	0.005	XR6024	GW
mg/L		SS2-1	4/12/2020	<0.010	0.005	XR5777	GW
mg/L		SS2-2	4/12/2020	<0.010	0.005	XR5778	GW
mg/L		SS2-3	4/12/2020	<0.010	0.005	XR5779	DUPW1
mg/L		SS2-3	4/12/2020	<0.010	0.005	XR5780	DUPW2
mg/L		SS2-4	4/11/2020	<0.010	0.005	XR5781	GW
mg/L		SS3-4	4/13/2020	0.012	0.012	XR6031	GW
mg/L		SS3-5	4/13/2020	0.010	0.01	XR6032	GW
mg/L		SS3-6	4/13/2020	0.011	0.011	XR6033	DUPW1
mg/L		SS3-6	4/13/2020	0.012	0.012	XR6034	DUPW2
mg/L		SS3-7	4/13/2020	0.012	0.012	XR6035	GW
mg/L		SS3-8	4/13/2020	0.011	0.011	XR6036	GW
mg/L		SS4-4	4/14/2020	0.012	0.012	XR5669	GW
mg/L	SS4-5	4/14/2020	<0.010	0.005	XR5670	GW	
mg/L	SS5-3	4/13/2020	0.011	0.011	XR6025	GW	
mg/L	SS5-4	4/13/2020	0.010	0.01	XR6026	GW	
mg/L	SS5-5	4/13/2020	<0.010	0.005	XR6027	GW	

**Appendix D: Snow Water Chemistry Analytical Results**

Parameter	Unit	Sample Point	Date	Data Point	Graphable Value	Lab Ref	Sample Type
Hardness (as CaCO <sub>3</sub> ) - Dissolved	mg/L	CONTROL 1	4/13/2020	0.53	0.53	XR5671	GW
	mg/L	CONTROL 2	4/14/2020	0.51	0.51	XR5672	GW
	mg/L	CONTROL 3	4/13/2020	0.55	0.55	XR5673	GW
	mg/L	SS BAG	4/17/2020	<0.50	0.25	XR5674	EBW
	mg/L	SS BAG	4/17/2020	<0.50	0.25	XR5675	GW
	mg/L	SS1-4	4/12/2020	<0.50	0.25	XR6022	DUPW1
	mg/L	SS1-4	4/12/2020	0.54	0.54	XR6023	DUPW2
	mg/L	SS1-5	4/12/2020	0.63	0.63	XR6024	GW
	mg/L	SS2-1	4/12/2020	0.69	0.69	XR5777	GW
	mg/L	SS2-2	4/12/2020	0.61	0.61	XR5778	GW
	mg/L	SS2-3	4/12/2020	0.53	0.53	XR5779	DUPW1
	mg/L	SS2-3	4/12/2020	<0.50	0.25	XR5780	DUPW2
	mg/L	SS2-4	4/11/2020	<0.50	0.25	XR5781	GW
	mg/L	SS3-4	4/13/2020	1.93	1.93	XR6031	GW
	mg/L	SS3-5	4/13/2020	0.65	0.65	XR6032	GW
	mg/L	SS3-6	4/13/2020	4.06	4.06	XR6033	DUPW1
	mg/L	SS3-6	4/13/2020	4.21	4.21	XR6034	DUPW2
	mg/L	SS3-7	4/13/2020	5.13	5.13	XR6035	GW
	mg/L	SS3-8	4/13/2020	3.68	3.68	XR6036	GW
	Hardness (as CaCO <sub>3</sub> ) - Total	mg/L	CONTROL 1	4/13/2020	<0.50	0.25	XR5671
mg/L		CONTROL 2	4/14/2020	0.50	0.5	XR5672	GW
mg/L		CONTROL 3	4/13/2020	0.54	0.54	XR5673	GW
mg/L		SS BAG	4/17/2020	<0.50	0.25	XR5674	EBW
mg/L		SS BAG	4/17/2020	<0.50	0.25	XR5675	GW
mg/L		SS1-4	4/12/2020	0.52	0.52	XR6022	DUPW1
mg/L		SS1-4	4/12/2020	0.58	0.58	XR6023	DUPW2
mg/L		SS1-5	4/12/2020	0.63	0.63	XR6024	GW
mg/L		SS2-1	4/12/2020	0.66	0.66	XR5777	GW
mg/L		SS2-2	4/12/2020	0.54	0.54	XR5778	GW
mg/L		SS2-3	4/12/2020	0.51	0.51	XR5779	DUPW1
mg/L		SS2-3	4/12/2020	<0.50	0.25	XR5780	DUPW2
mg/L		SS2-4	4/11/2020	<0.50	0.25	XR5781	GW
mg/L		SS3-4	4/13/2020	1.89	1.89	XR6031	GW
mg/L		SS3-5	4/13/2020	0.58	0.58	XR6032	GW
mg/L		SS3-6	4/13/2020	3.94	3.94	XR6033	DUPW1
mg/L		SS3-6	4/13/2020	3.65	3.65	XR6034	DUPW2
mg/L		SS3-7	4/13/2020	5.52	5.52	XR6035	GW
mg/L		SS3-8	4/13/2020	3.92	3.92	XR6036	GW
mg/L		SS4-4	4/14/2020	0.93	0.93	XR5669	GW
mg/L	SS4-5	4/14/2020	0.58	0.58	XR5670	GW	
mg/L	SS5-3	4/13/2020	1.23	1.23	XR6025	GW	
mg/L	SS5-4	4/13/2020	<0.50	0.25	XR6026	GW	
mg/L	SS5-5	4/13/2020	0.50	0.5	XR6027	GW	



## Appendix D: Snow Water Chemistry Analytical Results

Parameter	Unit	Sample Point	Date	Data Point	Graphable Value	Lab Ref	Sample Type
Hydroxide (OH)	mg/L	CONTROL 1	4/13/2020	<0.50	0.25	XR5671	GW
	mg/L	CONTROL 2	4/14/2020	<0.50	0.25	XR5672	GW
	mg/L	CONTROL 3	4/13/2020	<0.50	0.25	XR5673	GW
	mg/L	SS BAG	4/17/2020	<0.50	0.25	XR5674	EBW
	mg/L	SS BAG	4/17/2020	<0.50	0.25	XR5675	GW
	mg/L	SS1-4	4/12/2020	<0.50	0.25	XR6022	DUPW1
	mg/L	SS1-4	4/12/2020	<0.50	0.25	XR6023	DUPW2
	mg/L	SS1-5	4/12/2020	<0.50	0.25	XR6024	GW
	mg/L	SS2-1	4/12/2020	<0.50	0.25	XR5777	GW
	mg/L	SS2-2	4/12/2020	<0.50	0.25	XR5778	GW
	mg/L	SS2-3	4/12/2020	<0.50	0.25	XR5779	DUPW1
	mg/L	SS2-3	4/12/2020	<0.50	0.25	XR5780	DUPW2
	mg/L	SS2-4	4/11/2020	<0.50	0.25	XR5781	GW
	mg/L	SS3-4	4/13/2020	<0.50	0.25	XR6031	GW
	mg/L	SS3-5	4/13/2020	<0.50	0.25	XR6032	GW
	mg/L	SS3-6	4/13/2020	<0.50	0.25	XR6033	DUPW1
	mg/L	SS3-6	4/13/2020	<0.50	0.25	XR6034	DUPW2
	mg/L	SS3-7	4/13/2020	<0.50	0.25	XR6035	GW
	mg/L	SS3-8	4/13/2020	<0.50	0.25	XR6036	GW
	Iron (Fe) - Dissolved	ug/L	CONTROL 1	4/13/2020	7.6	7.6	XR5671
ug/L		CONTROL 2	4/14/2020	20.8	20.8	XR5672	GW
ug/L		CONTROL 3	4/13/2020	21.1	21.1	XR5673	GW
ug/L		SS BAG	4/17/2020	2.7	2.7	XR5674	EBW
ug/L		SS BAG	4/17/2020	<1.0	0.5	XR5675	GW
ug/L		SS1-4	4/12/2020	3.6	3.6	XR6022	DUPW1
ug/L		SS1-4	4/12/2020	3.5	3.5	XR6023	DUPW2
ug/L		SS1-5	4/12/2020	3.5	3.5	XR6024	GW
ug/L		SS2-1	4/12/2020	1.7	1.7	XR5777	GW
ug/L		SS2-2	4/12/2020	4.3	4.3	XR5778	GW
ug/L		SS2-3	4/12/2020	3.0	3	XR5779	DUPW1
ug/L		SS2-3	4/12/2020	3.4	3.4	XR5780	DUPW2
ug/L		SS2-4	4/11/2020	3.8	3.8	XR5781	GW
ug/L		SS3-4	4/13/2020	7.0	7	XR6031	GW
ug/L		SS3-5	4/13/2020	3.7	3.7	XR6032	GW
ug/L		SS3-6	4/13/2020	6.5	6.5	XR6033	DUPW1
ug/L		SS3-6	4/13/2020	8.2	8.2	XR6034	DUPW2
ug/L		SS3-7	4/13/2020	7.7	7.7	XR6035	GW
ug/L		SS3-8	4/13/2020	12.9	12.9	XR6036	GW
ug/L		SS4-4	4/14/2020	8.4	8.4	XR5669	GW
ug/L	SS4-5	4/14/2020	7.8	7.8	XR5670	GW	
ug/L	SS5-3	4/13/2020	8.1	8.1	XR6025	GW	
ug/L	SS5-4	4/13/2020	5.1	5.1	XR6026	GW	
ug/L	SS5-5	4/13/2020	4.3	4.3	XR6027	GW	

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Parameter	Unit	Sample Point	Date	Data Point	Graphable Value	Lab Ref	Sample Type
Iron (Fe) - Total	ug/L	CONTROL 1	4/13/2020	8.9	8.9	XR5671	GW
	ug/L	CONTROL 2	4/14/2020	16.8	16.8	XR5672	GW
	ug/L	CONTROL 3	4/13/2020	22.7	22.7	XR5673	GW
	ug/L	SS BAG	4/17/2020	4.4	4.4	XR5674	EBW
	ug/L	SS BAG	4/17/2020	<1.0	0.5	XR5675	GW
	ug/L	SS1-4	4/12/2020	17.5	17.5	XR6022	DUPW1
	ug/L	SS1-4	4/12/2020	19.7	19.7	XR6023	DUPW2
	ug/L	SS1-5	4/12/2020	3.9	3.9	XR6024	GW
	ug/L	SS2-1	4/12/2020	6.4	6.4	XR5777	GW
	ug/L	SS2-2	4/12/2020	10.7	10.7	XR5778	GW
	ug/L	SS2-3	4/12/2020	10.0	10	XR5779	DUPW1
	ug/L	SS2-3	4/12/2020	8.7	8.7	XR5780	DUPW2
	ug/L	SS2-4	4/11/2020	4.3	4.3	XR5781	GW
	ug/L	SS3-4	4/13/2020	33.9	33.9	XR6031	GW
	ug/L	SS3-5	4/13/2020	10.3	10.3	XR6032	GW
	ug/L	SS3-6	4/13/2020	29.4	29.4	XR6033	DUPW1
	ug/L	SS3-6	4/13/2020	37.1	37.1	XR6034	DUPW2
	ug/L	SS3-7	4/13/2020	65.6	65.6	XR6035	GW
	ug/L	SS3-8	4/13/2020	56.5	56.5	XR6036	GW
	ug/L	SS4-4	4/14/2020	3.9	3.9	XR5669	GW
	ug/L	SS4-5	4/14/2020	15.7	15.7	XR5670	GW
	ug/L	SS5-3	4/13/2020	85.3	85.3	XR6025	GW
	ug/L	SS5-4	4/13/2020	16.5	16.5	XR6026	GW
ug/L	SS5-5	4/13/2020	22.0	22	XR6027	GW	
Lead (Pb) - Dissolved	ug/L	CONTROL 1	4/13/2020	0.0250	0.025	XR5671	GW
	ug/L	CONTROL 2	4/14/2020	0.0338	0.0338	XR5672	GW
	ug/L	CONTROL 3	4/13/2020	0.0351	0.0351	XR5673	GW
	ug/L	SS BAG	4/17/2020	<0.0050	0.0025	XR5674	EBW
	ug/L	SS BAG	4/17/2020	<0.0050	0.0025	XR5675	GW
	ug/L	SS1-4	4/12/2020	0.0072	0.0072	XR6022	DUPW1
	ug/L	SS1-4	4/12/2020	0.0067	0.0067	XR6023	DUPW2
	ug/L	SS1-5	4/12/2020	0.0179	0.0179	XR6024	GW
	ug/L	SS2-1	4/12/2020	0.0159	0.0159	XR5777	GW
	ug/L	SS2-2	4/12/2020	0.0164	0.0164	XR5778	GW
	ug/L	SS2-3	4/12/2020	0.0072	0.0072	XR5779	DUPW1
	ug/L	SS2-3	4/12/2020	0.0059	0.0059	XR5780	DUPW2
	ug/L	SS2-4	4/11/2020	0.0158	0.0158	XR5781	GW
	ug/L	SS3-4	4/13/2020	0.0152	0.0152	XR6031	GW
	ug/L	SS3-5	4/13/2020	0.0077	0.0077	XR6032	GW
	ug/L	SS3-6	4/13/2020	0.0119	0.0119	XR6033	DUPW1
	ug/L	SS3-6	4/13/2020	0.0157	0.0157	XR6034	DUPW2
	ug/L	SS3-7	4/13/2020	0.0155	0.0155	XR6035	GW
	ug/L	SS3-8	4/13/2020	0.0238	0.0238	XR6036	GW
	ug/L	SS4-4	4/14/2020	0.0168	0.0168	XR5669	GW
	ug/L	SS4-5	4/14/2020	0.0197	0.0197	XR5670	GW
	ug/L	SS5-3	4/13/2020	0.0254	0.0254	XR6025	GW
	ug/L	SS5-4	4/13/2020	0.0087	0.0087	XR6026	GW
ug/L	SS5-5	4/13/2020	0.0089	0.0089	XR6027	GW	

## Appendix D: Snow Water Chemistry Analytical Results

Parameter	Unit	Sample Point	Date	Data Point	Graphable Value	Lab Ref	Sample Type
Lead (Pb) - Total	ug/L	CONTROL 1	4/13/2020	0.0235	0.0235	XR5671	GW
	ug/L	CONTROL 2	4/14/2020	0.0389	0.0389	XR5672	GW
	ug/L	CONTROL 3	4/13/2020	0.0428	0.0428	XR5673	GW
	ug/L	SS BAG	4/17/2020	0.0212	0.0212	XR5674	EBW
	ug/L	SS BAG	4/17/2020	<0.0050	0.0025	XR5675	GW
	ug/L	SS1-4	4/12/2020	0.0365	0.0365	XR6022	DUPW1
	ug/L	SS1-4	4/12/2020	0.0318	0.0318	XR6023	DUPW2
	ug/L	SS1-5	4/12/2020	0.0219	0.0219	XR6024	GW
	ug/L	SS2-1	4/12/2020	0.0382	0.0382	XR5777	GW
	ug/L	SS2-2	4/12/2020	0.0281	0.0281	XR5778	GW
	ug/L	SS2-3	4/12/2020	0.0200	0.02	XR5779	DUPW1
	ug/L	SS2-3	4/12/2020	0.0208	0.0208	XR5780	DUPW2
	ug/L	SS2-4	4/11/2020	0.0174	0.0174	XR5781	GW
	ug/L	SS3-4	4/13/2020	0.0593	0.0593	XR6031	GW
	ug/L	SS3-5	4/13/2020	0.0206	0.0206	XR6032	GW
	ug/L	SS3-6	4/13/2020	0.0594	0.0594	XR6033	DUPW1
	ug/L	SS3-6	4/13/2020	0.0718	0.0718	XR6034	DUPW2
	ug/L	SS3-7	4/13/2020	0.128	0.128	XR6035	GW
	ug/L	SS3-8	4/13/2020	0.163	0.163	XR6036	GW
	Lithium (Li) - Dissolved	ug/L	CONTROL 1	4/13/2020	<0.50	0.25	XR5671
ug/L		CONTROL 2	4/14/2020	<0.50	0.25	XR5672	GW
ug/L		CONTROL 3	4/13/2020	<0.50	0.25	XR5673	GW
ug/L		SS BAG	4/17/2020	<0.50	0.25	XR5674	EBW
ug/L		SS BAG	4/17/2020	<0.50	0.25	XR5675	GW
ug/L		SS1-4	4/12/2020	<0.50	0.25	XR6022	DUPW1
ug/L		SS1-4	4/12/2020	<0.50	0.25	XR6023	DUPW2
ug/L		SS1-5	4/12/2020	<0.50	0.25	XR6024	GW
ug/L		SS2-1	4/12/2020	<0.50	0.25	XR5777	GW
ug/L		SS2-2	4/12/2020	<0.50	0.25	XR5778	GW
ug/L		SS2-3	4/12/2020	<0.50	0.25	XR5779	DUPW1
ug/L		SS2-3	4/12/2020	<0.50	0.25	XR5780	DUPW2
ug/L		SS2-4	4/11/2020	<0.50	0.25	XR5781	GW
ug/L		SS3-4	4/13/2020	<0.50	0.25	XR6031	GW
ug/L		SS3-5	4/13/2020	<0.50	0.25	XR6032	GW
ug/L		SS3-6	4/13/2020	<0.50	0.25	XR6033	DUPW1
ug/L		SS3-6	4/13/2020	<0.50	0.25	XR6034	DUPW2
ug/L		SS3-7	4/13/2020	<0.50	0.25	XR6035	GW
ug/L		SS3-8	4/13/2020	<0.50	0.25	XR6036	GW
ug/L		SS4-4	4/14/2020	<0.50	0.25	XR5669	GW
ug/L	SS4-5	4/14/2020	<0.50	0.25	XR5670	GW	
ug/L	SS5-3	4/13/2020	<0.50	0.25	XR6025	GW	
ug/L	SS5-4	4/13/2020	<0.50	0.25	XR6026	GW	
ug/L	SS5-5	4/13/2020	<0.50	0.25	XR6027	GW	

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Parameter	Unit	Sample Point	Date	Data Point	Graphable Value	Lab Ref	Sample Type
Lithium (Li) - Total	ug/L	CONTROL 1	4/13/2020	<0.50	0.25	XR5671	GW
	ug/L	CONTROL 2	4/14/2020	<0.50	0.25	XR5672	GW
	ug/L	CONTROL 3	4/13/2020	<0.50	0.25	XR5673	GW
	ug/L	SS BAG	4/17/2020	<0.50	0.25	XR5674	EBW
	ug/L	SS BAG	4/17/2020	<0.50	0.25	XR5675	GW
	ug/L	SS1-4	4/12/2020	<0.50	0.25	XR6022	DUPW1
	ug/L	SS1-4	4/12/2020	<0.50	0.25	XR6023	DUPW2
	ug/L	SS1-5	4/12/2020	<0.50	0.25	XR6024	GW
	ug/L	SS2-1	4/12/2020	<0.50	0.25	XR5777	GW
	ug/L	SS2-2	4/12/2020	<0.50	0.25	XR5778	GW
	ug/L	SS2-3	4/12/2020	<0.50	0.25	XR5779	DUPW1
	ug/L	SS2-3	4/12/2020	<0.50	0.25	XR5780	DUPW2
	ug/L	SS2-4	4/11/2020	<0.50	0.25	XR5781	GW
	ug/L	SS3-4	4/13/2020	<0.50	0.25	XR6031	GW
	ug/L	SS3-5	4/13/2020	<0.50	0.25	XR6032	GW
	ug/L	SS3-6	4/13/2020	<0.50	0.25	XR6033	DUPW1
	ug/L	SS3-6	4/13/2020	<0.50	0.25	XR6034	DUPW2
	ug/L	SS3-7	4/13/2020	<0.50	0.25	XR6035	GW
	ug/L	SS3-8	4/13/2020	<0.50	0.25	XR6036	GW
	ug/L	SS4-4	4/14/2020	<0.50	0.25	XR5669	GW
	ug/L	SS4-5	4/14/2020	<0.50	0.25	XR5670	GW
	ug/L	SS5-3	4/13/2020	0.55	0.55	XR6025	GW
	ug/L	SS5-4	4/13/2020	<0.50	0.25	XR6026	GW
ug/L	SS5-5	4/13/2020	<0.50	0.25	XR6027	GW	
Magnesium (Mg) - Dissolved	mg/L	CONTROL 1	4/13/2020	0.0376	0.0376	XR5671	GW
	mg/L	CONTROL 2	4/14/2020	0.0420	0.042	XR5672	GW
	mg/L	CONTROL 3	4/13/2020	0.0418	0.0418	XR5673	GW
	mg/L	SS BAG	4/17/2020	<0.0050	0.0025	XR5674	EBW
	mg/L	SS BAG	4/17/2020	<0.0050	0.0025	XR5675	GW
	mg/L	SS1-4	4/12/2020	0.0338	0.0338	XR6022	DUPW1
	mg/L	SS1-4	4/12/2020	0.0403	0.0403	XR6023	DUPW2
	mg/L	SS1-5	4/12/2020	0.0513	0.0513	XR6024	GW
	mg/L	SS2-1	4/12/2020	0.0374	0.0374	XR5777	GW
	mg/L	SS2-2	4/12/2020	0.0371	0.0371	XR5778	GW
	mg/L	SS2-3	4/12/2020	0.0277	0.0277	XR5779	DUPW1
	mg/L	SS2-3	4/12/2020	0.0236	0.0236	XR5780	DUPW2
	mg/L	SS2-4	4/11/2020	0.0221	0.0221	XR5781	GW
	mg/L	SS3-4	4/13/2020	0.0883	0.0883	XR6031	GW
	mg/L	SS3-5	4/13/2020	0.0390	0.039	XR6032	GW
	mg/L	SS3-6	4/13/2020	0.145	0.145	XR6033	DUPW1
	mg/L	SS3-6	4/13/2020	0.144	0.144	XR6034	DUPW2
	mg/L	SS3-7	4/13/2020	0.178	0.178	XR6035	GW
	mg/L	SS3-8	4/13/2020	0.150	0.15	XR6036	GW
	mg/L	SS4-4	4/14/2020	0.0882	0.0882	XR5669	GW
	mg/L	SS4-5	4/14/2020	0.0407	0.0407	XR5670	GW
	mg/L	SS5-3	4/13/2020	0.0788	0.0788	XR6025	GW
	mg/L	SS5-4	4/13/2020	0.0347	0.0347	XR6026	GW
mg/L	SS5-5	4/13/2020	0.0387	0.0387	XR6027	GW	

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Parameter	Unit	Sample Point	Date	Data Point	Graphable Value	Lab Ref	Sample Type
Magnesium (Mg) - Total	mg/L	CONTROL 1	4/13/2020	0.0316	0.0316	XR5671	GW
	mg/L	CONTROL 2	4/14/2020	0.0441	0.0441	XR5672	GW
	mg/L	CONTROL 3	4/13/2020	0.0436	0.0436	XR5673	GW
	mg/L	SS BAG	4/17/2020	<0.0050	0.0025	XR5674	EBW
	mg/L	SS BAG	4/17/2020	<0.0050	0.0025	XR5675	GW
	mg/L	SS1-4	4/12/2020	0.0439	0.0439	XR6022	DUPW1
	mg/L	SS1-4	4/12/2020	0.0508	0.0508	XR6023	DUPW2
	mg/L	SS1-5	4/12/2020	0.0573	0.0573	XR6024	GW
	mg/L	SS2-1	4/12/2020	0.0411	0.0411	XR5777	GW
	mg/L	SS2-2	4/12/2020	0.0385	0.0385	XR5778	GW
	mg/L	SS2-3	4/12/2020	0.0304	0.0304	XR5779	DUPW1
	mg/L	SS2-3	4/12/2020	0.0291	0.0291	XR5780	DUPW2
	mg/L	SS2-4	4/11/2020	0.0221	0.0221	XR5781	GW
	mg/L	SS3-4	4/13/2020	0.117	0.117	XR6031	GW
	mg/L	SS3-5	4/13/2020	0.0393	0.0393	XR6032	GW
	mg/L	SS3-6	4/13/2020	0.145	0.145	XR6033	DUPW1
	mg/L	SS3-6	4/13/2020	0.148	0.148	XR6034	DUPW2
	mg/L	SS3-7	4/13/2020	0.234	0.234	XR6035	GW
	mg/L	SS3-8	4/13/2020	0.194	0.194	XR6036	GW
	Manganese (Mn) - Dissolved	ug/L	CONTROL 1	4/13/2020	1.20	1.2	XR5671
ug/L		CONTROL 2	4/14/2020	1.42	1.42	XR5672	GW
ug/L		CONTROL 3	4/13/2020	1.52	1.52	XR5673	GW
ug/L		SS BAG	4/17/2020	<0.050	0.025	XR5674	EBW
ug/L		SS BAG	4/17/2020	<0.050	0.025	XR5675	GW
ug/L		SS1-4	4/12/2020	1.98	1.98	XR6022	DUPW1
ug/L		SS1-4	4/12/2020	2.73	2.73	XR6023	DUPW2
ug/L		SS1-5	4/12/2020	0.468	0.468	XR6024	GW
ug/L		SS2-1	4/12/2020	1.08	1.08	XR5777	GW
ug/L		SS2-2	4/12/2020	1.10	1.1	XR5778	GW
ug/L		SS2-3	4/12/2020	0.879	0.879	XR5779	DUPW1
ug/L		SS2-3	4/12/2020	0.709	0.709	XR5780	DUPW2
ug/L		SS2-4	4/11/2020	0.532	0.532	XR5781	GW
ug/L		SS3-4	4/13/2020	2.31	2.31	XR6031	GW
ug/L		SS3-5	4/13/2020	1.30	1.3	XR6032	GW
ug/L		SS3-6	4/13/2020	2.76	2.76	XR6033	DUPW1
ug/L		SS3-6	4/13/2020	2.46	2.46	XR6034	DUPW2
ug/L		SS3-7	4/13/2020	1.54	1.54	XR6035	GW
ug/L		SS3-8	4/13/2020	2.70	2.7	XR6036	GW
ug/L		SS4-4	4/14/2020	3.02	3.02	XR5669	GW
ug/L	SS4-5	4/14/2020	1.07	1.07	XR5670	GW	
ug/L	SS5-3	4/13/2020	9.54	9.54	XR6025	GW	
ug/L	SS5-4	4/13/2020	1.97	1.97	XR6026	GW	
ug/L	SS5-5	4/13/2020	1.75	1.75	XR6027	GW	



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Parameter	Unit	Sample Point	Date	Data Point	Graphable Value	Lab Ref	Sample Type
Manganese (Mn) - Total	ug/L	CONTROL 1	4/13/2020	1.39	1.39	XR5671	GW
	ug/L	CONTROL 2	4/14/2020	1.75	1.75	XR5672	GW
	ug/L	CONTROL 3	4/13/2020	1.78	1.78	XR5673	GW
	ug/L	SS BAG	4/17/2020	0.636	0.636	XR5674	EBW
	ug/L	SS BAG	4/17/2020	<0.050	0.025	XR5675	GW
	ug/L	SS1-4	4/12/2020	2.36	2.36	XR6022	DUPW1
	ug/L	SS1-4	4/12/2020	3.07	3.07	XR6023	DUPW2
	ug/L	SS1-5	4/12/2020	0.588	0.588	XR6024	GW
	ug/L	SS2-1	4/12/2020	1.18	1.18	XR5777	GW
	ug/L	SS2-2	4/12/2020	1.42	1.42	XR5778	GW
	ug/L	SS2-3	4/12/2020	1.05	1.05	XR5779	DUPW1
	ug/L	SS2-3	4/12/2020	0.896	0.896	XR5780	DUPW2
	ug/L	SS2-4	4/11/2020	0.369	0.369	XR5781	GW
	ug/L	SS3-4	4/13/2020	2.44	2.44	XR6031	GW
	ug/L	SS3-5	4/13/2020	1.24	1.24	XR6032	GW
	ug/L	SS3-6	4/13/2020	4.10	4.1	XR6033	DUPW1
	ug/L	SS3-6	4/13/2020	4.46	4.46	XR6034	DUPW2
	ug/L	SS3-7	4/13/2020	2.69	2.69	XR6035	GW
	ug/L	SS3-8	4/13/2020	3.92	3.92	XR6036	GW
	Mercury (Hg) - Total	ug/L	CONTROL 1	4/13/2020	<0.0019	0.00095	XR5671
ug/L		CONTROL 2	4/14/2020	<0.0019	0.00095	XR5672	GW
ug/L		CONTROL 3	4/13/2020	<0.0019	0.00095	XR5673	GW
ug/L		SS BAG	4/17/2020	<0.0019	0.00095	XR5674	EBW
ug/L		SS BAG	4/17/2020	<0.0019	0.00095	XR5675	GW
ug/L		SS1-4	4/12/2020	<0.0019	0.00095	XR6022	DUPW1
ug/L		SS1-4	4/12/2020	<0.0019	0.00095	XR6023	DUPW2
ug/L		SS1-5	4/12/2020	<0.0019	0.00095	XR6024	GW
ug/L		SS2-1	4/12/2020	<0.0019	0.00095	XR5777	GW
ug/L		SS2-2	4/12/2020	<0.0019	0.00095	XR5778	GW
ug/L		SS2-3	4/12/2020	<0.0019	0.00095	XR5779	DUPW1
ug/L		SS2-3	4/12/2020	<0.0019	0.00095	XR5780	DUPW2
ug/L		SS2-4	4/11/2020	<0.0019	0.00095	XR5781	GW
ug/L		SS3-4	4/13/2020	0.0030	0.003	XR6031	GW
ug/L		SS3-5	4/13/2020	<0.0019	0.00095	XR6032	GW
ug/L		SS3-6	4/13/2020	<0.0019	0.00095	XR6033	DUPW1
ug/L		SS3-6	4/13/2020	<0.0019	0.00095	XR6034	DUPW2
ug/L		SS3-7	4/13/2020	0.0027	0.0027	XR6035	GW
ug/L		SS3-8	4/13/2020	<0.0019	0.00095	XR6036	GW
ug/L		SS4-4	4/14/2020	<0.0019	0.00095	XR5669	GW
ug/L	SS4-5	4/14/2020	<0.0019	0.00095	XR5670	GW	
ug/L	SS5-3	4/13/2020	0.0041	0.0041	XR6025	GW	
ug/L	SS5-4	4/13/2020	<0.0019	0.00095	XR6026	GW	
ug/L	SS5-5	4/13/2020	<0.0019	0.00095	XR6027	GW	

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Parameter	Unit	Sample Point	Date	Data Point	Graphable Value	Lab Ref	Sample Type
Molybdenum (Mo) - Dissolved	ug/L	CONTROL 1	4/13/2020	<0.050	0.025	XR5671	GW
	ug/L	CONTROL 2	4/14/2020	<0.050	0.025	XR5672	GW
	ug/L	CONTROL 3	4/13/2020	<0.050	0.025	XR5673	GW
	ug/L	SS BAG	4/17/2020	<0.050	0.025	XR5674	EBW
	ug/L	SS BAG	4/17/2020	2.15	2.15	XR5675	GW
	ug/L	SS1-4	4/12/2020	<0.050	0.025	XR6022	DUPW1
	ug/L	SS1-4	4/12/2020	<0.050	0.025	XR6023	DUPW2
	ug/L	SS1-5	4/12/2020	2.16	2.16	XR6024	GW
	ug/L	SS2-1	4/12/2020	1.77	1.77	XR5777	GW
	ug/L	SS2-2	4/12/2020	<0.050	0.025	XR5778	GW
	ug/L	SS2-3	4/12/2020	1.82	1.82	XR5779	DUPW1
	ug/L	SS2-3	4/12/2020	<0.050	0.025	XR5780	DUPW2
	ug/L	SS2-4	4/11/2020	<0.050	0.025	XR5781	GW
	ug/L	SS3-4	4/13/2020	0.054	0.054	XR6031	GW
	ug/L	SS3-5	4/13/2020	<0.050	0.025	XR6032	GW
	ug/L	SS3-6	4/13/2020	0.094	0.094	XR6033	DUPW1
	ug/L	SS3-6	4/13/2020	0.084	0.084	XR6034	DUPW2
	ug/L	SS3-7	4/13/2020	0.109	0.109	XR6035	GW
	ug/L	SS3-8	4/13/2020	0.120	0.12	XR6036	GW
	Molybdenum (Mo) - Total	ug/L	CONTROL 1	4/13/2020	<0.050	0.025	XR5671
ug/L		CONTROL 2	4/14/2020	<0.050	0.025	XR5672	GW
ug/L		CONTROL 3	4/13/2020	<0.050	0.025	XR5673	GW
ug/L		SS BAG	4/17/2020	<0.050	0.025	XR5674	EBW
ug/L		SS BAG	4/17/2020	<0.050	0.025	XR5675	GW
ug/L		SS1-4	4/12/2020	<0.050	0.025	XR6022	DUPW1
ug/L		SS1-4	4/12/2020	<0.050	0.025	XR6023	DUPW2
ug/L		SS1-5	4/12/2020	<0.050	0.025	XR6024	GW
ug/L		SS2-1	4/12/2020	<0.050	0.025	XR5777	GW
ug/L		SS2-2	4/12/2020	<0.050	0.025	XR5778	GW
ug/L		SS2-3	4/12/2020	<0.050	0.025	XR5779	DUPW1
ug/L		SS2-3	4/12/2020	<0.050	0.025	XR5780	DUPW2
ug/L		SS2-4	4/11/2020	<0.050	0.025	XR5781	GW
ug/L		SS3-4	4/13/2020	<0.050	0.025	XR6031	GW
ug/L		SS3-5	4/13/2020	<0.050	0.025	XR6032	GW
ug/L		SS3-6	4/13/2020	0.077	0.077	XR6033	DUPW1
ug/L		SS3-6	4/13/2020	0.076	0.076	XR6034	DUPW2
ug/L		SS3-7	4/13/2020	0.105	0.105	XR6035	GW
ug/L		SS3-8	4/13/2020	0.120	0.12	XR6036	GW
ug/L		SS4-4	4/14/2020	<0.050	0.025	XR5669	GW
ug/L	SS4-5	4/14/2020	<0.050	0.025	XR5670	GW	
ug/L	SS5-3	4/13/2020	0.065	0.065	XR6025	GW	
ug/L	SS5-4	4/13/2020	<0.050	0.025	XR6026	GW	
ug/L	SS5-5	4/13/2020	<0.050	0.025	XR6027	GW	

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Parameter	Unit	Sample Point	Date	Data Point	Graphable Value	Lab Ref	Sample Type
Nickel (Ni) - Dissolved	ug/L	CONTROL 1	4/13/2020	0.272	0.272	XR5671	GW
	ug/L	CONTROL 2	4/14/2020	0.416	0.416	XR5672	GW
	ug/L	CONTROL 3	4/13/2020	0.435	0.435	XR5673	GW
	ug/L	SS BAG	4/17/2020	<0.020	0.01	XR5674	EBW
	ug/L	SS BAG	4/17/2020	0.021	0.021	XR5675	GW
	ug/L	SS1-4	4/12/2020	0.484	0.484	XR6022	DUPW1
	ug/L	SS1-4	4/12/2020	0.534	0.534	XR6023	DUPW2
	ug/L	SS1-5	4/12/2020	0.172	0.172	XR6024	GW
	ug/L	SS2-1	4/12/2020	0.431	0.431	XR5777	GW
	ug/L	SS2-2	4/12/2020	0.499	0.499	XR5778	GW
	ug/L	SS2-3	4/12/2020	0.271	0.271	XR5779	DUPW1
	ug/L	SS2-3	4/12/2020	0.283	0.283	XR5780	DUPW2
	ug/L	SS2-4	4/11/2020	0.135	0.135	XR5781	GW
	ug/L	SS3-4	4/13/2020	1.29	1.29	XR6031	GW
	ug/L	SS3-5	4/13/2020	0.532	0.532	XR6032	GW
	ug/L	SS3-6	4/13/2020	1.13	1.13	XR6033	DUPW1
	ug/L	SS3-6	4/13/2020	1.15	1.15	XR6034	DUPW2
	ug/L	SS3-7	4/13/2020	0.760	0.76	XR6035	GW
	ug/L	SS3-8	4/13/2020	1.43	1.43	XR6036	GW
	ug/L	SS4-4	4/14/2020	1.14	1.14	XR5669	GW
	ug/L	SS4-5	4/14/2020	0.352	0.352	XR5670	GW
	ug/L	SS5-3	4/13/2020	0.789	0.789	XR6025	GW
	ug/L	SS5-4	4/13/2020	0.422	0.422	XR6026	GW
ug/L	SS5-5	4/13/2020	0.425	0.425	XR6027	GW	
Nickel (Ni) - Total	ug/L	CONTROL 1	4/13/2020	0.169	0.169	XR5671	GW
	ug/L	CONTROL 2	4/14/2020	0.461	0.461	XR5672	GW
	ug/L	CONTROL 3	4/13/2020	0.459	0.459	XR5673	GW
	ug/L	SS BAG	4/17/2020	0.048	0.048	XR5674	EBW
	ug/L	SS BAG	4/17/2020	<0.020	0.01	XR5675	GW
	ug/L	SS1-4	4/12/2020	0.564	0.564	XR6022	DUPW1
	ug/L	SS1-4	4/12/2020	0.618	0.618	XR6023	DUPW2
	ug/L	SS1-5	4/12/2020	0.185	0.185	XR6024	GW
	ug/L	SS2-1	4/12/2020	0.425	0.425	XR5777	GW
	ug/L	SS2-2	4/12/2020	0.424	0.424	XR5778	GW
	ug/L	SS2-3	4/12/2020	0.326	0.326	XR5779	DUPW1
	ug/L	SS2-3	4/12/2020	0.302	0.302	XR5780	DUPW2
	ug/L	SS2-4	4/11/2020	0.155	0.155	XR5781	GW
	ug/L	SS3-4	4/13/2020	1.44	1.44	XR6031	GW
	ug/L	SS3-5	4/13/2020	0.503	0.503	XR6032	GW
	ug/L	SS3-6	4/13/2020	1.10	1.1	XR6033	DUPW1
	ug/L	SS3-6	4/13/2020	1.11	1.11	XR6034	DUPW2
	ug/L	SS3-7	4/13/2020	1.30	1.3	XR6035	GW
	ug/L	SS3-8	4/13/2020	1.72	1.72	XR6036	GW
	ug/L	SS4-4	4/14/2020	1.50	1.5	XR5669	GW
	ug/L	SS4-5	4/14/2020	0.372	0.372	XR5670	GW
	ug/L	SS5-3	4/13/2020	0.891	0.891	XR6025	GW
	ug/L	SS5-4	4/13/2020	0.501	0.501	XR6026	GW
ug/L	SS5-5	4/13/2020	0.522	0.522	XR6027	GW	

## Appendix D: Snow Water Chemistry Analytical Results

Parameter	Unit	Sample Point	Date	Data Point	Graphable Value	Lab Ref	Sample Type
Nitrate (N)	mg/L	CONTROL 1	4/13/2020	0.060	0.06	XR5671	GW
	mg/L	CONTROL 2	4/14/2020	0.075	0.075	XR5672	GW
	mg/L	CONTROL 3	4/13/2020	0.078	0.078	XR5673	GW
	mg/L	SS BAG	4/17/2020	0.0031	0.0031	XR5674	EBW
	mg/L	SS BAG	4/17/2020	<0.0020	0.001	XR5675	GW
	mg/L	SS1-4	4/12/2020	0.057	0.057	XR6022	DUPW1
	mg/L	SS1-4	4/12/2020	0.050	0.05	XR6023	DUPW2
	mg/L	SS1-5	4/12/2020	0.080	0.08	XR6024	GW
	mg/L	SS2-1	4/12/2020	0.046	0.046	XR5777	GW
	mg/L	SS2-2	4/12/2020	0.058	0.058	XR5778	GW
	mg/L	SS2-3	4/12/2020	0.053	0.053	XR5779	DUPW1
	mg/L	SS2-3	4/12/2020	0.069	0.069	XR5780	DUPW2
	mg/L	SS2-4	4/11/2020	0.071	0.071	XR5781	GW
	mg/L	SS3-4	4/13/2020	0.057	0.057	XR6031	GW
	mg/L	SS3-5	4/13/2020	0.046	0.046	XR6032	GW
	mg/L	SS3-6	4/13/2020	0.061	0.061	XR6033	DUPW1
	mg/L	SS3-6	4/13/2020	0.062	0.062	XR6034	DUPW2
	mg/L	SS3-7	4/13/2020	0.081	0.081	XR6035	GW
	mg/L	SS3-8	4/13/2020	0.088	0.088	XR6036	GW
	Nitrate plus Nitrite (N)	mg/L	CONTROL 1	4/13/2020	0.065	0.065	XR5671
mg/L		CONTROL 2	4/14/2020	0.079	0.079	XR5672	GW
mg/L		CONTROL 3	4/13/2020	0.085	0.085	XR5673	GW
mg/L		SS BAG	4/17/2020	0.0050	0.005	XR5674	EBW
mg/L		SS BAG	4/17/2020	0.0027	0.0027	XR5675	GW
mg/L		SS1-4	4/12/2020	0.061	0.061	XR6022	DUPW1
mg/L		SS1-4	4/12/2020	0.055	0.055	XR6023	DUPW2
mg/L		SS1-5	4/12/2020	0.085	0.085	XR6024	GW
mg/L		SS2-1	4/12/2020	0.051	0.051	XR5777	GW
mg/L		SS2-2	4/12/2020	0.062	0.062	XR5778	GW
mg/L		SS2-3	4/12/2020	0.057	0.057	XR5779	DUPW1
mg/L		SS2-3	4/12/2020	0.071	0.071	XR5780	DUPW2
mg/L		SS2-4	4/11/2020	0.075	0.075	XR5781	GW
mg/L		SS3-4	4/13/2020	0.062	0.062	XR6031	GW
mg/L		SS3-5	4/13/2020	0.052	0.052	XR6032	GW
mg/L		SS3-6	4/13/2020	0.066	0.066	XR6033	DUPW1
mg/L		SS3-6	4/13/2020	0.069	0.069	XR6034	DUPW2
mg/L		SS3-7	4/13/2020	0.086	0.086	XR6035	GW
mg/L		SS3-8	4/13/2020	0.091	0.091	XR6036	GW
mg/L		SS4-4	4/14/2020	0.096	0.096	XR5669	GW
mg/L	SS4-5	4/14/2020	0.043	0.043	XR5670	GW	
mg/L	SS5-3	4/13/2020	0.10	0.1	XR6025	GW	
mg/L	SS5-4	4/13/2020	0.068	0.068	XR6026	GW	
mg/L	SS5-5	4/13/2020	0.077	0.077	XR6027	GW	

## Appendix D: Snow Water Chemistry Analytical Results

Parameter	Unit	Sample Point	Date	Data Point	Graphable Value	Lab Ref	Sample Type
Nitrite (N)	mg/L	CONTROL 1	4/13/2020	0.0052	0.0052	XR5671	GW
	mg/L	CONTROL 2	4/14/2020	0.0044	0.0044	XR5672	GW
	mg/L	CONTROL 3	4/13/2020	0.0071	0.0071	XR5673	GW
	mg/L	SS BAG	4/17/2020	0.0019	0.0019	XR5674	EBW
	mg/L	SS BAG	4/17/2020	0.0027	0.0027	XR5675	GW
	mg/L	SS1-4	4/12/2020	0.0041	0.0041	XR6022	DUPW1
	mg/L	SS1-4	4/12/2020	0.0046	0.0046	XR6023	DUPW2
	mg/L	SS1-5	4/12/2020	0.0046	0.0046	XR6024	GW
	mg/L	SS2-1	4/12/2020	0.0046	0.0046	XR5777	GW
	mg/L	SS2-2	4/12/2020	0.0041	0.0041	XR5778	GW
	mg/L	SS2-3	4/12/2020	0.0038	0.0038	XR5779	DUPW1
	mg/L	SS2-3	4/12/2020	0.0023	0.0023	XR5780	DUPW2
	mg/L	SS2-4	4/11/2020	0.0045	0.0045	XR5781	GW
	mg/L	SS3-4	4/13/2020	0.0051	0.0051	XR6031	GW
	mg/L	SS3-5	4/13/2020	0.0057	0.0057	XR6032	GW
	mg/L	SS3-6	4/13/2020	0.0050	0.005	XR6033	DUPW1
	mg/L	SS3-6	4/13/2020	0.0065	0.0065	XR6034	DUPW2
	mg/L	SS3-7	4/13/2020	0.0051	0.0051	XR6035	GW
	mg/L	SS3-8	4/13/2020	0.0034	0.0034	XR6036	GW
	mg/L	SS4-4	4/14/2020	0.0048	0.0048	XR5669	GW
	mg/L	SS4-5	4/14/2020	0.0037	0.0037	XR5670	GW
	mg/L	SS5-3	4/13/2020	0.0051	0.0051	XR6025	GW
	mg/L	SS5-4	4/13/2020	0.0047	0.0047	XR6026	GW
	mg/L	SS5-5	4/13/2020	0.0069	0.0069	XR6027	GW
	Nitrogen (N) - Total	mg/L	CONTROL 1	4/13/2020	0.20	0.2	XR5671
mg/L		CONTROL 2	4/14/2020	0.19	0.19	XR5672	GW
mg/L		CONTROL 3	4/13/2020	0.21	0.21	XR5673	GW
mg/L		SS BAG	4/17/2020	0.064	0.064	XR5674	EBW
mg/L		SS BAG	4/17/2020	0.078	0.078	XR5675	GW
mg/L		SS1-4	4/12/2020	0.18	0.18	XR6022	DUPW1
mg/L		SS1-4	4/12/2020	0.17	0.17	XR6023	DUPW2
mg/L		SS1-5	4/12/2020	0.18	0.18	XR6024	GW
mg/L		SS2-1	4/12/2020	0.20	0.2	XR5777	GW
mg/L		SS2-2	4/12/2020	0.18	0.18	XR5778	GW
mg/L		SS2-3	4/12/2020	0.15	0.15	XR5779	DUPW1
mg/L		SS2-3	4/12/2020	0.17	0.17	XR5780	DUPW2
mg/L		SS2-4	4/11/2020	0.16	0.16	XR5781	GW
mg/L		SS3-4	4/13/2020	0.20	0.2	XR6031	GW
mg/L		SS3-5	4/13/2020	0.17	0.17	XR6032	GW
mg/L		SS3-6	4/13/2020	0.20	0.2	XR6033	DUPW1
mg/L		SS3-6	4/13/2020	0.20	0.2	XR6034	DUPW2
mg/L		SS3-7	4/13/2020	0.27	0.27	XR6035	GW
mg/L		SS3-8	4/13/2020	0.24	0.24	XR6036	GW
mg/L		SS4-4	4/14/2020	0.21	0.21	XR5669	GW
mg/L		SS4-5	4/14/2020	0.16	0.16	XR5670	GW
mg/L		SS5-3	4/13/2020	0.30	0.3	XR6025	GW
mg/L		SS5-4	4/13/2020	0.19	0.19	XR6026	GW
mg/L		SS5-5	4/13/2020	0.20	0.2	XR6027	GW

## Appendix D: Snow Water Chemistry Analytical Results

Parameter	Unit	Sample Point	Date	Data Point	Graphable Value	Lab Ref	Sample Type
Orthophosphate (PO4-P)	mg/L	CONTROL 1	4/13/2020	0.021	0.021	XR5671	GW
	mg/L	CONTROL 2	4/14/2020	0.0032	0.0032	XR5672	GW
	mg/L	CONTROL 3	4/13/2020	0.013	0.013	XR5673	GW
	mg/L	SS BAG	4/17/2020	<0.0010	0.0005	XR5674	EBW
	mg/L	SS BAG	4/17/2020	<0.0010	0.0005	XR5675	GW
	mg/L	SS1-4	4/12/2020	0.0028	0.0028	XR6022	DUPW1
	mg/L	SS1-4	4/12/2020	0.0023	0.0023	XR6023	DUPW2
	mg/L	SS1-5	4/12/2020	0.0019	0.0019	XR6024	GW
	mg/L	SS2-1	4/12/2020	0.0048	0.0048	XR5777	GW
	mg/L	SS2-2	4/12/2020	0.012	0.012	XR5778	GW
	mg/L	SS2-3	4/12/2020	0.0066	0.0066	XR5779	DUPW1
	mg/L	SS2-3	4/12/2020	0.0059	0.0059	XR5780	DUPW2
	mg/L	SS2-4	4/11/2020	<0.0010	0.0005	XR5781	GW
	mg/L	SS3-4	4/13/2020	0.0062	0.0062	XR6031	GW
	mg/L	SS3-5	4/13/2020	0.013	0.013	XR6032	GW
	mg/L	SS3-6	4/13/2020	0.0038	0.0038	XR6033	DUPW1
	mg/L	SS3-6	4/13/2020	0.015	0.015	XR6034	DUPW2
	mg/L	SS3-7	4/13/2020	0.0066	0.0066	XR6035	GW
	mg/L	SS3-8	4/13/2020	0.0083	0.0083	XR6036	GW
	pH	mg/L	SS4-4	4/14/2020	0.015	0.015	XR5669
mg/L		SS4-5	4/14/2020	0.010	0.01	XR5670	GW
mg/L		SS5-3	4/13/2020	0.0031	0.0031	XR6025	GW
mg/L		SS5-4	4/13/2020	0.013	0.013	XR6026	GW
mg/L		SS5-5	4/13/2020	0.0041	0.0041	XR6027	GW
pH		CONTROL 1	4/13/2020	4.91	4.91	XR5671	GW
pH		CONTROL 2	4/14/2020	4.72	4.72	XR5672	GW
pH		CONTROL 3	4/13/2020	4.96	4.96	XR5673	GW
pH		SS BAG	4/17/2020	5.09	5.09	XR5674	EBW
pH		SS BAG	4/17/2020	4.81	4.81	XR5675	GW
pH		SS1-4	4/12/2020	5.25	5.25	XR6022	DUPW1
pH		SS1-4	4/12/2020	4.96	4.96	XR6023	DUPW2
pH		SS1-5	4/12/2020	5.12	5.12	XR6024	GW
pH		SS2-1	4/12/2020	4.96	4.96	XR5777	GW
pH		SS2-2	4/12/2020	4.15	4.15	XR5778	GW
pH		SS2-3	4/12/2020	5.33	5.33	XR5779	DUPW1
pH		SS2-3	4/12/2020	5.50	5.5	XR5780	DUPW2
pH		SS2-4	4/11/2020	4.68	4.68	XR5781	GW
pH		SS3-4	4/13/2020	6.16	6.16	XR6031	GW
pH		SS3-5	4/13/2020	5.72	5.72	XR6032	GW
pH	SS3-6	4/13/2020	6.74	6.74	XR6033	DUPW1	
pH	SS3-6	4/13/2020	6.62	6.62	XR6034	DUPW2	
pH	SS3-7	4/13/2020	6.97	6.97	XR6035	GW	
pH	SS3-8	4/13/2020	6.65	6.65	XR6036	GW	
pH	SS4-4	4/14/2020	6.08	6.08	XR5669	GW	
pH	SS4-5	4/14/2020	4.25	4.25	XR5670	GW	
pH	SS5-3	4/13/2020	5.96	5.96	XR6025	GW	
pH	SS5-4	4/13/2020	5.10	5.1	XR6026	GW	
pH	SS5-5	4/13/2020	4.92	4.92	XR6027	GW	

## Appendix D: Snow Water Chemistry Analytical Results

Parameter	Unit	Sample Point	Date	Data Point	Graphable Value	Lab Ref	Sample Type
Phosphorus (P) - Dissolved (TDP)	mg/L	CONTROL 1	4/13/2020	0.0310	0.031	XR5671	GW
	mg/L	CONTROL 2	4/14/2020	0.0053	0.0053	XR5672	GW
	mg/L	CONTROL 3	4/13/2020	0.0283	0.0283	XR5673	GW
	mg/L	SS BAG	4/17/2020	<0.0020	0.001	XR5674	EBW
	mg/L	SS BAG	4/17/2020	<0.0020	0.001	XR5675	GW
	mg/L	SS1-4	4/12/2020	0.0039	0.0039	XR6022	DUPW1
	mg/L	SS1-4	4/12/2020	0.0037	0.0037	XR6023	DUPW2
	mg/L	SS1-5	4/12/2020	0.0053	0.0053	XR6024	GW
	mg/L	SS2-1	4/12/2020	0.0055	0.0055	XR5777	GW
	mg/L	SS2-2	4/12/2020	0.0254	0.0254	XR5778	GW
	mg/L	SS2-3	4/12/2020	0.0110	0.011	XR5779	DUPW1
	mg/L	SS2-3	4/12/2020	0.0084	0.0084	XR5780	DUPW2
	mg/L	SS2-4	4/11/2020	<0.0020	0.001	XR5781	GW
	mg/L	SS3-4	4/13/2020	0.0060	0.006	XR6031	GW
	mg/L	SS3-5	4/13/2020	0.0201	0.0201	XR6032	GW
	mg/L	SS3-6	4/13/2020	0.0024	0.0024	XR6033	DUPW1
	mg/L	SS3-6	4/13/2020	0.0253	0.0253	XR6034	DUPW2
	mg/L	SS3-7	4/13/2020	0.0069	0.0069	XR6035	GW
	mg/L	SS3-8	4/13/2020	0.0105	0.0105	XR6036	GW
	mg/L	SS4-4	4/14/2020	0.0230	0.023	XR5669	GW
	mg/L	SS4-5	4/14/2020	0.0196	0.0196	XR5670	GW
	mg/L	SS5-3	4/13/2020	0.0033	0.0033	XR6025	GW
	mg/L	SS5-4	4/13/2020	0.0206	0.0206	XR6026	GW
mg/L	SS5-5	4/13/2020	0.0062	0.0062	XR6027	GW	
Phosphorus (P) - Total	mg/L	CONTROL 1	4/13/2020	0.0359	0.0359	XR5671	GW
	mg/L	CONTROL 2	4/14/2020	0.0076	0.0076	XR5672	GW
	mg/L	CONTROL 3	4/13/2020	0.0460	0.046	XR5673	GW
	mg/L	SS BAG	4/17/2020	<0.0020	0.001	XR5674	EBW
	mg/L	SS BAG	4/17/2020	<0.0020	0.001	XR5675	GW
	mg/L	SS1-4	4/12/2020	0.0175	0.0175	XR6022	DUPW1
	mg/L	SS1-4	4/12/2020	0.0173	0.0173	XR6023	DUPW2
	mg/L	SS1-5	4/12/2020	0.0100	0.01	XR6024	GW
	mg/L	SS2-1	4/12/2020	0.0217	0.0217	XR5777	GW
	mg/L	SS2-2	4/12/2020	0.0405	0.0405	XR5778	GW
	mg/L	SS2-3	4/12/2020	0.0201	0.0201	XR5779	DUPW1
	mg/L	SS2-3	4/12/2020	0.0157	0.0157	XR5780	DUPW2
	mg/L	SS2-4	4/11/2020	<0.0020	0.001	XR5781	GW
	mg/L	SS3-4	4/13/2020	0.0644	0.0644	XR6031	GW
	mg/L	SS3-5	4/13/2020	0.0376	0.0376	XR6032	GW
	mg/L	SS3-6	4/13/2020	0.0842	0.0842	XR6033	DUPW1
	mg/L	SS3-6	4/13/2020	0.0758	0.0758	XR6034	DUPW2
	mg/L	SS3-7	4/13/2020	0.141	0.141	XR6035	GW
	mg/L	SS3-8	4/13/2020	0.0923	0.0923	XR6036	GW
	mg/L	SS4-4	4/14/2020	0.0574	0.0574	XR5669	GW
	mg/L	SS4-5	4/14/2020	0.0363	0.0363	XR5670	GW
	mg/L	SS5-3	4/13/2020	0.318	0.318	XR6025	GW
	mg/L	SS5-4	4/13/2020	0.0541	0.0541	XR6026	GW
mg/L	SS5-5	4/13/2020	0.0242	0.0242	XR6027	GW	

**Appendix D: Snow Water Chemistry Analytical Results**

Parameter	Unit	Sample Point	Date	Data Point	Graphable Value	Lab Ref	Sample Type
Potassium (K) - Dissolved	mg/L	CONTROL 1	4/13/2020	0.020	0.02	XR5671	GW
	mg/L	CONTROL 2	4/14/2020	0.031	0.031	XR5672	GW
	mg/L	CONTROL 3	4/13/2020	0.032	0.032	XR5673	GW
	mg/L	SS BAG	4/17/2020	<0.010	0.005	XR5674	EBW
	mg/L	SS BAG	4/17/2020	<0.010	0.005	XR5675	GW
	mg/L	SS1-4	4/12/2020	0.035	0.035	XR6022	DUPW1
	mg/L	SS1-4	4/12/2020	0.037	0.037	XR6023	DUPW2
	mg/L	SS1-5	4/12/2020	0.039	0.039	XR6024	GW
	mg/L	SS2-1	4/12/2020	0.029	0.029	XR5777	GW
	mg/L	SS2-2	4/12/2020	0.020	0.02	XR5778	GW
	mg/L	SS2-3	4/12/2020	0.019	0.019	XR5779	DUPW1
	mg/L	SS2-3	4/12/2020	0.017	0.017	XR5780	DUPW2
	mg/L	SS2-4	4/11/2020	0.018	0.018	XR5781	GW
	mg/L	SS3-4	4/13/2020	0.056	0.056	XR6031	GW
	mg/L	SS3-5	4/13/2020	0.021	0.021	XR6032	GW
	mg/L	SS3-6	4/13/2020	0.086	0.086	XR6033	DUPW1
	mg/L	SS3-6	4/13/2020	0.091	0.091	XR6034	DUPW2
	mg/L	SS3-7	4/13/2020	0.111	0.111	XR6035	GW
	mg/L	SS3-8	4/13/2020	0.090	0.09	XR6036	GW
	Potassium (K) - Total	mg/L	CONTROL 1	4/13/2020	0.019	0.019	XR5671
mg/L		CONTROL 2	4/14/2020	0.035	0.035	XR5672	GW
mg/L		CONTROL 3	4/13/2020	0.039	0.039	XR5673	GW
mg/L		SS BAG	4/17/2020	<0.010	0.005	XR5674	EBW
mg/L		SS BAG	4/17/2020	<0.010	0.005	XR5675	GW
mg/L		SS1-4	4/12/2020	0.073	0.073	XR6022	DUPW1
mg/L		SS1-4	4/12/2020	0.078	0.078	XR6023	DUPW2
mg/L		SS1-5	4/12/2020	0.043	0.043	XR6024	GW
mg/L		SS2-1	4/12/2020	0.026	0.026	XR5777	GW
mg/L		SS2-2	4/12/2020	0.023	0.023	XR5778	GW
mg/L		SS2-3	4/12/2020	0.018	0.018	XR5779	DUPW1
mg/L		SS2-3	4/12/2020	0.016	0.016	XR5780	DUPW2
mg/L		SS2-4	4/11/2020	0.010	0.01	XR5781	GW
mg/L		SS3-4	4/13/2020	0.059	0.059	XR6031	GW
mg/L		SS3-5	4/13/2020	0.060	0.06	XR6032	GW
mg/L		SS3-6	4/13/2020	0.089	0.089	XR6033	DUPW1
mg/L		SS3-6	4/13/2020	0.102	0.102	XR6034	DUPW2
mg/L		SS3-7	4/13/2020	0.144	0.144	XR6035	GW
mg/L		SS3-8	4/13/2020	0.120	0.12	XR6036	GW
mg/L		SS4-4	4/14/2020	0.015	0.015	XR5669	GW
mg/L	SS4-5	4/14/2020	0.045	0.045	XR5670	GW	
mg/L	SS5-3	4/13/2020	0.158	0.158	XR6025	GW	
mg/L	SS5-4	4/13/2020	0.034	0.034	XR6026	GW	
mg/L	SS5-5	4/13/2020	0.041	0.041	XR6027	GW	



## Appendix D: Snow Water Chemistry Analytical Results

Parameter	Unit	Sample Point	Date	Data Point	Graphable Value	Lab Ref	Sample Type
Selenium (Se) - Dissolved	ug/L	CONTROL 1	4/13/2020	<0.040	0.02	XR5671	GW
	ug/L	CONTROL 2	4/14/2020	<0.040	0.02	XR5672	GW
	ug/L	CONTROL 3	4/13/2020	<0.040	0.02	XR5673	GW
	ug/L	SS BAG	4/17/2020	<0.040	0.02	XR5674	EBW
	ug/L	SS BAG	4/17/2020	<0.040	0.02	XR5675	GW
	ug/L	SS1-4	4/12/2020	<0.040	0.02	XR6022	DUPW1
	ug/L	SS1-4	4/12/2020	<0.040	0.02	XR6023	DUPW2
	ug/L	SS1-5	4/12/2020	<0.040	0.02	XR6024	GW
	ug/L	SS2-1	4/12/2020	<0.040	0.02	XR5777	GW
	ug/L	SS2-2	4/12/2020	<0.040	0.02	XR5778	GW
	ug/L	SS2-3	4/12/2020	<0.040	0.02	XR5779	DUPW1
	ug/L	SS2-3	4/12/2020	<0.040	0.02	XR5780	DUPW2
	ug/L	SS2-4	4/11/2020	<0.040	0.02	XR5781	GW
	ug/L	SS3-4	4/13/2020	<0.040	0.02	XR6031	GW
	ug/L	SS3-5	4/13/2020	<0.040	0.02	XR6032	GW
	ug/L	SS3-6	4/13/2020	<0.040	0.02	XR6033	DUPW1
	ug/L	SS3-6	4/13/2020	<0.040	0.02	XR6034	DUPW2
	ug/L	SS3-7	4/13/2020	<0.040	0.02	XR6035	GW
	ug/L	SS3-8	4/13/2020	<0.040	0.02	XR6036	GW
	Selenium (Se) - Total	ug/L	CONTROL 1	4/13/2020	<0.040	0.02	XR5671
ug/L		CONTROL 2	4/14/2020	<0.040	0.02	XR5672	GW
ug/L		CONTROL 3	4/13/2020	<0.040	0.02	XR5673	GW
ug/L		SS BAG	4/17/2020	<0.040	0.02	XR5674	EBW
ug/L		SS BAG	4/17/2020	<0.040	0.02	XR5675	GW
ug/L		SS1-4	4/12/2020	<0.040	0.02	XR6022	DUPW1
ug/L		SS1-4	4/12/2020	<0.040	0.02	XR6023	DUPW2
ug/L		SS1-5	4/12/2020	<0.040	0.02	XR6024	GW
ug/L		SS2-1	4/12/2020	<0.040	0.02	XR5777	GW
ug/L		SS2-2	4/12/2020	<0.040	0.02	XR5778	GW
ug/L		SS2-3	4/12/2020	<0.040	0.02	XR5779	DUPW1
ug/L		SS2-3	4/12/2020	<0.040	0.02	XR5780	DUPW2
ug/L		SS2-4	4/11/2020	<0.040	0.02	XR5781	GW
ug/L		SS3-4	4/13/2020	<0.040	0.02	XR6031	GW
ug/L		SS3-5	4/13/2020	<0.040	0.02	XR6032	GW
ug/L		SS3-6	4/13/2020	<0.040	0.02	XR6033	DUPW1
ug/L		SS3-6	4/13/2020	<0.040	0.02	XR6034	DUPW2
ug/L		SS3-7	4/13/2020	<0.040	0.02	XR6035	GW
ug/L		SS3-8	4/13/2020	<0.040	0.02	XR6036	GW
ug/L		SS4-4	4/14/2020	<0.040	0.02	XR5669	GW
ug/L	SS4-5	4/14/2020	<0.040	0.02	XR5670	GW	
ug/L	SS5-3	4/13/2020	<0.040	0.02	XR6025	GW	
ug/L	SS5-4	4/13/2020	<0.040	0.02	XR6026	GW	
ug/L	SS5-5	4/13/2020	<0.040	0.02	XR6027	GW	

## Appendix D: Snow Water Chemistry Analytical Results

Parameter	Unit	Sample Point	Date	Data Point	Graphable Value	Lab Ref	Sample Type
Silicon (Si) - Dissolved	ug/L	CONTROL 1	4/13/2020	<50	25	XR5671	GW
	ug/L	CONTROL 2	4/14/2020	<50	25	XR5672	GW
	ug/L	CONTROL 3	4/13/2020	<50	25	XR5673	GW
	ug/L	SS BAG	4/17/2020	<50	25	XR5674	EBW
	ug/L	SS BAG	4/17/2020	<50	25	XR5675	GW
	ug/L	SS1-4	4/12/2020	<50	25	XR6022	DUPW1
	ug/L	SS1-4	4/12/2020	<50	25	XR6023	DUPW2
	ug/L	SS1-5	4/12/2020	<50	25	XR6024	GW
	ug/L	SS2-1	4/12/2020	<50	25	XR5777	GW
	ug/L	SS2-2	4/12/2020	<50	25	XR5778	GW
	ug/L	SS2-3	4/12/2020	<50	25	XR5779	DUPW1
	ug/L	SS2-3	4/12/2020	<50	25	XR5780	DUPW2
	ug/L	SS2-4	4/11/2020	<50	25	XR5781	GW
	ug/L	SS3-4	4/13/2020	110	110	XR6031	GW
	ug/L	SS3-5	4/13/2020	<50	25	XR6032	GW
	ug/L	SS3-6	4/13/2020	287	287	XR6033	DUPW1
	ug/L	SS3-6	4/13/2020	303	303	XR6034	DUPW2
	ug/L	SS3-7	4/13/2020	372	372	XR6035	GW
	ug/L	SS3-8	4/13/2020	241	241	XR6036	GW
	ug/L	SS4-4	4/14/2020	<50	25	XR5669	GW
	ug/L	SS4-5	4/14/2020	<50	25	XR5670	GW
	ug/L	SS5-3	4/13/2020	72	72	XR6025	GW
	ug/L	SS5-4	4/13/2020	<50	25	XR6026	GW
ug/L	SS5-5	4/13/2020	<50	25	XR6027	GW	
Silicon (Si) - Total	ug/L	CONTROL 1	4/13/2020	<50	25	XR5671	GW
	ug/L	CONTROL 2	4/14/2020	<50	25	XR5672	GW
	ug/L	CONTROL 3	4/13/2020	<50	25	XR5673	GW
	ug/L	SS BAG	4/17/2020	<50	25	XR5674	EBW
	ug/L	SS BAG	4/17/2020	<50	25	XR5675	GW
	ug/L	SS1-4	4/12/2020	<50	25	XR6022	DUPW1
	ug/L	SS1-4	4/12/2020	<50	25	XR6023	DUPW2
	ug/L	SS1-5	4/12/2020	<50	25	XR6024	GW
	ug/L	SS2-1	4/12/2020	<50	25	XR5777	GW
	ug/L	SS2-2	4/12/2020	<50	25	XR5778	GW
	ug/L	SS2-3	4/12/2020	<50	25	XR5779	DUPW1
	ug/L	SS2-3	4/12/2020	<50	25	XR5780	DUPW2
	ug/L	SS2-4	4/11/2020	<50	25	XR5781	GW
	ug/L	SS3-4	4/13/2020	128	128	XR6031	GW
	ug/L	SS3-5	4/13/2020	<50	25	XR6032	GW
	ug/L	SS3-6	4/13/2020	306	306	XR6033	DUPW1
	ug/L	SS3-6	4/13/2020	284	284	XR6034	DUPW2
	ug/L	SS3-7	4/13/2020	423	423	XR6035	GW
	ug/L	SS3-8	4/13/2020	268	268	XR6036	GW
	ug/L	SS4-4	4/14/2020	<50	25	XR5669	GW
	ug/L	SS4-5	4/14/2020	<50	25	XR5670	GW
	ug/L	SS5-3	4/13/2020	128	128	XR6025	GW
	ug/L	SS5-4	4/13/2020	<50	25	XR6026	GW
ug/L	SS5-5	4/13/2020	<50	25	XR6027	GW	

## Appendix D: Snow Water Chemistry Analytical Results

Parameter	Unit	Sample Point	Date	Data Point	Graphable Value	Lab Ref	Sample Type
Silver (Ag) - Dissolved	ug/L	CONTROL 1	4/13/2020	<0.0050	0.0025	XR5671	GW
	ug/L	CONTROL 2	4/14/2020	<0.0050	0.0025	XR5672	GW
	ug/L	CONTROL 3	4/13/2020	<0.0050	0.0025	XR5673	GW
	ug/L	SS BAG	4/17/2020	<0.0050	0.0025	XR5674	EBW
	ug/L	SS BAG	4/17/2020	<0.0050	0.0025	XR5675	GW
	ug/L	SS1-4	4/12/2020	<0.0050	0.0025	XR6022	DUPW1
	ug/L	SS1-4	4/12/2020	<0.0050	0.0025	XR6023	DUPW2
	ug/L	SS1-5	4/12/2020	<0.0050	0.0025	XR6024	GW
	ug/L	SS2-1	4/12/2020	<0.0050	0.0025	XR5777	GW
	ug/L	SS2-2	4/12/2020	<0.0050	0.0025	XR5778	GW
	ug/L	SS2-3	4/12/2020	<0.0050	0.0025	XR5779	DUPW1
	ug/L	SS2-3	4/12/2020	<0.0050	0.0025	XR5780	DUPW2
	ug/L	SS2-4	4/11/2020	<0.0050	0.0025	XR5781	GW
	ug/L	SS3-4	4/13/2020	<0.0050	0.0025	XR6031	GW
	ug/L	SS3-5	4/13/2020	<0.0050	0.0025	XR6032	GW
	ug/L	SS3-6	4/13/2020	<0.0050	0.0025	XR6033	DUPW1
	ug/L	SS3-6	4/13/2020	<0.0050	0.0025	XR6034	DUPW2
	ug/L	SS3-7	4/13/2020	<0.0050	0.0025	XR6035	GW
	ug/L	SS3-8	4/13/2020	<0.0050	0.0025	XR6036	GW
	ug/L	SS4-4	4/14/2020	<0.0050	0.0025	XR5669	GW
	ug/L	SS4-5	4/14/2020	<0.0050	0.0025	XR5670	GW
	ug/L	SS5-3	4/13/2020	<0.0050	0.0025	XR6025	GW
	ug/L	SS5-4	4/13/2020	<0.0050	0.0025	XR6026	GW
ug/L	SS5-5	4/13/2020	<0.0050	0.0025	XR6027	GW	
Silver (Ag) - Total	ug/L	CONTROL 1	4/13/2020	<0.0050	0.0025	XR5671	GW
	ug/L	CONTROL 2	4/14/2020	<0.0050	0.0025	XR5672	GW
	ug/L	CONTROL 3	4/13/2020	<0.0050	0.0025	XR5673	GW
	ug/L	SS BAG	4/17/2020	<0.0050	0.0025	XR5674	EBW
	ug/L	SS BAG	4/17/2020	<0.0050	0.0025	XR5675	GW
	ug/L	SS1-4	4/12/2020	<0.0050	0.0025	XR6022	DUPW1
	ug/L	SS1-4	4/12/2020	<0.0050	0.0025	XR6023	DUPW2
	ug/L	SS1-5	4/12/2020	<0.0050	0.0025	XR6024	GW
	ug/L	SS2-1	4/12/2020	<0.0050	0.0025	XR5777	GW
	ug/L	SS2-2	4/12/2020	<0.0050	0.0025	XR5778	GW
	ug/L	SS2-3	4/12/2020	<0.0050	0.0025	XR5779	DUPW1
	ug/L	SS2-3	4/12/2020	<0.0050	0.0025	XR5780	DUPW2
	ug/L	SS2-4	4/11/2020	<0.0050	0.0025	XR5781	GW
	ug/L	SS3-4	4/13/2020	<0.0050	0.0025	XR6031	GW
	ug/L	SS3-5	4/13/2020	<0.0050	0.0025	XR6032	GW
	ug/L	SS3-6	4/13/2020	<0.0050	0.0025	XR6033	DUPW1
	ug/L	SS3-6	4/13/2020	<0.0050	0.0025	XR6034	DUPW2
	ug/L	SS3-7	4/13/2020	<0.0050	0.0025	XR6035	GW
	ug/L	SS3-8	4/13/2020	<0.0050	0.0025	XR6036	GW
	ug/L	SS4-4	4/14/2020	<0.0050	0.0025	XR5669	GW
	ug/L	SS4-5	4/14/2020	<0.0050	0.0025	XR5670	GW
	ug/L	SS5-3	4/13/2020	<0.0050	0.0025	XR6025	GW
	ug/L	SS5-4	4/13/2020	<0.0050	0.0025	XR6026	GW
ug/L	SS5-5	4/13/2020	<0.0050	0.0025	XR6027	GW	

## Appendix D: Snow Water Chemistry Analytical Results

Parameter	Unit	Sample Point	Date	Data Point	Graphable Value	Lab Ref	Sample Type
Sodium (Na) - Dissolved	mg/L	CONTROL 1	4/13/2020	0.119	0.119	XR5671	GW
	mg/L	CONTROL 2	4/14/2020	0.050	0.05	XR5672	GW
	mg/L	CONTROL 3	4/13/2020	0.100	0.1	XR5673	GW
	mg/L	SS BAG	4/17/2020	0.010	0.01	XR5674	EBW
	mg/L	SS BAG	4/17/2020	<0.010	0.005	XR5675	GW
	mg/L	SS1-4	4/12/2020	0.082	0.082	XR6022	DUPW1
	mg/L	SS1-4	4/12/2020	0.089	0.089	XR6023	DUPW2
	mg/L	SS1-5	4/12/2020	0.145	0.145	XR6024	GW
	mg/L	SS2-1	4/12/2020	0.058	0.058	XR5777	GW
	mg/L	SS2-2	4/12/2020	0.091	0.091	XR5778	GW
	mg/L	SS2-3	4/12/2020	0.065	0.065	XR5779	DUPW1
	mg/L	SS2-3	4/12/2020	0.055	0.055	XR5780	DUPW2
	mg/L	SS2-4	4/11/2020	0.058	0.058	XR5781	GW
	mg/L	SS3-4	4/13/2020	0.080	0.08	XR6031	GW
	mg/L	SS3-5	4/13/2020	0.076	0.076	XR6032	GW
	mg/L	SS3-6	4/13/2020	0.088	0.088	XR6033	DUPW1
	mg/L	SS3-6	4/13/2020	0.143	0.143	XR6034	DUPW2
	mg/L	SS3-7	4/13/2020	0.107	0.107	XR6035	GW
	mg/L	SS3-8	4/13/2020	0.102	0.102	XR6036	GW
	Sodium (Na) - Total	mg/L	CONTROL 1	4/13/2020	0.101	0.101	XR5671
mg/L		CONTROL 2	4/14/2020	0.048	0.048	XR5672	GW
mg/L		CONTROL 3	4/13/2020	0.092	0.092	XR5673	GW
mg/L		SS BAG	4/17/2020	<0.010	0.005	XR5674	EBW
mg/L		SS BAG	4/17/2020	<0.010	0.005	XR5675	GW
mg/L		SS1-4	4/12/2020	0.069	0.069	XR6022	DUPW1
mg/L		SS1-4	4/12/2020	0.086	0.086	XR6023	DUPW2
mg/L		SS1-5	4/12/2020	0.145	0.145	XR6024	GW
mg/L		SS2-1	4/12/2020	0.052	0.052	XR5777	GW
mg/L		SS2-2	4/12/2020	0.082	0.082	XR5778	GW
mg/L		SS2-3	4/12/2020	0.052	0.052	XR5779	DUPW1
mg/L		SS2-3	4/12/2020	0.046	0.046	XR5780	DUPW2
mg/L		SS2-4	4/11/2020	0.041	0.041	XR5781	GW
mg/L		SS3-4	4/13/2020	0.071	0.071	XR6031	GW
mg/L		SS3-5	4/13/2020	0.070	0.07	XR6032	GW
mg/L		SS3-6	4/13/2020	0.090	0.09	XR6033	DUPW1
mg/L		SS3-6	4/13/2020	0.113	0.113	XR6034	DUPW2
mg/L		SS3-7	4/13/2020	0.098	0.098	XR6035	GW
mg/L		SS3-8	4/13/2020	0.095	0.095	XR6036	GW
mg/L		SS4-4	4/14/2020	0.054	0.054	XR5669	GW
mg/L	SS4-5	4/14/2020	0.075	0.075	XR5670	GW	
mg/L	SS5-3	4/13/2020	0.105	0.105	XR6025	GW	
mg/L	SS5-4	4/13/2020	0.081	0.081	XR6026	GW	
mg/L	SS5-5	4/13/2020	0.090	0.09	XR6027	GW	

**Appendix D: Snow Water Chemistry Analytical Results**

Parameter	Unit	Sample Point	Date	Data Point	Graphable Value	Lab Ref	Sample Type
Strontium (Sr) - Dissolved	ug/L	CONTROL 1	4/13/2020	0.489	0.489	XR5671	GW
	ug/L	CONTROL 2	4/14/2020	0.560	0.56	XR5672	GW
	ug/L	CONTROL 3	4/13/2020	0.729	0.729	XR5673	GW
	ug/L	SS BAG	4/17/2020	<0.050	0.025	XR5674	EBW
	ug/L	SS BAG	4/17/2020	<0.050	0.025	XR5675	GW
	ug/L	SS1-4	4/12/2020	0.874	0.874	XR6022	DUPW1
	ug/L	SS1-4	4/12/2020	0.982	0.982	XR6023	DUPW2
	ug/L	SS1-5	4/12/2020	1.27	1.27	XR6024	GW
	ug/L	SS2-1	4/12/2020	0.938	0.938	XR5777	GW
	ug/L	SS2-2	4/12/2020	0.723	0.723	XR5778	GW
	ug/L	SS2-3	4/12/2020	0.505	0.505	XR5779	DUPW1
	ug/L	SS2-3	4/12/2020	0.450	0.45	XR5780	DUPW2
	ug/L	SS2-4	4/11/2020	0.406	0.406	XR5781	GW
	ug/L	SS3-4	4/13/2020	2.48	2.48	XR6031	GW
	ug/L	SS3-5	4/13/2020	1.12	1.12	XR6032	GW
	ug/L	SS3-6	4/13/2020	4.10	4.1	XR6033	DUPW1
	ug/L	SS3-6	4/13/2020	3.95	3.95	XR6034	DUPW2
	ug/L	SS3-7	4/13/2020	5.14	5.14	XR6035	GW
	ug/L	SS3-8	4/13/2020	4.16	4.16	XR6036	GW
	ug/L	SS4-4	4/14/2020	2.02	2.02	XR5669	GW
	ug/L	SS4-5	4/14/2020	0.925	0.925	XR5670	GW
	ug/L	SS5-3	4/13/2020	2.21	2.21	XR6025	GW
	ug/L	SS5-4	4/13/2020	0.900	0.9	XR6026	GW
ug/L	SS5-5	4/13/2020	0.653	0.653	XR6027	GW	
Strontium (Sr) - Total	ug/L	CONTROL 1	4/13/2020	0.358	0.358	XR5671	GW
	ug/L	CONTROL 2	4/14/2020	0.602	0.602	XR5672	GW
	ug/L	CONTROL 3	4/13/2020	0.855	0.855	XR5673	GW
	ug/L	SS BAG	4/17/2020	<0.050	0.025	XR5674	EBW
	ug/L	SS BAG	4/17/2020	<0.050	0.025	XR5675	GW
	ug/L	SS1-4	4/12/2020	0.994	0.994	XR6022	DUPW1
	ug/L	SS1-4	4/12/2020	1.29	1.29	XR6023	DUPW2
	ug/L	SS1-5	4/12/2020	1.27	1.27	XR6024	GW
	ug/L	SS2-1	4/12/2020	0.890	0.89	XR5777	GW
	ug/L	SS2-2	4/12/2020	0.722	0.722	XR5778	GW
	ug/L	SS2-3	4/12/2020	0.529	0.529	XR5779	DUPW1
	ug/L	SS2-3	4/12/2020	0.440	0.44	XR5780	DUPW2
	ug/L	SS2-4	4/11/2020	0.314	0.314	XR5781	GW
	ug/L	SS3-4	4/13/2020	2.43	2.43	XR6031	GW
	ug/L	SS3-5	4/13/2020	0.981	0.981	XR6032	GW
	ug/L	SS3-6	4/13/2020	3.38	3.38	XR6033	DUPW1
	ug/L	SS3-6	4/13/2020	3.24	3.24	XR6034	DUPW2
	ug/L	SS3-7	4/13/2020	5.07	5.07	XR6035	GW
	ug/L	SS3-8	4/13/2020	3.85	3.85	XR6036	GW
	ug/L	SS4-4	4/14/2020	2.26	2.26	XR5669	GW
	ug/L	SS4-5	4/14/2020	0.855	0.855	XR5670	GW
	ug/L	SS5-3	4/13/2020	2.37	2.37	XR6025	GW
	ug/L	SS5-4	4/13/2020	0.768	0.768	XR6026	GW
ug/L	SS5-5	4/13/2020	0.877	0.877	XR6027	GW	

**Appendix D: Snow Water Chemistry Analytical Results**

Parameter	Unit	Sample Point	Date	Data Point	Graphable Value	Lab Ref	Sample Type
Sulphate (SO <sub>4</sub> ) - Dissolved	mg/L	CONTROL 1	4/13/2020	<0.50	0.25	XR5671	GW
	mg/L	CONTROL 2	4/14/2020	<0.50	0.25	XR5672	GW
	mg/L	CONTROL 3	4/13/2020	<0.50	0.25	XR5673	GW
	mg/L	SS BAG	4/17/2020	<0.50	0.25	XR5674	EBW
	mg/L	SS BAG	4/17/2020	<0.50	0.25	XR5675	GW
	mg/L	SS1-4	4/12/2020	<0.50	0.25	XR6022	DUPW1
	mg/L	SS1-4	4/12/2020	<0.50	0.25	XR6023	DUPW2
	mg/L	SS1-5	4/12/2020	<0.50	0.25	XR6024	GW
	mg/L	SS2-1	4/12/2020	<0.50	0.25	XR5777	GW
	mg/L	SS2-2	4/12/2020	<0.50	0.25	XR5778	GW
	mg/L	SS2-3	4/12/2020	0.52	0.52	XR5779	DUPW1
	mg/L	SS2-3	4/12/2020	<0.50	0.25	XR5780	DUPW2
	mg/L	SS2-4	4/11/2020	<0.50	0.25	XR5781	GW
	mg/L	SS3-4	4/13/2020	<0.50	0.25	XR6031	GW
	mg/L	SS3-5	4/13/2020	0.53	0.53	XR6032	GW
	mg/L	SS3-6	4/13/2020	<0.50	0.25	XR6033	DUPW1
	mg/L	SS3-6	4/13/2020	<0.50	0.25	XR6034	DUPW2
	mg/L	SS3-7	4/13/2020	0.61	0.61	XR6035	GW
	mg/L	SS3-8	4/13/2020	<0.50	0.25	XR6036	GW
	mg/L	SS4-4	4/14/2020	<0.50	0.25	XR5669	GW
	mg/L	SS4-5	4/14/2020	<0.50	0.25	XR5670	GW
	mg/L	SS5-3	4/13/2020	<0.50	0.25	XR6025	GW
	mg/L	SS5-4	4/13/2020	1.5	1.5	XR6026	GW
mg/L	SS5-5	4/13/2020	1.0	1	XR6027	GW	
Sulphur (S) - Dissolved	mg/L	CONTROL 1	4/13/2020	<0.50	0.25	XR5671	GW
	mg/L	CONTROL 2	4/14/2020	<0.50	0.25	XR5672	GW
	mg/L	CONTROL 3	4/13/2020	<0.50	0.25	XR5673	GW
	mg/L	SS BAG	4/17/2020	<0.50	0.25	XR5674	EBW
	mg/L	SS BAG	4/17/2020	<0.50	0.25	XR5675	GW
	mg/L	SS1-4	4/12/2020	<0.50	0.25	XR6022	DUPW1
	mg/L	SS1-4	4/12/2020	<0.50	0.25	XR6023	DUPW2
	mg/L	SS1-5	4/12/2020	<0.50	0.25	XR6024	GW
	mg/L	SS2-1	4/12/2020	<0.50	0.25	XR5777	GW
	mg/L	SS2-2	4/12/2020	<0.50	0.25	XR5778	GW
	mg/L	SS2-3	4/12/2020	<0.50	0.25	XR5779	DUPW1
	mg/L	SS2-3	4/12/2020	<0.50	0.25	XR5780	DUPW2
	mg/L	SS2-4	4/11/2020	0.52	0.52	XR5781	GW
	mg/L	SS3-4	4/13/2020	<0.50	0.25	XR6031	GW
	mg/L	SS3-5	4/13/2020	<0.50	0.25	XR6032	GW
	mg/L	SS3-6	4/13/2020	<0.50	0.25	XR6033	DUPW1
	mg/L	SS3-6	4/13/2020	<0.50	0.25	XR6034	DUPW2
	mg/L	SS3-7	4/13/2020	<0.50	0.25	XR6035	GW
	mg/L	SS3-8	4/13/2020	<0.50	0.25	XR6036	GW
	mg/L	SS4-4	4/14/2020	<0.50	0.25	XR5669	GW
	mg/L	SS4-5	4/14/2020	<0.50	0.25	XR5670	GW
	mg/L	SS5-3	4/13/2020	<0.50	0.25	XR6025	GW
	mg/L	SS5-4	4/13/2020	<0.50	0.25	XR6026	GW
mg/L	SS5-5	4/13/2020	<0.50	0.25	XR6027	GW	

## Appendix D: Snow Water Chemistry Analytical Results

Parameter	Unit	Sample Point	Date	Data Point	Graphable Value	Lab Ref	Sample Type
Sulphur (S) - Total	mg/L	CONTROL 1	4/13/2020	<0.50	0.25	XR5671	GW
	mg/L	CONTROL 2	4/14/2020	<0.50	0.25	XR5672	GW
	mg/L	CONTROL 3	4/13/2020	<0.50	0.25	XR5673	GW
	mg/L	SS BAG	4/17/2020	<0.50	0.25	XR5674	EBW
	mg/L	SS BAG	4/17/2020	<0.50	0.25	XR5675	GW
	mg/L	SS1-4	4/12/2020	<0.50	0.25	XR6022	DUPW1
	mg/L	SS1-4	4/12/2020	<0.50	0.25	XR6023	DUPW2
	mg/L	SS1-5	4/12/2020	<0.50	0.25	XR6024	GW
	mg/L	SS2-1	4/12/2020	<0.50	0.25	XR5777	GW
	mg/L	SS2-2	4/12/2020	<0.50	0.25	XR5778	GW
	mg/L	SS2-3	4/12/2020	<0.50	0.25	XR5779	DUPW1
	mg/L	SS2-3	4/12/2020	<0.50	0.25	XR5780	DUPW2
	mg/L	SS2-4	4/11/2020	<0.50	0.25	XR5781	GW
	mg/L	SS3-4	4/13/2020	<0.50	0.25	XR6031	GW
	mg/L	SS3-5	4/13/2020	<0.50	0.25	XR6032	GW
	mg/L	SS3-6	4/13/2020	<0.50	0.25	XR6033	DUPW1
	mg/L	SS3-6	4/13/2020	<0.50	0.25	XR6034	DUPW2
	mg/L	SS3-7	4/13/2020	<0.50	0.25	XR6035	GW
	mg/L	SS3-8	4/13/2020	<0.50	0.25	XR6036	GW
	mg/L	SS4-4	4/14/2020	<0.50	0.25	XR5669	GW
	mg/L	SS4-5	4/14/2020	<0.50	0.25	XR5670	GW
	mg/L	SS5-3	4/13/2020	<0.50	0.25	XR6025	GW
	mg/L	SS5-4	4/13/2020	<0.50	0.25	XR6026	GW
mg/L	SS5-5	4/13/2020	<0.50	0.25	XR6027	GW	
Thallium (Tl) - Dissolved	ug/L	CONTROL 1	4/13/2020	<0.0020	0.001	XR5671	GW
	ug/L	CONTROL 2	4/14/2020	<0.0020	0.001	XR5672	GW
	ug/L	CONTROL 3	4/13/2020	<0.0020	0.001	XR5673	GW
	ug/L	SS BAG	4/17/2020	<0.0020	0.001	XR5674	EBW
	ug/L	SS BAG	4/17/2020	<0.0020	0.001	XR5675	GW
	ug/L	SS1-4	4/12/2020	<0.0020	0.001	XR6022	DUPW1
	ug/L	SS1-4	4/12/2020	<0.0020	0.001	XR6023	DUPW2
	ug/L	SS1-5	4/12/2020	<0.0020	0.001	XR6024	GW
	ug/L	SS2-1	4/12/2020	<0.0020	0.001	XR5777	GW
	ug/L	SS2-2	4/12/2020	<0.0020	0.001	XR5778	GW
	ug/L	SS2-3	4/12/2020	<0.0020	0.001	XR5779	DUPW1
	ug/L	SS2-3	4/12/2020	<0.0020	0.001	XR5780	DUPW2
	ug/L	SS2-4	4/11/2020	<0.0020	0.001	XR5781	GW
	ug/L	SS3-4	4/13/2020	<0.0020	0.001	XR6031	GW
	ug/L	SS3-5	4/13/2020	<0.0020	0.001	XR6032	GW
	ug/L	SS3-6	4/13/2020	<0.0020	0.001	XR6033	DUPW1
	ug/L	SS3-6	4/13/2020	<0.0020	0.001	XR6034	DUPW2
	ug/L	SS3-7	4/13/2020	<0.0020	0.001	XR6035	GW
	ug/L	SS3-8	4/13/2020	<0.0020	0.001	XR6036	GW
	ug/L	SS4-4	4/14/2020	<0.0020	0.001	XR5669	GW
	ug/L	SS4-5	4/14/2020	<0.0020	0.001	XR5670	GW
	ug/L	SS5-3	4/13/2020	<0.0020	0.001	XR6025	GW
	ug/L	SS5-4	4/13/2020	<0.0020	0.001	XR6026	GW
ug/L	SS5-5	4/13/2020	<0.0020	0.001	XR6027	GW	

## Appendix D: Snow Water Chemistry Analytical Results

Parameter	Unit	Sample Point	Date	Data Point	Graphable Value	Lab Ref	Sample Type
Thallium (Tl) - Total	ug/L	CONTROL 1	4/13/2020	<0.0020	0.001	XR5671	GW
	ug/L	CONTROL 2	4/14/2020	<0.0020	0.001	XR5672	GW
	ug/L	CONTROL 3	4/13/2020	0.0023	0.0023	XR5673	GW
	ug/L	SS BAG	4/17/2020	<0.0020	0.001	XR5674	EBW
	ug/L	SS BAG	4/17/2020	<0.0020	0.001	XR5675	GW
	ug/L	SS1-4	4/12/2020	<0.0020	0.001	XR6022	DUPW1
	ug/L	SS1-4	4/12/2020	<0.0020	0.001	XR6023	DUPW2
	ug/L	SS1-5	4/12/2020	<0.0020	0.001	XR6024	GW
	ug/L	SS2-1	4/12/2020	<0.0020	0.001	XR5777	GW
	ug/L	SS2-2	4/12/2020	<0.0020	0.001	XR5778	GW
	ug/L	SS2-3	4/12/2020	<0.0020	0.001	XR5779	DUPW1
	ug/L	SS2-3	4/12/2020	<0.0020	0.001	XR5780	DUPW2
	ug/L	SS2-4	4/11/2020	<0.0020	0.001	XR5781	GW
	ug/L	SS3-4	4/13/2020	<0.0020	0.001	XR6031	GW
	ug/L	SS3-5	4/13/2020	<0.0020	0.001	XR6032	GW
	ug/L	SS3-6	4/13/2020	<0.0020	0.001	XR6033	DUPW1
	ug/L	SS3-6	4/13/2020	0.0020	0.002	XR6034	DUPW2
	ug/L	SS3-7	4/13/2020	0.0033	0.0033	XR6035	GW
	ug/L	SS3-8	4/13/2020	<0.0020	0.001	XR6036	GW
	ug/L	SS4-4	4/14/2020	<0.0020	0.001	XR5669	GW
	ug/L	SS4-5	4/14/2020	<0.0020	0.001	XR5670	GW
	ug/L	SS5-3	4/13/2020	0.0037	0.0037	XR6025	GW
	ug/L	SS5-4	4/13/2020	<0.0020	0.001	XR6026	GW
ug/L	SS5-5	4/13/2020	<0.0020	0.001	XR6027	GW	
Tin (Sn) - Dissolved	ug/L	CONTROL 1	4/13/2020	<0.010	0.005	XR5671	GW
	ug/L	CONTROL 2	4/14/2020	<0.010	0.005	XR5672	GW
	ug/L	CONTROL 3	4/13/2020	<0.010	0.005	XR5673	GW
	ug/L	SS BAG	4/17/2020	<0.010	0.005	XR5674	EBW
	ug/L	SS BAG	4/17/2020	<0.010	0.005	XR5675	GW
	ug/L	SS1-4	4/12/2020	<0.010	0.005	XR6022	DUPW1
	ug/L	SS1-4	4/12/2020	<0.010	0.005	XR6023	DUPW2
	ug/L	SS1-5	4/12/2020	<0.010	0.005	XR6024	GW
	ug/L	SS2-1	4/12/2020	<0.010	0.005	XR5777	GW
	ug/L	SS2-2	4/12/2020	<0.010	0.005	XR5778	GW
	ug/L	SS2-3	4/12/2020	<0.010	0.005	XR5779	DUPW1
	ug/L	SS2-3	4/12/2020	<0.010	0.005	XR5780	DUPW2
	ug/L	SS2-4	4/11/2020	<0.010	0.005	XR5781	GW
	ug/L	SS3-4	4/13/2020	0.012	0.012	XR6031	GW
	ug/L	SS3-5	4/13/2020	<0.010	0.005	XR6032	GW
	ug/L	SS3-6	4/13/2020	<0.010	0.005	XR6033	DUPW1
	ug/L	SS3-6	4/13/2020	<0.010	0.005	XR6034	DUPW2
	ug/L	SS3-7	4/13/2020	<0.010	0.005	XR6035	GW
	ug/L	SS3-8	4/13/2020	<0.010	0.005	XR6036	GW
	ug/L	SS4-4	4/14/2020	<0.010	0.005	XR5669	GW
	ug/L	SS4-5	4/14/2020	<0.010	0.005	XR5670	GW
	ug/L	SS5-3	4/13/2020	<0.010	0.005	XR6025	GW
	ug/L	SS5-4	4/13/2020	<0.010	0.005	XR6026	GW
ug/L	SS5-5	4/13/2020	<0.010	0.005	XR6027	GW	



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Parameter	Unit	Sample Point	Date	Data Point	Graphable Value	Lab Ref	Sample Type
Tin (Sn) - Total	ug/L	CONTROL 1	4/13/2020	<0.010	0.005	XR5671	GW
	ug/L	CONTROL 2	4/14/2020	<0.010	0.005	XR5672	GW
	ug/L	CONTROL 3	4/13/2020	<0.010	0.005	XR5673	GW
	ug/L	SS BAG	4/17/2020	0.012	0.012	XR5674	EBW
	ug/L	SS BAG	4/17/2020	0.011	0.011	XR5675	GW
	ug/L	SS1-4	4/12/2020	0.017	0.017	XR6022	DUPW1
	ug/L	SS1-4	4/12/2020	0.016	0.016	XR6023	DUPW2
	ug/L	SS1-5	4/12/2020	<0.010	0.005	XR6024	GW
	ug/L	SS2-1	4/12/2020	0.011	0.011	XR5777	GW
	ug/L	SS2-2	4/12/2020	<0.010	0.005	XR5778	GW
	ug/L	SS2-3	4/12/2020	<0.010	0.005	XR5779	DUPW1
	ug/L	SS2-3	4/12/2020	<0.010	0.005	XR5780	DUPW2
	ug/L	SS2-4	4/11/2020	0.014	0.014	XR5781	GW
	ug/L	SS3-4	4/13/2020	0.035	0.035	XR6031	GW
	ug/L	SS3-5	4/13/2020	<0.010	0.005	XR6032	GW
	ug/L	SS3-6	4/13/2020	<0.010	0.005	XR6033	DUPW1
	ug/L	SS3-6	4/13/2020	<0.010	0.005	XR6034	DUPW2
	ug/L	SS3-7	4/13/2020	0.011	0.011	XR6035	GW
	ug/L	SS3-8	4/13/2020	0.011	0.011	XR6036	GW
	ug/L	SS4-4	4/14/2020	<0.010	0.005	XR5669	GW
	ug/L	SS4-5	4/14/2020	<0.010	0.005	XR5670	GW
	ug/L	SS5-3	4/13/2020	0.012	0.012	XR6025	GW
	ug/L	SS5-4	4/13/2020	<0.010	0.005	XR6026	GW
ug/L	SS5-5	4/13/2020	<0.010	0.005	XR6027	GW	
Titanium (Ti) - Dissolved	ug/L	CONTROL 1	4/13/2020	<0.50	0.25	XR5671	GW
	ug/L	CONTROL 2	4/14/2020	0.65	0.65	XR5672	GW
	ug/L	CONTROL 3	4/13/2020	0.94	0.94	XR5673	GW
	ug/L	SS BAG	4/17/2020	<0.50	0.25	XR5674	EBW
	ug/L	SS BAG	4/17/2020	<0.50	0.25	XR5675	GW
	ug/L	SS1-4	4/12/2020	<0.50	0.25	XR6022	DUPW1
	ug/L	SS1-4	4/12/2020	<0.50	0.25	XR6023	DUPW2
	ug/L	SS1-5	4/12/2020	<0.50	0.25	XR6024	GW
	ug/L	SS2-1	4/12/2020	<0.50	0.25	XR5777	GW
	ug/L	SS2-2	4/12/2020	<0.50	0.25	XR5778	GW
	ug/L	SS2-3	4/12/2020	<0.50	0.25	XR5779	DUPW1
	ug/L	SS2-3	4/12/2020	<0.50	0.25	XR5780	DUPW2
	ug/L	SS2-4	4/11/2020	<0.50	0.25	XR5781	GW
	ug/L	SS3-4	4/13/2020	<0.50	0.25	XR6031	GW
	ug/L	SS3-5	4/13/2020	<0.50	0.25	XR6032	GW
	ug/L	SS3-6	4/13/2020	<0.50	0.25	XR6033	DUPW1
	ug/L	SS3-6	4/13/2020	0.76	0.76	XR6034	DUPW2
	ug/L	SS3-7	4/13/2020	<0.50	0.25	XR6035	GW
	ug/L	SS3-8	4/13/2020	<0.50	0.25	XR6036	GW
	ug/L	SS4-4	4/14/2020	<0.50	0.25	XR5669	GW
	ug/L	SS4-5	4/14/2020	<0.50	0.25	XR5670	GW
	ug/L	SS5-3	4/13/2020	<0.50	0.25	XR6025	GW
	ug/L	SS5-4	4/13/2020	<0.50	0.25	XR6026	GW
ug/L	SS5-5	4/13/2020	<0.50	0.25	XR6027	GW	

## Appendix D: Snow Water Chemistry Analytical Results

Parameter	Unit	Sample Point	Date	Data Point	Graphable Value	Lab Ref	Sample Type
Titanium (Ti) - Total	ug/L	CONTROL 1	4/13/2020	<0.50	0.25	XR5671	GW
	ug/L	CONTROL 2	4/14/2020	0.61	0.61	XR5672	GW
	ug/L	CONTROL 3	4/13/2020	1.07	1.07	XR5673	GW
	ug/L	SS BAG	4/17/2020	<0.50	0.25	XR5674	EBW
	ug/L	SS BAG	4/17/2020	<0.50	0.25	XR5675	GW
	ug/L	SS1-4	4/12/2020	<0.50	0.25	XR6022	DUPW1
	ug/L	SS1-4	4/12/2020	<0.50	0.25	XR6023	DUPW2
	ug/L	SS1-5	4/12/2020	<0.50	0.25	XR6024	GW
	ug/L	SS2-1	4/12/2020	<0.50	0.25	XR5777	GW
	ug/L	SS2-2	4/12/2020	<0.50	0.25	XR5778	GW
	ug/L	SS2-3	4/12/2020	<0.50	0.25	XR5779	DUPW1
	ug/L	SS2-3	4/12/2020	<0.50	0.25	XR5780	DUPW2
	ug/L	SS2-4	4/11/2020	<0.50	0.25	XR5781	GW
	ug/L	SS3-4	4/13/2020	1.86	1.86	XR6031	GW
	ug/L	SS3-5	4/13/2020	<0.50	0.25	XR6032	GW
	ug/L	SS3-6	4/13/2020	1.20	1.2	XR6033	DUPW1
	ug/L	SS3-6	4/13/2020	0.88	0.88	XR6034	DUPW2
	ug/L	SS3-7	4/13/2020	2.72	2.72	XR6035	GW
	ug/L	SS3-8	4/13/2020	1.80	1.8	XR6036	GW
	ug/L	SS4-4	4/14/2020	<0.50	0.25	XR5669	GW
	ug/L	SS4-5	4/14/2020	1.20	1.2	XR5670	GW
	ug/L	SS5-3	4/13/2020	3.17	3.17	XR6025	GW
	ug/L	SS5-4	4/13/2020	0.83	0.83	XR6026	GW
ug/L	SS5-5	4/13/2020	0.96	0.96	XR6027	GW	
Total Dissolved Solids (TDS)	mg/L	CONTROL 1	4/13/2020	4.4	4.4	XR5671	GW
	mg/L	CONTROL 2	4/14/2020	2.4	2.4	XR5672	GW
	mg/L	CONTROL 3	4/13/2020	<1.0	0.5	XR5673	GW
	mg/L	SS BAG	4/17/2020	<1.0	0.5	XR5674	EBW
	mg/L	SS BAG	4/17/2020	<1.0	0.5	XR5675	GW
	mg/L	SS1-4	4/12/2020	<1.0	0.5	XR6022	DUPW1
	mg/L	SS1-4	4/12/2020	2.8	2.8	XR6023	DUPW2
	mg/L	SS1-5	4/12/2020	<1.0	0.5	XR6024	GW
	mg/L	SS2-1	4/12/2020	<1.0	0.5	XR5777	GW
	mg/L	SS2-2	4/12/2020	<1.0	0.5	XR5778	GW
	mg/L	SS2-3	4/12/2020	3.6	3.6	XR5779	DUPW1
	mg/L	SS2-3	4/12/2020	<1.0	0.5	XR5780	DUPW2
	mg/L	SS2-4	4/11/2020	<1.0	0.5	XR5781	GW
	mg/L	SS3-4	4/13/2020	2.0	2	XR6031	GW
	mg/L	SS3-5	4/13/2020	<1.0	0.5	XR6032	GW
	mg/L	SS3-6	4/13/2020	5.6	5.6	XR6033	DUPW1
	mg/L	SS3-6	4/13/2020	4.0	4	XR6034	DUPW2
	mg/L	SS3-7	4/13/2020	7.2	7.2	XR6035	GW
	mg/L	SS3-8	4/13/2020	8.4	8.4	XR6036	GW
	mg/L	SS4-4	4/14/2020	4.8	4.8	XR5669	GW
	mg/L	SS4-5	4/14/2020	2.0	2	XR5670	GW
	mg/L	SS5-3	4/13/2020	<1.0	0.5	XR6025	GW
	mg/L	SS5-4	4/13/2020	<1.0	0.5	XR6026	GW
mg/L	SS5-5	4/13/2020	<1.0	0.5	XR6027	GW	

## Appendix D: Snow Water Chemistry Analytical Results

Parameter	Unit	Sample Point	Date	Data Point	Graphable Value	Lab Ref	Sample Type
Total Dissolved Solids (TDS) - Calculated	mg/L	CONTROL 1	4/13/2020	0.80	0.8	XR5671	GW
	mg/L	CONTROL 2	4/14/2020	1.30	1.3	XR5672	GW
	mg/L	CONTROL 3	4/13/2020	1.90	1.9	XR5673	GW
	mg/L	SS BAG	4/17/2020	0.90	0.9	XR5674	EBW
	mg/L	SS BAG	4/17/2020	<0.50	0.25	XR5675	GW
	mg/L	SS1-4	4/12/2020	1.70	1.7	XR6022	DUPW1
	mg/L	SS1-4	4/12/2020	1.40	1.4	XR6023	DUPW2
	mg/L	SS1-5	4/12/2020	0.80	0.8	XR6024	GW
	mg/L	SS2-1	4/12/2020	1.40	1.4	XR5777	GW
	mg/L	SS2-2	4/12/2020	1.30	1.3	XR5778	GW
	mg/L	SS2-3	4/12/2020	2.10	2.1	XR5779	DUPW1
	mg/L	SS2-3	4/12/2020	1.80	1.8	XR5780	DUPW2
	mg/L	SS2-4	4/11/2020	1.40	1.4	XR5781	GW
	mg/L	SS3-4	4/13/2020	2.90	2.9	XR6031	GW
	mg/L	SS3-5	4/13/2020	2.40	2.4	XR6032	GW
	mg/L	SS3-6	4/13/2020	5.00	5	XR6033	DUPW1
	mg/L	SS3-6	4/13/2020	5.10	5.1	XR6034	DUPW2
	mg/L	SS3-7	4/13/2020	6.90	6.9	XR6035	GW
	mg/L	SS3-8	4/13/2020	5.00	5	XR6036	GW
	mg/L	SS4-4	4/14/2020	2.30	2.3	XR5669	GW
	mg/L	SS4-5	4/14/2020	1.70	1.7	XR5670	GW
	mg/L	SS5-3	4/13/2020	2.90	2.9	XR6025	GW
	mg/L	SS5-4	4/13/2020	2.20	2.2	XR6026	GW
mg/L	SS5-5	4/13/2020	2.60	2.6	XR6027	GW	
Total Kjeldahl Nitrogen	mg/L	CONTROL 1	4/13/2020	0.14	0.14	XR5671	GW
	mg/L	CONTROL 2	4/14/2020	0.11	0.11	XR5672	GW
	mg/L	CONTROL 3	4/13/2020	0.13	0.13	XR5673	GW
	mg/L	SS BAG	4/17/2020	0.059	0.059	XR5674	EBW
	mg/L	SS BAG	4/17/2020	0.075	0.075	XR5675	GW
	mg/L	SS1-4	4/12/2020	0.12	0.12	XR6022	DUPW1
	mg/L	SS1-4	4/12/2020	0.11	0.11	XR6023	DUPW2
	mg/L	SS1-5	4/12/2020	0.097	0.097	XR6024	GW
	mg/L	SS2-1	4/12/2020	0.15	0.15	XR5777	GW
	mg/L	SS2-2	4/12/2020	0.12	0.12	XR5778	GW
	mg/L	SS2-3	4/12/2020	0.095	0.095	XR5779	DUPW1
	mg/L	SS2-3	4/12/2020	0.094	0.094	XR5780	DUPW2
	mg/L	SS2-4	4/11/2020	0.085	0.085	XR5781	GW
	mg/L	SS3-4	4/13/2020	0.14	0.14	XR6031	GW
	mg/L	SS3-5	4/13/2020	0.11	0.11	XR6032	GW
	mg/L	SS3-6	4/13/2020	0.13	0.13	XR6033	DUPW1
	mg/L	SS3-6	4/13/2020	0.14	0.14	XR6034	DUPW2
	mg/L	SS3-7	4/13/2020	0.19	0.19	XR6035	GW
	mg/L	SS3-8	4/13/2020	0.15	0.15	XR6036	GW
	mg/L	SS4-4	4/14/2020	0.12	0.12	XR5669	GW
	mg/L	SS4-5	4/14/2020	0.11	0.11	XR5670	GW
	mg/L	SS5-3	4/13/2020	0.20	0.2	XR6025	GW
	mg/L	SS5-4	4/13/2020	0.12	0.12	XR6026	GW
mg/L	SS5-5	4/13/2020	0.12	0.12	XR6027	GW	

## Appendix D: Snow Water Chemistry Analytical Results

Parameter	Unit	Sample Point	Date	Data Point	Graphable Value	Lab Ref	Sample Type
Total Organic Carbon (TOC)	mg/L	CONTROL 1	4/13/2020	1.1	1.1	XR5671	GW
	mg/L	CONTROL 2	4/14/2020	0.79	0.79	XR5672	GW
	mg/L	CONTROL 3	4/13/2020	0.87	0.87	XR5673	GW
	mg/L	SS BAG	4/17/2020	0.28	0.28	XR5674	EBW
	mg/L	SS BAG	4/17/2020	0.57	0.57	XR5675	GW
	mg/L	SS1-4	4/12/2020	0.48	0.48	XR6022	DUPW1
	mg/L	SS1-4	4/12/2020	0.86	0.86	XR6023	DUPW2
	mg/L	SS1-5	4/12/2020	0.53	0.53	XR6024	GW
	mg/L	SS2-1	4/12/2020	0.77	0.77	XR5777	GW
	mg/L	SS2-2	4/12/2020	0.69	0.69	XR5778	GW
	mg/L	SS2-3	4/12/2020	0.84	0.84	XR5779	DUPW1
	mg/L	SS2-3	4/12/2020	0.37	0.37	XR5780	DUPW2
	mg/L	SS2-4	4/11/2020	0.52	0.52	XR5781	GW
	mg/L	SS3-4	4/13/2020	0.48	0.48	XR6031	GW
	mg/L	SS3-5	4/13/2020	1.0	1	XR6032	GW
	mg/L	SS3-6	4/13/2020	1.2	1.2	XR6033	DUPW1
	mg/L	SS3-6	4/13/2020	0.71	0.71	XR6034	DUPW2
	mg/L	SS3-7	4/13/2020	0.60	0.6	XR6035	GW
	mg/L	SS3-8	4/13/2020	0.61	0.61	XR6036	GW
	mg/L	SS4-4	4/14/2020	0.91	0.91	XR5669	GW
	mg/L	SS4-5	4/14/2020	0.44	0.44	XR5670	GW
	mg/L	SS5-3	4/13/2020	0.87	0.87	XR6025	GW
	mg/L	SS5-4	4/13/2020	0.48	0.48	XR6026	GW
mg/L	SS5-5	4/13/2020	0.97	0.97	XR6027	GW	
Total Suspended Solids (TSS)	mg/L	CONTROL 1	4/13/2020	7.1	7.1	XR5671	GW
	mg/L	CONTROL 2	4/14/2020	9.9	9.9	XR5672	GW
	mg/L	CONTROL 3	4/13/2020	15	15	XR5673	GW
	mg/L	SS BAG	4/17/2020	<1.0	0.5	XR5674	EBW
	mg/L	SS BAG	4/17/2020	1.0	1	XR5675	GW
	mg/L	SS1-4	4/12/2020	19	19	XR6022	DUPW1
	mg/L	SS1-4	4/12/2020	18	18	XR6023	DUPW2
	mg/L	SS1-5	4/12/2020	6.1	6.1	XR6024	GW
	mg/L	SS2-1	4/12/2020	13	13	XR5777	GW
	mg/L	SS2-2	4/12/2020	15	15	XR5778	GW
	mg/L	SS2-3	4/12/2020	8.9	8.9	XR5779	DUPW1
	mg/L	SS2-3	4/12/2020	5.8	5.8	XR5780	DUPW2
	mg/L	SS2-4	4/11/2020	1.5	1.5	XR5781	GW
	mg/L	SS3-4	4/13/2020	42	42	XR6031	GW
	mg/L	SS3-5	4/13/2020	18	18	XR6032	GW
	mg/L	SS3-6	4/13/2020	61	61	XR6033	DUPW1
	mg/L	SS3-6	4/13/2020	62	62	XR6034	DUPW2
	mg/L	SS3-7	4/13/2020	87	87	XR6035	GW
	mg/L	SS3-8	4/13/2020	68	68	XR6036	GW
	mg/L	SS4-4	4/14/2020	32	32	XR5669	GW
	mg/L	SS4-5	4/14/2020	15	15	XR5670	GW
	mg/L	SS5-3	4/13/2020	210	210	XR6025	GW
	mg/L	SS5-4	4/13/2020	30	30	XR6026	GW
mg/L	SS5-5	4/13/2020	22	22	XR6027	GW	

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Parameter	Unit	Sample Point	Date	Data Point	Graphable Value	Lab Ref	Sample Type
Turbidity	NTU	CONTROL 1	4/13/2020	4.3	4.3	XR5671	GW
	NTU	CONTROL 2	4/14/2020	1.9	1.9	XR5672	GW
	NTU	CONTROL 3	4/13/2020	4.0	4	XR5673	GW
	NTU	SS BAG	4/17/2020	0.64	0.64	XR5674	EBW
	NTU	SS BAG	4/17/2020	3.3	3.3	XR5675	GW
	NTU	SS1-4	4/12/2020	1.2	1.2	XR6022	DUPW1
	NTU	SS1-4	4/12/2020	2.6	2.6	XR6023	DUPW2
	NTU	SS1-5	4/12/2020	0.38	0.38	XR6024	GW
	NTU	SS2-1	4/12/2020	2.4	2.4	XR5777	GW
	NTU	SS2-2	4/12/2020	3.3	3.3	XR5778	GW
	NTU	SS2-3	4/12/2020	1.6	1.6	XR5779	DUPW1
	NTU	SS2-3	4/12/2020	2.6	2.6	XR5780	DUPW2
	NTU	SS2-4	4/11/2020	0.86	0.86	XR5781	GW
	NTU	SS3-4	4/13/2020	7.3	7.3	XR6031	GW
	NTU	SS3-5	4/13/2020	3.5	3.5	XR6032	GW
	NTU	SS3-6	4/13/2020	11	11	XR6033	DUPW1
	NTU	SS3-6	4/13/2020	10	10	XR6034	DUPW2
	NTU	SS3-7	4/13/2020	15	15	XR6035	GW
	NTU	SS3-8	4/13/2020	13	13	XR6036	GW
	Uranium (U) - Dissolved	ug/L	CONTROL 1	4/13/2020	0.0384	0.0384	XR5671
ug/L		CONTROL 2	4/14/2020	0.0378	0.0378	XR5672	GW
ug/L		CONTROL 3	4/13/2020	0.104	0.104	XR5673	GW
ug/L		SS BAG	4/17/2020	<0.0020	0.001	XR5674	EBW
ug/L		SS BAG	4/17/2020	<0.0020	0.001	XR5675	GW
ug/L		SS1-4	4/12/2020	0.0196	0.0196	XR6022	DUPW1
ug/L		SS1-4	4/12/2020	0.0283	0.0283	XR6023	DUPW2
ug/L		SS1-5	4/12/2020	0.0224	0.0224	XR6024	GW
ug/L		SS2-1	4/12/2020	0.0350	0.035	XR5777	GW
ug/L		SS2-2	4/12/2020	0.0537	0.0537	XR5778	GW
ug/L		SS2-3	4/12/2020	0.0345	0.0345	XR5779	DUPW1
ug/L		SS2-3	4/12/2020	0.0268	0.0268	XR5780	DUPW2
ug/L		SS2-4	4/11/2020	0.0173	0.0173	XR5781	GW
ug/L		SS3-4	4/13/2020	0.0909	0.0909	XR6031	GW
ug/L		SS3-5	4/13/2020	0.0385	0.0385	XR6032	GW
ug/L		SS3-6	4/13/2020	0.115	0.115	XR6033	DUPW1
ug/L		SS3-6	4/13/2020	0.187	0.187	XR6034	DUPW2
ug/L		SS3-7	4/13/2020	0.129	0.129	XR6035	GW
ug/L		SS3-8	4/13/2020	0.113	0.113	XR6036	GW
ug/L		SS4-4	4/14/2020	0.104	0.104	XR5669	GW
ug/L	SS4-5	4/14/2020	0.0530	0.053	XR5670	GW	
ug/L	SS5-3	4/13/2020	0.688	0.688	XR6025	GW	
ug/L	SS5-4	4/13/2020	0.0724	0.0724	XR6026	GW	
ug/L	SS5-5	4/13/2020	0.0390	0.039	XR6027	GW	

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Parameter	Unit	Sample Point	Date	Data Point	Graphable Value	Lab Ref	Sample Type
Uranium (U) - Total	ug/L	CONTROL 1	4/13/2020	0.0293	0.0293	XR5671	GW
	ug/L	CONTROL 2	4/14/2020	0.0405	0.0405	XR5672	GW
	ug/L	CONTROL 3	4/13/2020	0.112	0.112	XR5673	GW
	ug/L	SS BAG	4/17/2020	<0.0020	0.001	XR5674	EBW
	ug/L	SS BAG	4/17/2020	<0.0020	0.001	XR5675	GW
	ug/L	SS1-4	4/12/2020	0.0386	0.0386	XR6022	DUPW1
	ug/L	SS1-4	4/12/2020	0.0460	0.046	XR6023	DUPW2
	ug/L	SS1-5	4/12/2020	0.0304	0.0304	XR6024	GW
	ug/L	SS2-1	4/12/2020	0.0614	0.0614	XR5777	GW
	ug/L	SS2-2	4/12/2020	0.0474	0.0474	XR5778	GW
	ug/L	SS2-3	4/12/2020	0.0405	0.0405	XR5779	DUPW1
	ug/L	SS2-3	4/12/2020	0.0447	0.0447	XR5780	DUPW2
	ug/L	SS2-4	4/11/2020	0.0202	0.0202	XR5781	GW
	ug/L	SS3-4	4/13/2020	0.101	0.101	XR6031	GW
	ug/L	SS3-5	4/13/2020	0.0439	0.0439	XR6032	GW
	ug/L	SS3-6	4/13/2020	0.194	0.194	XR6033	DUPW1
	ug/L	SS3-6	4/13/2020	0.200	0.2	XR6034	DUPW2
	ug/L	SS3-7	4/13/2020	0.214	0.214	XR6035	GW
	ug/L	SS3-8	4/13/2020	0.196	0.196	XR6036	GW
	Vanadium (V) - Dissolved	ug/L	CONTROL 1	4/13/2020	0.060	0.06	XR5671
ug/L		CONTROL 2	4/14/2020	<0.050	0.025	XR5672	GW
ug/L		CONTROL 3	4/13/2020	0.070	0.07	XR5673	GW
ug/L		SS BAG	4/17/2020	<0.050	0.025	XR5674	EBW
ug/L		SS BAG	4/17/2020	<0.050	0.025	XR5675	GW
ug/L		SS1-4	4/12/2020	<0.050	0.025	XR6022	DUPW1
ug/L		SS1-4	4/12/2020	<0.050	0.025	XR6023	DUPW2
ug/L		SS1-5	4/12/2020	<0.050	0.025	XR6024	GW
ug/L		SS2-1	4/12/2020	<0.050	0.025	XR5777	GW
ug/L		SS2-2	4/12/2020	0.059	0.059	XR5778	GW
ug/L		SS2-3	4/12/2020	<0.050	0.025	XR5779	DUPW1
ug/L		SS2-3	4/12/2020	<0.050	0.025	XR5780	DUPW2
ug/L		SS2-4	4/11/2020	<0.050	0.025	XR5781	GW
ug/L		SS3-4	4/13/2020	0.087	0.087	XR6031	GW
ug/L		SS3-5	4/13/2020	0.055	0.055	XR6032	GW
ug/L		SS3-6	4/13/2020	0.167	0.167	XR6033	DUPW1
ug/L		SS3-6	4/13/2020	0.228	0.228	XR6034	DUPW2
ug/L		SS3-7	4/13/2020	0.222	0.222	XR6035	GW
ug/L		SS3-8	4/13/2020	0.174	0.174	XR6036	GW
ug/L		SS4-4	4/14/2020	0.125	0.125	XR5669	GW
ug/L	SS4-5	4/14/2020	0.084	0.084	XR5670	GW	
ug/L	SS5-3	4/13/2020	0.091	0.091	XR6025	GW	
ug/L	SS5-4	4/13/2020	<0.050	0.025	XR6026	GW	
ug/L	SS5-5	4/13/2020	<0.050	0.025	XR6027	GW	

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Parameter	Unit	Sample Point	Date	Data Point	Graphable Value	Lab Ref	Sample Type
Vanadium (V) - Total	ug/L	CONTROL 1	4/13/2020	0.061	0.061	XR5671	GW
	ug/L	CONTROL 2	4/14/2020	0.056	0.056	XR5672	GW
	ug/L	CONTROL 3	4/13/2020	0.094	0.094	XR5673	GW
	ug/L	SS BAG	4/17/2020	<0.050	0.025	XR5674	EBW
	ug/L	SS BAG	4/17/2020	<0.050	0.025	XR5675	GW
	ug/L	SS1-4	4/12/2020	<0.050	0.025	XR6022	DUPW1
	ug/L	SS1-4	4/12/2020	0.053	0.053	XR6023	DUPW2
	ug/L	SS1-5	4/12/2020	<0.050	0.025	XR6024	GW
	ug/L	SS2-1	4/12/2020	0.051	0.051	XR5777	GW
	ug/L	SS2-2	4/12/2020	0.072	0.072	XR5778	GW
	ug/L	SS2-3	4/12/2020	<0.050	0.025	XR5779	DUPW1
	ug/L	SS2-3	4/12/2020	<0.050	0.025	XR5780	DUPW2
	ug/L	SS2-4	4/11/2020	<0.050	0.025	XR5781	GW
	ug/L	SS3-4	4/13/2020	0.123	0.123	XR6031	GW
	ug/L	SS3-5	4/13/2020	0.062	0.062	XR6032	GW
	ug/L	SS3-6	4/13/2020	0.226	0.226	XR6033	DUPW1
	ug/L	SS3-6	4/13/2020	0.253	0.253	XR6034	DUPW2
	ug/L	SS3-7	4/13/2020	0.272	0.272	XR6035	GW
	ug/L	SS3-8	4/13/2020	0.202	0.202	XR6036	GW
	Zinc (Zn) - Dissolved	ug/L	CONTROL 1	4/13/2020	1.14	1.14	XR5671
ug/L		CONTROL 2	4/14/2020	0.85	0.85	XR5672	GW
ug/L		CONTROL 3	4/13/2020	0.78	0.78	XR5673	GW
ug/L		SS BAG	4/17/2020	0.16	0.16	XR5674	EBW
ug/L		SS BAG	4/17/2020	0.40	0.4	XR5675	GW
ug/L		SS1-4	4/12/2020	0.77	0.77	XR6022	DUPW1
ug/L		SS1-4	4/12/2020	0.72	0.72	XR6023	DUPW2
ug/L		SS1-5	4/12/2020	0.74	0.74	XR6024	GW
ug/L		SS2-1	4/12/2020	0.84	0.84	XR5777	GW
ug/L		SS2-2	4/12/2020	1.13	1.13	XR5778	GW
ug/L		SS2-3	4/12/2020	0.69	0.69	XR5779	DUPW1
ug/L		SS2-3	4/12/2020	0.47	0.47	XR5780	DUPW2
ug/L		SS2-4	4/11/2020	0.53	0.53	XR5781	GW
ug/L		SS3-4	4/13/2020	0.69	0.69	XR6031	GW
ug/L		SS3-5	4/13/2020	0.56	0.56	XR6032	GW
ug/L		SS3-6	4/13/2020	0.39	0.39	XR6033	DUPW1
ug/L		SS3-6	4/13/2020	0.72	0.72	XR6034	DUPW2
ug/L		SS3-7	4/13/2020	0.39	0.39	XR6035	GW
ug/L		SS3-8	4/13/2020	0.38	0.38	XR6036	GW
ug/L		SS4-4	4/14/2020	4.56	4.56	XR5669	GW
ug/L	SS4-5	4/14/2020	2.23	2.23	XR5670	GW	
ug/L	SS5-3	4/13/2020	0.74	0.74	XR6025	GW	
ug/L	SS5-4	4/13/2020	0.85	0.85	XR6026	GW	
ug/L	SS5-5	4/13/2020	0.62	0.62	XR6027	GW	

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Parameter	Unit	Sample Point	Date	Data Point	Graphable Value	Lab Ref	Sample Type
Zinc (Zn) - Total	ug/L	CONTROL 1	4/13/2020	1.12	1.12	XR5671	GW
	ug/L	CONTROL 2	4/14/2020	1.46	1.46	XR5672	GW
	ug/L	CONTROL 3	4/13/2020	1.34	1.34	XR5673	GW
	ug/L	SS BAG	4/17/2020	0.94	0.94	XR5674	EBW
	ug/L	SS BAG	4/17/2020	0.46	0.46	XR5675	GW
	ug/L	SS1-4	4/12/2020	1.41	1.41	XR6022	DUPW1
	ug/L	SS1-4	4/12/2020	1.50	1.5	XR6023	DUPW2
	ug/L	SS1-5	4/12/2020	1.18	1.18	XR6024	GW
	ug/L	SS2-1	4/12/2020	1.00	1	XR5777	GW
	ug/L	SS2-2	4/12/2020	2.75	2.75	XR5778	GW
	ug/L	SS2-3	4/12/2020	0.91	0.91	XR5779	DUPW1
	ug/L	SS2-3	4/12/2020	0.84	0.84	XR5780	DUPW2
	ug/L	SS2-4	4/11/2020	0.95	0.95	XR5781	GW
	ug/L	SS3-4	4/13/2020	0.71	0.71	XR6031	GW
	ug/L	SS3-5	4/13/2020	0.68	0.68	XR6032	GW
	ug/L	SS3-6	4/13/2020	0.94	0.94	XR6033	DUPW1
	ug/L	SS3-6	4/13/2020	1.03	1.03	XR6034	DUPW2
	ug/L	SS3-7	4/13/2020	1.23	1.23	XR6035	GW
	ug/L	SS3-8	4/13/2020	1.14	1.14	XR6036	GW
	ug/L	SS4-4	4/14/2020	0.94	0.94	XR5669	GW
	ug/L	SS4-5	4/14/2020	<0.10	0.05	XR5670	GW
	ug/L	SS5-3	4/13/2020	1.21	1.21	XR6025	GW
	ug/L	SS5-4	4/13/2020	1.13	1.13	XR6026	GW
ug/L	SS5-5	4/13/2020	1.13	1.13	XR6027	GW	
Zirconium (Zr) - Dissolved	ug/L	CONTROL 1	4/13/2020	<0.050	0.025	XR5671	GW
	ug/L	CONTROL 2	4/14/2020	<0.050	0.025	XR5672	GW
	ug/L	CONTROL 3	4/13/2020	<0.050	0.025	XR5673	GW
	ug/L	SS BAG	4/17/2020	<0.050	0.025	XR5674	EBW
	ug/L	SS BAG	4/17/2020	<0.050	0.025	XR5675	GW
	ug/L	SS1-4	4/12/2020	<0.050	0.025	XR6022	DUPW1
	ug/L	SS1-4	4/12/2020	<0.050	0.025	XR6023	DUPW2
	ug/L	SS1-5	4/12/2020	<0.050	0.025	XR6024	GW
	ug/L	SS2-1	4/12/2020	<0.050	0.025	XR5777	GW
	ug/L	SS2-2	4/12/2020	<0.050	0.025	XR5778	GW
	ug/L	SS2-3	4/12/2020	<0.050	0.025	XR5779	DUPW1
	ug/L	SS2-3	4/12/2020	<0.050	0.025	XR5780	DUPW2
	ug/L	SS2-4	4/11/2020	0.069	0.069	XR5781	GW
	ug/L	SS3-4	4/13/2020	<0.050	0.025	XR6031	GW
	ug/L	SS3-5	4/13/2020	<0.050	0.025	XR6032	GW
	ug/L	SS3-6	4/13/2020	<0.050	0.025	XR6033	DUPW1
	ug/L	SS3-6	4/13/2020	<0.050	0.025	XR6034	DUPW2
	ug/L	SS3-7	4/13/2020	<0.050	0.025	XR6035	GW
	ug/L	SS3-8	4/13/2020	<0.050	0.025	XR6036	GW
	ug/L	SS4-4	4/14/2020	<0.050	0.025	XR5669	GW
	ug/L	SS4-5	4/14/2020	<0.050	0.025	XR5670	GW
	ug/L	SS5-3	4/13/2020	0.055	0.055	XR6025	GW
	ug/L	SS5-4	4/13/2020	<0.050	0.025	XR6026	GW
ug/L	SS5-5	4/13/2020	<0.050	0.025	XR6027	GW	



## Appendix D: Snow Water Chemistry Analytical Results

Parameter	Unit	Sample Point	Date	Data Point	Graphable Value	Lab Ref	Sample Type
Zirconium (Zr) - Total	ug/L	CONTROL 1	4/13/2020	<0.050	0.025	XR5671	GW
	ug/L	CONTROL 2	4/14/2020	<0.050	0.025	XR5672	GW
	ug/L	CONTROL 3	4/13/2020	0.051	0.051	XR5673	GW
	ug/L	SS BAG	4/17/2020	<0.050	0.025	XR5674	EBW
	ug/L	SS BAG	4/17/2020	<0.050	0.025	XR5675	GW
	ug/L	SS1-4	4/12/2020	<0.050	0.025	XR6022	DUPW1
	ug/L	SS1-4	4/12/2020	<0.050	0.025	XR6023	DUPW2
	ug/L	SS1-5	4/12/2020	<0.050	0.025	XR6024	GW
	ug/L	SS2-1	4/12/2020	<0.050	0.025	XR5777	GW
	ug/L	SS2-2	4/12/2020	<0.050	0.025	XR5778	GW
	ug/L	SS2-3	4/12/2020	<0.050	0.025	XR5779	DUPW1
	ug/L	SS2-3	4/12/2020	<0.050	0.025	XR5780	DUPW2
	ug/L	SS2-4	4/11/2020	<0.050	0.025	XR5781	GW
	ug/L	SS3-4	4/13/2020	<0.050	0.025	XR6031	GW
	ug/L	SS3-5	4/13/2020	0.059	0.059	XR6032	GW
	ug/L	SS3-6	4/13/2020	<0.050	0.025	XR6033	DUPW1
	ug/L	SS3-6	4/13/2020	<0.050	0.025	XR6034	DUPW2
	ug/L	SS3-7	4/13/2020	<0.050	0.025	XR6035	GW
	ug/L	SS3-8	4/13/2020	0.059	0.059	XR6036	GW
	ug/L	SS4-4	4/14/2020	<0.050	0.025	XR5669	GW
	ug/L	SS4-5	4/14/2020	<0.050	0.025	XR5670	GW
	ug/L	SS5-3	4/13/2020	0.087	0.087	XR6025	GW
	ug/L	SS5-4	4/13/2020	<0.050	0.025	XR6026	GW
ug/L	SS5-5	4/13/2020	<0.050	0.025	XR6027	GW	

**APPENDIX E      DUST GAUGE COLLECTION STANDARD OPERATING  
PROCEDURE (ENVR-508-0112)**

<u>Environment</u>			
STANDARD OPERATING PROCEDURE			
<b>Area No.:</b>	<b>8000</b>	<b>Document #:</b>	<b>ENVI-908-0119</b>
		<b>Revision:</b>	<b>8</b>
<b>Task Title:</b>	<b>SOP – Dust Gauge Collection</b>		
<b>Next Review:</b>	<b>1 Year from Final Approval in Documentum</b>		
<b>Effective Date:</b>	<b>Date on approved stamp in footer.</b>		

## 1 REFERENCES/RELATED DOCUMENTS

- 1.1 **ENVI-904-0119 - SOP Total Suspended Solids** - Located in: Diavik Intranet - SOPs – Environment Folder
- 1.2 **ENVI-901-0119 – SOP General Laboratory Safety** - Located in: Diavik Intranet – SOPs – Environment Folder
- 1.3 **ENVI-919-0119 - SOP Snowmobiles** – Located in: P:\DDMI Environment\10.0 Operational Control\10.1 SOPs\Working SOPs
- 1.4 **ENVI-917-0119 - SOP Watercraft** – Located in: P:\DDMI Environment\10.0 Operational Control\10.1 SOPs\Working SOPs
- 1.5 **ENVI907-0119 - SOP Remote Field Safety** – Located in: P:\DDMI Environment\10.0 Operational Control\10.1 SOPs\Working SOPs
- 1.6 **ENVI-895-0119 - SOP Lightning Response** – Located in: P:\DDMI Environment\10.0 Operational Control\10.1 SOPs\Working SOPs
- 1.7 **ENVI-916-0119 – SOP Helicopter Usage** - Located in: P:\DDMI Environment\10.0 Operational Control\10.1 SOPs\Working SOPs
- 1.8 **ENVI-135-0112 - Remote Field Safety Permit Form** – Located in: P:\DDMI Environment\10.0 Operational Control\10.2 Forms\Current Forms\Approved\Remote Field Safety Plans
- 1.9 **ENVI-178-0312 - Dust Gauge Collection Field Sheet** – Located in: P:\DDMI Environment\10.0 Operational Control\10.2 Forms\Current Forms\Approved

**Environment**  
**STANDARD OPERATING PROCEDURE**  
**Dust Gauge Collection**

Revision History			
Revision	Revision Description	Date of Revision	Author
0	Initial Release	11-Jan-12	D. Meredith
1	New SOP format, clarify procedures, adds photos.	23-Nov-14	D. Dul/ D. Bourassa
2	Format update	19-Jul-15	D. Birch
3	Annual Update	10-Feb-16	S. Sinclair
4	New Template, clarification of representative sampling, decrease in oven temperature to be consistent with Standard Methods	04-Nov-16/10-Nov-16	S. Martin-Elson/N. Goodman
5	Template and area manager updated	20-Oct-17	S. Skinner
6	Superintendent update	10-Mar-18	S. Skinner
7	Annual review	27-Feb-19	M. Nelson N. Goodman S. Skinner
8	Added section 6.4.4. (lab QAQC), annual review/Superintendent update	Nov 2020	N. Goodman

Authorized Electronically in Documentum By:	
<b>Area Superintendent:</b>	Kofi Boa-Antwi
<b>Area Manager:</b>	D. Patterson

**Environment**  
**STANDARD OPERATING PROCEDURE**  
**Dust Gauge Collection**

**CRITICAL RISKS**



Other potential critical risks not currently assessed as part of this SOP


**Environment**  
**STANDARD OPERATING PROCEDURE**  
**Dust Gauge Collection**



Figure 1: Dust Gauge Site 5 in the Summer



Figure 2: Dust Gauge Site 7 in the Winter



Figure 3: Dust Gauge Tubes prepared for storage

**Description**

This Standard Operating Procedure (SOP) provides guidelines on procedures to follow when carrying out Dust Gauge Collections.

**Environment**  
**STANDARD OPERATING PROCEDURE**  
**Dust Gauge Collection**

## 2 PURPOSE

The purpose of this Standard Operating Procedure (SOP) is to outline the methodology for collecting dust gauge samples. This program is aimed at understanding dust deposition rates associated with project activities. Results collected from this program are compiled and included in the Appendix of the annual AEMP report.

## 3 SCOPE

### 3.1 Scope of Procedure

This SOP describes the responsibilities and processes for the deployment, collection and analysis of dust gauge samples. These procedures apply to all Diavik Mine personnel and contractor personnel authorized for sample collection activities.

### 3.2 Scope of Activities

Fourteen dust gauges (12 sample sites, plus 2 control sites) are established on and around East Island for monitoring airborne dust particles. The dust gauges are collected quarterly throughout the year.

## 4 DEFINITIONS

Definitions							
ACTS		Groundwater		PROVE		SOP	✓
AEMP	✓	JHA	✓	QA		TSS	✓
COC		NTU		QC		TSP	
DI water	✓	PAL		Remote work	✓	WHMIS	
DO		PFD	✓	SDS		WLWB	

**Environment**  
**STANDARD OPERATING PROCEDURE**  
**Dust Gauge Collection**

ELT		PPE	✓	Seepage			
GPS	✓	Problem bear		SNP			

See: ENVI-443-0415 - Environment Term Definitions - Located in: Diavik Intranet – SOPs – Environment Folder

## 5 RESPONSIBILITIES

See: ENVI-444-0415 - Environment Roles and Responsibilities - Located in: Diavik Intranet – SOPs – Environment Folder

## 6 PROCEDURE

### 6.1 Key HSEQ Aspects

Task Hazards							
Aircraft	✓	Extreme Weather	✓	Line of Fire		Snowmobile Operation	✓
Burns	✓	Fall into Water	✓	Manual Labour		Spills	
Chemical Contact		Falling		Noise	✓	Sprain / Strain	✓
Confined Space		Fire		Overhead Objects		Stored Energy	
Cuts Scrapes	✓	Firearms / Deterrents		Perception		Uneven Terrain / Ground	✓
Dehydration		Fumes / Gases		Pinch Points	✓	Unfamiliar Area	✓
Electrical		Glass		Risk to Wildlife		Visibility	✓

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<b>Environment</b>							
<b>STANDARD OPERATING PROCEDURE</b>							
<b>Dust Gauge Collection</b>							

Entanglement		Heavy Equipment		Rotating Parts	✓	Watercraft Operation	✓
Equipment Loss or Damage		Lifting		Sample Loss or Damage	✓	Wildlife	✓
Ergonomics	✓	Light Vehicle		Slip, Trip, Fall	✓	Working Remotely	✓

See: ENVI-445-0415 - Environment Hazard Definitions - Located in: Diavik Intranet – SOPs – Environment Folder

## 6.2 CRM Critical Risks

Critical Risk	Critical Control
Drowning	PFD
Vehicle collision or rollover	Seat Belt, Defensive driving, Segregation
Vehicle impact on person	Seat Belt, Defensive driving/walking, Segregation
Wildlife	Scans, Vehicles as means of safety
Thermal extremes	Weather checks, Remote field permit
Aircraft transport	PPE, Follow pilot's directions

It is the responsibility of all personnel to adhere to the high health and safety standards used at Diavik. Personnel are required to complete all pre-task planning and safety checks. Queries about the appropriate permits and checks should be brought to the attention of the Supervisor or their delegate. Tasks should be executed to plan using the identified controls. Any deviations from plan should be assessed prior to proceeding with the remainder of the task. All incidents will be reported to the Supervisor or their delegate as soon as possible.

**Environment**  
**STANDARD OPERATING PROCEDURE**  
**Dust Gauge Collection**

### 6.3 Tools Required

<b>Supplies, Tools and Equipment</b>			
Tool / Equipment	Quantity	Tool / Equipment	Quantity
Snowmobile (2), Boat or Helicopter	1	Winter/Summer/Boat Survival Gear (Set)	1
GPS/ Loaded Coordinates	2	Spare Batteries	4
Satellite Phone	1	Personal Gear (per person)	1
InReach per person	1	Wildlife Deterrents (air horn/banger kit)	1
Camera (per person)	1	Field Permit and Map	1
Radio with spare battery (per person)	1	Adjustable Wrench's	1
Forceps, Pliers, Tweezers	1	Field Sheets	14
Clean Replacement Sample Tubes	6	Pencils, Pens or Markers	2
Glass Beakers (1000 mL)	6	Large/Clear/Heavy-duty Plastic Bags or Gloves	6
High Temp Oven	1	TSS Filters	12 - 36
Fire Proof Gloves/Tongs	1	Duct Tape	12 - 36
Vice Grips	1	Snowshoes (seasonal) (pair per person) and cam straps	1

### 6.4 Procedural Steps

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**Environment**  
**STANDARD OPERATING PROCEDURE**  
**Dust Gauge Collection**

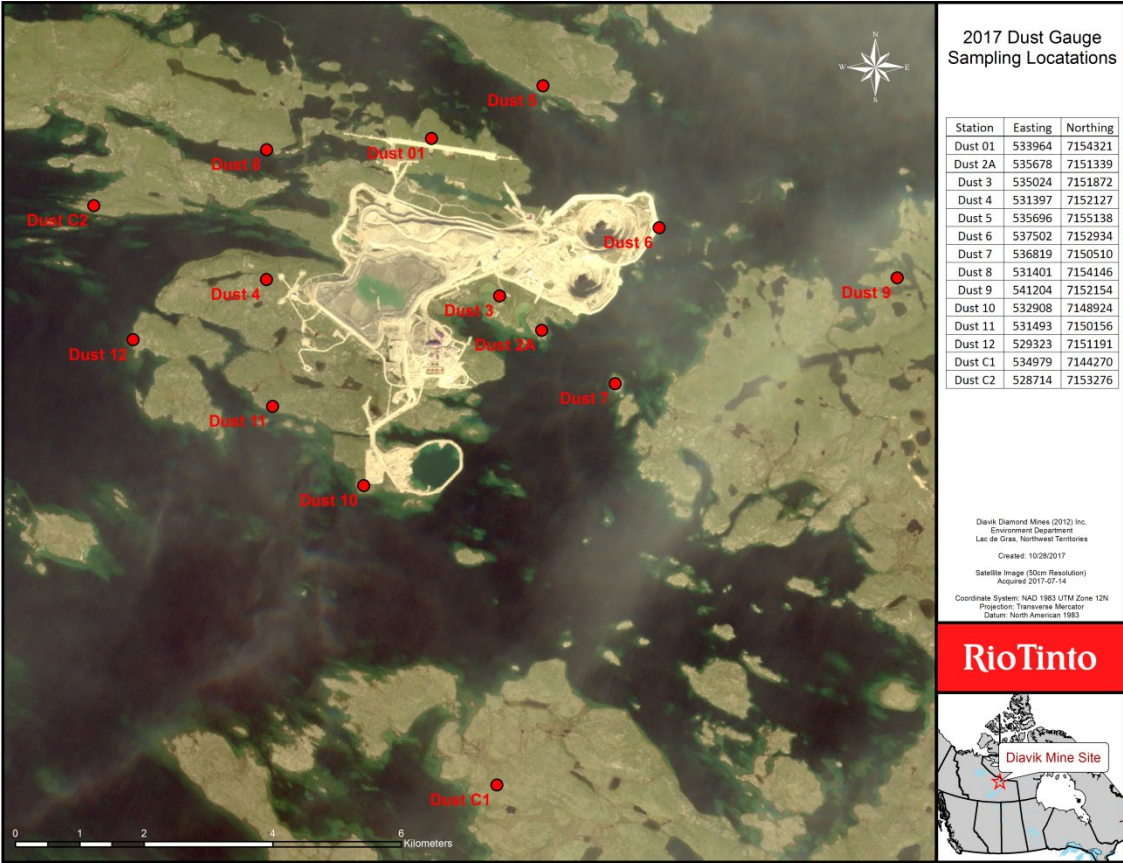
**6.4.1 Pre-Deployment**

Spare tubes are stored in the Environment field lab Shelf B3 with two XL nitrile gloves and plastic bag duct taped closed to prevent dust deposition. **Tubes needs to be cleaned and checked for leaks prior to storage.** To clean and check for leaks, fill spare tubes with water and leave overnight on counter in Environment Lab. If leaks are discovered tag out and make arrangements with truck shop to have them fixed.

**6.4.2 Sample Collection and Deployment**

Depending on location and season, samples are collected using various methods of transportation; you can walk, drive, boat, snowmobile or use a helicopter to access the various sites.

When using a Helicopter, a Hot Loading Variance is permitted (a JHA must be completed and signed off by HSE Manager). When accessing near-site stations on foot in the winter, snowshoes should be taken to provide safer access. If necessary, snowshoes can be strapped to the back of the snowmobile. The map in Figure 4 provides the Dust Gauge locations and coordinates.



**Figure 4: Dust Gauge Sites**

**Environment**  
**STANDARD OPERATING PROCEDURE**  
**Dust Gauge Collection**

When you arrive at the sample location, first inspect the station for damage (fiberglass tube on ground, station on angle etc.) and document anything noted on the Dust Gauge Collection Field Sheet - ENVI-178-0312.

Carefully remove the copper tube out from the center of the fiberglass shield, keeping it upright. If the tube is stuck or frozen, try wiggling it, or tapping it near the bottom. If the tube is still stuck, you may need extra leverage to free the tube and may, if absolutely necessary, use vice grips to grab the top and wiggle while pulling up. If it will not come free, you may have to remove the shield and pop the tube out. Be sure to replace the shield and insert a new tube afterwards. See Plates 1 & 2 below.



Plate 1: Tube Retrieval

**Environment**  
**STANDARD OPERATING PROCEDURE**  
**Dust Gauge Collection**



Plate 2: Fiberglass Shield Removed

Once retrieved, keep the tube upright, place an extra-large latex glove over top of tube and seal with clean plastic bag and duct tape (Plate 3). Ensure tube is labelled with the station number, date and time collected. Always keep the tube upright and secure during transport.

Place a clean, leak tested tube into the fiberglass shield (the tube should be labelled with the Dust Gauge Site, deployment date and time). Note that tubes need to be *upright and secure in the base rims* in order for the sample to be considered representative. Some of the base rims are bent and the tubes will not sit in them properly. When this is the case, place rocks around the tube within the fiberglass shell to ensure that tube will stay upright. Caution should be exercised to avoid pinch points when placing rocks between the tube and shell.



**Environment**  
**STANDARD OPERATING PROCEDURE**  
**Dust Gauge Collection**



**Plate 3: Sealing the Tube**

### **6.4.3 Sample Analysis**

Once back in the Environment Lab, if snow is present, stand up the sample tube in a clean plastic bag (prevents sample loss if there is a leak) and allow samples to melt. Carefully transfer sample into a triple-rinsed 1000 ml glass beaker and record the total volume of water (before rinsing) on the Dust Gauge Collection Field Sheet- ENVI-178-0312. Extract all debris including bugs and twigs and be sure to triple rinse them into the beaker to capture all the dust particles. Rinse the copper tube with DI water until all dust particles are removed.

**Environment**  
**STANDARD OPERATING PROCEDURE**  
**Dust Gauge Collection**

Cover the 1000 ml beaker with parafilm and store the sample in the fridge until samples can be analysed for Total Suspended Solids (ENVI-904-0119). This should be conducted as soon as possible because some solids may dissolve in water, especially after snow melt. Note that it may take multiple filters to complete one sample, and number of filters varies by season. Please refer to table 2 and use your best judgement when looking at the sample.

Table 2. Average number of filters required by season

Dust Gauge	Winter (Jan)	Spring (March)	Summer (Jun)	Fall (Sept)
1	1	2	4	2
2A	1	2	2	2
3	2	3	4	3
4	1	1	2	1
5	1	1	2	1
6	1	2	2	2
7	1	3	2	2
8	1	1	2	3
9	1	1	2	1
10	2	2	4	2
11	1	3	6	2
12	1	1	3	2
C1	1	1	1	1
C2	1	1	1	1

The resulting filter(s) with the dust particles are put into ceramic crucibles; ensure that you record the sample ID on the crucibles **in pencil** before putting them into the oven (1 filter per crucible, Plate 4). Ensure that you record the same information on the aluminium tins so that sample filters do not get mixed up.

**Environment**  
**STANDARD OPERATING PROCEDURE**  
**Dust Gauge Collection**



**Plate 4: Ceramic crucibles with filter**

The high temperature oven is set up in the fume hood with the fan running. To avoid burns, heavy-duty fire-proof gloves and long tongs are used when placing or removing the crucibles from the oven. Filters are processed in the oven at 550 degrees Celsius for one hour. Allow oven to heat up to temperature before use. See Plates 5 & 6 below.



**Plate 5: High Heat Oven**



**Environment**  
**STANDARD OPERATING PROCEDURE**  
**Dust Gauge Collection**



Plate 6: Fire Proof Glove and Long Tongs

When samples are removed from the oven, place the crucibles into their original labeled tin tray. Let the sample cool for at least 10 minutes before handling the tins and crucibles without heat resistant gloves. Place the tin tray into the desiccator and allow the sample to cool further for a minimum of one hour. Carefully remove the filters from their ceramic crucible using tweezers. Add any dust that has fallen off into the crucible to the top of the filter.

Weigh the filter according to the procedure outlined in the Total Suspended Solids SOP

Record the results on the Dust Gauge Data Form and in 13.14 Annual Dust Gauge Collection excel file for the given year on the P-Drive.

The dust fall deposition rate is determined using the equation below:

$$\text{Daily Dust fall Deposition (mg/dm}^2\text{/d)} = (\text{TP (mg)} / \text{SA (dm}^2\text{)}) / \text{TDD (d)}$$

*Where:*

**TP (mg)** = Total Particulate

**SA (dm<sup>2</sup>)** = Surface Area of Dust Gauge Collection Tube = (3.14\*(6.25\*6.25)\*100)

**TDD** = Total Days Gauge was Deployed

**Environment**  
**STANDARD OPERATING PROCEDURE**  
**Dust Gauge Collection**

Calculations are setup in the excel file. If you have any questions about entering this data contact your supervisor.

#### **6.4.4 Quality Assurance (QA) / Quality Control (QC)**

##### *6.4.4.1 Lab Blank Samples*

Anytime that dust samples are collected and subsequently analyzed, a lab blank sample must be analyzed following the same procedure.

##### *6.4.4.2 Equipment Blank*

Before dust gauge collection occurs, an equipment blank must be collected and analyzed following the procedure outlined below:

1. Remove the nitrile gloves from the copper tube and fill the tube with DI water (the amount of water not important, however, DO NOT PRE-RINSE THE TUBE)
2. Transfer the liquid into a beaker and analyze the sample as per the procedure outlined in section 6.4.3.

## **7 QUALITY OUTCOMES AND EXPECTATIONS**

The primary objectives for implementing this SOP are:

- To safety complete the tasks outlined in this SOP, without incident.
- To produce quality, accurate and repeatable results.

**APPENDIX F      SNOW CORE SURVEY STANDARD OPERATING PROCEDURE  
(ENVR-512-0213)**

<b><u>Environment</u></b>			
<b>STANDARD OPERATING PROCEDURE</b>			
<b>Area No.:</b>	<b>8000</b>	<b>Document #:</b>	<b>ENVI-909-0119</b>
		<b>Revision:</b>	<b>10</b>
<b>Task Title:</b>	<b>Snow Core Survey</b>		
<b>Next Review: 1 Year from Final Approval in Documentum</b>			
<b>Effective Date: Date on approved stamp in footer.</b>			

**1 REFERENCES/RELATED DOCUMENTS**

- 1.1 **ENVI-907-0119 – SOP Remote Field Safety** - Located in: P:\DDMI Environment\10.0 Operational Control\10.1 SOPs\Working SOPs
- 1.2 **ENVI-919-0119 - SOP Snowmobile** - Located in: P:\DDMI Environment\10.0 Operational Control\10.1 SOPs\Working SOPs
- 1.3 **ENVI-901-0119 - SOP General Laboratory Safety** - Located in: P:\DDMI Environment\10.0 Operational Control\10.1 SOPs\Working SOPs
- 1.4 **ENVI-902-0119 - SOP Quality Assurance and Quality Control** - Located in: P:\DDMI Environment\10.0 Operational Control\10.1 SOPs\Working SOPs
- 1.5 **ENVI-900-0119 - SOP Chain of Custody** - Located in: P:\DDMI Environment\10.0 Operational Control\10.1 SOPs\Working SOPs
- 1.6 **ENVI-904-0119 - SOP Total Suspended Solids Analysis** - Located in: P:\DDMI Environment\10.0 Operational Control\10.1 SOPs\Working SOPs
- 1.7 **ENVI-601-0916- Snowmobile Pre-Op Inspection** - Located in: P:\DDMI Environment\10.0 Operational Control\10.2 Forms\Current Forms\Approved\Check Sheets
- 1.8 **ENVI-135-0112 – Remote Field Safety Permit** - Located in: P:\DDMI Environment\10.0 Operational Control\10.2 Forms\Current Forms\Approved\Remote Field Safety Plans
- 1.9 **ENVI-177-0312 – Snow Sampling Field Sheet** - Located in: P:\DDMI Environment\10.0 Operational Control\10.2 Forms\Current Forms\Approved\Water Quality Forms

**Environment**  
**STANDARD OPERATING PROCEDURE**  
**Snow Core Survey**

<b>Revision History</b>			
<b>Revision</b>	<b>Revision Description</b>	<b>Date of Revision</b>	<b>Author</b>
0	Original Issue	08-Feb-12	D. Grabke
1	Updated Map for 2014, added SS3-6, SS3-7, SS3-8 sample points, updated to new environment SOP format	8-Apr-14	D. Grabke
2	Format update	19-Jul-15	D. Birch
3	Format update	06-Dec-15	G.Reid
4	Format update	06-Nov-16	S. Martin-Elson
5	Format and area manager updated	20-Oct-17	S. Skinner
6	Superintendent update	10-Mar-18	S. Skinner
7	QAQC update	04-Apr-18	S. Skinner
8	Format update throughout, tables in section 4 and 6.1 updated, table 2 preservative for metals removed	25-Nov-18	S. Skinner
9	Dissolved metals added to water quality bottles to Table 2	15-Mar-18	S. Skinner
10	Annual update	18-Jan-20	M. Nelson
	Changes to bottle requirements	25-Oct-20	A. Hehn

<b>Authorized Electronically in Documentum By:</b>	
<b>Area Superintendent:</b>	K. Boa-Antwi
<b>Area Manager:</b>	D. Patterson

**Environment**  
**STANDARD OPERATING PROCEDURE**  
**Snow Core Survey**

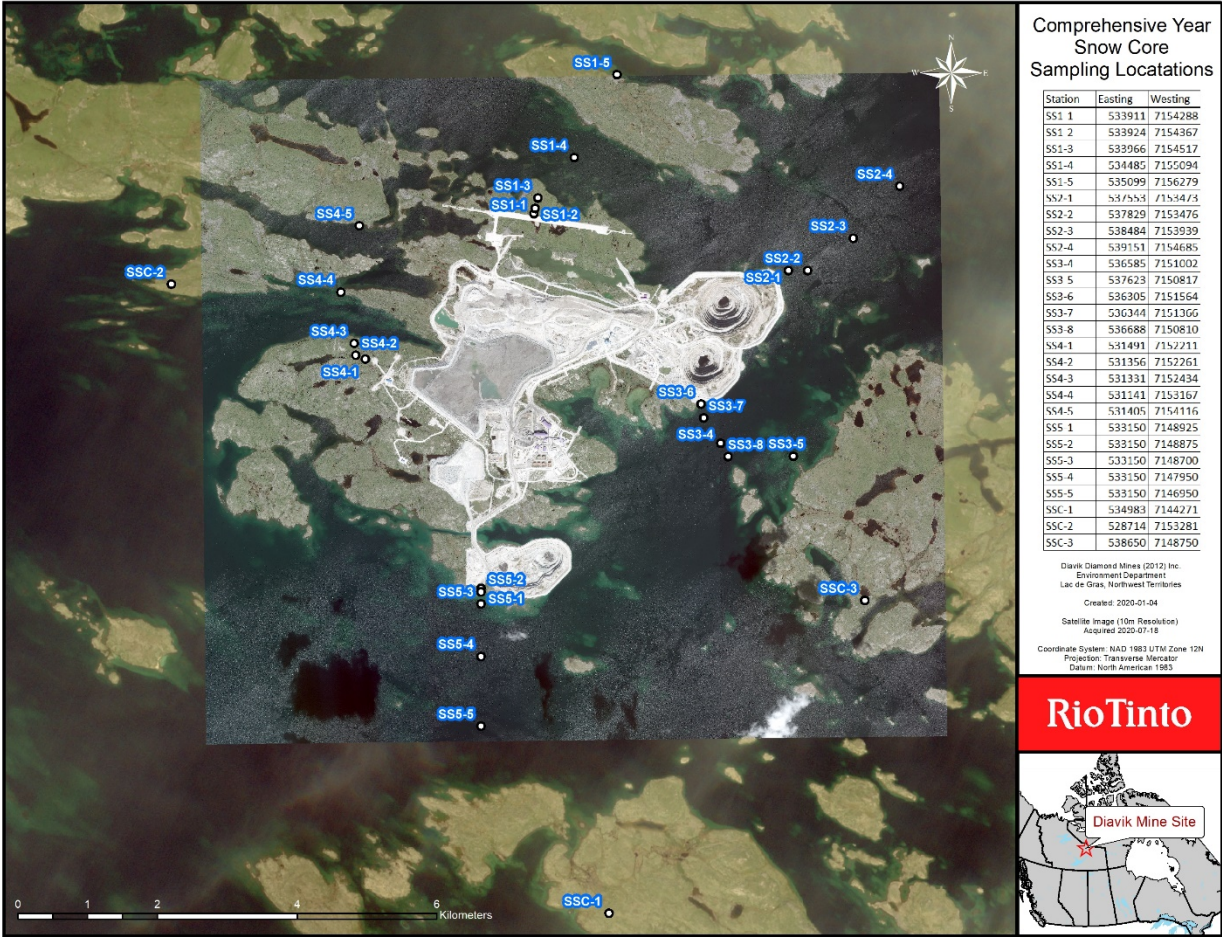
**CRITICAL RISKS**



Other potential critical risks not currently assessed as part of this SOP




**Environment**  
**STANDARD OPERATING PROCEDURE**  
**Snow Core Survey**



**Snow Survey Sample Program Map**

**Description**

Snow sampling at the Diavik Diamond Mine consists of snow core sampling to monitor dust deposition rates relative to predictions outlined in the DDMI Environmental Effects Report (1998), and snow water quality sampling in support of the DDMI Aquatic Effects Monitoring Program (AEMP).

**Environment**  
**STANDARD OPERATING PROCEDURE**  
**Snow Core Survey**

## 2 PURPOSE

The purpose of this guide is to promote efficient and accurate snow surveying and to establish uniform sampling procedures.

## 3 SCOPE

### 3.1 Scope of Procedure

This standard operating procedure (SOP) describes the responsibilities and processes for collecting, documenting, and processing snow samples at the Diavik mine site and the surrounding Lac de Gras area (during ice cover). This procedure applies to all Diavik Diamond Mines personnel and contractor personnel authorized to collect samples under the current year's Aurora Research Institute – Aquatic Effects Monitoring Program (AEMP) Research Permit.

### 3.2 Scope of Activities

This procedure has been developed to be consistent with the requirements of the AEMP design document and Environmental Effects Monitoring.

## 4 DEFINITIONS

Definitions							
ACTS		Groundwater		PROVE		SOP	✓
AEMP	✓	JHA		QA	✓	TSS	
COC		NTU		QC	✓	TSP	
DI water	✓	PAL		Remote work		WHMIS	
DO		PFD		SDS		WLWB	
ELT		PPE		Seepage		SWE	✓



**Environment**  
**STANDARD OPERATING PROCEDURE**  
**Snow Core Survey**

GPS	✓	Problem bear		SNP			
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See: ENVI-443-0415 - Environment Term Definitions - Located in: Diavik Intranet – SOPs – Environment Folder

SWE: Snow Water Equivalent

**5 RESPONSIBILITIES**

See: **ENVI-444-0415 - Environment Roles and Responsibilities** - Located in: Diavik Intranet – SOPs – Environment Folder

**6 PROCEDURE**

**6.1 Key HSEQ Aspects**

<b>Task Hazards</b>							
Aircraft		Extreme Weather	✓	Line of Fire		Snowmobile Operation	✓
Burns		Fall into Water		Manual Labour	✓	Spills	
Chemical Contact		Falling		Noise		Sprain / Strain	✓
Confined Space		Fire		Overhead Objects		Stored Energy	
Cuts Scrapes		Firearms / Deterrents		Perception		Uneven Terrain / Ground	✓
Dehydration		Fumes / Gases		Pinch Points		Unfamiliar Area	
Electrical		Glass		Risk to Wildlife		Visibility	✓

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**Environment**  
**STANDARD OPERATING PROCEDURE**  
**Snow Core Survey**

Entanglement		Heavy Equipment		Rotating Parts		Watercraft Operation	
Equipment Loss or Damage	✓	Lifting		Sample Loss or Damage	✓	Wildlife	✓
Ergonomics	✓	Light Vehicle		Slip, Trip, Fall	✓	Working Remotely	✓

See: ENVI-445-0415 - Environment Hazard Definitions - Located in: Diavik Intranet – SOPs – Environment Folder

**6.2 CRM Critical Risks**

Critical Risk	Critical Control
Temperature extremes (cold)	Multiple layers, Buddy check, Remote field safety plan
Wildlife	Scans

It is the responsibility of all personnel to adhere to the high health and safety standards used at Diavik. Personnel are required to complete all pre-task planning and safety checks. Queries about the appropriate permits and checks should be brought to the attention of the Supervisor or their delegate. Tasks should be executed to plan using the identified controls. Any deviations from plan should be assessed prior to proceeding with the remainder of the task. All incidents will be reported to the Supervisor or their delegate as soon as possible.

**Environment**  
**STANDARD OPERATING PROCEDURE**  
**Snow Core Survey**

### 6.3 Tools Required

<b>Supplies, Tools and Equipment</b>			
Tool / Equipment	Quantity	Supplies	Quantity
Snow Corer & Handles	1	Snow Survey Map	2
Transport Case	1	GPS & Waypoints	per person
Weighing Scale & Cradle	1	Satellite Phone	1
Sample Collection Bags & Zip Ties	20	Garmin Inreach	Per person
Black Permanent Marker	2	Survival Kit	1
Field Data Sheets	10	Ice Rescue Kit	2
Snowmobile	per person	Radio and Spare Battery	per person
Toboggan	1	Coolers	5
Camera	1		

### 6.4 Procedural Steps

#### 6.4.1 Planning

##### 6.4.1.1 Program Management:

The sampling snow survey will be completed annually in April. The survey design consists of 27 sample stations, including three control areas established along five transect lines originating from East Island and extending onto Lac de Gras (Table 1 - Snow core Sampling Locations).

Table 1 – Snow Core Sampling Locations

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**Environment**  
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Transect Line	Station	UTM E (NAD 83)	UTM N (NAD 83)	Description
1	SS1-1	533911	7154288	Land
	SS1-2	533924	7154367	Land
	SS1-3	533966	7154517	Land
	SS1-4	534485	7155094	Ice
	SS1-5	535099	7156279	Ice
2	SS2-1	537553	7153473	Ice
	SS2-2	537829	7153476	Ice
	SS2-3	538484	7153939	Ice
	SS2-4	539151	7154685	Ice
3	SS3-4	536585	7151002	Ice
	SS3-5	537623	7150817	Ice
	SS3-6	536305	7151564	Ice
	SS3-7	536344	7151366	Ice
	SS3-8	536688	7150810	Ice
4	SS4-1	531491	7152211	Land
	SS4-2	531356	7152261	Land
	SS4-3	531331	7152434	Land
	SS4-4	531141	7153167	Ice
	SS4-5	531405	7154116	Ice
5	SS5-1	533150	7148925	Land
	SS5-2	533150	7148875	Land

**Environment**  
**STANDARD OPERATING PROCEDURE**  
**Snow Core Survey**

Transect Line	Station	UTM E (NAD 83)	UTM N (NAD 83)	Description
	SS5-3	533150	7148700	Ice
	SS5-4	533150	7147950	Ice
	SS5-5	533150	7146950	Ice
Controls	SSC-1	534983	7144271	Land
	SSC-2	528714	7153281	Land
	SSC-3	538650	7148750	Land

#### 6.4.1.2 Sampling Requirements – Dust Deposition

Dust deposition will be measured in-house using standard DDMI Total Suspended Solids (TSS) laboratory procedures ENVI-904-0119. To facilitate this analysis, a composite sample comprised of a minimum of three snow cores will be collected at **ALL** (land and ice) snow sampling stations. Water content must add up to a minimum 25cm SWE for there to be sufficient water for analysis.

**Snow Water Equivalent (SWE)** is a measure of the water content in a snowpack. It is defined as the depth of a snowpack multiplied by the density of the snow. It represents the depth of a theoretical pool of water created from melting a known depth of snowpack. We determine SWE in the field using a snow coring tube in conjunction with a graduated scale that weighs the snow in the tube. The scale is measured in cm of water, as weight is directly contributable to water content. The scale markings are how we measure SWE. The length of core is not necessary for determining SWE when using a scale and a known tube diameter.

#### 6.4.1.3 Sampling Requirements – Snow Water Quality

Snow water quality samples are required for all sample stations on Lac de Gras identified as **on-ice** locations, as well as at the **three control** areas (Table 1 - Snow core Sampling Locations). Snow chemistry analysis will be conducted by Bureau Veritas (BV). To facilitate the required analysis outlined in Table 2, a composite sample comprised of a minimum of three snow cores with an equivalent water depth (SWE) of at least 100 cm will be collected at all of the snow water quality stations.

#### Table 2- Snow Water Quality Sample Requirements

<b>Environment</b>				
<b>STANDARD OPERATING PROCEDURE</b>				
<b>Snow Core Survey</b>				
Bottle Filling Sequence	BV Bottle	Analysis	Minimum Volume of Sample Required (ml)	Preservative
1	Metals	Total ICP Metals (Ultra Low)	2x60 mL Falcon Tube	None Required
2	Metals	Dissolved ICP Metals (Ultra Low)	2x60 mL Falcon Tube	None Required
3	Mercury	Total	40 mL Glass Vial	1 ml Hydrochloric Acid - HCL
4	Nutrients	Ammonia	120 mL HDPE	1 ml Sulfuric Acid
5	Routine	Sulfates, Nitrates, and Nitrites	1000 mL HDPE	None Required
6	Ultra Low TSS, Turbidity & pH (Routine, 2 <sup>nd</sup> Bottle)	TSS, Turbidity & pH	500 mL HDPE	None Required
Total Sample Volume Required			1900 ml + 25% for Triple Rinsing	<b>3000 ml = 100SWE</b>

### Determining anticipated sample volume from Snow Water Equivalent (SWE)

**Sample Water (ml)**

=

**SWE (cm** representing the depth of water in the snow core tube measured by the weight of snow in the tube)

x

**30(cm<sup>2</sup>** representing the surface area of the snow core tube entrance)

**Therefore:**

$$\mathbf{3000ml / 30cm^2 = SWE = 100cm SWE}$$

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**Snow Core Survey**

Therefore, the aggregate Water Content SWE collected at a sample site must add up to at least 100 cm measured from the graduated scale to ensure sufficient volume for water quality analysis.

*6.4.1.4 Quality Assurance and Quality Control*

Quality Control (QC) will be achieved through the use of duplicate and blank samples.

Duplicate samples will be collected for a minimum 10% of the total samples (both dust and water quality samples):

- At least **three** duplicate samples for the **dust** deposition samples
- At least **three** duplicate samples for the **water quality** samples

One **equipment blank** will be collected and processed by BV for water quality chemical analysis and internally for Total Suspended Solids (TSS). BV DI water batch number will be recorded on the field sheet. Equipment blanks will be completed from a single batch of DI water. Ensure that information from the DI water is recorded on the field sheet (Batch ID and Expiry date).

Quality Assurance (QA) will be achieved via the following processes:

- Field data sheets will be utilized to document any and all observations or occurrences that may impact the integrity of the samples, as well as corrective actions implemented to address those occurrences.
- If a sample is compromised, the information will be recorded on the field data sheet, the sample will be discarded, and a new sample collected.
- Individuals collecting the samples will take precautions to eliminate sample contamination during handling. Avoid touching insides of sample bags and avoid contacting the snow samples with anything other than the sampling corer.
- Steps will be taken prior to, during, and after sampling to ensure all samples are correctly labeled with the sample date, ID, and type.

*6.4.1.5 Equipment Inspection & Preparation*

Prior to commencing the sampling program, inspect all sampling equipment for contamination or damage. All polyacrylic snow coring tubes that will be utilized during sampling will be rinsed with a 10% nitric acid solution to ensure they are clean prior to the initiation of the program.

**Snow Corer** – Inspect the core tube to ensure measurement etchings are legible. Check the cutting edge to ensure blade is not deformed or damaged. Inspect the handles and threads to ensure they will assemble and disassemble without binding. Ensure the corer has been de-contaminated (acid rinsed) prior to commencing the program.

**Weighing Scale and Cradle** – Inspect the scale and cradle for deformity or damage.

**Snowmobiles** – Inspection and use of snowmobiles will be in accordance with ENVI-919-0119.

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**Communication** – Inspect all communication equipment (radios/sat phones, Garmin Inreach) to ensure they are operational and functional. Ensure batteries (including spares) are fully charged. Ensure check-in times and procedures are clearly identified on the Remote Field Safety Permit.

**Navigation** – Inspect GPS and spare batteries to ensure equipment is functioning correctly. Verify that all sample locations are present and correct, and that the GPS essentials file is loaded. Ensure an appropriate map is present to allow navigation back to site should the GPS fail.

**Personal Gear** – In addition to winter survival equipment, each individual participating in off-site activities is expected to carry appropriate personal gear and equipment as is deemed necessary for the individual's well-being in an emergency situation.

**Survival Kit** – Inspect survival kit and ice rescue kits to ensure that they are complete and all items are functional and ready for use.

**Miscellaneous** – Individual core samples will be placed into plastic bags (soil sampling bags) and sealed with zip-ties until they are ready for processing. Prior to sampling, ensure bags are new, clean, and leak-proof.

#### **6.4.2 Sample Collection**

The person handling the acrylic snow core tube should always wear thick, insulated gloves to minimize the heat transferred from their hands to the tube. A warmer tube will increase the likelihood that snow will melt in the tube causing sticking and making it difficult to get all snow out of the tube.

- Navigate to the sampling locations – If the sample point falls on or immediately adjacent to the winter road, adjust your location to the nearest area with natural snow coverage (i.e. not impacted by the road or snow clearing).
- Assemble the corer by threading the handles onto the tube and re-inspect the snow corer for fouling and/or damage that may have occurred during transportation.
- Fill in station location and weather information on the field data sheet. Identify snow conditions and dust observations in the comments section.
- Prior to collecting a sample, re-inspect the tube for cleanliness.
- Take the weight of the empty snow corer at each station prior to collecting any samples.
- For all stations requiring snow water chemistry, collect the dust sample first – this will effectively rinse the corer with ambient snow minimizing cross contamination from locations.
- Hold the corer vertically (cutter end down) and drive it through the snow to the ground/ice surface below. Be sure the cutter contacts the ground/ice as compacted snow/ice may feel like the ground and result in an incomplete core.
- Before raising the corer, read the depth of the snow (nearest cm) and record on the field datasheet. Turn the corer at least one full turn to cut the core loose from the ground/ice surface. Carefully raise the corer and record the length of the core extracted.



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**Snow Core Survey**

- As the length of core extracted could potentially be different from the depth of snow, inspect the cutter end of the tube for dirt or litter. With gloves on, carefully remove soil and litter from the core. If required, correct the length of the core extracted by subtracting the depth of the soil or litter (plug). Record adjusted core length and litter/soil observations on the field data sheet.
- Carefully balance the corer containing the core on the weighing cradle. Suspend the corer (like a pendulum) and do not hold the corer tube or handles. To ensure an accurate reading, gently tap the scale to be sure it is not sticking or binding. Read the weight of the tube and core from the graduations on the scale. The scale is marked in cm of water. Record the weight of the corer and the core to the nearest one-half cm.
- To transfer the core into the sample bag, lift the tube from the cradle and turn cutter end up. Gently tap the corer and the extracted core will slide out the top end. Be sure to use a clean/new sample bag to catch the core sample.
- Ensure all sample bags are clearly labelled with the station ID, sample type, date, and number of cores included in the composite.
- Ensure all bags are sealed using a clean zip-tie.
- Weigh the empty sampling tube following the first and at least every fourth sample as the weight will change as small particles of water or snow accumulate/cling to the inside and outside of the tube. Record the weight of the empty corer on the field data sheet.
- Subtract the weight of the empty tube from the weight of the tube and core to obtain the water content of the sample.
- Prior to moving to the next sampling location ensure the field datasheet is complete.

Density calculations can be completed back in the lab following the completion of the program.

$$\text{Density (g/cm}^3\text{)} = \text{Total SWE Collected (g/cm}^2\text{)} / \text{Total Snow Core Length Collected (cm)}$$

**\*assumes pure water density 1g/cm<sup>3</sup>**

### 6.4.3 Sample Processing

Prior to processing, all samples must be kept in a frozen state to minimize sample degradation.

When preparing the samples for decanting and analysis, remove the sample bags from the freezer. Check to ensure that the top of the bag is well twisted and the zip-tie is tight. Place the sample bag into a new (clean) sample bag and affix a zip-tie to seal the second bag. This double bagging will help to ensure no sample is lost during the melting process. To process samples, they will require 12-48 hours to thaw at room temperature.

Place the sealed sample bags upright in clean coolers in the lab to thaw overnight.

Once a sample is completely melted, it is ready for processing.

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Sample volume can be determined using a scale accurate to 1g. Set up the scale by taring the sampling basin with two bags and 2 zip-ties. Place sample bags in the basin and record the weight of each of the bags on the field sheet.

Snow water quality samples will be decanted to fill the appropriate (pre-labelled) BV sample bottles as per standard water sampling procedures. Any excess sample water can be discarded.

Dust deposition samples will be processed in the DDMI Lab as per Total Suspended Solids SOP (ENVI-904-0119).

The entire volume of sample must be processed – this may require the use of multiple filters.

For samples with large quantities of organics (twigs/leaves etc.), it may be necessary to sieve the sample through a coarse filter prior to processing.

Given the possibility of the samples containing organic matter, sample filters will be dried in the high temperature oven (550°F) for 1hr to burn off any organics on the filter.

Allow Samples to cool in the desiccator prior to weighing the filters.

#### **6.4.4 Sample Chain of Custody**

Samples will be shipped to BV as per the Chain of Custody SOP (ENVI-900-0119) and accompanied by Chain of Custody (COC) documentation.

## **7 QUALITY OUTCOMES AND EXPECTATIONS**

The primary objectives for implementing this SOP are:

- To safely complete the tasks outlined in this SOP, without incident.
- To produce quality, accurate and repeatable results.

**APPENDIX G      QUALITY ASSURANCE/QUALITY CONTROL STANDARD  
OPERATING PROCEDURE (ENVR-303-0112)**

<b><u>ENVIRONMENT</u></b>			
<b>STANDARD OPERATING PROCEDURE</b>			
<b>Area No.:</b>	<b>8000</b>	<b>Document #:</b>	<b>ENVI-902-0119</b>
		<b>Revision:</b>	<b>8</b>
<b>Task Title:</b>	<b>Quality Assurance/Quality Control</b>		
	Supersedes: ENV SOP 303		
<b>FOR DOCUMENT CONTROL USE ONLY:</b>			
<b>Next Review:</b>	<b>1 year from Area Manager Authorized Signature Date below</b>		
<b>Effective Date:</b>	<b>See Area Manager Authorized Signature Date below</b>		

## 1 REFERENCES/RELATED DOCUMENTS

- 1.1 **ENVI-656-0117 DDMI Environment Lab – Training – Located in:** P:\DDMI Environment\10.0 Operational Control\10.13 CALA Certification\Approved Quality Manual Documents\5.2 Training
- 1.2 **ENVI-901-0119 – SOP- General Laboratory Safety - Located in:** Diavik Intranet – SOPs – Environment Folder
- 1.3 **ENVI-900-0119 - SOP- Chain of Custody & Sample Shipping - Located in:** Diavik Intranet – SOPs – Environment Folder
- 1.4 **ENVI-133-0112 - Aquatic Effects Field Sheet - Located in:** P:\DDMI Environment\10.0 Operational Control\10.2 Forms\Current Forms\Approved\Water Quality Forms
- 1.5 **ENVI-134-0112 – 1645-19 SNP Monitoring Field Sheet – Located in:** P:\DDMI Environment\10.0 Operational Control\10.2 Forms\Current Forms\Approved\Water Quality Forms
- 1.6 **ENVI-668-0117 DDMI Environment Lab – Equipment Management - Located in:** P:\DDMI Environment\10.0 Operational Control\10.13 CALA Certification\Approved Quality Manual Documents\5.5 Equipment
- 1.7 **ENVI-669-0117 DDMI Environment Lab – Measurement Traceability - Located in:** P:\DDMI Environment\10.0 Operational Control\10.13 CALA Certification\Approved Quality Manual Documents\5.6 Measurement Traceability

**ENVIRONMENT**  
**STANDARD OPERATING PROCEDURE**  
**Quality Control/Quality Assurance**

- 1.8 ENVI-653-0117 DDMI Environment Lab – Record Control - Located in:** P:\DDMI Environment\10.0 Operational Control\10.13 CALA Certification\Approved Quality Manual Documents\4.13 Record Control
- 1.9 ENVI-650-0117 DDMI Environment Lab – Document Control - Located in:** P:\DDMI Environment\10.0 Operational Control\10.13 CALA Certification\Approved Quality Manual Documents\4.3 Document Control
- 1.10 ENVI-904-0119 – SOP Total Suspended Solids Analysis - Located in:** Diavik Intranet – SOPs – Environment Folder
- 1.11 ENVI-905-0119 – SOP pH Analysis - Located in:** Diavik Intranet – SOPs – Environment Folder
- 1.12 ENVI-906-0119 – SOP Turbidity Analysis - Located in:** Diavik Intranet – SOPs – Environment Folder
- 1.13 ENVI-918-0119 – SOP Field Meter - Located in:** P:\DDMI Environment\10.0 Operational Control\10.1 SOPs\Working SOPs

<b>Revision History</b>			
<b>Revision</b>	<b>Revision Description</b>	<b>Date of Revision</b>	<b>Author</b>
0	Initial Release	01-Jan-12	D. Grabke
1	Formatting	08-Dec-15	D. Birch
2	Revision of QC schedule and measures	29-May-16	N. Goodman
3	CALA Updates	15-Dec-16	N. Goodman
4	Update to template, area manager and CRM	21-Oct-17	A. Hehn
5	Superintendent update	10-Mar-18	S. Skinner
6	Annual review	27-Feb-19	M. Nelson N. Goodman L. Case
7	Clarification on TSS LBW frequency	22-Nov-2019	N. Goodman

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**ENVIRONMENT**  
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**Quality Control/Quality Assurance**

8	Update to QC Frequency (Section 6.3.6) Decrease LBW and LDUP frequency to every 6 days, remove various outdated CALA policies	14-Jun-2020 13-Oct-2020	A. Hehn N. Goodman
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<b>Authorized Electronically in Documentum By:</b>	
<b>Area Superintendent:</b>	K. Boa-Antwi
<b>Area Manager:</b>	D. Patterson

(Document owners will be prompted annually to update content; however, changes may or may not result.)

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**ENVIRONMENT**  
**STANDARD OPERATING PROCEDURE**  
**Quality Assurance/Quality Control**

**CRITICAL RISKS**

**There are no critical risks associated with this SOP**

Other potential critical risks not currently assessed as part of this SOP

**ENVIRONMENT**  
**STANDARD OPERATING PROCEDURE**  
**Quality Assurance/Quality Control**

<b>Internal QA/QC</b>
LBW
LDUPW1/ LDUPW2

<b>External QA/QC KEY</b>		
-1	=	EBW
-2	=	FBW
-3	=	TBW
-4	=	DUPW1
-5	=	DUPW2
-6	=	DLS

**Description**

This SOP reviews the quality assurance and quality control measures used to ensure best practices are being utilized while collecting and analysing samples.



**ENVIRONMENT**  
**STANDARD OPERATING PROCEDURE**  
**Quality Assurance/Quality Control**

## 2 PURPOSE

The objective of this Standard Operating Procedure (SOP) is to establish consistent and uniform criteria and procedures to be implemented for laboratory activities undertaken during water quality analysis to ensure environmental data generated and processed is scientifically valid.

This SOP is intended to define Environmental Quality Assurance (QA) and Quality Control (QC) measures in place to ensure all data generated in the DDMI Environment Laboratory shall be of known precision and accuracy, complete, representative, and comparable.

## 3 SCOPE

### 3.1 Scope of Procedure

This procedure applies to all Diavik Diamond Mines personnel and contract personnel authorized by the Environment Superintendent to collect, analyse and ship samples. All persons conducting analyses in the DDMI laboratory are required to read, understand, and fully comply with the methods outlined in the SOP for each analytical test conducted, respectively.

This procedure has been developed to be consistent with the requirements of the Rio Tinto HS & E standards.

## 4 DEFINITIONS

Definitions							
ACTS		Groundwater		PROVE		SOP	✓
AEMP		JHA		QA	✓	TSS	
COC	✓	NTU		QC	✓	TSP	
DI water		PAL		Remote work		WHMIS	

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<b>ENVIRONMENT</b>							
<b>STANDARD OPERATING PROCEDURE</b>							
<b>Quality Assurance/Quality Control</b>							

<b>DO</b>		<b>PFD</b>		<b>SDS</b>		<b>WLWB</b>	
<b>ELT</b>		<b>PPE</b>		<b>Seepage</b>			
<b>GPS</b>		<b>Problem bear</b>		<b>SNP</b>			

See: ENVI-443-0415 - Environment Term Definitions - Located in: Diavik Intranet – SOPs – Environment Folder

## 5 RESPONSIBILITIES

See ENVI-444-0415 - Environment Roles and Responsibilities - Located in: Diavik Intranet – SOPs – Environment Folder

## 6 PROCEDURE

### 6.1 Key Safety Aspects

<b>Task Hazards</b>							
<b>Aircraft</b>		<b>Extreme Weather</b>		<b>Line of Fire</b>		<b>Snowmobile Operation</b>	
<b>Burns</b>		<b>Fall into Water</b>		<b>Manual Labour</b>		<b>Spills</b>	
<b>Chemical Contact</b>		<b>Falling</b>		<b>Noise</b>		<b>Sprain / Strain</b>	
<b>Confined Space</b>		<b>Fire</b>		<b>Overhead Objects</b>		<b>Stored Energy</b>	

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<b>ENVIRONMENT</b>							
<b>STANDARD OPERATING PROCEDURE</b>							
<b>Quality Assurance/Quality Control</b>							

Cuts Scrapes		Firearms / Deterrents		Perception		Uneven Terrain / Ground	
Dehydration		Fumes / Gases		Pinch Points		Unfamiliar Area	
Electrical		Glass		Risk to Wildlife		Visibility	
Entanglement		Heavy Equipment		Rotating Parts		Watercraft Operation	
Equipment Loss or Damage		Lifting		Sample Loss or Damage		Wildlife	
Ergonomics		Light Vehicle		Slip, Trip, Fall		Working Remotely	

See: ENVI-445-0415 - Environment Hazard Definitions - Located in: Diavik Intranet – SOPs – Environment Folder

## 6.2 CRM Critical Risks

Critical Risk	Critical Control
N/A	N/A

It is the responsibility of all personnel to adhere to the high health and safety standards used at Diavik. Personnel are required to complete all pre-task planning and safety checks. Queries about the appropriate permits and checks should be brought to the attention of the Supervisor or their delegate. Tasks should be executed to plan using the identified controls. Any deviations from plan should be assessed prior to proceeding with the remainder of the task. All incidents will be reported to the Supervisor or their delegate as soon as possible.

## 6.3 Procedural Steps

### 6.3.1 Quality Assurance (QA)

Quality assurance for the environmental laboratory encompasses all quality-related activities that ensure the validity of aquatics testing and analysis and all relevant technical support. All DDMI

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**ENVIRONMENT**  
**STANDARD OPERATING PROCEDURE**  
**Quality Assurance/Quality Control**

environment personnel, from management to field laboratory technicians, are required to follow applicable quality control measures and standard operating procedures. Adherence to these documents, combined with staff vigilance, can help ensure that the analytical data and other test results collected will be acceptable as the bases for making decisions.

The DDMI laboratory (“the lab”) encompasses a broad range of activities including preparation of samples for internal analytical processing, calibration and maintenance of equipment, data management, and sample handling for external analysis.

Our approach to quality assurance places an emphasis on four aspects:

- Infrastructure (instruments, testing capabilities, calibrations, SOP’s)
- Control Measures (internal/external)
- Personnel (competence, ethics, and integrity)
- Data Management/Control of Non-Conforming Work

The quality of the outputs is at risk if any of these four aspects are deficient.

### **6.3.2 Infrastructure**

#### *6.3.2.1 Equipment*

All equipment is to be maintained and operated in accordance with manufacturer instructions and SOPs. Any issues with equipment should be immediately reported to the Environment supervisor.

#### *6.3.2.2 Calibrations*

Lab equipment with the potential to impact test results are calibrated regularly. Calibrations follow a predefined schedule, and International Standard (Metric) units are used wherever possible. When performed internally, calibrations are always done in accordance with method SOPs. Reference checks are performed after calibration with secondary standards that have a different lot number from the calibration standards. All observations and maintenance actions must be reported in the QA/QC Lab Performance logbook.

The logbook must also keep record of the instrument calibration history. Calibration records for fixed and portable laboratory measuring equipment, and individual monitoring devices, shall be maintained and include dates, personnel, and specifics of calibration standards and reference solutions, such as the lot numbers for the standards used. Instrument calibration procedures and schedules are clearly outlined in individual SOP’s.

**ENVIRONMENT****STANDARD OPERATING PROCEDURE****Quality Assurance/Quality Control****6.3.3 Internal Quality Control (QC) Measures**

Laboratory quality control consists of both internal and external checks on precision and accuracy of analytical results. Employees are trained in quality control and good lab practices by an experienced technician through the lab analyst certification process (ENVI-560-0616, ENVI-561-0616, ENVI-562-0616). This training is documented and saved in the Lab Analysis Competency Checklists folder (6.0) on the Environment network drive.

Best practices in water quality monitoring dictate that QC samples will comprise at least 10% of all samples analyzed, and more as required to maintain assurance of quality across homogenous sampling matrices and conditions. Due to fluctuating sample volumes the DDMI Environment department often performs more than 10% internal QC in order to ensure that any errors or sources of contamination in procedures or equipment are caught immediately.

Internal Quality Control sample types (descriptions below) consist of: Lab Blanks (LBW), Lab Duplicates (LDUPW1/LDUPW2), and Laboratory Splits (DLS). Results of Internal Quality Control samples are recorded in the current year's Internal QAQC excel document in the SNP folder of 13.3 on the Environment network drive.

**6.3.3.1 Lab Blanks (LBW)**

A laboratory blank is a sample comprised of deionised (DI) water, prepared in the lab, which remains in the lab for analysis. This blank is exposed to any and all reagents that are used in the analytical process and is carried through the entire analytical processes including any filtration required. Lab blanks may identify unsuspected contaminants associated with DI water purity, improper cleaning procedures, filters or air contaminants in the lab. LBWs occur every 6 days along with 6-day sampling. Lab blanks for Total Suspended Solids are performed biweekly (along with the Total Suspended Solids standard check), but can be required more frequently at supervisor discretion.

**6.3.3.2 Lab Duplicates (LDUPW1/LDUPW2)**

A laboratory duplicate consists of a single sample to be analyzed twice internally (using the same techniques) as though it is two separate samples. The entire lab procedure is repeated twice, using two separate aliquots of water poured from the same sample bottle. Lab duplicates evaluate analytical precision and sample homogeneity, as well as consistency of lab and operator procedures. LDUPW1/LDUPW2s occur every 6 days along with 6-day sampling.

\*in Monitor Pro 5 (MP5), under regular sample data entry, the sample that is to be the LDUP is assigned a sample type of "LDUPW1". Then, in the data entry section for that day's LDUP QAQC, the corresponding sample site is to be assigned a sample type of "LDUPW2".

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If the relative percent difference (RPD) exceeds 20% when analyte concentrations are  $\geq 5$  times the detection limit (DL), the environment supervisor must be informed so that the data can be flagged and sampling/analytical methods and instrumentation performance can be reviewed. Relevant DLs for DDMI laboratory analysis are:

- TSS – 2.0mg/L
- Turbidity – 0.15 NTU
- Conductivity – 1.1uS/cm
- pH has no applicable detection limit.

*6.3.3.4 Laboratory Splits (DLS)*

A laboratory split consists of a single sample divided into two aliquots, one to be analyzed internally, and the other to be sent to an external lab using the same techniques to analyze their aliquot so that the two results would be compared. Variability of results must be considered carefully in light of analyte hold times. RPD between duplicate samples will be assessed by environment supervisor.

*6.3.3.5 Equipment Blanks,*

An aliquot of DI water is subjugated, in the DDMI Environmental Laboratory, to all aspects of sample collection and analysis, using the same procedures that are utilized in the field, including contact with all sampling devices and apparatus (e.g. tubing, jars, samplers, filters). The purpose of the equipment blank is to determine if the sampling devices and apparatus for sample collection have been adequately cleaned before they are utilized at the field sampling location

**6.3.4 Internal QC Scheduling**

DDMI Environment internal QC falls under two schedules: Station-Dependent Internal QC. Station-Dependent Internal QC is tied to different sample matrices and is included in regular sampling schedules in MP5 (ex. samplers will be required to complete one DLS every four PKC sampling events, i.e., quarterly).

<b>Station-Dependent Internal QC</b>	<b>QC Frequency per sampling event</b>
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Sample Matrix	Sampling Event Frequency*	DLS	LDUP/LBW
Ponds	Monthly	none	none
Diffuser	Monthly	none	none
PKC	Monthly	1 in 4	none
UG /clarifiers	Biweekly	none	none
NIWTP Influent/Effluent	6 days	none	Every event

\*Note that sampling frequency refers to the frequency with which the entire set of samples is taken, and not the number of sites sampled (ex. the monthly pond sampling includes **10** sample sites but comprises **1** sampling event).

As of November 2019 all Internal QC is station dependent since LBWs and LDUPs are only completed on 6-day samples. All QC sampling is scheduled along with a specific station sampling event from now on.

### 6.3.5 External Quality Control (QC) Measures

External QC samples comprise ~ 10% of all samples analyzed and are spaced across sampling matrices and sample events to capture as much process homogeneity as possible. With the exception of Trip Blanks (TBW, below), external quality control samples are prepared by DDMI Environment staff, who subject them to the relevant procedures. All external QC samples are then shipped off-site to a qualified external laboratory, where all analysis is conducted.

External QC sample types consist of Trip Blanks (TBW), Equipment Blanks (EBW), Field Blanks (FBW), and Duplicates (DUPW1/DUPW2). Results of external Quality Control samples are reported in monthly SNP reports and reviewed by Environment supervisors.

#### 6.3.5.1 Trip Blanks (TBW)

A Trip Blank is an aliquot of laboratory grade distilled water, which is received from an external lab, in the same type of container that is required for the analytical test. The trip blank is sealed and

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labelled in the external lab from which it originates. Upon our receipt of the trip blanks they are to be stored, sealed, at ~ 4°C until such a time as they are to be utilized (no longer than 1 month). When utilized, trip blanks travel with the sampling cooler from the laboratory to the sampling site and back to the laboratory without being opened. The trip blank is then packaged and shipped to the originating laboratory to be analyzed. The purpose of the trip blank is to verify that no sample contamination occurred during transportation or sampling operations. Trip blanks are ordered from BV every month by Environment Supervisor.

*6.3.5.2 Equipment Blanks (EBW)*

An aliquot of DI water is subjected, in the Environment laboratory, to all aspects of sample collection and analysis, using the same procedures that are utilized in the field, including contact with all sampling devices and apparatus (e.g. tubing, jars, samplers, filters). The purpose of the equipment blank is to determine if the sampling devices and apparatus for sample collection are a source of contamination in the samples.

*6.3.5.3 Field Blanks (FBW)*

An aliquot of DI water is subjected, in the field, to all aspects of sample collection and analysis, using the same procedures that are utilized in the field, including contact with all sampling devices and apparatus (e.g. tubing, jars, samplers, filters). The purpose of the field blank is to demonstrate that sample contamination has not occurred during field sample collection and processing.

*6.3.5.4 Duplicates (DUPW1/DUPW2)*

Duplicate samples are independent samples collected as close as possible to the same point in space and time and are intended to assess precision of the entire program (field and laboratory components). The use of replicates for this purpose assumes that the variability between DUPW1 and DUPW2 is affected by the sampling method or technician. In most cases natural variability between samples collected in close succession will be low. When performing duplicate samples, the second sample will consist of each bottle that is regularly collected for that station, including the DDMI internal routine bottle.

\*in MP5, under regular sample data entry, the sample that is to be the DUPW is assigned a sample type of "DUPW1." Then, in the data entry section for that day's DUPW QC, the corresponding sample site is to be assigned a sample type of "DUPW2."

**6.3.6 External QC Scheduling**

DDMI Environment external QC is entirely station-dependent, and QC types have different frequencies for each sample matrix that are programmed into MP5.

External QC	QC Frequency per sampling event	
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Sample Matrix*	Sampling Frequency	DUPW	FBW	TBW	EBW	Total % External QC (all types)
Ponds	Monthly	1 in 2	1 in 6	1 in 6	1 in 3	<b>12.7</b>
Reference Lakes	Biannual	None	None	None	1 in 2	<b>12.5</b>
Diffuser	Monthly	1 in 1	1 in 6	1 in 6	1 in 3	<b>11.5</b>
PKC	Monthly	1 in 4	1 in 12	1 in 12	n/a	<b>10.4</b>
UG /clarifiers	Biweekly	1 in 6*	1 in 6	1 in 12	n/a	<b>10.4</b>
A21 Dewatering	Biweekly	1 in 24	1 in 24	1 in 24	n/a	<b>11.5</b>
NIWTP Influent/Effluent	6 days	1 in 6	1 in 12	1 in 12	n/a	<b>10.9</b>
<b>Total QC type per month**</b>		<b>2.75</b>	<b>2.25</b>	<b>1.0</b>	<b>0.58</b>	<b>6.58 QC/month</b>

\*Every other DUPW event is assigned to a clarifier sample in MP5 QAQC Schedule

\*\*Again, note that sampling frequency refers to the frequency with which the entire set of samples is taken, and not the number of sites sampled (e.g., the monthly pond sampling includes **10** sample sites but comprises **1** sampling event.)

## 6.4 Data Management

### 6.4.1 External Sample Tracking – Chain of Custody

All samples collected, packaged and shipped to external laboratories are tracked via Chain of Custody (CoC) documentation. The CoC record is used to document change in possession from sampling to delivery to receipt by the external analytical laboratory. CoC procedures are clearly outlined in ENVI-900-0119 – SOP - Chain of Custody.

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**ENVIRONMENT****STANDARD OPERATING PROCEDURE****Quality Assurance/Quality Control****6.4.2 Internal Sample Tracking**

All samples collected are documented in Monitor Pro 5 on the Environment iPads as per the regular sampling schedule.

**6.4.3 Data Recording/Record Keeping**

Internal QAQC data is uploaded to MP5 and recorded in the current year's internal QAQC excel document in the SNP folder of 13.3 on the Environment network drive. External QAQC data is uploaded to MP5 upon receipt from BV Labs.

**6.4.4 Data Reporting**

Immediately following laboratory analyses, all records are transferred from the applicable field sheets, to their respective electronic databases.

Laboratory supervisors will regularly review the electronic databases to ensure that laboratory recordkeeping meets the aforementioned elements. Results can then be queried and exported as required from MP5 for reporting purposes.

**6.5 Control of Nonconforming Testing and/or Calibration Work**

Environment supervisors are responsible for management of nonconforming work, evaluation of non-conformance significance, and prescribing of corrective actions. Nonconforming testing and/or calibration work should be shared with all Environment lab staff.

**6.5.1 Continual Improvement**

The laboratory shall continually improve the effectiveness of its QAQC system and produced data through the use of the quality policy, quality objectives, audit results, analysis of data, corrective and preventive actions and management review.

**6.6 Personnel****6.6.1 Competency – Certification of Analyst Proficiency**

Certification of Analyst Proficiency is the process for assessing and recognizing the technical competence and the effective quality processes of the DDMI Environment Laboratory and staff.

Staff proficiency means that an individual is capable of performing specified test methods and procedures correctly, and familiar with all related policies and procedures pertaining to lab quality.

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Staff will be trained and tested so as to document their competence for the range of activities they will be expected to perform in the lab, in accordance with all method SOPs. This documentation is saved in the lab analysis competency checklists folder of 6.0 in the Environment network drive.

### 6.6.2 Ethics

Ethics is a set of moral principles, code for right and wrong, or behaviour which conforms to acceptable professional practices.

**All employees at all times shall conduct themselves in an honest and ethical manner.**

Examples of unethical behaviour include but are not limited to the following:

- Improper manipulation of data or software
- Improper handling of data errors, non-compliant data, or QC outliers
- Lack of reporting unethical behaviour of others
- Artificially fabricating results
- Misrepresenting data such as peak integration, calibration, tuning, or system suitability
- Improper clock setting to meet holding times
- Intentional deletion of non-compliant data

An employee must report any suspected unethical behaviour or fraudulent activities to the Environment Supervisor.

## 7 QUALITY OUTCOMES AND EXPECTATIONS

The primary objectives for implementing this SOP are:

- To safely complete the tasks outlined in this SOP, without incident.
- To produce quality, accurate and repeatable results.

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