

HUDSON BAY MINING AND SMELTING CO., LIMITED. SNOW SAMPLING PROGRAM

Collection of Snow Samples Near Flin
Flon, Manitoba for Analysis of Metals
and Nutrients, 2010



**Collection of Snow Samples Near Flin Flon, Manitoba for the Analysis of Metals and
Nutrients, 2010**

Prepared for

Hudson Bay Mining and Smelting Co., Limited

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By

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LIST OF ABBREVIATIONS

ALS	ALS Laboratory Group, Winnipeg, Manitoba
DL	Analytical Detection Limit
HBMS	Hudson Bay Mining and Smelting Co., Limited
NSC	North/South Consultants Inc.
RPMD	Relative Percent Mean Difference
RPSD	Relative Percent Standard Deviation
QA/QC	Quality Assurance and Quality Control
SD	Standard Deviation of the Mean
TKN	Total Kjeldahl Nitrogen
UTM	Universal Transverse Mercator

1.0 INTRODUCTION

A snow sampling program was initiated in March of 2009 in the vicinity of Flin Flon, MB for the Hudson Bay Mining and Smelting Co., Limited (HBMS). The objective of the program is to obtain information on concentrations of metals and other variables at sites located at variable distances from the HBMS Smelter. The following report presents the methods and results of the second year (2010) of the program. In general, the approach and methods were consistent with those applied in Year 1 of the study (2009), as described in Wyn and Cooley (2009). Changes to the 2010 program included the addition of more quality assurance and quality control (QA/QC) samples, based on results of the 2009 sampling program. Operational changes at the smelter did not affect comparison of snow samples collected in 2009 and 2010, as production in the smelter was discontinued as of June 11, 2010.

2.0 OBJECTIVE

The objective of the program is to obtain information on concentrations of metals and other parameters (e.g., pH and nutrients) in snow at sites located at variable distances from the HBMS Smelter. In addition to documenting the results of the 2010 survey, this report evaluates spatial trends and compares the results of the 2009 and 2010 programs. Prevailing wind direction was considered as one explanatory variable for differences between sites and sampling periods.

3.0 METHODS

HBMS identified the sampling sites/waterbodies to be sampled in 2009 and requested the application of a sampling protocol previously used and provided by the Province of Manitoba (pers. comm.; hereafter referred to as the "Provincial Protocol"). Sites sampled in 2009 were revisited in 2010, and methods employed in 2010 were consistent with Year 1 of the program (2009). The following provides a description of the sites and sampling and data analysis methods.

3.1 Sampling Sites

Fifteen sampling sites, all of which were located on lakes, were visited in 2010 (Figure 1). Sites were accessed by road or snow machine trails; the Universal Transverse Mercator (UTM) of each location is provided in Table 1. As in the previous study, sampling sites were located a minimum of 100 m from roads to minimize local contamination due to vehicle traffic and road maintenance. Where possible, sampling sites were also located such that buffers (trees/shrubs) were present between the road and the sampling site. Where snow machine traffic was evident on the lakes, sampling sites were positioned to minimize local contamination from this source.

3.2 Sample Collection

Three replicate samples (sub-stations) were collected at each site (i.e., 15 sites x 3 sub-stations/site = 45 samples). As the intent was to obtain replicates of a "site" not of an "area", the replicates were located in close proximity to each other (i.e., approximately three to four feet apart). As in 2009, collection of 10 to 15 cores was required at each replicate sub-station to provide sufficient snow for the laboratory analyses. Twice as many cores were collected at one of the replicate sub-stations at each of seven sites;

the cores from this replicate sample were collected as close as possible to one another without disturbing the sampling area, and the cores were combined to form a composite sample for “split samples” and “inter-laboratory samples” (see Section 3.4 for further explanation).

At each site, the following was recorded:

- Site UTM;
- Method of site access;
- General site conditions;
- Description of snow conditions including texture, presence of particulate materials, snow density/compression, homogeneity/layering, other activities/developments in the area that may affect snow chemistry, and any departures from the sampling protocols;
- Number of cores collected per replicate sub-station;
- Mean snow depth at each site;
- Sampling crew, sampling gear, sample date and sampling time; and
- Representative photographs of cores.

3.3 Sampling Methods

Snow cores were collected with a 4.5 cm diameter cellulose acetate corer by pushing the corer through the snow pack until it contacted the ice surface. Snow was cleared away for the core tube, a thin plastic shovel was placed underneath the bottom of the corer to retain the snow sample, then the snow-filled core tube was lifted out of the snowpack and extruded into a clean, labelled, pre-weighed polyethylene bag. A sufficient number of cores were collected to fill the sample jars provided by the analytical laboratory (as water samples). All cores collected at the same replicate sub-station were composited into one sampling bag.

After sampling was completed, the snow samples were allowed to melt at room temperature and the total weight of the composite sample was obtained using a digital scale (minimum mass of 1200 g was required to fill the ALS sample bottles). Four split samples could not be weighed because their mass exceeded the upper limit of the scale (i.e., samples weighed > 3000 g). For these samples, the mean mass of the two other replicate samples from the same sub-station was doubled to approximate the mass of sample. As an oversight, eight samples collected on the second day of sampling were not weighed. For these samples, the mass was estimated as the mean mass of weighed samples with the same number of cores collected in the same transect (e.g., mean mass \pm SE of samples from the southeastern transect where 15 cores were collected: 1499.17 \pm 62.75 g). The water was then apportioned into labelled sampling jars provided by ALS Laboratories and samples for metals analyses were preserved with nitric acid. Split samples collected for inter-laboratory comparisons were poured into the ALS sampling jars as well as sampling jars provided by MAXXAM Laboratories; samples sent to MAXXAM for metal analyses were preserved with nitric acid while samples for total nitrogen were preserved with sulphuric acid. The samples were kept cool and in the dark until delivered to ALS Laboratories or MAXXAM Laboratories in Winnipeg, MB. Efforts were made to ensure that the samples did not freeze at any point during shipping. Details of the ALS analytical methodologies are provided in Appendix 1.

3.4 Quality Assurance and Quality Control (QA/QC)

Standard procedures for the control of sample contamination were adhered to including:

- Pre-cleaning sampling equipment with phosphate-free laboratory detergent, rinsing with a 10 % nitric acid solution, and triple rinsing with deionized water;
- Minimizing the exposure of the interior of sample containers to the atmosphere;
- Using latex or carbon polymer gloves during sample collection;
- Never touching the inside of samplers or sample bottles;
- Only using each core tube once; and
- Minimizing cross-contamination between sites by passing the plastic shovel through the snow prior to using it for sample collection (e.g., site rinsing).

Because of high variability in some of the data collected in 2009, additional QA/QC sampling was conducted in 2010. Specifically, split samples were collected from seven sites. For these split samples, twice as many snow cores were collected from one replicate sub-station, the sample was allowed to melt, and the water was apportioned into two sets of bottles. The split samples from four sites (two per crew) were sent to ALS Laboratories as an intra-laboratory control. For the other three sites, one split sample was sent to ALS Laboratories while the other was sent to MAXXAM Laboratories in Winnipeg, MB as an inter-laboratory comparison. Both analytical laboratories are accredited with the Canadian Association for Laboratory Accreditations, Inc.

QA/QC samples also included one field blank, one trip blank, and three equipment blanks; sample replication is already inherently included in the program.

3.4.1 Field Blank

One field blank (sample code FLR-1-1) was submitted to the analytical laboratory (ALS). The field blank was prepared by filling one set of sample bottles with deionized water in the field and treating the blanks in exactly the same manner as actual samples. The blank was preserved in accordance with actual sample treatments and blindly labeled.

3.4.2 Trip Blank

One trip blank (sample code TLR-1-1) was also submitted to ALS. The trip blank was prepared by the analytical laboratory by filling one set of sample bottles with deionized water and adding preservatives where appropriate. The trip blank was transported to the field site, using the same handling and transport protocols as for actual samples, and submitted along with samples to the analytical laboratory for analysis. Trip blanks are treated similarly to field blanks but the bottles are not opened at any point in the field and thus are not exposed to the environment. Trip and field blanks were submitted to the laboratory on the same day.

3.4.3 Equipment Blank

Three equipment blanks [sample codes ELR-1-1, ELR-1-2 (bag only), and ELRT-1-3 (bag and tube)] were collected to assess potential contamination associated with the use of field sampling equipment. For the first type of equipment blank, deionized water provided by the analytical laboratory was poured into one of the clean polyethylene sampling bags. For the second type of blank, a pre-cleaned core tube

was rinsed with the deionized water and the rinsate was collected into one of the clean polyethylene sampling bags. A sufficient volume of water was poured through the equipment to fill one set of sample bottles. The samples were transferred to sample bottles provided by ALS, preserved in accordance with actual sample treatments, and submitted to the laboratory in the same manner as the environmental samples.

3.5 Data Analysis

3.5.1 QA/QC Samples

Split samples were assessed according to standard criteria to evaluate precision and identify potential sample contamination issues (i.e., BCMELP 1998). Relative percent mean difference (RPMD) was calculated for duplicate samples as follows:

$$\text{RPMD} = (\text{value 1} - \text{value 2}) / ((\text{value 1} + \text{value 2}) / 2) \times 100$$

Precision of split samples was evaluated using the “rule of thumb” criteria for precision of 25% for duplicate samples.

Field and trip blank results were evaluated for evidence of sample contamination. Values for any parameter that exceeded five times the analytical detection limit were considered to be indicative of sample contamination and/or laboratory error.

Additionally, all environmental data were evaluated qualitatively for potential outliers, and transcription or analytical errors. Relative percent standard deviation (RPSD) was calculated from the sub-station data collected at each site by dividing the standard deviation of the data by the mean, and multiplying by 100. Replicate data collected in 2009 was relatively variable; therefore, precision of the 2010 triplicate results was evaluated for precision of 50%. Where RPSD values exceeded 50%, the measurement was flagged as suspect and requests were made to the analytical laboratory to verify the values through sample reanalysis and/or verification of reporting accuracy.

3.5.2 Environmental Samples

The concentrations (mg/L) reported by the laboratory were converted into deposition amounts using the formula:

$$D_x \text{ (mg/m}^2\text{)} = C_x \text{ (mg/L)} \times (V \text{ (mL)/A (cm}^2\text{)}) \times 10$$

where D_x = deposition of substance x , C_x = concentration of substance x , V = sample volume; and A = area of the sample. To facilitate the deposition calculations, concentrations reported below the laboratory analytical detection limits (DL) were assigned a value of one half the DL. As per the Provincial Protocol, the volume of the sample was estimated by calculating the total weight of snow collected (weight of the snow and bag – weight of the clean, empty bag) and assuming that 1 g of snow is equivalent to 1 mL of water. The area of the sample was calculated as the product of the interior cross-sectional area of the core tube ($\pi \cdot r^2$) and the number of cores collected. Mean and standard deviation (SD) of the concentrations and deposition rates were subsequently calculated.

Daily wind speed and direction data for the Flin Flon region were provided by J. Nilsen of HBMS (using the Manitoba Conservation weather station; Appendix 2). Wind roses were created using WRPLOT View, version 6.5.1 (from Lakes Environmental Software, <http://www.weblakes.com>) to determine

prevailing wind direction during both the 2008-2009 and 2009-2010 winter seasons (October-March). Mean deposition rates were compared to the prevailing wind direction for each year of monitoring to understand the spatial variability in deposition and to estimate the location of maximum deposition. The concentrations and deposition rates calculated in 2009 and 2010 were also compared (using mean \pm 2 SD) to assess inter-annual differences in metal deposition throughout this region.

4.0 RESULTS

4.1 Field Notes

The following is a summary of the field notes indicating method of site access and any possible sources of local contamination. Photographs of representative snow profiles were collected at every site and photographs of site access or local contamination are available for certain sites; all photos are available on the CD enclosed on the cover of this report. Lakes are listed in alphabetical order.

4.1.1 Amisk Lake

- Access by road.

4.1.2 Athapapuskow Lake, Site #1

- Accessed by road, via Sally's Beach Road; park at the turnabout at the end of the road;
- Accessed the lake by following a surveyor's trail over the bedrock and through the woods;
- Buffer of trees between the road and the sampling site, although some developments were lakeside; and
- Photographs documenting the distance from the road (access point) and the other side of the lake.

4.1.3 Athapapuskow Lake, Site #2

- Accessed by road via Highway 10, turning onto Ptarmigan Road, then Lakeside Avenue;
- Housing developments surround the lake;
- Buffer of trees between the road and the sampling site;
- Substantial snow machine traffic, thus site was in the middle and at least 100 m from paths; and
- Photographs documenting the distance from the road (access point), local traffic, and the other side of the lake.

4.1.4 Cormorant Lake

- Accessed by road: Airport Road (The Pas Airport), then right at the fork in the road (not the way with the "No Exit" sign);
- Buffer of trees between the road and the sampling site;
- No snow machine traffic in the area; and

- Photographs documenting the distance from the road (access point).

4.1.5 Douglas Lake

- Access by road;
- A cabin was northwest of the sampling site; and
- Snow machine traffic in the area, although site was located approximately 100 m east of the trails.

4.1.6 Hamell Lake

- Accessed by snow machine.

4.1.7 Hapnot Lake

- Accessed from Creighton Freeway at the south end of the lake;
- Surface of the snow was visibly dirty;
- High degree of snow machine traffic in the area; and
- Very wet snow at the site.

4.1.8 Hidden Lake

- Access by road;
- Snow surface was visibly dirty; and
- Slush at depth.

4.1.9 Kiskeynew Lake

- Accessed by snow machine.

4.1.10 Louis Lake

- Accessed from a walking path off McKeen's Avenue;
- Substantial snow machine traffic in the area; and
- Panorama of photos illustrating the amount of snow machine traffic.

4.1.11 Schist Lake, Site #1

- Accessed by snow machine.

4.1.12 Schist Lake, Site #2 (West Arm)

- Accessed by road, via Highway 10A to Creighton, turn onto road where sign says "West Arm Mine", then left onto snow road at approximately marker 3;
- Road may be inaccessible in heavy snow; and
- Photographs showing the landscape and lack of snow machine traffic.

4.1.13 Simon House Lake

- Accessed via Highway 39 at the “Simon House Lake” sign;
- Buffer of trees between the road and sampling site; and
- Photographs documenting the distance from the road (access point), the other side of the lake, and the buffer of trees.

4.1.14 Trout Lake/Embury Lake

- Accessed by snow machine.

4.1.15 Tyrell Lake

- Access by road; and
- Snow machine traffic in the area.

4.2 Analytical Results

Results of the QA/QC analyses are within acceptable levels, with low variability in the split samples and inter-laboratory samples (Tables 2 and 3). QA/QC results from 2010 are also improved over those collected in 2009 (Wyn and Cooley 2009), with fewer parameters detected in the 2010 blanks than the 2009 blanks (Tables 2 and 3). Mean metal concentrations measured in the snow samples are shown in Table 4 while mean pH, conductivity, and nitrogen are shown in Table 5. Means of the deposition rates for the metals and routine parameters are provided in Tables 6 and 7, respectively. Raw concentrations and deposition rates for each site are available in Appendices 3 and 4, as well as on the CD enclosed on the cover of this report.

The spatial variation in metal deposition was similar during both sampling periods regardless of differences in the wind speed and direction between years. In 2008-2009 the prevailing wind direction was from the northwest (297°; Figure 2) while the prevailing wind was from the west (261°) in 2009-2010 (Figure 3; Tables A2-1 and A2-2). Additionally, winds were lighter in 2008-2009 (maximum of 15.2 km/h) than 2009-2010 (maximum 22.7 km/h; Tables A2-1 and A2-2). As such, the wind data suggested that deposition of metals would be greatest inside the city and in the area southeast of Flin Flon (in 2008-2009) or east of the city (in 2009-2010). During both years, mean deposition of most metals was greatest at the lakes within Flin Flon and along the southeastern transect, while lower rates occurred outside of Flin Flon (e.g., Figure 4, Table 6). Mean deposition of some metals and nutrients was high at Hidden, Hapnot, and Louis lakes, but was also elevated at Athapapuskow-Site 2, Schist-Site 1, Simon House, Cormorant, and/or Tyrell lakes [aluminum (Al), barium (Ba), cadmium (Cd), calcium (Ca), chloride (Cl), iron (Fe), magnesium (Mg), manganese (Mn), mercury, molybdenum (Mo), nickel (Ni), potassium (K), silicon (Si), sodium (Na), strontium (Sr), sulfate, uranium (U), nitrate/nitrite, and total Kjeldahl nitrogen; e.g., Figure 5, Tables 6 and 7]. It is also worth noting that, in at least one of the sampling periods, mean deposition rates of the following parameters were up to 1000 times higher at Hapnot Lake than the other two sites in Flin Flon: conductivity, Al, Sb, Ba, bismuth (Bi), boron (B), Ca, Cl, Cr, Fe, Mg, Mn, Mo, Ni, K, Si, Na, Sr, Ti, and V (e.g., Figure 4, Table 6). Beryllium (Be) and phosphorus (P) concentrations in the samples were consistently below detection; therefore, deposition was negligible for all sites, regardless of distance from Flin Flon (Table 6). Concentrations of B, Bi, and lithium (Li) were also generally below detection in 2009 and 2010 (and thus had low deposition rates),

although B and Li were occasionally detected in samples from Hapnot, Schist (Site 1), Athapapuskow (Site 2), or Tyrell lakes; and Bi was detected in 2009 at sites in or near Flin Flon (Table 6).

Between-year trends in deposition were variable among parameters and sites and again did not relate to differences in winds between the periods (Tables 8 and 9). The only consistencies in the deposition data were that mean (± 2 SD) deposition of Sb, Pb, and Mo decreased at most sites (e.g., Figure 6) while mean deposition of nitrate/nitrite, TKN, Al, Ba, Be, Cr, Li, Mn, Hg, Ni, P, K, Si, Na, Ti, U, and V was unchanged between the two periods (Tables 8 and 9). Specifically, lakes within Flin Flon showed decreasing mean deposition rates for Bi and Mo between 2009 and 2010 while increasing deposition rates were noted for B; deposition of the other metals and nutrients did not change or showed different trends among these lakes (Table 9). Mean deposition at Trout/Embury and Kisseynew lakes (northeastern transect) increased between 2009 and 2010 for Be, B, Cr, Fe, Li, P, and Ti while deposition of Cl decreased; deposition of the other metals and nutrients did not change or were inconsistent between the lakes (Table 9). For the southeastern, southwestern, and northwestern transects, mean deposition of most metals decreased or did not change between the two years (Figures 4, 5, and 6; Table 9).

5.0 REFERENCES

- British Columbia (B.C.) Ministry of Environment, Lands, and Parks (BCMELP). 1998. Guidelines for interpreting water quality data. Version 1, May 1998. Prepared for the Land Use Task Force Resource Inventory Committee.
- WYN, B. and M. COOLEY. 2009. Collection of Snow Samples Near Flin Flon, Manitoba for the Analysis of Metals and Nutrients. A report prepared for Hudson Bay Mining and Smelting Co., Limited by North/South Consultants Inc. Winnipeg, MB. 58 pp.

Table 1. Site codes, sampling dates, times, UTM locations, and distances from the smelter for all snow quality sampling sites. To facilitate comparison of similar sites, sites are arranged according to location and distance from Flin Flon, MB.

Sampling Site	Site Code	Sampling Date	Sampling Time	Sampling Team ¹	UTM			Distance from Smelter (km)
					Zone	Easting	Northing	
Flin Flon								
Louis	LOUL-1	9-Mar-10	13:35	dg, rt	14U	315497	6071483	2.0
Hapnot	HAPL-1	9-Mar-10	13:00	dg, rt	14U	315123	6071805	1.5
Hidden	HIDL-1	9-Mar-10	14:10	dg, rt	14U	314897	6074023	1.0
Southeast								
Schist	SCHL-1	10-Mar-10	13:09	dg, jd	14U	318176	6067183	7.0
Schist	SCHL-2	10-Mar-10	11:50	bw, rt	14U	316558	6058782	14.5
Athapapuskow	ATHL-2	9-Mar-10	13:51	bw, ds	14U	345545	6050341	38.5
Athapapuskow	ATHL-1	9-Mar-10	14:52	bw, ds	14U	328007	6064930	15.8
Simon House	SIML-1	9-Mar-10	12:54	bw, ds	14U	357764	6040174	54.4
Cormorant	CORL-1	9-Mar-10	10:50	bw, ds	14U	387610	5998861	104.2
Southwest								
Douglas	DOUL-1	9-Mar-10	10:44	dg, rt	14U	311480	6069560	4.8
Amisk	AMIL-1	9-Mar-10	9:40	dg, rt	13U	685082	6045536	32.1
Northwest								
Hamell	HAML-1	9-Mar-10	12:20	dg, rt	14U	309820	6077353	6.3
Tyrell	TYRL-1	9-Mar-10	11:35	dg, rt	13U	683148	6085342	20.7
Northeast								
Trout/Embury	TROL-1	10-Mar-10	14:47	dg, jd	14U	319840	6078415	7.5
Kisseynew	KISL-1	10-Mar-10	10:23	dg, jd	14U	321272	6089411	17.5

¹ bw = Brianna Wyn (NSC), ds = Dave Scully (HBMS), dg = Doug Gibson (NSC), jd = James Dauk (HBMS), rt = Ray Tardiff (HBMS)

Table 2. Results of total metal and major ion analyses for QA/QC samples (blanks, split samples, and inter-laboratory comparison samples) collected during snow sampling in March 2010. Values in bold red are greater than or equal to five times the detection limit and values in blue bold indicate relative percent mean difference (RPMD) values greater than 25% for split and inter-laboratory comparison samples.

Sample Site	Analytical Agency	Lab. Sampling Code	Sampling Date	Hardness (as CaCO ₃)	Aluminum	Antimony	Arsenic
ALS Analytical Detection Limit				0.50	0.0010	0.000050	0.000030 /
Maxxam Analytical Detection Limit				0.5	0.003	0.0005	0.00050
Blanks							
Equipment							
ELR 1-1	ALS	L868302-36	8-Mar-10	<0.50	<0.0010	<0.000050	<0.000030
ELR 1-2	ALS	L868302-37	8-Mar-10	<0.50	<0.0010	<0.000050	<0.000030
ELRT 1-3	ALS	L868302-38	8-Mar-10	<0.50	<0.0010	<0.000050	<0.000030
Field							
FLR 1-1	ALS	L868302-34	8-Mar-10	<0.50	<0.0010	<0.000050	<0.000030
Trip							
TLR 1-1	ALS	L868302-35	8-Mar-10	<0.50	<0.0010	<0.000050	<0.000030
Split Samples							
KISL 1-3A	ALS	L868655-15	9-Mar-10	0.74	0.019	0.00019	0.0065
KISL 1-3B	ALS	L868655-16	9-Mar-10	0.72	0.017	0.00017	0.0064
			Mean	0.73	0.018	0.00018	0.0064
			RPMD	-	16	-	2
SCHL 1-3A	ALS	L868655-3	9-Mar-10	8.98	0.037	0.00065	0.022
SCHL 1-3B	ALS	L868655-4	9-Mar-10	9.03	0.044	0.00068	0.022
			Mean	9.01	0.040	0.00067	0.022
			RPMD	1	16	5	3
SCHL 2-3A	ALS	L868655-7	9-Mar-10	10.9	0.023	0.00015	0.004
SCHL 2-3B	ALS	L868655-8	9-Mar-10	11.3	0.024	0.00016	0.005
			Mean	11.1	0.023	0.00016	0.004
			RPMD	4	4	-	6
TROL 1-3A	ALS	L868655-11	9-Mar-10	<0.50	0.037	0.00046	0.014
TROL 1-3B	ALS	L868655-12	9-Mar-10	<0.50	0.034	0.00043	0.013
			Mean	<0.50	0.036	0.00044	0.013
			RPMD	-	10	7	3
Inter-laboratory Samples							
ATHL 1-2	ALS	L868302-11	8-Mar-10	3.78	0.018	0.00025	0.0074
	Maxxam ¹	T20015	8-Mar-10	3.7	0.015	ND	0.0071
			RPMD	2	20	-	3
ATHL 2-3	ALS	L868302-15	8-Mar-10	<0.5	0.015	0.000060	0.0022
	Maxxam ¹	T20016		ND	0.012	ND	0.0020
			RPMD	-	22	-	11
SIML 1-3	ALS	L868302-18	8-Mar-10	7.82	0.016	<0.000050	0.00071
	Maxxam ¹	T20017		7.5	0.014	ND	0.0007
			RPMD	4	16	-	2

Table 2. Continued.

Sample Site	Analytical Agency	Barium	Beryllium	Bismuth	Boron 0.0010 / 0.0040	Cadmium	Calcium
ALS Analytical Detection Limit		0.000050	0.00020	0.00050	0.0040	0.000017	0.020
Maxxam Analytical Detection Limit		0.001	0.0001	0.001	0.050	0.00001	0.05
Blanks							
Equipment							
ELR 1-1	ALS	<0.000050	<0.00020	<0.00050	0.0254	<0.000017	0.117
ELR 1-2	ALS	<0.000050	<0.00020	<0.00050	<0.0010	<0.000017	<0.020
ELRT 1-3	ALS	<0.000050	<0.00020	<0.00050	<0.0010	<0.000017	<0.020
Field							
FLR 1-1	ALS	<0.000050	<0.00020	<0.00050	<0.0010	<0.000017	<0.020
Trip							
TLR 1-1	ALS	<0.000050	<0.00020	<0.00050	0.0017	<0.000017	<0.020
Split Samples							
KISL 1-3A	ALS	0.00082	<0.00020	<0.00050	<0.0040	0.0091	0.194
KISL 1-3B	ALS	0.00087	<0.00020	<0.00050	<0.0040	0.0092	0.186
	Mean	0.00084	<0.00020	<0.00050	<0.0040	0.0091	0.190
	RPMD	5	-	-	-	0	4
SCHL 1-3A	ALS	0.0021	<0.00020	<0.00050	<0.0040	0.028	2.80
SCHL 1-3B	ALS	0.0022	<0.00020	<0.00050	<0.0040	0.029	2.81
	Mean	0.0021	<0.00020	<0.00050	<0.0040	0.029	2.81
	RPMD	3	-	-	-	1	0
SCHL 2-3A	ALS	0.0011	<0.00020	<0.00050	<0.0040	0.0047	3.88
SCHL 2-3B	ALS	0.0012	<0.00020	<0.00050	<0.0040	0.0049	4.04
	Mean	0.0012	<0.00020	<0.00050	<0.0040	0.0048	3.96
	RPMD	-	-	-	-	5	4
TROL 1-3A	ALS	0.0012	<0.00020	<0.00050	<0.0040	0.017	0.061
TROL 1-3B	ALS	0.0012	<0.00020	<0.00050	<0.0040	0.017	0.061
	Mean	0.0012	<0.00020	<0.00050	<0.0040	0.017	0.061
	RPMD	-	-	-	-	2	-
Inter-laboratory Samples							
ATHL 1-2	ALS	0.0011	<0.00020	<0.00050	<0.0040	0.0093	0.963
	Maxxam ¹	0.0010	ND	ND	ND	0.0088	0.99
	RPMD	8	-	-	-	5	3
ATHL 2-3	ALS	0.00043	<0.00020	<0.00050	<0.0040	0.0025	0.096
	Maxxam ¹	ND	ND	ND	ND	0.00248	0.07
	RPMD	-	-	-	-	2	31
SIML 1-3	ALS	0.00078	<0.00020	<0.00050	<0.0040	0.00069	0.819
	Maxxam ¹	ND	ND	ND	ND	0.00071	0.80
	RPMD	-	-	-	-	3	2

Table 2. Continued.

Sample Site	Analytical Agency	Dissolved Chloride	Chromium 0.00010 / 0.00050	Cobalt 0.00010	Copper 0.00010	Iron 0.010	Lead 0.000050
ALS Analytical Detection Limit		0.10	0.00010 /	0.00010	0.00010	0.010	0.000050
Maxxam Analytical Detection Limit		0.5	0.001	0.0005	0.0002	0.005	0.0002
Blanks							
Equipment							
ELR 1-1	ALS	<0.10	<0.00010	<0.00010	<0.00010	<0.010	<0.000050
ELR 1-2	ALS	<0.10	<0.00010	<0.00010	<0.00010	<0.010	<0.000050
ELRT 1-3	ALS	<0.10	<0.00010	<0.00010	<0.00010	<0.010	<0.000050
Field							
FLR 1-1	ALS	<0.10	<0.00010	<0.00010	0.00017	<0.010	0.000176
Trip							
TLR 1-1	ALS	<0.10	<0.00010	<0.00010	<0.00010	<0.010	<0.000050
Split Samples							
KISL 1-3A	ALS	<0.10	<0.00050	<0.00010	0.057	0.052	0.024
KISL 1-3B	ALS	<0.10	<0.00050	<0.00010	0.057	0.048	0.024
	Mean	<0.10	<0.00050	<0.00010	0.057	0.050	0.024
	RPMD	-	-	-	1	-	1
SCHL 1-3A	ALS	3.91	<0.00050	0.00024	0.181	0.163	0.070
SCHL 1-3B	ALS	3.90	<0.00050	0.00027	0.209	0.195	0.072
	Mean	3.91	<0.00050	0.00026	0.195	0.179	0.071
	RPMD	0	-	-	14	18	3
SCHL 2-3A	ALS	1.87	<0.00050	<0.00010	0.046	0.065	0.014
SCHL 2-3B	ALS	1.90	<0.00050	<0.00010	0.049	0.067	0.016
	Mean	1.89	<0.00050	<0.00010	0.048	0.066	0.015
	RPMD	2	-	-	6	3	9
TROL 1-3A	ALS	<0.10	<0.00050	0.00037	0.222	0.223	0.056
TROL 1-3B	ALS	<0.10	<0.00050	0.00028	0.209	0.206	0.056
	Mean	<0.10	<0.00050	0.00033	0.216	0.215	0.056
	RPMD	-	-	-	6	8	1
Inter-laboratory Samples							
ATHL 1-2	ALS	0.15	<0.00050	<0.00010	0.063	0.053	0.024
	Maxxam ¹	ND	ND	ND	0.0569	0.048	0.0239
	RPMD	-	-	-	10	10	0
ATHL 2-3	ALS	<0.10	<0.00050	<0.00010	0.019	0.026	0.0087
	Maxxam ¹	ND	ND	ND	0.0179	0.023	0.0085
	RPMD	-	-	-	4	12	2
SIML 1-3	ALS	0.18	<0.00050	<0.00010	0.0048	0.019	0.0017
	Maxxam ¹	ND	ND	ND	0.0045	0.018	0.0017
	RPMD	-	-	-	6	5	2

Table 2. Continued.

Sample Site	Analytical Agency	Lithium	Magnesium	Manganese	Mercury	Molybdenum	Nickel
ALS Analytical Detection Limit							
		0.0050	0.0050	0.000050	0.000010	0.000050	0.00010
Maxxam Analytical Detection Limit							
		0.005	0.05	0.001	0.00002	0.001	0.001
Blanks							
Equipment							
ELR 1-1	ALS	<0.0050	<0.0050	<0.000050	<0.000010	<0.000050	<0.00010
ELR 1-2	ALS	<0.0050	<0.0050	<0.000050	<0.000010	<0.000050	<0.00010
ELRT 1-3	ALS	<0.0050	<0.0050	<0.000050	<0.000010	<0.000050	<0.00010
Field							
FLR 1-1	ALS	<0.0050	<0.0050	<0.000050	<0.000010	<0.000050	<0.00010
Trip							
TLR 1-1	ALS	<0.0050	<0.0050	<0.000050	<0.000010	<0.000050	<0.00010
Split Samples							
KISL 1-3A	ALS	<0.0050	0.063	0.0014	<0.000010	<0.000050	<0.00010
KISL 1-3B	ALS	<0.0050	0.062	0.0014	<0.000010	<0.000050	<0.00010
	Mean	<0.0050	0.063	0.0014	<0.000010	<0.000050	<0.00010
	RPMD	-	1	1	-	-	-
SCHL 1-3A	ALS	<0.0050	0.481	0.0017	0.000029	0.00010	0.00017
SCHL 1-3B	ALS	<0.0050	0.488	0.0019	0.000031	0.00011	0.00018
	Mean	<0.0050	0.485	0.0018	0.000030	0.00011	0.00018
	RPMD	-	1	8	-	-	-
SCHL 2-3A	ALS	<0.0050	0.297	0.0014	<0.000010	<0.000050	<0.00010
SCHL 2-3B	ALS	<0.0050	0.307	0.0015	<0.000010	<0.000050	<0.00010
	Mean	<0.0050	0.302	0.0015	<0.000010	<0.000050	<0.00010
	RPMD	-	3	8	-	-	-
TROL 1-3A	ALS	<0.0050	0.032	0.0011	0.000015	<0.000050	<0.00010
TROL 1-3B	ALS	<0.0050	0.031	0.0010	0.000021	<0.000050	<0.00010
	Mean	<0.0050	0.032	0.0011	0.000018	<0.000050	<0.00010
	RPMD	-	4	8	-	-	-
Inter-laboratory Samples							
ATHL 1-2	ALS	<0.0050	0.334	0.0011	0.000041	<0.000050	<0.00010
	Maxxam ¹	ND	0.31	ND	ND	ND	ND
	RPMD	-	7	-	-	-	-
ATHL 2-3	ALS	<0.0050	0.034	0.00091	<0.000010	<0.000050	<0.00010
	Maxxam ¹	ND	ND	ND	ND	ND	ND
	RPMD	-	-	-	-	-	-
SIML 1-3	ALS	<0.0050	1.40	0.00072	0.000048	<0.000050	<0.00010
	Maxxam ¹	ND	1.33	ND	0.00007	ND	ND
	RPMD	-	5	-	37	-	-

Table 2. Continued.

Sample Site	Analytical Agency	Phosphorus	Potassium	Selenium 0.00050 /	Silicon	Silver	Sodium
ALS Analytical Detection Limit		0.30	0.050	0.0010	0.050	0.000010	0.010
Maxxam Analytical Detection Limit		n/a	0.05	0.0001	0.1	0.00002	0.05
Blanks							
Equipment							
ELR 1-1	ALS	<0.30	<0.050	<0.00010	<0.050	<0.000010	<0.010
ELR 1-2	ALS	<0.30	<0.050	<0.00010	<0.050	<0.000010	<0.010
ELRT 1-3	ALS	<0.30	<0.050	<0.00010	<0.050	<0.000010	<0.010
Field							
FLR 1-1	ALS	<0.30	<0.050	<0.00010	<0.050	<0.000010	<0.010
Trip							
TLR 1-1	ALS	<0.30	<0.050	<0.00010	<0.050	<0.000010	<0.010
Split Samples							
KISL 1-3A	ALS	<0.30	<0.050	<0.00050	0.050	0.000043	0.066
KISL 1-3B	ALS	<0.30	<0.050	<0.00050	<0.050	0.000040	0.068
	Mean	<0.30	<0.050	<0.00050	<0.050	0.000042	0.067
	RPMD	-	-	-	-	-	3
SCHL 1-3A	ALS	<0.30	0.202	0.00062	0.088	0.00019	1.26
SCHL 1-3B	ALS	<0.30	0.207	0.00071	0.102	0.00023	1.27
	Mean	<0.30	0.205	0.00067	0.095	0.00021	1.27
	RPMD	-	-	-	-	19	1
SCHL 2-3A	ALS	<0.30	0.095	<0.00050	0.077	0.000051	0.635
SCHL 2-3B	ALS	<0.30	0.099	<0.00050	0.082	0.000047	0.659
	Mean	<0.30	0.097	<0.00050	0.080	0.000049	0.647
	RPMD	-	-	-	-	-	4
TROL 1-3A	ALS	<0.30	<0.050	<0.00050	0.073	0.00019	0.027
TROL 1-3B	ALS	<0.30	<0.050	<0.00050	0.070	0.00017	0.031
	Mean	<0.30	<0.050	<0.00050	0.072	0.00018	0.029
	RPMD	-	-	-	-	13	-
Inter-laboratory Samples							
ATHL 1-2	ALS	<0.30	0.099	<0.00050	<0.050	0.000055	0.214
	Maxxam ¹	-	0.09	0.0003	ND	0.00007	0.18
	RPMD	-	10	-	-	24	17
ATHL 2-3	ALS	<0.30	<0.050	<0.00050	<0.050	0.000016	0.059
	Maxxam ¹	-	ND	0.0002	ND	0.000020	ND
	RPMD	-	-	-	-	22	-
SIML 1-3	ALS	<0.30	0.124	<0.00050	0.075	<0.000010	0.300
	Maxxam ¹	-	0.12	ND	ND	ND	0.27
	RPMD	-	3	-	-	-	11

Table 2. Continued.

Sample Site	Analytical Agency	Strontium	Sulfate-Dissolved	Sulphur	Thallium	Tin	Titanium
ALS Analytical Detection Limit		0.00010	0.50	n/a	0.000050	0.00010	0.010
Maxxam Analytical Detection Limit		0.001	0.5	3	0.00005	0.005	0.005
Blanks							
Equipment							
ELR 1-1	ALS	<0.00010	<0.50		<0.000050	<0.00010	<0.010
ELR 1-2	ALS	<0.00010	<0.50		<0.000050	<0.00010	<0.010
ELRT 1-3	ALS	<0.00010	<0.50		<0.000050	<0.00010	<0.010
Field							
FLR 1-1	ALS	<0.00010	<0.50		<0.000050	<0.00010	<0.010
Trip							
TLR 1-1	ALS	<0.00010	<0.50		<0.000050	<0.00010	<0.010
Split Samples							
KISL 1-3A	ALS	0.00069	0.57		<0.000050	<0.00010	<0.010
KISL 1-3B	ALS	0.00066	0.57		<0.000050	<0.00010	<0.010
	Mean	0.00068	0.57		<0.000050	<0.00010	<0.010
	RPMD	4	-		-	-	-
SCHL 1-3A	ALS	0.0238	4.74		0.000078	0.00028	<0.010
SCHL 1-3B	ALS	0.0237	4.73		0.000079	0.00030	<0.010
	Mean	0.0238	4.74		0.000079	0.00029	<0.010
	RPMD	0	0		-	-	-
SCHL 2-3A	ALS	0.0268	7.42		<0.000050	<0.00010	<0.010
SCHL 2-3B	ALS	0.0272	7.42		<0.000050	<0.00010	<0.010
	Mean	0.0270	7.42		<0.000050	<0.00010	<0.010
	RPMD	1	0		-	-	-
TROL 1-3A	ALS	0.00024	0.52		0.000057	0.00020	<0.010
TROL 1-3B	ALS	0.00022	0.52		0.000054	0.00017	<0.010
	Mean	0.00023	0.52		0.000056	0.00019	<0.010
	RPMD	-	-		-	-	-
Inter-laboratory Samples							
ATHL 1-2	ALS	0.0025	0.99	-	<0.000050	<0.00010	<0.010
	Maxxam ¹	0.002	0.8	ND	ND	ND	ND
	RPMD	21	21	-	-	-	-
ATHL 2-3	ALS	0.0003	<0.50	-	<0.000050	<0.00010	<0.010
	Maxxam ¹	ND	ND	ND	ND	ND	ND
	RPMD	-	-	-	-	-	-
SIML 1-3	ALS	0.0016	0.72	-	<0.000050	<0.00010	<0.010
	Maxxam ¹	0.002	0.5	ND	ND	ND	ND
	RPMD	20	36	-	-	-	-

Table 2. Continued.

Sample Site	Analytical Agency	Uranium	Vanadium	Zinc	Zirconium
ALS Analytical Detection Limit		0.000010	0.000050 /	0.0010	n/a
Maxxam Analytical Detection Limit		0.0001	0.00020 / 0.0010	0.005	0.0005
Blanks					
Equipment					
ELR 1-1	ALS	<0.000010	<0.000050	<0.0010	
ELR 1-2	ALS	<0.000010	<0.000050	<0.0010	
ELRT 1-3	ALS	<0.000010	<0.000050	<0.0010	
Field					
FLR 1-1	ALS	<0.000010	<0.000050	<0.0010	
Trip					
TLR 1-1	ALS	<0.000010	<0.000050	<0.0010	
Split Samples					
KISL 1-3A	ALS	<0.000010	<0.00020	0.070	
KISL 1-3B	ALS	<0.000010	<0.00020	0.070	
	Mean	<0.000010	<0.00020	0.070	
	RPMD	-	-	1	
SCHL 1-3A	ALS	<0.000010	0.00026	0.269	
SCHL 1-3B	ALS	<0.000010	0.00029	0.273	
	Mean	<0.000010	0.00028	0.271	
	RPMD	-	-	1	
SCHL 2-3A	ALS	<0.000010	<0.00020	0.057	
SCHL 2-3B	ALS	<0.000010	<0.00020	0.059	
	Mean	<0.000010	<0.00020	0.058	
	RPMD	-	-	3	
TROL 1-3A	ALS	<0.000010	<0.00020	0.167	
TROL 1-3B	ALS	<0.000010	<0.00020	0.163	
	Mean	<0.000010	<0.00020	0.165	
	RPMD	-	-	2	
Inter-laboratory Samples					
ATHL 1-2	ALS	<0.000010	<0.00020	0.076	-
	Maxxam ¹	ND	ND	0.074	ND
	RPMD	-	-	2	-
ATHL 2-3	ALS	<0.000010	<0.00020	0.024	-
	Maxxam ¹	ND	ND	0.025	ND
	RPMD	-	-	4	-
SIML 1-3	ALS	0.000018	<0.00020	0.010	-
	Maxxam ¹	ND	ND	0.009	ND
	RPMD	-	-	9	-

Table 3. Results of routine analyses performed on QA/QC (blanks, split, and inter-laboratory) samples collected during the snow sampling in March 2010.

Sample Site	Analytical Agency	Lab. Sampling Code	Sampling Date	pH (pH units)	Conductivity (µmhos/cm)	Dissolved Nitrate (mg/L)	Dissolved Nitrite (mg/L)	Dissolved Nitrate/Nitrite (mg/L)	TKN (mg/L)	Total Nitrogen (mg/L)
ALS Analytical Detection Limit				0.10	0.40	0.0050	0.0010	0.0050	0.050 / 0.20	
Maxxam Analytical Detection Limit										0.02
Blanks										
Equipment										
ELR 1-1	ALS	L868302-36	8-Mar-10	6.01	0.69	<0.0050	<0.0010	<0.0050	<0.20	-
ELR 1-2	ALS	L868302-37	8-Mar-10	5.52	1.05	<0.0050	<0.0010	<0.0050	<0.20	-
ELRT 1-3	ALS	L868302-38	8-Mar-10	5.52	1.00	<0.0050	<0.0010	<0.0050	<0.20	-
Field										
FLR 1-1	ALS	L868302-34	8-Mar-10	5.52	0.92	<0.0050	<0.0010	<0.0050	<0.20	-
Trip										
TLR 1-1	ALS	L868302-35	8-Mar-10	5.65	0.48	<0.0050	<0.0010	<0.0050	<0.20	-
Split Samples										
KISL 1-3A	ALS	L868655-15	9-Mar-10	4.99	6.48	0.170	<0.0010	0.170	<0.20	-
KISL 1-3B	ALS	L868655-16	9-Mar-10	5.00	6.40	0.170	<0.0010	0.170	<0.20	-
			Mean	5.00	6.44	0.170	<0.0010	0.170	<0.20	
			RPMD	0	1	-	-	-	-	
SCHL 1-3A	ALS	L868655-3	9-Mar-10	5.73	32.0	0.123	<0.0010	0.123	<0.20	-
SCHL 1-3B	ALS	L868655-4	9-Mar-10	5.74	32.2	0.124	<0.0010	0.124	<0.20	-
			Mean	5.74	32.1	0.124	<0.0010	0.124	<0.20	
			RPMD	0	1	-	-	-	-	
SCHL 2-3A	ALS	L868655-7	9-Mar-10	5.98	32.0	0.110	<0.0010	0.110	<0.20	-
SCHL 2-3B	ALS	L868655-8	9-Mar-10	5.86	30.8	0.111	<0.0010	0.111	0.101* ¹	-
			Mean	5.92	31.4	0.111	<0.0010	0.111	<0.20	
			RPMD	2	4	-	-	-	-	

Table 3. Continued.

Sample Site	Analytical Agency	Lab. Sampling Code	Sampling Date	pH (pH units)	Conductivity (µmhos/cm)	Dissolved Nitrate (mg/L)	Dissolved Nitrite (mg/L)	Dissolved Nitrate/Nitrite (mg/L)	TKN (mg/L)	Total Nitrogen (mg/L)
ALS Analytical Detection Limit				0.10	0.40	0.0050	0.0010	0.0050	0.050 / 0.20	
Maxxam Analytical Detection Limit										0.02
TROL 1-3A	ALS	L868655-11	9-Mar-10	4.97	6.18	0.141	<0.0010	0.141	<0.20	-
TROL 1-3B	ALS	L868655-12	9-Mar-10	4.96	5.59	0.139	<0.0010	0.139	<0.20	-
Mean				4.97	5.89	0.140	<0.0010	0.140	<0.20	
RPMD				0	10	-	-	-	-	
Inter-laboratory Samples										
ATHL 1-2	ALS	L868302-11	8-Mar-10	-	-	-	-	-	-	-
	Maxxam ¹	T20015	8-Mar-10	-	-	-	-	-	-	0.26
RPMD										-
ATHL 2-3	ALS	L868302-15	8-Mar-10	-	-	-	-	-	-	-
	Maxxam ¹	T20016	8-Mar-10	-	-	-	-	-	-	0.23
RPMD										-
SIML 1-3	ALS	L868302-18	8-Mar-10	-	-	-	-	-	-	-
	Maxxam ¹	T20017	8-Mar-10	-	-	-	-	-	-	0.19
RPMD										-

* Value run after the hold time.

¹ Analytical detection limit = 0.050 mg/L

Table 4. Mean (\pm SD) concentration of metals (mg/L) measured in the snow samples collected in March 2010.

Sampling Site	Processing Date	Hardness (as CaCO ₃)		Aluminum		Antimony		Arsenic		Barium	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Analytical Detection Limit		0.50		0.0010		0.000050		0.000050		0.000050	
Flin Flon											
Louis	8-Mar-10	4.60	1.86	0.184	0.0492	0.00176	0.00042	0.0615	0.01166	0.00928	0.00292
Hapnot	8-Mar-10	31.77	5.12	0.468	0.0552	0.00191	0.00011	0.0574	0.00312	0.0205	0.00177
Hidden	8-Mar-10	7.74	2.18	0.331	0.0870	0.00267	0.00045	0.0702	0.01341	0.0181	0.00489
Southeast											
Schist-1	9-Mar-10	21.84	11.12	0.0371	0.0042	0.00078	0.00013	0.0220	0.00210	0.00343	0.00114
Schist-2	9-Mar-10	11.10	0.50	0.0233	0.0019	0.00014	0.00001	0.00395	0.00043	0.00106	0.00012
Athapapuskow-1	8-Mar-10	4.63	2.23	0.0184	0.0017	0.00022	0.00003	0.00646	0.00107	0.00115	0.00017
Athapapuskow-2	8-Mar-10	0.25	0.00	0.0173	0.0021	0.00006	0.00001	0.00226	0.00004	0.00041	0.00002
Simon House	8-Mar-10	15.84	8.25	0.0187	0.0048	<0.000050	-	0.00084	0.00013	0.00177	0.00115
Cormorant	8-Mar-10	35.33	3.76	0.0628	0.0065	<0.000050	-	0.00022	0.00004	0.00148	0.00094
Southwest											
Douglas	8-Mar-10	1.42	0.47	0.0711	0.0045	0.00082	0.00003	0.0229	0.00110	0.00305	0.00050
Amisk	8-Mar-10	0.69	0.15	0.0399	0.0089	<0.000050	-	0.00095	0.00014	0.00084	0.00027
Northwest											
Hamell	8-Mar-10	0.86	0.15	0.0437	0.0070	0.00086	0.00007	0.0252	0.00207	0.00202	0.00003
Tyrell	8-Mar-10	0.47	0.20	0.0277	0.0027	0.00014	0.00002	0.00517	0.00129	0.00106	0.00029
Northeast											
Trout/Embury	9-Mar-10	0.37	0.21	0.0449	0.0113	0.00060	0.00023	0.0182	0.00696	0.00207	0.00109
Kisseynew	9-Mar-10	0.41	0.28	0.0188	0.0010	0.00018	0.00004	0.00640	0.00126	0.00074	0.00017

Table 4. Continued.

Sampling Site	Processing Date	Beryllium		Bismuth		Boron		Cadmium		Calcium	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Analytical Detection Limit		0.00020		0.00050		0.0040		0.000017		0.020	
Flin Flon											
Louis	8-Mar-10	<0.00020	-	<0.00050	-	<0.0040	-	0.100	0.0187	1.11	0.545
Hapnot	8-Mar-10	<0.00020	-	<0.00050	-	0.00540	0.00061	0.0943	0.0037	8.43	1.175
Hidden	8-Mar-10	<0.00020	-	<0.00050	-	<0.0040	-	0.0728	0.0160	2.31	0.786
Southeast											
Schist-1	9-Mar-10	<0.00020	-	<0.00050	-	0.0055	0.00309	0.0325	0.0049	6.44	3.182
Schist-2	9-Mar-10	<0.00020	-	<0.00050	-	<0.0040	-	0.0042	0.0005	3.96	0.195
Athapapuskow-1	8-Mar-10	<0.00020	-	<0.00050	-	<0.0040	-	0.0083	0.0010	0.934	0.143
Athapapuskow-2	8-Mar-10	<0.00020	-	<0.00050	-	<0.0040	-	0.0024	0.0001	0.090	0.006
Simon House	8-Mar-10	<0.00020	-	<0.00050	-	<0.0040	-	0.0007	0.0001	2.27	1.661
Cormorant	8-Mar-10	<0.00020	-	<0.00050	-	<0.0040	-	0.0001	0.0000	6.93	0.675
Southwest											
Douglas	8-Mar-10	<0.00020	-	<0.00050	-	<0.0040	-	0.0360	0.0020	0.334	0.139
Amisk	8-Mar-10	<0.00020	-	<0.00050	-	<0.0040	-	0.0011	0.0002	0.162	0.038
Northwest											
Hamell	8-Mar-10	<0.00020	-	<0.00050	-	<0.0040	-	0.0451	0.0052	0.185	0.033
Tyrell	8-Mar-10	<0.00020	-	<0.00050	-	<0.0040	-	0.0084	0.0034	0.132	0.036
Northeast											
Trout/Embury	9-Mar-10	<0.00020	-	<0.00050	-	<0.0040	-	0.0258	0.0128	0.092	0.041
Kisseynew	9-Mar-10	<0.00020	-	<0.00050	-	<0.0040	-	0.0083	0.0019	0.115	0.067

Table 4. Continued.

Sampling Site	Processing Date	Dissolved Chloride		Chromium		Cobalt		Copper		Iron	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Analytical Detection Limit		0.10		0.00050		0.00010		0.00010		0.010	
Flin Flon											
Louis	8-Mar-10	0.22	0.05	0.00054	0.00026	0.00132	0.00045	0.923	0.283	0.795	0.275
Hapnot	8-Mar-10	48.2	11.04	0.00213	0.00025	0.00189	0.00014	1.09	0.11	1.35	0.18
Hidden	8-Mar-10	0.41	0.01	0.00081	0.00022	0.00399	0.00123	2.35	0.73	2.39	0.85
Southeast											
Schist-1	9-Mar-10	12.1	7.20	<0.00050	-	0.00027	0.00002	0.185	0.012	0.173	0.023
Schist-2	9-Mar-10	1.84	0.09	<0.00050	-	<0.00010	-	0.0397	0.0071	0.058	0.007
Athapapuskow-1	8-Mar-10	0.21	0.14	<0.00050	-	<0.00010	-	0.0580	0.0085	0.048	0.008
Athapapuskow-2	8-Mar-10	<0.10	-	<0.00050	-	<0.00010	-	0.0186	0.0003	0.028	0.002
Simon House	8-Mar-10	0.26	0.07	<0.00050	-	<0.00010	-	0.0048	0.0004	0.016	0.003
Cormorant	8-Mar-10	0.15	0.04	<0.00050	-	<0.00010	-	0.0020	0.0009	0.068	0.010
Southwest											
Douglas	8-Mar-10	0.65	0.06	<0.00050	-	<0.00010	-	0.429	0.007	0.325	0.008
Amisk	8-Mar-10	<0.10	-	<0.00050	-	<0.00010	-	0.0107	0.0015	0.051	0.012
Northwest											
Hamell	8-Mar-10	0.45	0.08	<0.00050	-	0.00034	0.00005	0.250	0.028	0.198	0.025
Tyrell	8-Mar-10	<0.10	-	<0.00050	-	<0.00010	-	0.0449	0.0132	0.068	0.012
Northeast											
Trout/Embury	9-Mar-10	<0.10	-	<0.00050	-	0.00045	0.00018	0.326	0.155	0.303	0.112
Kisseynew	9-Mar-10	<0.10	-	<0.00050	-	<0.00010	-	0.0569	0.0118	0.054	0.008

Table 4. Continued.

Sampling Site	Processing Date	Lead		Lithium		Magnesium		Manganese		Mercury	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Analytical Detection Limit		0.000050		0.0050		0.0050		0.000050		0.000010	
Flin Flon											
Louis	8-Mar-10	0.222	0.040	<0.0050	-	0.446	0.124	0.0103	0.0019	0.00460	0.00234
Hapnot	8-Mar-10	0.175	0.019	<0.0050	-	2.60	0.54	0.0237	0.0008	0.00198	0.00107
Hidden	8-Mar-10	0.225	0.027	<0.0050	-	0.479	0.071	0.0319	0.0039	0.00367	0.00076
Southeast											
Schist-1	9-Mar-10	0.0678	0.0055	<0.0050	-	1.41	0.82	0.00256	0.00078	0.00003	0.000003
Schist-2	9-Mar-10	0.0131	0.0015	<0.0050	-	0.294	0.013	0.00139	0.00007	<0.000010	-
Athapapuskow-1	8-Mar-10	0.0207	0.0033	<0.0050	-	0.559	0.470	0.00109	0.00012	0.00004	0.000004
Athapapuskow-2	8-Mar-10	0.00837	0.00039	<0.0050	-	0.0324	0.0014	0.00087	0.00003	<0.000010	-
Simon House	8-Mar-10	0.00184	0.00024	<0.0050	-	2.47	1.02	0.00081	0.00011	<0.000010	-
Cormorant	8-Mar-10	0.00058	0.00008	<0.0050	-	4.38	0.55	0.00415	0.00056	<0.000010	-
Southwest											
Douglas	8-Mar-10	0.0957	0.0029	<0.0050	-	0.142	0.031	0.00554	0.00517	0.00034	0.00013
Amisk	8-Mar-10	0.00318	0.00041	<0.0050	-	0.0701	0.0129	0.00124	0.00021	<0.000010	-
Northwest											
Hamell	8-Mar-10	0.115	0.013	<0.0050	-	0.0961	0.0172	0.00209	0.00021	0.00015	0.00002
Tyrell	8-Mar-10	0.0241	0.0076	<0.0050	-	0.0442	0.0097	0.00207	0.00063	<0.000010	-
Northeast											
Trout/Embury	9-Mar-10	0.0776	0.0317	<0.0050	-	0.0453	0.0178	0.00155	0.00062	<0.000010	-
Kisseynew	9-Mar-10	0.0244	0.0037	<0.0050	-	0.0376	0.0220	0.00119	0.00029	<0.000010	-

Table 4. Continued.

Sampling Site	Processing Date	Molybdenum		Nickel		Phosphorus		Potassium		Selenium	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Analytical Detection Limit		0.000050		0.00010		0.30		0.050		0.00050 / 0.0010	
Flin Flon											
Louis	8-Mar-10	0.00017	0.00003	0.00068	0.00008	<0.30	-	0.076	0.051	0.00154	0.00028
Hapnot	8-Mar-10	0.00041	0.00005	0.00159	0.00017	<0.30	-	4.49	1.12	0.00223	0.00029
Hidden	8-Mar-10	0.00030	0.00007	0.00138	0.00014	<0.30	-	0.256	0.105	0.00308	0.00048
Southeast											
Schist-1	9-Mar-10	0.00020	0.00008	0.00020	0.00003	<0.30	-	0.610	0.355	0.00056	0.00010
Schist-2	9-Mar-10	<0.000050	-	<0.00010	-	<0.30	-	0.092	0.007	<0.00050	-
Athapapuskow-1	8-Mar-10	<0.000050	-	<0.00010	-	<0.30	-	0.176	0.156	<0.00050	-
Athapapuskow-2	8-Mar-10	<0.000050	-	<0.00010	-	<0.30	-	<0.050	-	<0.00050	-
Simon House	8-Mar-10	<0.000050	-	<0.00010	-	<0.30	-	0.228	0.093	<0.00050	-
Cormorant	8-Mar-10	<0.000050	-	0.00015	0.00003	<0.30	-	0.075	0.050	<0.00050	-
Southwest											
Douglas	8-Mar-10	0.00006	0.00001	0.00023	0.00003	<0.30	-	<0.050	-	0.00086	0.00007
Amisk	8-Mar-10	<0.000050	-	0.00012	0.00013	<0.30	-	<0.050	-	<0.00050	-
Northwest											
Hamell	8-Mar-10	<0.000050	-	0.00019	0.00005	<0.30	-	<0.050	-	0.00057	0.00007
Tyrell	8-Mar-10	0.00008	0.00005	<0.00010	-	<0.30	-	<0.050	-	<0.00050	-
Northeast											
Trout/Embury	9-Mar-10	<0.000050	-	0.00011	0.00006	<0.30	-	<0.050	-	<0.00050	-
Kisseynew	9-Mar-10	<0.000050	-	<0.00010	-	<0.30	-	<0.050	-	<0.00050	-

Table 4. Continued.

Sampling Site	Processing Date	Silicon		Silver		Sodium		Strontium		Dissolved Sulfate	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Analytical Detection Limit		0.050		0.000010		0.010		0.00010		0.50	
Flin Flon											
Louis	8-Mar-10	0.323	0.093	0.000797	0.000267	0.197	0.043	0.00192	0.00086	2.61	1.08
Hapnot	8-Mar-10	1.10	0.19	0.000887	0.000098	23.4	5.3	0.0162	0.0022	7.77	0.71
Hidden	8-Mar-10	0.607	0.180	0.001783	0.000577	0.353	0.021	0.00486	0.00060	8.74	1.84
Southeast											
Schist-1	9-Mar-10	0.110	0.017	0.000199	0.000013	3.81	2.22	0.0579	0.0296	8.56	3.69
Schist-2	9-Mar-10	0.076	0.003	0.000044	0.000005	0.626	0.030	0.0270	0.0012	7.57	0.39
Athapuskow-1	8-Mar-10	<0.050	-	0.000053	0.000003	0.328	0.241	0.00262	0.00067	1.33	0.73
Athapuskow-2	8-Mar-10	<0.050	-	0.000021	0.000005	0.054	0.005	0.00028	0.00006	<0.50	-
Simon House	8-Mar-10	0.136	0.070	<0.000010	-	0.497	0.177	0.00409	0.00283	1.09	0.36
Cormorant	8-Mar-10	0.210	0.093	<0.000010	-	0.155	0.107	0.00396	0.00191	0.55	0.30
Southwest											
Douglas	8-Mar-10	0.123	0.012	0.000347	0.000007	0.463	0.042	0.00072	0.00030	1.05	0.12
Amisk	8-Mar-10	0.077	0.016	0.000014	0.000010	0.044	0.002	0.00045	0.00010	<0.50	-
Northwest											
Hamell	8-Mar-10	0.082	0.009	0.000234	0.000028	0.326	0.057	0.00039	0.00005	0.81	0.08
Tyrell	8-Mar-10	<0.050	-	0.000048	0.000034	0.049	0.007	0.00044	0.00012	<0.50	-
Northeast											
Trout/Embury	9-Mar-10	0.090	0.022	0.000248	0.000088	0.040	0.015	0.00035	0.00014	0.75	0.33
Kisseynew	9-Mar-10	<0.050	-	0.000047	0.000010	0.045	0.020	0.00040	0.00024	<0.50	-

Table 4. Continued.

Sampling Site	Processing Date	Thallium		Tin		Titanium		Uranium		Vanadium	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Analytical Detection Limit		0.000050		0.00010		0.010		0.000010		0.00020	
Flin Flon											
Louis	8-Mar-10	0.000300	0.000064	0.00067	0.00016	<0.010	-	0.000017	0.000007	0.00089	0.00017
Hapnot	8-Mar-10	0.000393	0.000033	0.00059	0.00004	0.029	0.004	0.000036	0.000003	0.00217	0.00015
Hidden	8-Mar-10	0.000331	0.000103	0.00066	0.00014	0.011	0.006	0.000031	0.000008	0.00189	0.00039
Southeast											
Schist-1	9-Mar-10	0.000089	0.000013	0.00029	0.00002	<0.010	-	<0.000010	-	0.00043	0.00013
Schist-2	9-Mar-10	<0.000050	-	<0.00010	-	<0.010	-	<0.000010	-	<0.00020	-
Athapapuskow-1	8-Mar-10	<0.000050	-	<0.00010	-	<0.010	-	<0.000010	-	<0.00020	-
Athapapuskow-2	8-Mar-10	<0.000050	-	<0.00010	-	<0.010	-	<0.000010	-	<0.00020	-
Simon House	8-Mar-10	<0.000050	-	<0.00010	-	<0.010	-	0.000035	0.000015	<0.00020	-
Cormorant	8-Mar-10	<0.000050	-	<0.00010	-	<0.010	-	0.000013	0.000007	<0.00020	-
Southwest											
Douglas	8-Mar-10	0.000101	0.000006	0.00027	0.00005	<0.010	-	<0.000010	-	0.00030	0.00001
Amisk	8-Mar-10	<0.000050	-	<0.00010	-	<0.010	-	<0.000010	-	0.00020	0.00017
Northwest											
Hamell	8-Mar-10	0.000127	0.000014	0.00025	0.00003	<0.010	-	<0.000010	-	0.00025	0.00003
Tyrell	8-Mar-10	<0.000050	-	<0.00010	-	<0.010	-	<0.000010	-	<0.00020	-
Northeast											
Trout/Embury	9-Mar-10	0.000081	0.000039	0.00026	0.00010	<0.010	-	<0.000010	-	<0.00020	-
Kisseynew	9-Mar-10	<0.000050	-	<0.00010	-	<0.010	-	<0.000010	-	<0.00020	-

Table 4. Continued.

Sampling Site	Processing Date	Zinc	
		Mean	SD
Analytical Detection Limit		0.0010	
Flin Flon			
Louis	8-Mar-10	0.830	0.157
Hapnot	8-Mar-10	1.213	0.035
Hidden	8-Mar-10	2.223	0.238
Southeast			
Schist-1	9-Mar-10	0.294	0.030
Schist-2	9-Mar-10	0.0526	0.0045
Athapapuskow-1	8-Mar-10	0.0700	0.0077
Athapapuskow-2	8-Mar-10	0.0241	0.0012
Simon House	8-Mar-10	0.0094	0.0004
Cormorant	8-Mar-10	0.0074	0.0016
Southwest			
Douglas	8-Mar-10	0.302	0.018
Amisk	8-Mar-10	0.0169	0.0023
Northwest			
Hamell	8-Mar-10	0.324	0.029
Tyrell	8-Mar-10	0.0647	0.0162
Northeast			
Trout/Embury	9-Mar-10	0.240	0.107
Kisseynew	9-Mar-10	0.0662	0.0132

Table 5. Mean (\pm SD) pH and conductance and mean (\pm SD) concentrations of nitrate, nitrite, nitrate/nitrate and total Kjeldahl nitrogen (TKN) measured in the snow samples collected in March 2010.

Sampling Site	Processing Date	pH		Conductivity		Dissolved Nitrate		Dissolved Nitrite		Dissolved Nitrate/nitrite		TKN	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Analytical Detection Limit		0.10		0.4 / 2		0.005		0.001		0.005		0.05 / 0.2	
		pH units		umhos/cm		mg N/L		mg N/L		mg N/L		mg N/L	
Flin Flon													
Louis	8-Mar-10	6.05	0.07	10.6	2.83	0.161	0.014	<0.0010	-	0.161	0.014	<0.20	-
Hapnot	8-Mar-10	6.60	0.49	200	39.1	0.193	0.004	0.0073	0.0012	0.201	0.003	0.32	0.04
Hidden	8-Mar-10	6.11	0.03	30.7	5.35	0.226	0.061	0.0012	0.0002	0.227	0.061	0.27	0.04
Southeast													
Schist-1	9-Mar-10	6.37	0.56	74.2	36.4	0.139	0.014	<0.0010	-	0.139	0.014	<0.20	-
Schist-2	9-Mar-10	5.99	0.06	31.7	1.92	0.110	0.002	<0.0010	-	0.110	0.002	<0.20	-
Athapapuskow-1	8-Mar-10	6.61	0.16	10.6	5.02	0.163	0.010	<0.0010	-	0.163	0.010	0.19	0.08
Athapapuskow-2	8-Mar-10	4.88	0.06	6.26	0.55	0.163	0.015	<0.0010	-	0.163	0.015	<0.20	-
Simon House	8-Mar-10	8.34	1.04	33.0	18.3	0.135	0.023	<0.0010	-	0.135	0.023	<0.20	-
Cormorant	8-Mar-10	7.52	0.28	20.8	9.20	0.148	0.039	<0.0010	-	0.148	0.039	<0.20	-
Southwest													
Douglas	8-Mar-10	5.62	0.16	7.75	0.74	0.168	0.001	<0.0010	-	0.168	0.001	<0.20	-
Amisk	8-Mar-10	5.13	0.07	4.67	0.37	0.159	0.016	<0.0010	-	0.159	0.016	<0.20	-
Northwest													
Hamell	8-Mar-10	5.41	0.03	6.30	0.50	0.156	0.013	<0.0010	-	0.156	0.013	<0.20	-
Tyrell	8-Mar-10	4.88	0.07	7.11	1.36	0.191	0.029	<0.0010	-	0.191	0.029	<0.20	-
Northeast													
Trout/Embury	9-Mar-10	4.93	0.03	7.01	1.28	0.171	0.037	<0.0010	-	0.171	0.037	<0.20	-
Kisseynew	9-Mar-10	4.88	0.11	6.96	1.08	0.169	0.019	<0.0010	-	0.169	0.019	<0.20	-

Table 6. Mean (\pm SD) deposition of metals (mg/m^2) calculated for snow samples collected in March 2009 and 2010. Values in blue bold were calculated from concentrations that were below the analytical detection limit.

Sampling Site	Processing Date	Hardness (as CaCO_3)		Aluminum		Antimony		Arsenic	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD
2009									
Flin Flon									
LOUL-1	7-Mar-09	1.843	0.389	12.007	3.442	0.258	0.053	7.044	1.563
HAPL-1	7-Mar-09	4.567	0.505	61.808	9.417	0.423	0.012	10.898	1.155
HIDL-1	7-Mar-09	1.957	0.145	15.049	0.907	0.286	0.047	2.938	0.208
Southeast									
SCHL-1	6-Mar-09	14.433	3.668	2.611	0.178	0.220	0.018	4.947	0.165
SCHL-2	6-Mar-09	1.040	0.197	2.476	0.782	0.110	0.030	2.212	0.660
ATHL-1	6-Mar-09	0.563	0.078	1.450	0.356	0.069	0.007	0.835	0.110
ATHL-2	6-Mar-09	17.987	7.380	2.564	1.018	0.051	0.007	0.218	0.064
SIML-1	6-Mar-09	6.363	3.868	1.404	0.176	0.032	0.005	0.079	0.009
CORL-1	6-Mar-09	18.267	6.113	4.261	1.469	0.039	0.007	0.043	0.015
Southwest									
DOUL-1	6-Mar-09	3.997	2.538	3.093	1.279	0.185	0.010	2.500	0.381
AMIL-1	6-Mar-09	0.470	0.192	1.335	0.687	0.031	0.004	0.064	0.003
Northwest									
HAML1	6-Mar-09	2.623	0.948	1.964	0.241	0.139	0.007	2.467	0.037
TYRL-1	6-Mar-09	35.900	19.391	1.319	0.262	0.045	0.003	0.362	0.142
Northeast									
TROL-1	6-Mar-09	1.930	0.904	1.471	0.274	0.065	0.005	0.800	0.040
KISL-1	6-Mar-09	1.123	0.414	0.593	0.120	0.040	0.001	0.093	0.006
2010									
Flin Flon									
LOUL-1	8-Mar-10	4.597	1.856	15.578	3.438	0.149	0.031	5.245	1.003
HAPL-1	8-Mar-10	31.767	5.116	44.512	7.884	0.181	0.014	5.432	0.385
HIDL-1	8-Mar-10	7.740	2.185	25.646	6.734	0.206	0.035	5.435	1.034
Southeast									
SCHL-1	9-Mar-10	21.835	11.125	2.513	0.279	0.054	0.015	1.500	0.258
SCHL-2	9-Mar-10	11.100	0.500	1.381	0.204	0.008	0.000	0.232	0.009
ATHL-1	8-Mar-10	4.630	2.230	1.041	0.141	0.013	0.002	0.364	0.058
ATHL-2	8-Mar-10	0.250	0.000	1.197	0.208	0.004	0.000	0.157	0.012
SIML-1	8-Mar-10	15.840	8.249	1.151	0.308	0.002	0.000	0.052	0.007
CORL-1	8-Mar-10	35.333	3.761	4.789	0.903	0.002	0.000	0.017	0.003
Southwest									
DOUL-1	8-Mar-10	1.420	0.470	4.761	0.496	0.055	0.005	1.531	0.147
AMIL-1	8-Mar-10	0.693	0.146	2.570	0.474	0.003	0.003	0.061	0.008
Northwest									
HAML1	8-Mar-10	0.857	0.152	3.399	0.650	0.066	0.005	1.952	0.192
TYRL-1	8-Mar-10	0.467	0.199	2.443	0.336	0.013	0.004	0.468	0.172
Northeast									
TROL-1	9-Mar-10	0.373	0.214	3.727	0.941	0.050	0.019	1.514	0.578
KISL-1	9-Mar-10	0.410	0.277	1.559	0.085	0.015	0.003	0.532	0.104

Table 6. Continued.

Sampling Site	Processing Date	Barium		Beryllium		Bismuth		Boron	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD
2009									
Flin Flon									
LOUL-1	7-Mar-09	0.608	0.142	0.008	0.000	0.255	0.089	0.038	0.000
HAPL-1	7-Mar-09	1.754	0.081	0.011	0.000	0.470	0.018	0.115	0.009
HIDL-1	7-Mar-09	1.023	0.142	0.007	0.000	0.131	0.007	0.034	0.002
Southeast									
SCHL-1	6-Mar-09	0.364	0.023	0.008	0.000	0.140	0.012	0.213	0.013
SCHL-2	6-Mar-09	0.193	0.043	0.007	0.001	0.103	0.042	0.036	0.005
ATHL-1	6-Mar-09	0.095	0.008	0.007	0.000	0.017	0.001	0.034	0.001
ATHL-2	6-Mar-09	0.232	0.097	0.008	0.002	0.021	0.005	0.228	0.120
SIML-1	6-Mar-09	0.089	0.040	0.006	0.001	0.016	0.003	0.048	0.035
CORL-1	6-Mar-09	0.184	0.042	0.007	0.001	0.017	0.003	0.048	0.018
Southwest									
DOUL-1	6-Mar-09	0.337	0.072	0.008	0.000	0.091	0.015	0.040	0.000
AMIL-1	6-Mar-09	0.039	0.003	0.006	0.001	0.014	0.002	0.028	0.003
Northwest									
HAML1	6-Mar-09	0.207	0.049	0.007	0.000	0.045	0.001	0.037	0.000
TYRL-1	6-Mar-09	0.247	0.069	0.007	0.000	0.018	0.001	0.886	0.624
Northeast									
TROL-1	6-Mar-09	0.103	0.019	0.006	0.000	0.055	0.006	0.028	0.001
KISL-1	6-Mar-09	0.055	0.008	0.007	0.000	0.018	0.000	0.036	0.001
2010									
Flin Flon									
LOUL-1	8-Mar-10	0.785	0.219	0.009	0.001	0.021	0.002	0.171	0.012
HAPL-1	8-Mar-10	1.944	0.260	0.009	0.001	0.024	0.002	0.513	0.088
HIDL-1	8-Mar-10	1.401	0.379	0.008	0.000	0.019	0.000	0.155	0.001
Southeast									
SCHL-1	9-Mar-10	0.241	0.103	0.007	0.001	0.017	0.002	0.397	0.246
SCHL-2	9-Mar-10	0.062	0.003	0.006	0.001	0.015	0.002	0.118	0.013
ATHL-1	8-Mar-10	0.065	0.013	0.006	0.000	0.014	0.001	0.156	0.081
ATHL-2	8-Mar-10	0.028	0.002	0.007	0.001	0.017	0.001	0.138	0.012
SIML-1	8-Mar-10	0.108	0.069	0.006	0.000	0.015	0.000	0.225	0.089
CORL-1	8-Mar-10	0.108	0.057	0.008	0.001	0.019	0.002	0.204	0.077
Southwest									
DOUL-1	8-Mar-10	0.205	0.043	0.007	0.000	0.017	0.001	0.134	0.006
AMIL-1	8-Mar-10	0.054	0.016	0.006	0.000	0.016	0.001	0.130	0.006
Northwest									
HAML1	8-Mar-10	0.156	0.011	0.008	0.001	0.019	0.001	0.155	0.011
TYRL-1	8-Mar-10	0.095	0.035	0.009	0.001	0.022	0.003	0.177	0.025
Northeast									
TROL-1	9-Mar-10	0.172	0.091	0.008	0.000	0.021	0.000	0.166	0.000
KISL-1	9-Mar-10	0.061	0.014	0.008	0.000	0.021	0.000	0.166	0.000

Table 6. Continued.

Sampling Site	Processing Date	Cadmium		Calcium		Dissolved Chloride		Chromium	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD
2009									
Flin Flon									
LOUL-1	7-Mar-09	6.954	1.569	29.492	5.749	80.543	11.318	0.076	0.009
HAPL-1	7-Mar-09	9.025	0.989	96.138	13.966	265.204	16.624	0.186	0.020
HIDL-1	7-Mar-09	5.148	0.316	31.838	5.501	38.183	6.106	0.049	0.004
Southeast									
SCHL-1	6-Mar-09	10.859	3.279	351.527	124.624	631.952	62.378	0.018	0.002
SCHL-2	6-Mar-09	3.726	1.478	23.950	6.911	17.133	6.251	0.012	0.002
ATHL-1	6-Mar-09	1.003	0.130	12.888	1.723	6.786	0.240	0.014	0.003
ATHL-2	6-Mar-09	0.228	0.078	427.247	199.982	404.173	237.281	0.018	0.006
SIML-1	6-Mar-09	0.085	0.011	44.540	12.379	18.681	3.016	0.018	0.004
CORL-1	6-Mar-09	0.049	0.020	253.712	100.746	15.005	0.619	0.017	0.004
Southwest									
DOUL-1	6-Mar-09	4.287	1.087	100.560	68.835	103.148	15.812	0.018	0.008
AMIL-1	6-Mar-09	0.057	0.005	8.036	0.921	5.606	0.634	0.008	0.001
Northwest									
HAML1	6-Mar-09	3.958	0.166	59.233	20.614	32.503	8.690	0.018	0.002
TYRL-1	6-Mar-09	0.332	0.133	286.374	73.509	166.171	140.850	0.014	0.008
Northeast									
TROL-1	6-Mar-09	1.336	0.023	33.363	17.119	5.700	0.262	0.015	0.002
KISL-1	6-Mar-09	0.085	0.007	21.040	7.221	7.129	0.153	0.010	0.001
2010									
Flin Flon									
LOUL-1	8-Mar-10	8.526	1.261	92.590	39.557	18.635	2.496	0.045	0.020
HAPL-1	8-Mar-10	8.907	0.242	802.175	161.445	4600.784	1332.682	0.202	0.036
HIDL-1	8-Mar-10	5.635	1.267	178.638	60.270	31.477	1.017	0.063	0.017
Southeast									
SCHL-1	9-Mar-10	2.239	0.581	458.547	260.039	869.716	565.805	0.017	0.002
SCHL-2	9-Mar-10	0.248	0.003	234.425	28.319	108.766	10.933	0.015	0.002
ATHL-1	8-Mar-10	0.468	0.052	52.777	9.758	12.266	8.496	0.014	0.001
ATHL-2	8-Mar-10	0.166	0.012	6.205	0.658	3.459	0.291	0.017	0.001
SIML-1	8-Mar-10	0.045	0.004	138.669	100.233	15.960	4.365	0.015	0.000
CORL-1	8-Mar-10	0.009	0.003	527.699	89.678	11.532	2.127	0.019	0.002
Southwest									
DOUL-1	8-Mar-10	2.409	0.248	22.373	9.457	43.668	4.248	0.017	0.001
AMIL-1	8-Mar-10	0.069	0.009	10.471	2.073	3.245	0.145	0.016	0.001
Northwest									
HAML1	8-Mar-10	3.479	0.208	14.294	2.634	34.614	3.302	0.019	0.001
TYRL-1	8-Mar-10	0.771	0.390	11.971	4.670	4.429	0.632	0.022	0.003
Northeast									
TROL-1	9-Mar-10	2.140	1.065	7.641	3.438	4.153	0.000	0.021	0.000
KISL-1	9-Mar-10	0.690	0.160	9.579	5.553	4.153	0.000	0.021	0.000

Table 6. Continued.

Sampling Site	Processing Date	Cobalt		Copper		Iron		Lead	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD
2009									
Flin Flon									
LOUL-1	7-Mar-09	0.146	0.028	67.364	11.309	82.390	23.081	25.347	5.195
HAPL-1	7-Mar-09	0.376	0.049	131.735	5.309	311.822	43.101	34.879	2.146
HIDL-1	7-Mar-09	0.224	0.018	118.424	13.398	150.373	18.364	18.198	1.646
Southeast									
SCHL-1	6-Mar-09	0.042	0.002	30.922	1.958	20.630	1.390	23.281	1.372
SCHL-2	6-Mar-09	0.013	0.001	10.475	2.349	6.580	1.624	11.308	3.255
ATHL-1	6-Mar-09	0.014	0.001	9.086	0.922	6.390	1.249	5.352	0.702
ATHL-2	6-Mar-09	0.004	0.001	1.724	0.454	2.827	0.554	0.976	0.331
SIML-1	6-Mar-09	0.003	0.001	0.726	0.035	2.896	2.030	0.411	0.055
CORL-1	6-Mar-09	0.003	0.001	0.233	0.031	6.147	4.275	0.178	0.053
Southwest									
DOUL-1	6-Mar-09	0.082	0.017	52.843	8.320	32.516	11.100	13.413	2.303
AMIL-1	6-Mar-09	0.003	0.000	1.087	0.139	1.716	0.174	0.385	0.016
Northwest									
HAML1	6-Mar-09	0.027	0.004	16.642	1.317	11.410	2.710	14.876	0.928
TYRL-1	6-Mar-09	0.021	0.011	1.595	0.365	5.398	0.932	1.314	0.408
Northeast									
TROL-1	6-Mar-09	0.010	0.001	7.816	0.978	5.034	0.270	5.253	0.111
KISL-1	6-Mar-09	0.004	0.000	0.510	0.039	0.690	0.292	0.494	0.036
2010									
Flin Flon									
LOUL-1	8-Mar-10	0.111	0.032	77.976	20.120	67.068	19.879	18.933	3.338
HAPL-1	8-Mar-10	0.179	0.024	103.062	14.859	128.159	24.587	16.535	1.078
HIDL-1	8-Mar-10	0.309	0.095	181.686	56.519	185.284	65.518	17.389	2.092
Southeast									
SCHL-1	9-Mar-10	0.018	0.003	12.567	1.353	11.746	2.084	4.608	0.567
SCHL-2	9-Mar-10	0.003	0.000	2.316	0.153	3.401	0.126	0.769	0.016
ATHL-1	8-Mar-10	0.003	0.000	3.270	0.526	2.687	0.496	1.162	0.161
ATHL-2	8-Mar-10	0.003	0.000	1.288	0.129	1.962	0.250	0.578	0.033
SIML-1	8-Mar-10	0.003	0.000	0.295	0.019	0.983	0.165	0.113	0.014
CORL-1	8-Mar-10	0.004	0.000	0.156	0.085	5.202	1.178	0.045	0.011
Southwest									
DOUL-1	8-Mar-10	0.037	0.002	28.708	1.562	21.767	1.548	6.405	0.469
AMIL-1	8-Mar-10	0.003	0.000	0.693	0.075	3.308	0.685	0.206	0.022
Northwest									
HAML1	8-Mar-10	0.026	0.003	19.303	1.431	15.352	2.212	8.875	0.613
TYRL-1	8-Mar-10	0.006	0.003	4.088	1.664	6.049	1.701	2.188	0.943
Northeast									
TROL-1	9-Mar-10	0.038	0.015	27.035	12.889	25.125	9.328	6.447	2.636
KISL-1	9-Mar-10	0.004	0.000	4.726	0.976	4.457	0.676	2.025	0.311

Table 6. Continued.

Sampling Site	Processing Date	Lithium		Magnesium		Manganese		Mercury	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD
2009									
Flin Flon									
LOUL-1	7-Mar-09	0.189	0.002	15.913	4.035	1.207	0.154	1.168	0.832
HAPL-1	7-Mar-09	0.269	0.009	61.253	8.537	3.162	0.474	1.401	0.565
HIDL-1	7-Mar-09	0.168	0.012	12.692	0.957	1.727	0.177	0.164	0.054
Southeast									
SCHL-1	6-Mar-09	0.197	0.012	64.532	3.797	0.261	0.012	0.298	0.159
SCHL-2	6-Mar-09	0.180	0.023	3.919	1.215	0.532	0.072	0.020	0.001
ATHL-1	6-Mar-09	0.170	0.006	1.468	0.185	0.082	0.007	0.021	0.005
ATHL-2	6-Mar-09	0.207	0.047	106.999	62.641	0.183	0.072	0.010	0.015
SIML-1	6-Mar-09	0.156	0.025	75.614	72.002	0.095	0.023	0.000	0.000
CORL-1	6-Mar-09	0.169	0.033	144.511	57.803	0.333	0.117	0.000	0.000
Southwest									
DOUL-1	6-Mar-09	0.198	0.001	15.994	7.138	0.308	0.020	0.143	0.060
AMIL-1	6-Mar-09	0.140	0.016	2.311	0.106	0.061	0.002	0.002	0.001
Northwest									
HAML1	6-Mar-09	0.187	0.001	11.822	4.912	0.178	0.008	0.022	0.005
TYRL-1	6-Mar-09	0.720	0.620	445.461	338.990	1.579	0.242	0.007	0.007
Northeast									
TROL-1	6-Mar-09	0.142	0.007	6.860	3.548	0.077	0.002	0.008	0.002
KISL-1	6-Mar-09	0.178	0.004	6.537	2.462	0.057	0.006	0.000	0.000
2010									
Flin Flon									
LOUL-1	8-Mar-10	0.214	0.015	37.733	8.612	0.872	0.103	0.398	0.215
HAPL-1	8-Mar-10	0.237	0.015	247.891	66.172	2.242	0.203	0.188	0.103
HIDL-1	8-Mar-10	0.193	0.001	37.086	5.361	2.469	0.303	0.284	0.058
Southeast									
SCHL-1	9-Mar-10	0.171	0.023	101.039	64.477	0.179	0.072	0.002	0.000
SCHL-2	9-Mar-10	0.148	0.016	17.380	1.679	0.082	0.006	0.000	0.000
ATHL-1	8-Mar-10	0.141	0.008	32.362	28.817	0.061	0.010	0.002	0.000
ATHL-2	8-Mar-10	0.173	0.015	2.244	0.209	0.060	0.006	0.001	0.000
SIML-1	8-Mar-10	0.154	0.002	151.715	61.602	0.050	0.007	0.000	0.000
CORL-1	8-Mar-10	0.190	0.020	331.828	50.447	0.318	0.070	0.000	0.000
Southwest									
DOUL-1	8-Mar-10	0.167	0.008	9.534	2.185	0.371	0.347	0.023	0.008
AMIL-1	8-Mar-10	0.162	0.007	4.527	0.646	0.080	0.011	0.001	0.000
Northwest									
HAML1	8-Mar-10	0.194	0.014	7.442	1.404	0.162	0.020	0.012	0.001
TYRL-1	8-Mar-10	0.221	0.032	3.994	1.363	0.187	0.078	0.000	0.000
Northeast									
TROL-1	9-Mar-10	0.208	0.000	3.758	1.477	0.129	0.051	0.001	0.001
KISL-1	9-Mar-10	0.208	0.000	3.126	1.826	0.099	0.024	0.000	0.000

Table 6. Continued.

Sampling Site	Processing Date	Molybdenum		Nickel		Phosphorus		Potassium	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD
2009									
Flin Flon									
LOUL-1	7-Mar-09	0.077	0.024	0.064	0.009	11.329	0.132	4.915	0.844
HAPL-1	7-Mar-09	0.169	0.005	0.144	0.017	16.132	0.510	20.965	2.109
HIDL-1	7-Mar-09	0.067	0.004	0.082	0.005	10.072	0.747	5.264	0.505
Southeast									
SCHL-1	6-Mar-09	0.063	0.009	0.020	0.003	11.842	0.711	30.428	4.921
SCHL-2	6-Mar-09	0.024	0.006	0.012	0.005	10.830	1.389	2.613	1.592
ATHL-1	6-Mar-09	0.007	0.001	0.012	0.008	10.180	0.360	1.697	0.060
ATHL-2	6-Mar-09	0.008	0.001	0.012	0.004	12.404	2.818	26.967	13.678
SIML-1	6-Mar-09	0.002	0.001	0.007	0.002	9.341	1.508	5.897	4.730
CORL-1	6-Mar-09	0.002	0.001	0.038	0.046	10.124	1.985	7.139	2.364
Southwest									
DOUL-1	6-Mar-09	0.033	0.001	0.017	0.004	11.902	0.031	4.228	3.884
AMIL-1	6-Mar-09	0.001	0.000	0.003	0.000	8.410	0.951	1.402	0.158
Northwest									
HAML1	6-Mar-09	0.017	0.001	0.016	0.010	11.249	0.086	4.829	2.608
TYRL-1	6-Mar-09	0.014	0.010	0.025	0.014	10.509	0.380	164.626	134.915
Northeast									
TROL-1	6-Mar-09	0.010	0.001	0.018	0.005	8.550	0.393	2.265	1.520
KISL-1	6-Mar-09	0.002	0.000	0.004	0.000	10.693	0.230	1.782	0.038
2010									
Flin Flon									
LOUL-1	8-Mar-10	0.014	0.003	0.058	0.003	12.832	0.929	6.280	3.836
HAPL-1	8-Mar-10	0.039	0.006	0.151	0.025	14.197	0.912	429.360	132.294
HIDL-1	8-Mar-10	0.023	0.006	0.107	0.011	11.609	0.045	19.795	8.038
Southeast									
SCHL-1	9-Mar-10	0.014	0.007	0.013	0.003	10.233	1.398	43.786	28.021
SCHL-2	9-Mar-10	0.001	0.000	0.004	0.003	8.872	0.960	5.423	0.491
ATHL-1	8-Mar-10	0.001	0.000	0.003	0.000	8.458	0.471	10.180	9.523
ATHL-2	8-Mar-10	0.002	0.000	0.003	0.000	10.377	0.874	2.912	1.924
SIML-1	8-Mar-10	0.002	0.000	0.003	0.000	9.214	0.111	14.015	5.651
CORL-1	8-Mar-10	0.003	0.001	0.012	0.002	11.382	1.197	5.400	3.205
Southwest									
DOUL-1	8-Mar-10	0.004	0.001	0.016	0.003	10.029	0.484	2.589	1.597
AMIL-1	8-Mar-10	0.003	0.002	0.008	0.008	9.734	0.435	1.622	0.072
Northwest									
HAML1	8-Mar-10	0.004	0.001	0.015	0.002	11.630	0.829	1.938	0.138
TYRL-1	8-Mar-10	0.007	0.005	0.007	0.006	13.287	1.896	2.214	0.316
Northeast									
TROL-1	9-Mar-10	0.003	0.002	0.009	0.005	12.459	0.000	2.076	0.000
KISL-1	9-Mar-10	0.002	0.000	0.004	0.000	12.459	0.000	2.076	0.000

Table 6. Continued.

Sampling Site	Processing Date	Selenium		Silicon		Silver		Sodium	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD
2009									
Flin Flon									
LOUL-1	7-Mar-09	0.280	0.126	20.556	5.573	0.097	0.024	21.123	0.256
HAPL-1	7-Mar-09	0.426	0.071	99.193	11.336	0.213	0.010	155.684	9.742
HIDL-1	7-Mar-09	0.139	0.009	35.355	2.468	0.147	0.035	20.795	1.585
Southeast									
SCHL-1	6-Mar-09	0.105	0.009	4.645	0.353	0.046	0.002	199.518	24.435
SCHL-2	6-Mar-09	0.034	0.008	2.505	1.406	0.022	0.008	7.420	2.248
ATHL-1	6-Mar-09	0.014	0.005	1.697	0.060	0.011	0.003	5.279	0.617
ATHL-2	6-Mar-09	0.009	0.001	6.620	2.613	0.002	0.000	148.776	76.438
SIML-1	6-Mar-09	0.003	0.001	4.444	1.562	0.001	0.000	23.609	11.870
CORL-1	6-Mar-09	0.005	0.002	14.961	4.859	0.001	0.000	12.669	1.206
Southwest									
DOUL-1	6-Mar-09	0.083	0.012	6.214	1.566	0.060	0.032	77.910	12.441
AMIL-1	6-Mar-09	0.003	0.000	1.402	0.158	0.001	0.000	3.670	0.318
Northwest									
HAML1	6-Mar-09	0.043	0.005	2.574	1.209	0.019	0.004	22.478	4.387
TYRL-1	6-Mar-09	0.006	0.005	133.034	30.687	0.003	0.001	440.370	359.799
Northeast									
TROL-1	6-Mar-09	0.011	0.002	4.048	1.506	0.010	0.000	7.754	2.377
KISL-1	6-Mar-09	0.004	0.000	1.782	0.038	0.000	0.000	7.361	2.106
2010									
Flin Flon									
LOUL-1	8-Mar-10	0.131	0.017	27.321	6.522	0.067	0.021	16.689	2.496
HAPL-1	8-Mar-10	0.211	0.029	104.739	24.217	0.084	0.013	2234.634	641.981
HIDL-1	8-Mar-10	0.238	0.037	46.955	13.894	0.138	0.045	27.351	1.696
Southeast									
SCHL-1	9-Mar-10	0.037	0.001	7.561	1.992	0.014	0.002	273.256	175.140
SCHL-2	9-Mar-10	0.015	0.002	4.493	0.341	0.003	0.000	36.926	3.313
ATHL-1	8-Mar-10	0.014	0.001	2.045	1.171	0.003	0.000	18.896	14.900
ATHL-2	8-Mar-10	0.017	0.001	1.730	0.146	0.001	0.000	3.751	0.330
SIML-1	8-Mar-10	0.015	0.000	8.310	4.234	0.000	0.000	30.484	10.724
CORL-1	8-Mar-10	0.019	0.002	15.447	5.282	0.000	0.000	11.196	6.827
Southwest									
DOUL-1	8-Mar-10	0.057	0.005	8.224	1.137	0.023	0.002	30.943	3.276
AMIL-1	8-Mar-10	0.016	0.001	4.993	0.828	0.001	0.001	2.873	0.064
Northwest									
HAML1	8-Mar-10	0.044	0.006	6.349	0.962	0.018	0.003	25.040	2.562
TYRL-1	8-Mar-10	0.022	0.003	2.956	0.974	0.004	0.004	4.415	1.155
Northeast									
TROL-1	9-Mar-10	0.033	0.021	7.434	1.826	0.021	0.007	3.322	1.240
KISL-1	9-Mar-10	0.021	0.000	2.076	0.000	0.004	0.001	3.738	1.636

Table 6. Continued.

Sampling Site	Processing Date	Strontium		Dissolved Sulfate		Thallium		Tin	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD
2009									
Flin Flon									
LOUL-1	7-Mar-09	0.130	0.011	245.968	45.219	0.032	0.008	0.071	0.008
HAPL-1	7-Mar-09	0.362	0.024	342.233	41.338	0.046	0.004	0.119	0.026
HIDL-1	7-Mar-09	0.208	0.021	194.715	21.641	0.021	0.001	0.054	0.008
Southeast									
SCHL-1	6-Mar-09	3.340	0.659	590.788	251.491	0.034	0.008	0.051	0.015
SCHL-2	6-Mar-09	0.123	0.047	66.866	16.951	0.011	0.002	0.027	0.008
ATHL-1	6-Mar-09	0.031	0.008	16.966	0.600	0.005	0.001	0.022	0.015
ATHL-2	6-Mar-09	2.919	1.468	643.945	343.215	0.002	0.000	0.027	0.020
SIML-1	6-Mar-09	0.090	0.029	43.412	19.887	0.002	0.000	0.013	0.017
CORL-1	6-Mar-09	0.213	0.049	91.350	9.676	0.002	0.000	0.015	0.006
Southwest									
DOUL-1	6-Mar-09	0.192	0.108	154.724	22.202	0.018	0.003	0.039	0.019
AMIL-1	6-Mar-09	0.023	0.003	14.016	1.585	0.001	0.000	0.012	0.012
Northwest									
HAML1	6-Mar-09	0.133	0.041	99.525	9.055	0.020	0.001	0.026	0.002
TYRL-1	6-Mar-09	1.895	0.680	895.970	718.860	0.002	0.000	0.010	0.001
Northeast									
TROL-1	6-Mar-09	0.082	0.036	55.704	3.721	0.005	0.000	0.020	0.015
KISL-1	6-Mar-09	0.072	0.024	17.822	0.384	0.002	0.000	0.008	0.004
2010									
Flin Flon									
LOUL-1	8-Mar-10	0.161	0.061	219.017	74.750	0.025	0.005	0.057	0.013
HAPL-1	8-Mar-10	1.545	0.309	737.636	112.064	0.037	0.001	0.056	0.005
HIDL-1	8-Mar-10	0.376	0.045	676.109	140.181	0.026	0.008	0.051	0.011
Southeast									
SCHL-1	9-Mar-10	4.133	2.398	604.448	311.838	0.006	0.002	0.020	0.003
SCHL-2	9-Mar-10	1.595	0.186	448.285	60.202	0.001	0.000	0.005	0.003
ATHL-1	8-Mar-10	0.149	0.045	76.064	45.707	0.001	0.000	0.003	0.000
ATHL-2	8-Mar-10	0.019	0.004	17.296	1.456	0.002	0.000	0.006	0.004
SIML-1	8-Mar-10	0.250	0.171	66.669	21.371	0.002	0.000	0.003	0.000
CORL-1	8-Mar-10	0.290	0.111	40.138	18.450	0.002	0.000	0.004	0.000
Southwest									
DOUL-1	8-Mar-10	0.048	0.020	70.285	9.776	0.007	0.001	0.018	0.004
AMIL-1	8-Mar-10	0.029	0.005	16.223	0.725	0.002	0.000	0.004	0.002
Northwest									
HAML1	8-Mar-10	0.030	0.004	62.302	4.317	0.010	0.001	0.019	0.002
TYRL-1	8-Mar-10	0.040	0.015	33.553	21.890	0.002	0.000	0.004	0.001
Northeast									
TROL-1	9-Mar-10	0.029	0.012	62.293	27.535	0.007	0.003	0.021	0.008
KISL-1	9-Mar-10	0.033	0.020	37.930	14.889	0.002	0.000	0.008	0.003

Table 6. Continued.

Sampling Site	Processing Date	Titanium		Uranium		Vanadium		Zinc	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD
2009									
Flin Flon									
LOUL-1	7-Mar-09	0.378	0.004	0.001	0.000	0.064	0.021	99.235	12.097
HAPL-1	7-Mar-09	2.296	0.260	0.005	0.001	0.247	0.045	172.056	5.304
HIDL-1	7-Mar-09	0.336	0.025	0.002	0.000	0.122	0.010	154.909	30.004
Southeast									
SCHL-1	6-Mar-09	0.395	0.024	0.000	0.000	0.016	0.006	55.142	10.764
SCHL-2	6-Mar-09	0.361	0.046	0.000	0.000	0.007	0.002	16.870	4.540
ATHL-1	6-Mar-09	0.339	0.012	0.000	0.000	0.004	0.002	9.212	0.991
ATHL-2	6-Mar-09	0.413	0.094	0.001	0.001	0.006	0.001	2.152	0.546
SIML-1	6-Mar-09	0.311	0.050	0.001	0.001	0.003	0.002	1.139	0.074
CORL-1	6-Mar-09	0.337	0.066	0.001	0.000	0.011	0.005	0.550	0.035
Southwest									
DOUL-1	6-Mar-09	0.397	0.001	0.000	0.000	0.013	0.002	31.059	4.609
AMIL-1	6-Mar-09	0.280	0.032	0.000	0.000	0.002	0.001	0.779	0.040
Northwest									
HAML1	6-Mar-09	0.375	0.003	0.000	0.000	0.008	0.001	33.694	1.213
TYRL-1	6-Mar-09	0.350	0.013	0.001	0.001	0.009	0.006	2.118	0.475
Northeast									
TROL-1	6-Mar-09	0.285	0.013	0.000	0.000	0.003	0.001	9.633	0.356
KISL-1	6-Mar-09	0.356	0.008	0.000	0.000	0.002	0.000	0.956	0.069
2010									
Flin Flon									
LOUL-1	8-Mar-10	0.559	0.196	0.001	0.000	0.076	0.011	70.456	10.104
HAPL-1	8-Mar-10	2.759	0.510	0.003	0.000	0.206	0.025	114.740	5.765
HIDL-1	8-Mar-10	0.852	0.431	0.002	0.001	0.146	0.030	172.109	18.811
Southeast									
SCHL-1	9-Mar-10	0.341	0.047	0.000	0.000	0.030	0.012	20.206	4.327
SCHL-2	9-Mar-10	0.296	0.032	0.000	0.000	0.006	0.001	3.091	0.118
ATHL-1	8-Mar-10	0.282	0.016	0.000	0.000	0.006	0.000	3.945	0.464
ATHL-2	8-Mar-10	0.346	0.029	0.000	0.000	0.007	0.001	1.663	0.058
SIML-1	8-Mar-10	0.307	0.004	0.002	0.001	0.006	0.000	0.577	0.021
CORL-1	8-Mar-10	0.379	0.040	0.001	0.000	0.013	0.006	0.570	0.158
Southwest									
DOUL-1	8-Mar-10	0.334	0.016	0.000	0.000	0.020	0.002	20.230	2.173
AMIL-1	8-Mar-10	0.324	0.014	0.001	0.000	0.013	0.011	1.097	0.138
Northwest									
HAML1	8-Mar-10	0.388	0.028	0.000	0.000	0.019	0.003	25.028	1.115
TYRL-1	8-Mar-10	0.443	0.063	0.000	0.000	0.009	0.001	5.850	2.164
Northeast									
TROL-1	9-Mar-10	0.415	0.000	0.000	0.000	0.016	0.007	19.962	8.900
KISL-1	9-Mar-10	0.415	0.000	0.000	0.000	0.008	0.000	5.498	1.093

Table 7. Mean (\pm SD) pH and conductance, and mean (\pm SD) deposition of nitrate, nitrite, nitrate/nitrite, and total Kjeldahl nitrogen (TKN) calculated for snow samples collected in March 2009 and 2010. Values in blue bold were calculated from concentrations that were below the analytical detection limit.

Sampling Site	Processing Date	pH		Conductivity		Dissolved Nitrate		Dissolved Nitrite	
		Mean pH units	SD	Mean μ mhos/cm	SD	Mean mg/m ²	SD	Mean mg/m ²	SD
2009									
Flin Flon									
Louis	7-Mar-09	5.81	0.04	12.70	1.40				
Hapnot	7-Mar-09	6.22	0.02	21.40	0.98				
Hidden	7-Mar-09	6.36	0.04	13.50	0.10				
Southeast									
Schist-1	6-Mar-09	6.07	0.18	55.67	9.64				
Schist-2	6-Mar-09	5.38	0.03	6.83	0.68				
Athapap-1	6-Mar-09	5.31	0.04	5.10	0.26				
Athapap-2	6-Mar-09	7.09	0.27	53.20	20.19				
Simon House	6-Mar-09	7.05	0.42	14.90	8.78				
Cormorant	6-Mar-09	7.26	0.15	19.75	5.59				
Southwest									
Douglas	6-Mar-09	6.44	0.39	17.40	6.52				
Amisk	6-Mar-09	5.06	0.04	5.43	0.15				
Northwest									
Hamell	6-Mar-09	6.34	0.28	10.20	1.84				
Tyrell	6-Mar-09	8.18	0.70	106.90	63.67				
Northeast									
Trout/Embury	6-Mar-09	6.23	0.36	6.20	1.35				
Kisseynew	6-Mar-09	5.68	0.33	4.23	0.21				
2010									
Flin Flon									
Louis	8-Mar-10	6.05	0.07	10.6	2.83	13.715	0.199	0.043	0.003
Hapnot	8-Mar-10	6.60	0.49	200	39.1	18.290	1.032	0.697	0.151
Hidden	8-Mar-10	6.11	0.03	30.7	5.35	17.454	4.644	0.090	0.016
Southeast									
Schist-1	9-Mar-10	6.37	0.56	74.2	36.4	9.554	2.154	0.034	0.005
Schist-2	9-Mar-10	5.99	0.06	31.7	1.92	6.494	0.678	0.030	0.003
Athapap-1	8-Mar-10	6.61	0.16	10.6	5.02	9.176	0.852	0.028	0.002
Athapap-2	8-Mar-10	4.88	0.06	6.26	0.55	11.252	1.027	0.035	0.003
Simon House	8-Mar-10	8.34	1.04	33.0	18.3	8.302	1.339	0.031	0.000
Cormorant	8-Mar-10	7.52	0.28	20.8	9.20	11.099	2.059	0.038	0.004
Southwest									
Douglas	8-Mar-10	5.62	0.16	7.75	0.74	11.253	0.480	0.033	0.002
Amisk	8-Mar-10	5.13	0.07	4.67	0.37	10.286	0.620	0.032	0.001
Northwest									
Hamell	8-Mar-10	5.41	0.03	6.30	0.50	12.030	0.575	0.039	0.003
Tyrell	8-Mar-10	4.88	0.07	7.11	1.36	17.151	4.775	0.044	0.006
Northeast									
Trout/Embury	9-Mar-10	4.93	0.03	7.01	1.28	14.203	3.075	0.042	0.000
Kisseynew	9-Mar-10	4.88	0.11	6.96	1.08	14.037	1.538	0.042	0.000

Table 7. Continued

Sampling Site	Processing Date	Dissolved Nitrate/nitrite		TKN	
		Mean mg/m ²	SD	Mean mg/m ²	SD
2009					
Flin Flon					
Louis	7-Mar-09	13.44	0.32	7.55	0.09
Hapnot	7-Mar-09	16.07	0.93	18.16	13.15
Hidden	7-Mar-09	10.20	0.55	8.90	3.68
Southeast					
Schist-1	6-Mar-09	11.94	1.12	7.89	0.47
Schist-2	6-Mar-09	10.79	2.07	7.22	0.93
Athapap-1	6-Mar-09	9.56	1.28	6.79	0.24
Athapap-2	6-Mar-09	15.48	7.17	8.27	1.88
Simon House	6-Mar-09	11.33	2.86	6.23	1.01
Cormorant	6-Mar-09	15.61	0.89	7.50	0.31
Southwest					
Douglas	6-Mar-09	12.99	0.33	10.57	4.56
Amisk	6-Mar-09	8.20	0.76	5.61	0.63
Northwest					
Hamell	6-Mar-09	11.88	0.49	7.50	0.06
Tyrell	6-Mar-09	14.18	5.23	16.57	11.24
Northeast					
Trout/Embury	6-Mar-09	9.21	0.14	5.70	0.26
Kisseynew	6-Mar-09	8.58	0.36	7.13	0.15
2010					
Flin Flon					
Louis	8-Mar-10	13.715	0.199	11.788	5.857
Hapnot	8-Mar-10	19.019	1.140	29.918	4.539
Hidden	8-Mar-10	17.532	4.643	21.161	2.793
Southeast					
Schist-1	9-Mar-10	9.554	2.154	6.822	0.932
Schist-2	9-Mar-10	6.494	0.678	5.379	0.831
Athapap-1	8-Mar-10	9.176	0.852	10.669	4.721
Athapap-2	8-Mar-10	11.252	1.027	6.918	0.583
Simon House	8-Mar-10	8.302	1.339	6.142	0.074
Cormorant	8-Mar-10	11.099	2.059	7.588	0.798
Southwest					
Douglas	8-Mar-10	11.253	0.480	6.686	0.323
Amisk	8-Mar-10	10.286	0.620	6.489	0.290
Northwest					
Hamell	8-Mar-10	12.030	0.575	7.754	0.553
Tyrell	8-Mar-10	17.151	4.775	8.858	1.264
Northeast					
Trout/Embury	9-Mar-10	14.203	3.075	8.306	0.000
Kisseynew	9-Mar-10	14.037	1.538	8.306	0.000

Table 8. Change¹ in routine parameters and deposition rates of nutrients between 2009 and 2010.

Sampling Site	pH	Conductivity	Dissolved Nitrate/nitrite	TKN
Flin Flon				
Louis	↑	-	-	-
Hapnot	-	↑	-	-
Hidden	↓	↑	-	-
Southeast				
Schist-1	-	-	-	-
Schist-2	↑	↑	-	-
Athapap-1	↑	-	-	-
Athapap-2	↓	↓	-	-
Simon House	-	-	-	-
Cormorant	-	-	-	-
Southwest				
Douglas	-	-	↓	-
Amisk	-	-	-	-
Northwest				
Hamell	↓	-	-	-
Tyrell	↓	-	-	-
Northeast				
Trout/Embury	↓	-	-	↑
Kisseynew	-	↑	↑	↑

¹ A change was determined by comparison of the mean \pm 2SD for each period; “-” represents no change.

Table 9. Change¹ in the deposition rates of metals between 2009 and 2010.

Sampling Site	Hardness (as CaCO3)	Aluminum	Antimony	Arsenic	Barium	Beryllium	Bismuth	Boron	Cadmium	Calcium	Dissolved Chloride	Chromium
Flin Flon												
LOUL-1	-	-	-	-	-	-	↓	↑	-	-	↓	-
HAPL-1	↑	-	↓	↓	-	-	↓	↑	-	↑	↑	-
HIDL-1	↑	-	-	↑	-	-	↓	↑	-	↑	-	-
Southeast												
SCHL-1	-	-	↓	↓	-	-	↓	-	↓	-	-	-
SCHL-2	↑	-	↓	↓	↓	-	↓	↑	↓	↑	↑	-
ATHL-1	-	-	↓	↓	-	-	-	-	↓	↑	-	-
ATHL-2	↓	-	↓	-	↓	-	-	-	-	↓	-	-
SIML-1	-	-	↓	-	-	-	-	-	↓	-	-	-
CORL-1	-	-	↓	-	-	-	-	-	-	-	-	-
Southwest												
DOUL-1	-	-	↓	-	-	↓	↓	↑	-	-	↓	-
AMIL-1	-	-	↓	-	-	-	-	↑	-	-	↓	↑
Northwest												
HAML1	-	-	↓	↓	-	-	↓	↑	-	-	-	-
TYRL-1	-	-	↓	-	-	-	-	-	-	↓	-	-
Northeast												
TROL-1	-	-	-	-	-	↑	↓	↑	-	-	↓	↑
KISL-1	-	↑	↓	↑	-	↑	↑	↑	↑	-	↓	↑

Table 9. Continued

Sampling Site	Cobalt	Copper	Iron	Lead	Lithium	Magnesium	Manganese	Mercury	Molybdenum	Nickel	Phosphorus	Potassium
Flin Flon												
LOUL-1	-	-	-	-	-	-	-	-	↓	-	-	-
HAPL-1	↓	-	↓	↓	-	↑	-	-	↓	-	-	↑
HIDL-1	-	-	-	-	-	↑	-	-	↓	-	-	-
Southeast												
SCHL-1	↓	↓	↓	↓	-	-	-	-	↓	-	-	-
SCHL-2	↓	↓	-	↓	-	↑	↓	↓	↓	-	-	-
ATHL-1	↓	↓	↓	↓	↓	-	-	↓	↓	-	↓	-
ATHL-2	-	-	-	-	-	-	-	-	↓	↓	-	-
SIML-1	-	↓	-	↓	-	-	-	-	-	-	-	-
CORL-1	-	-	-	↓	-	-	-	-	-	-	-	-
Southwest												
DOUL-1	↓	↓	-	↓	↓	-	-	-	↓	-	↓	-
AMIL-1	-	-	-	↓	-	↑	-	-	-	-	-	-
Northwest												
HAML1	-	-	-	↓	-	-	-	-	↓	-	-	-
TYRL-1	-	-	-	-	-	-	↓	-	-	-	-	-
Northeast												
TROL-1	-	-	↑	-	↑	-	-	↓	↓	-	↑	-
KISL-1	-	↑	↑	↑	↑	-	-	-	-	-	↑	↑

Table 9. Continued

Sampling Site	Selenium	Silicon	Silver	Sodium	Strontium	Dissolved Sulfate	Thallium	Tin	Titanium	Uranium	Vanadium	Zinc
Flin Flon												
LOUL-1	-	-	-	-	-	-	-	-	-	-	-	-
HAPL-1	↓	-	↓	↑	↑	↑	-	↓	-	-	-	↓
HIDL-1	↑	-	-	-	↑	↑	-	-	-	-	-	-
Southeast												
SCHL-1	↓	-	↓	-	-	-	↓	-	-	-	-	↓
SCHL-2	↓	-	↓	↑	↑	↑	↓	↓	-	-	-	↓
ATHL-1	-	-	↓	-	↑	-	↓	-	↓	-	-	↓
ATHL-2	↑	-	-	-	-	-	-	-	-	-	-	-
SIML-1	↑	-	-	-	-	-	-	-	-	-	-	↓
CORL-1	↑	-	-	-	-	-	-	-	-	-	-	-
Southwest												
DOUL-1	-	-	-	-	-	↓	↓	-	-	-	-	-
AMIL-1	↑	↑	-	↓	-	-	-	-	-	-	-	-
Northwest												
HAML1	-	-	-	-	↓	↓	↓	-	-	-	↑	↓
TYRL-1	↑	↓	-	-	↓	-	-	↓	-	-	-	-
Northeast												
TROL-1	-	-	-	-	-	-	-	-	↑	↑	-	-
KISL-1	↑	↑	↑	-	-	-	-	-	↑	-	↑	↑

[†] A change was determined by comparison of the mean ± 2SD for each period; “-” represents no change.

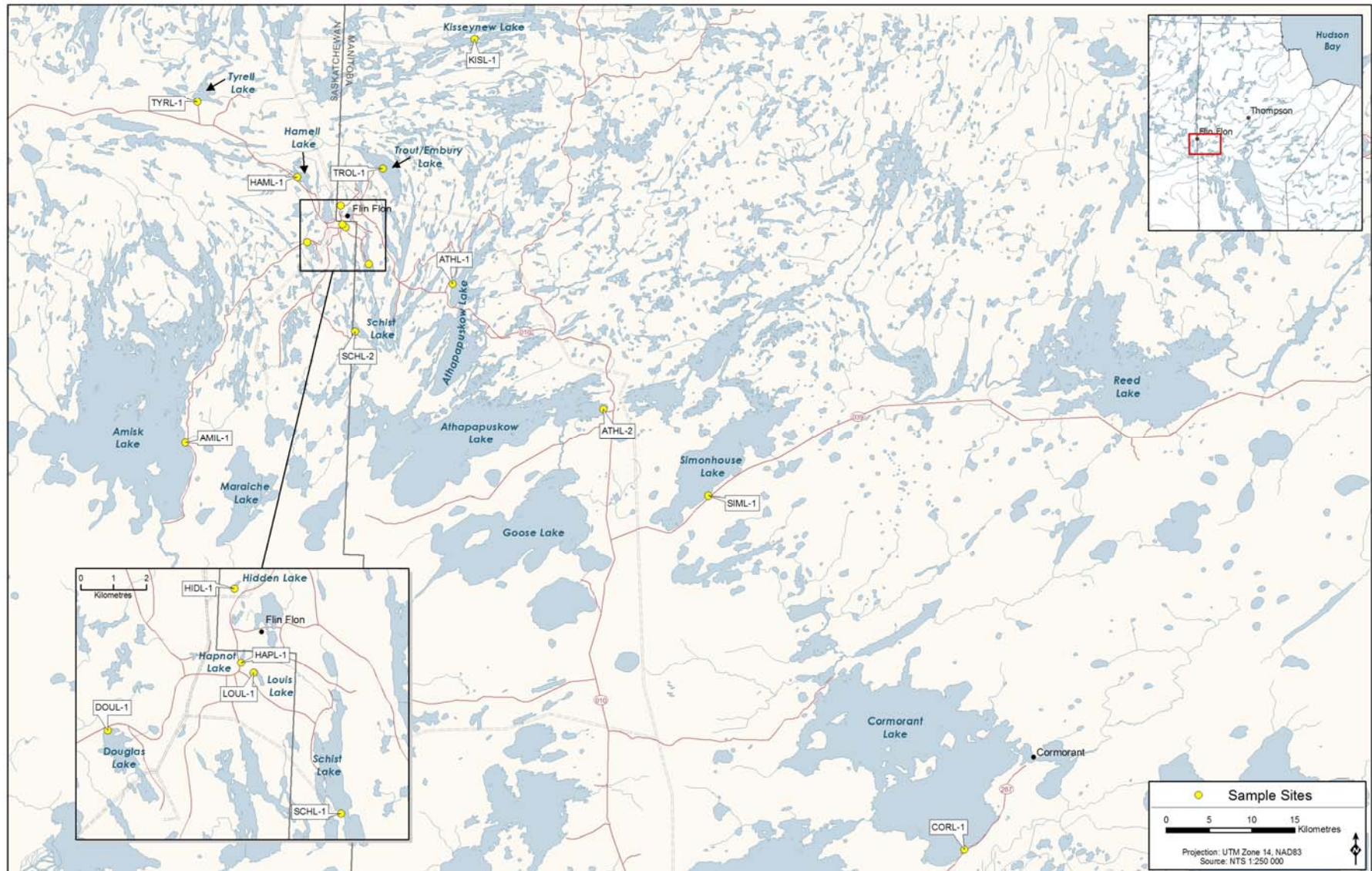


Figure 1. Locations of snow sampling sites near Flin Flon, MB.

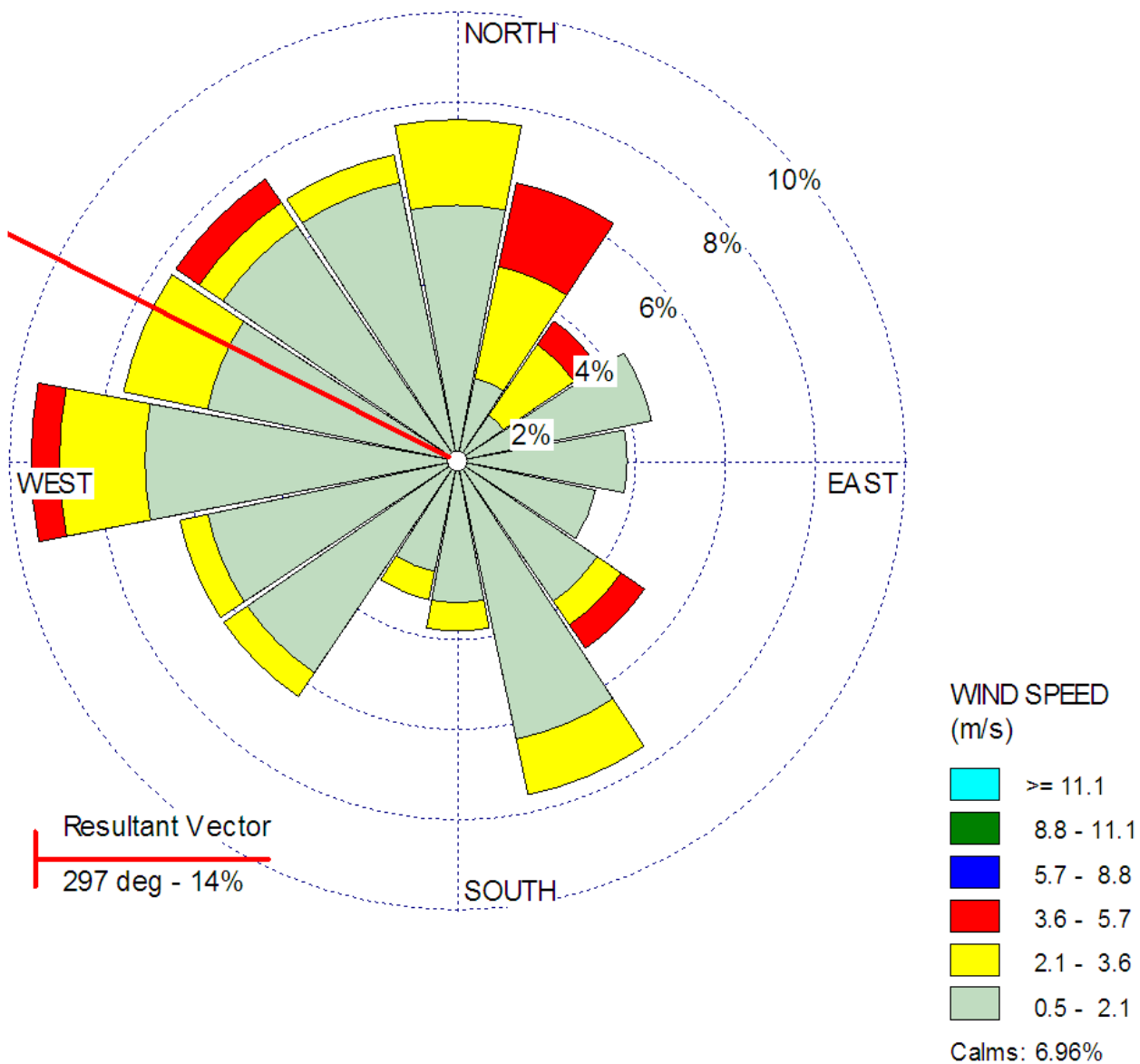


Figure 2. Wind rose for 2008-2009 winter wind data.

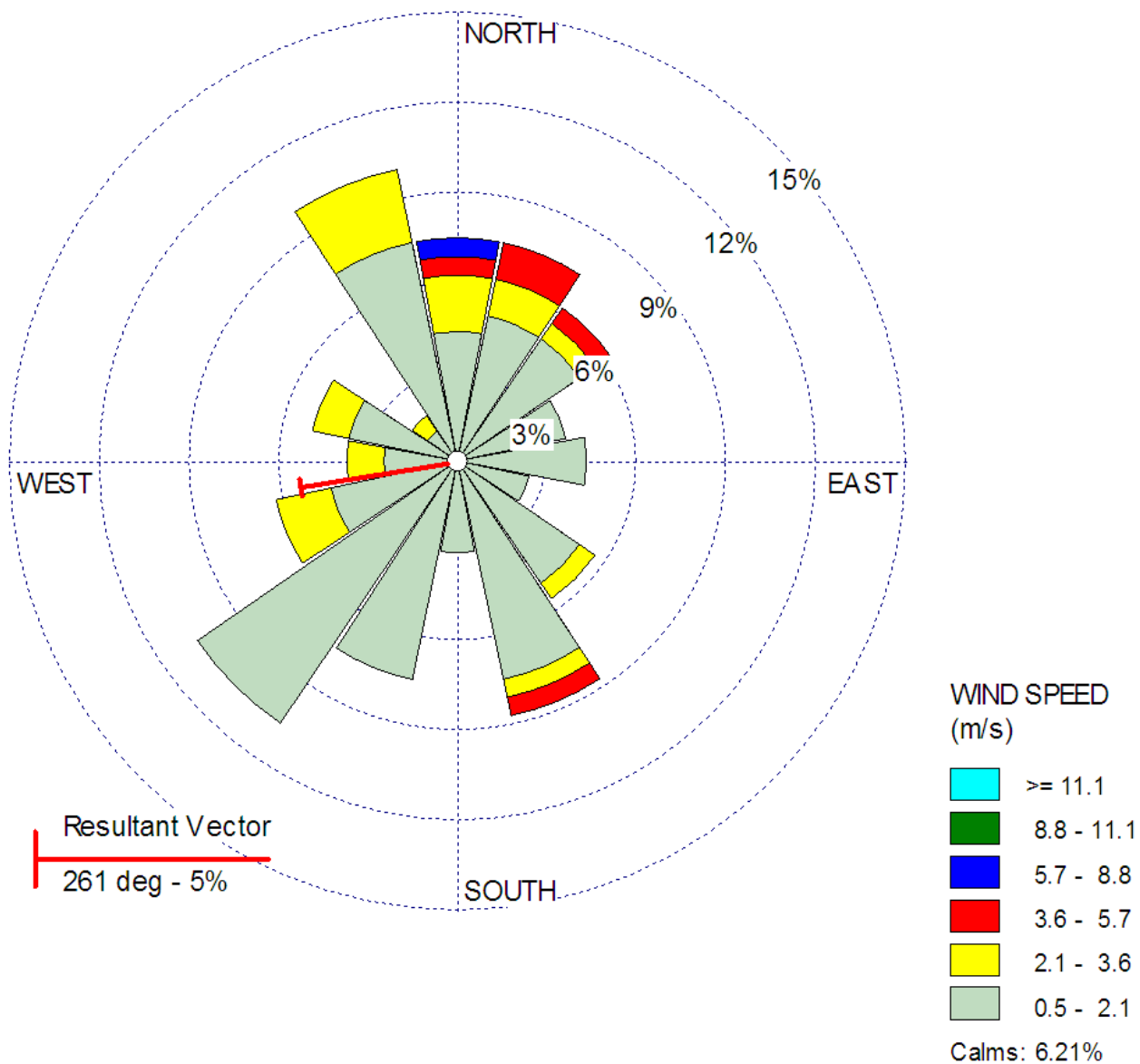


Figure 3. Wind rose for 2009-2010 winter wind data.

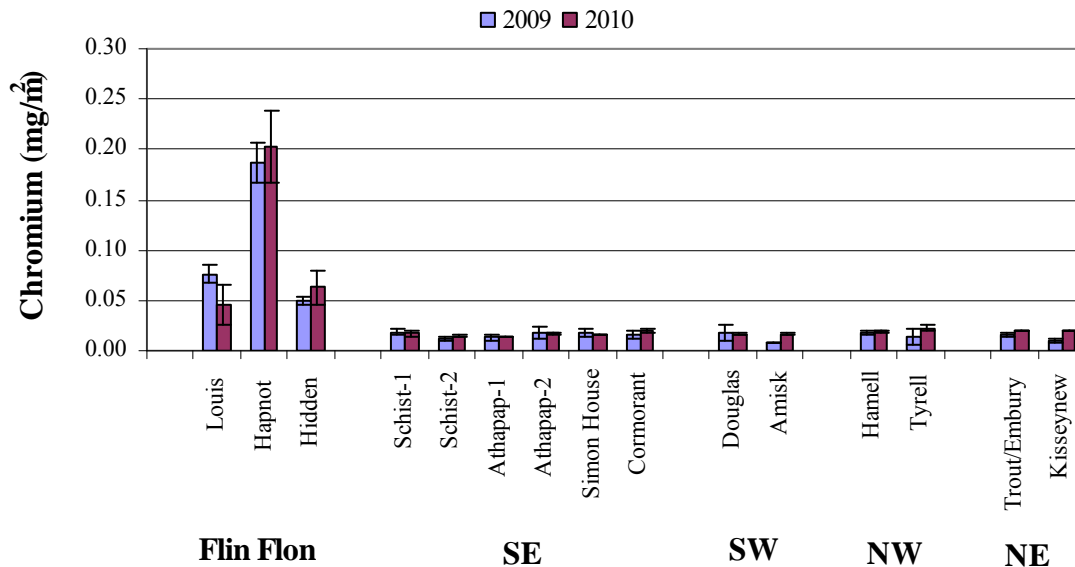


Figure 4. Deposition of chromium at snow sampling sites near Flin Flon in March 2009 and March 2010.

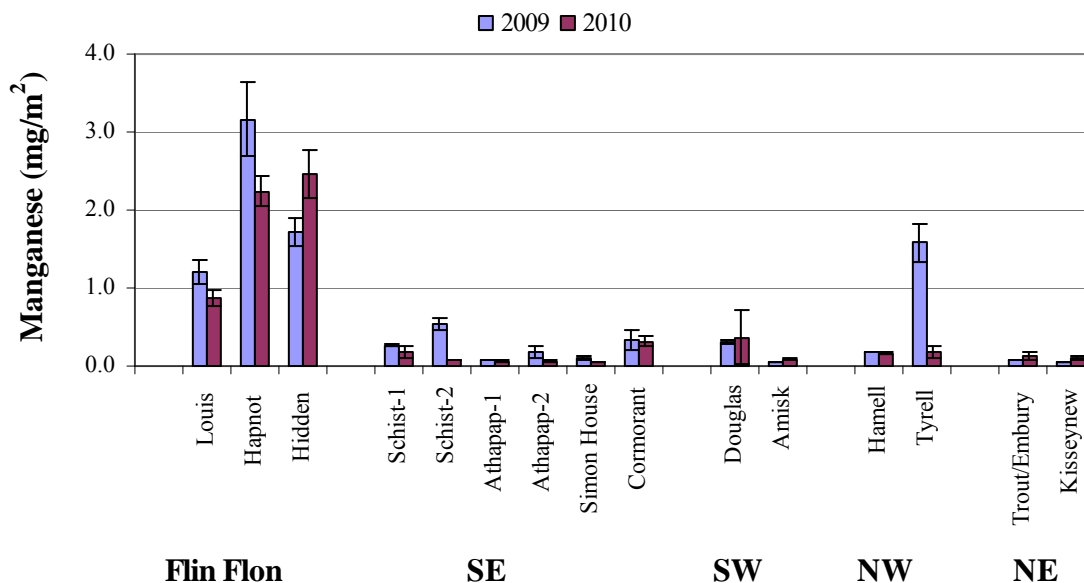


Figure 5. Deposition of manganese at snow sampling sites near Flin Flon in March 2009 and March 2010.

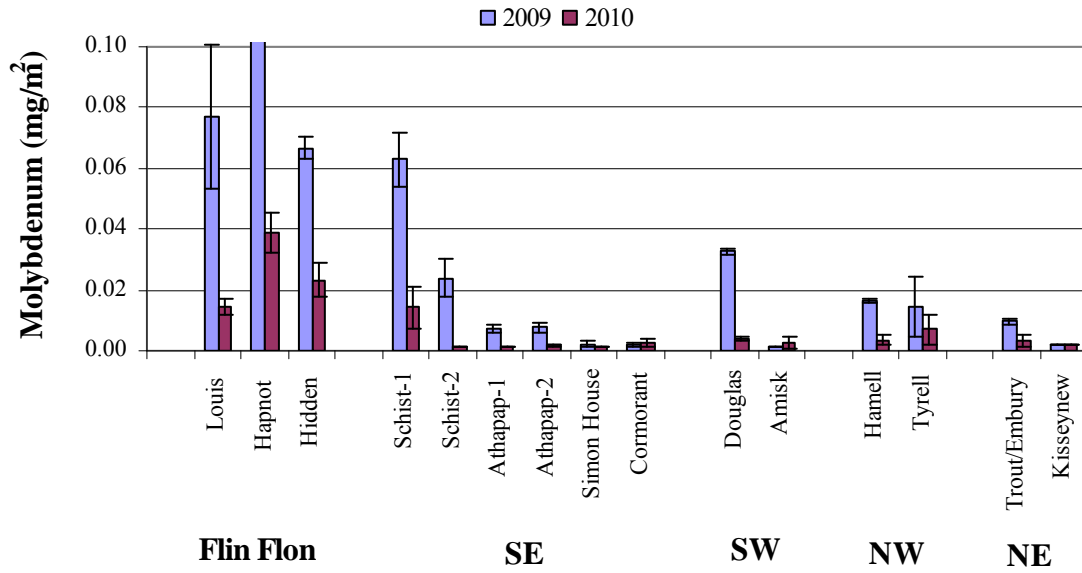


Figure 6. Deposition of molybdenum at snow sampling sites near Flin Flon in March 2009 and March 2010.

APPENDIX 1.

DETAILED METHODOLOGIES FOR THE ANALYSES PERFORMED BY ALS LABORATORIES

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A1-1.0 Analysis of Water Samples

A1-1.1 Chloride

Method Reference: APHA 4500/LACHAT

Measured colourimetrically using mercuric thiocyanate.

A1-1.2 Conductivity

Method Reference: APHA 2510B

Conductivity of an aqueous solution refers to its ability to carry an electric current. Conductance of a solution is measured between two spatially fixed and chemically inert electrodes.

A1-1.3 Hardness

Method Reference: APHA 2340B

Hardness is calculated from Calcium and Magnesium concentrations, and is expressed as calcium carbonate equivalents.

A1-1.4 Mercury (Total)

Method References: EPA 245.7

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry (EPA Method 245.7).

A1-1.5 Total Metals (Except Total Mercury) by ICPOES

Method References: EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

A1-1.6 Total Metals (Except Total Mercury) by ICPMS (Low)

Method References: EPA SW-846 3005A/6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health

Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

A1-1.7 Total Metals (Except Total Mercury) by ICPMS (Ultra)

Method References: EPA SW-846 3005A/6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

A1-1.8 Total Kjeldahl Nitrogen (TKN)

Method References: Quickchem Method 10-107-06-2-E Lachat

Samples are digested with a sulphuric acid solution, cooled, diluted with water, and analyzed for ammonia. TKN is the sum of free-ammonia and organic nitrogen compounds which are converted to ammonium sulphate through this digestion process. Analysis is performed by Flow Injection Analysis (FIA). The pH of the digested sample is raised to a known, basic pH by neutralization with a concentrated buffer solution. This neutralization converts the ammonium cation to ammonia. The ammonia produced is heated with salicylate and hypochlorite to produce blue colour which is proportional to the ammonia concentration.

A1-1.9 Nitrate and Nitrite (Dissolved)

Method References: APHA4500; 2005/LACHAT; 1997, 1999

A1-1.10 pH

Method Reference: APHA 4500H

pH of a sample is the determination of the activity of the hydrogen ions by potentiometric measurement using a standard hydrogen electrode and a reference electrode.

A1-1.11 Sulphate

Method References: APHA 4500-SO₄ "Sulphate"

Measured using a turbidimetric method.

APPENDIX 2.

WIND DATA FOR FLIN FLON, MANITOBA

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Table A2-1. Wind data for Flin Flon, Manitoba, as measured at the Manitoba Conservation building in Flin Flon during winter 2008-2009 (Source: J. Nilsen, HBMS).	54
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Table A2-1. Wind data for Flin Flon, Manitoba, as measured at the Manitoba Conservation building in Flin Flon during winter 2008-2009 (Source: J. Nilsen, HBMS).

Date	Wind Direction (°)	Wind Speed (km/h)
1-Oct-08	98	1.7
2-Oct-08	134	7.9
3-Oct-08	145	8.1
4-Oct-08	132	8.7
5-Oct-08	137	14.0
6-Oct-08	154	7.3
7-Oct-08	320	3.4
8-Oct-08	41	11.9
9-Oct-08	15	11.1
10-Oct-08	3	6.5
11-Oct-08	336	2.8
12-Oct-08	95	1.1
13-Oct-08	246	3.1
14-Oct-08	259	3.9
15-Oct-08	289	5.9
16-Oct-08	233	6.3
17-Oct-08	193	6.9
18-Oct-08	260	6.3
19-Oct-08	292	4.4
20-Oct-08	162	11.4
21-Oct-08	170	11.2
22-Oct-08	255	7.4
23-Oct-08	209	9.6
24-Oct-08	216	5.9
25-Oct-08	291	9.3
26-Oct-08	316	15.2
27-Oct-08	243	5.0
28-Oct-08	159	1.9
29-Oct-08	148	4.6
30-Oct-08	301	9.4
31-Oct-08	64	0.1
1-Nov-08	112	7.0
2-Nov-08	171	0.8
3-Nov-08	68	8.0
4-Nov-08	310	5.9
5-Nov-08	46	13.1
6-Nov-08	54	9.5
7-Nov-08	46	10.0
8-Nov-08	44	4.0
9-Nov-08	134	5.2
10-Nov-08	154	10.8
11-Nov-08	150	3.0
12-Nov-08	204	2.2
13-Nov-08	27	9.6
14-Nov-08	359	6.7
15-Nov-08	250	1.0
16-Nov-08	359	9.1
17-Nov-08	223	3.4
18-Nov-08	68	6.5

Table A2-1. Continued.

Date	Wind Direction (°)	Wind Speed (km/h)
19-Nov-08	11	12.2
20-Nov-08	250	3.0
21-Nov-08	162	7.8
22-Nov-08	165	5.7
23-Nov-08	280	12.7
24-Nov-08	194	4.9
25-Nov-08	261	2.7
26-Nov-08	191	3.7
27-Nov-08	280	6.0
28-Nov-08	342	5.0
29-Nov-08	56	3.6
30-Nov-08	320	3.9
1-Dec-08	168	7.2
2-Dec-08	336	12.1
3-Dec-08	313	9.0
4-Dec-08	295	6.7
5-Dec-08	5	7.4
6-Dec-08	257	2.0
7-Dec-08	23	1.7
8-Dec-08	356	6.8
9-Dec-08	313	2.8
10-Dec-08	65	5.5
11-Dec-08	235	2.8
12-Dec-08	359	4.0
13-Dec-08	330	6.7
14-Dec-08	272	7.4
15-Dec-08	249	9.0
16-Dec-08	252	6.3
17-Dec-08	4	4.2
18-Dec-08	192	1.4
19-Dec-08	24	1.1
20-Dec-08	321	5.4
21-Dec-08	268	9.4
22-Dec-08	252	8.4
23-Dec-08	247	5.3
24-Dec-08	121	2.7
25-Dec-08	80	4.6
26-Dec-08	7	3.4
27-Dec-08	179	2.4
28-Dec-08	266	7.6
29-Dec-08	296	7.2
30-Dec-08	320	3.8
31-Dec-08	86	5.0
1-Jan-09	57	6.6
2-Jan-09	107	5.2
3-Jan-09	61	7.4
4-Jan-09	320	5.0
5-Jan-09	66	2.0
6-Jan-09	334	2.5
7-Jan-09	322	4.5

Table A2-1. Continued.

Date	Wind Direction (°)	Wind Speed (km/h)
8-Jan-09	321	3.5
9-Jan-09	257	7.4
10-Jan-09	33	5.0
11-Jan-09	342	4.9
12-Jan-09	290	7.2
13-Jan-09	339	3.9
14-Jan-09	288	6.8
15-Jan-09	203	3.5
16-Jan-09	218	2.3
17-Jan-09	302	9.3
18-Jan-09	288	1.5
19-Jan-09	274	2.5
20-Jan-09	291	6.0
21-Jan-09	30	7.3
22-Jan-09	22	12.8
23-Jan-09	278	10.7
24-Jan-09	276	10.2
25-Jan-09	269	8.2
26-Jan-09	236	10.1
27-Jan-09	216	2.9
28-Jan-09	13	8.1
29-Jan-09	187	3.4
30-Jan-09	185	1.3
31-Jan-09	100	3.3
1-Feb-09	327	8.4
2-Feb-09	141	0.3
3-Feb-09	155	7.3
4-Feb-09	180	8.7
5-Feb-09	227	2.3
6-Feb-09	359	5.9
7-Feb-09	75	1.9
8-Feb-09	134	7.4
9-Feb-09	85	5.0
10-Feb-09	32	12.9
11-Feb-09	21	11.7
12-Feb-09	334	5.2
13-Feb-09	265	7.5
14-Feb-09	273	6.9
15-Feb-09	288	4.9
16-Feb-09	163	2.6
17-Feb-09	107	2.9
18-Feb-09	172	3.1
19-Feb-09	291	3.6
20-Feb-09	335	6.7
21-Feb-09	334	8.0
22-Feb-09	95	2.8
23-Feb-09	88	2.4
24-Feb-09	26	13.2
25-Feb-09	357	6.7
26-Feb-09	271	4.3

Table A2-1. Continued.

Date	Wind Direction (°)	Wind Speed (km/h)
27-Feb-09	218	7.0
28-Feb-09	321	6.0
1-Mar-09	160	5.6
2-Mar-09	128	4.6
3-Mar-09	109	7.9
4-Mar-09	218	7.7
5-Mar-09	16	11.1
6-Mar-09	355	9.7
7-Mar-09	146	9.0

Table A2-2. Wind data for Flin Flon, Manitoba, as measured at the Manitoba Conservation building in Flin Flon during winter 2009-2010 (Source: J. Nilsen, HBMS).

Date	Wind Direction (°)	Wind Speed (km/h)
1-Oct-09	63	6.8
2-Oct-09	70	6.8
3-Oct-09	61	8.8
4-Oct-09	21	8.6
5-Oct-09	341	3.3
6-Oct-09	173	5.4
7-Oct-09	359	12.9
8-Oct-09	327	6.7
9-Oct-09	312	6.9
10-Oct-09	344	9.2
11-Oct-09	26	8.9
12-Oct-09	4	6.7
13-Oct-09	352	1.9
14-Oct-09	96	3.8
15-Oct-09	129	1.7
16-Oct-09	230	6.4
17-Oct-09	192	4.8
18-Oct-09	325	10.5
19-Oct-09	345	3.2
20-Oct-09	237	1.2
21-Oct-09	186	5.6
22-Oct-09	108	4.5
23-Oct-09	27	9.9
24-Oct-09	46	6.9
25-Oct-09	151	4.8
26-Oct-09	138	6.0
27-Oct-09	41	13.4
28-Oct-09	22	13.4
29-Oct-09	339	5.3
30-Oct-09	346	9.7
31-Oct-09	44	7.1
1-Nov-09	201	2.0
2-Nov-09	327	5.3
3-Nov-09	158	2.6
4-Nov-09	297	6.1
5-Nov-09	152	12.6
6-Nov-09	192	5.0
7-Nov-09	245	12.1
8-Nov-09	226	5.8
9-Nov-09	222	6.6
10-Nov-09	192	7.3
11-Nov-09	221	4.5
12-Nov-09	278	2.9
13-Nov-09	201	4.9
14-Nov-09	218	4.1
15-Nov-09	199	5.1
16-Nov-09	180	7.0
17-Nov-09	203	7.0
18-Nov-09	7	1.4

Table A2-2. Continued.

Date	Wind Direction (°)	Wind Speed (km/h)
19-Nov-09	167	3.4
20-Nov-09	108	2.6
21-Nov-09	132	3.0
22-Nov-09	253	10.6
23-Nov-09	194	1.2
24-Nov-09	295	2.0
25-Nov-09	342	2.3
26-Nov-09	144	8.2
27-Nov-09	150	1.9
28-Nov-09	241	3.8
29-Nov-09	219	2.4
30-Nov-09	242	1.0
1-Dec-09	36	4.2
2-Dec-09	351	9.2
3-Dec-09	314	5.4
4-Dec-09	332	0.6
5-Dec-09	350	5.9
6-Dec-09	345	9.0
7-Dec-09	340	5.3
8-Dec-09	231	4.0
9-Dec-09	250	3.7
10-Dec-09	250	5.7
11-Dec-09	288	3.7
12-Dec-09	245	10.4
13-Dec-09	263	11.6
14-Dec-09	260	9.0
15-Dec-09	240	6.8
16-Dec-09	154	3.5
17-Dec-09	47	4.0
18-Dec-09	88	4.6
19-Dec-09	152	8.0
20-Dec-09	284	5.6
21-Dec-09	260	7.0
22-Dec-09	136	1.5
23-Dec-09	70	6.0
24-Dec-09	347	4.1
25-Dec-09	347	5.1
26-Dec-09	221	3.3
27-Dec-09	350	9.3
28-Dec-09	342	2.3
29-Dec-09	65	8.2
30-Dec-09	2	8.5
31-Dec-09	294	7.2
1-Jan-10	184	3.5
2-Jan-10	144	9.2
3-Jan-10	17	2.9
4-Jan-10	63	1.3
5-Jan-10	27	7.4
6-Jan-10	345	6.8
7-Jan-10	226	2.4

Table A2-2. Continued.

Date	Wind Direction (°)	Wind Speed (km/h)
8-Jan-10	195	8.4
9-Jan-10	241	6.7
10-Jan-10	54	4.2
11-Jan-10	152	8.1
12-Jan-10	40	2.6
13-Jan-10	342	6.1
14-Jan-10	226	2.7
15-Jan-10	89	7.5
16-Jan-10	32	3.6
17-Jan-10	281	3.8
18-Jan-10	147	7.5
19-Jan-10	148	7.1
20-Jan-10	86	3.4
21-Jan-10	89	7.6
22-Jan-10	93	6.8
23-Jan-10	28	14.8
24-Jan-10	10	22.7
25-Jan-10	348	11.5
26-Jan-10	294	9.2
27-Jan-10	302	9.6
28-Jan-10	242	6.3
29-Jan-10	305	1.4
30-Jan-10	19	10.0
31-Jan-10	269	5.7
1-Feb-10	86	2.7
2-Feb-10	137	6.6
3-Feb-10	241	4.5
4-Feb-10	145	2.5
5-Feb-10	107	4.5
6-Feb-10	48	9.9
7-Feb-10	34	8.1
8-Feb-10	154	1.6
9-Feb-10	168	7.3
10-Feb-10	163	7.5
11-Feb-10	141	4.1
12-Feb-10	33	8.3
13-Feb-10	30	6.8
14-Feb-10	211	2.0
15-Feb-10	192	6.1
16-Feb-10	219	4.2
17-Feb-10	27	2.3
18-Feb-10	293	2.4
19-Feb-10	4	3.8
20-Feb-10	5	3.3
21-Feb-10	226	6.2
22-Feb-10	0	11.8
23-Feb-10	227	6.0
24-Feb-10	162	9.1
25-Feb-10	72	2.4
26-Feb-10	145	2.2

Table A2-2. Continued.

Date	Wind Direction (°)	Wind Speed (km/h)
27-Feb-10	123	2.1
28-Feb-10	146	7.8
1-Mar-10	224	7.8
2-Mar-10	177	5.2
3-Mar-10	149	7.5
4-Mar-10	216	7.1
5-Mar-10	220	4.6
6-Mar-10	223	7.0
7-Mar-10	213	5.5
8-Mar-10	203	5.3
9-Mar-10	5	4.5
10-Mar-10	50	4.8

APPENDIX 3.

RAW CONCENTRATIONS OF PARAMETERS

	Page
Table A3-1. Metal parameters (mg/L) measured in each snow sample collected in March 2010 (values in red italics are considered suspect).....	64
Table A3-2. Routine concentrations measured in each snow sample collected in March 2010.	70

Table A3-1. Metal parameters (mg/L) measured in each snow sample collected in March 2010 (values in red italics are considered suspect).

Sampling Site	ALS Code	Processing Date	Hardness (as CaCO ₃)	Aluminum	Antimony	Arsenic	Barium	Beryllium
Analytical Detection Limit			0.50	0.0010	0.000050	0.000050	0.000050	0.00020
AMIL 1-1	L868302-25	8-Mar-10	0.67	0.043	0.000094	0.0011	0.0011	<0.00020
AMIL 1-2	L868302-26	8-Mar-10	0.85	0.047	<0.000050	0.00092	0.00079	<0.00020
AMIL 1-3	L868302-27	8-Mar-10	0.56	0.030	<0.000050	0.00081	0.00060	<0.00020
ATHL 1-1	L868302-10	8-Mar-10	2.95	0.017	0.00018	0.0053	0.0010	<0.00020
ATHL 1-2	L868302-11	8-Mar-10	3.78	0.018	0.00025	0.0074	0.0011	<0.00020
ATHL 1-3	L868302-12	8-Mar-10	7.16	0.020	0.00024	0.0068	0.0014	<0.00020
ATHL 2-1	L868302-13	8-Mar-10	<0.50	0.018	0.000071	0.0023	0.00042	<0.00020
ATHL 2-2	L868302-14	8-Mar-10	<0.50	0.019	0.000061	0.0023	0.00038	<0.00020
ATHL 2-3	L868302-15	8-Mar-10	<0.50	0.015	0.000060	0.0022	0.00043	<0.00020
CORL 1-1	L868302-19	8-Mar-10	33.9	0.065	<0.000050	0.00021	0.00082	<0.00020
CORL 1-2	L868302-20	8-Mar-10	32.5	0.055	<0.000050	0.00027	0.0026	<0.00020
CORL 1-3	L868302-21	8-Mar-10	39.6	0.068	<0.000050	0.00018	0.0011	<0.00020
DOUL 1-1	L868302-22	8-Mar-10	1.20	0.073	0.00086	0.024	0.0035	<0.00020
DOUL 1-2	L868302-23	8-Mar-10	1.96	0.075	0.00082	0.023	0.0031	<0.00020
DOUL 1-3	L868302-24	8-Mar-10	1.10	0.066	0.00080	0.022	0.0025	<0.00020
HAML 1-1	L868302-28	8-Mar-10	0.83	0.039	0.00087	0.025	0.0020	<0.00020
HAML 1-2	L868302-29	8-Mar-10	1.02	0.052	0.00091	0.027	0.0020	<0.00020
HAML 1-3	L868302-30	8-Mar-10	0.72	0.040	0.00078	0.023	0.0020	<0.00020
HAPL 1-1	L868302-4	8-Mar-10	37.1	0.508	0.0020	0.059	0.022	<0.00020
HAPL 1-2	L868302-5	8-Mar-10	26.9	0.405	0.0020	0.060	0.020	<0.00020
HAPL 1-3	L868302-6	8-Mar-10	31.3	0.491	0.0018	0.054	0.019	<0.00020
HIDL 1-1	L868302-7	8-Mar-10	8.12	0.417	0.0031	0.085	0.023	<0.00020
HIDL 1-2	L868302-8	8-Mar-10	9.71	0.243	0.0022	0.059	0.013	<0.00020
HIDL 1-3	L868302-9	8-Mar-10	5.39	0.334	0.0027	0.067	0.019	<0.00020
LOUL 1-1	L868302-1	8-Mar-10	4.68	0.199	0.0020	0.072	0.011	<0.00020
LOUL 1-2	L868302-2	8-Mar-10	6.41	0.224	0.0020	0.063	0.011	<0.00020
LOUL 1-3	L868302-3	8-Mar-10	2.70	0.129	0.0013	0.049	0.0059	<0.00020
SIML 1-1	L868302-16	8-Mar-10	24.3	0.016	<0.000050	0.00096	0.0030	<0.00020
SIML 1-2	L868302-17	8-Mar-10	15.4	0.024	<0.000050	0.00085	0.0015	<0.00020
SIML 1-3	L868302-18	8-Mar-10	7.82	0.016	<0.000050	0.00071	0.00078	<0.00020
TYRL 1-1	L868302-31	8-Mar-10	<0.50	0.030	0.00012	0.0037	0.00099	<0.00020
TYRL 1-2	L868302-32	8-Mar-10	0.64	0.029	0.00016	0.0062	0.0014	<0.00020
TYRL 1-3	L868302-33	8-Mar-10	0.51	0.025	0.00015	0.0055	0.00081	<0.00020
KISL 1-1	L868655-13	9-Mar-10	<0.50	0.020	0.00022	0.0076	0.00083	<0.00020
KISL 1-2	L868655-14	9-Mar-10	<0.50	0.019	0.00015	0.0051	0.00054	<0.00020
KISL 1-3A	L868655-15	9-Mar-10	0.74	0.019	0.00019	0.0065	0.00082	<0.00020
KISL 1-3B	L868655-16	9-Mar-10	0.72	0.017	0.00017	0.0064	0.00087	<0.00020
SCHL 2-1	L868655-5	9-Mar-10	10.6	0.022	0.00013	0.0036	0.00094	<0.00020
SCHL 2-2	L868655-6	9-Mar-10	11.6	0.025	0.00014	0.0038	0.0011	<0.00020
SCHL 2-3A	L868655-7	9-Mar-10	10.9	0.023	0.00015	0.0043	0.0011	<0.00020
SCHL 2-3B	L868655-8	9-Mar-10	11.3	0.024	0.00016	0.0046	0.0012	<0.00020
SCHL 1-1	L868655-1	9-Mar-10	28.8	0.032	0.00076	0.020	0.0040	<0.00020
SCHL 1-2	L868655-2	9-Mar-10	27.7	0.039	0.00091	0.024	0.0041	<0.00020
SCHL 1-3A	L868655-3	9-Mar-10	8.98	0.037	0.00065	0.022	0.0021	<0.00020
SCHL 1-3B	L868655-4	9-Mar-10	9.03	0.044	0.00068	0.022	0.0022	<0.00020
TROL 1-1	L868655-9	9-Mar-10	0.62	0.058	0.00086	0.026	0.0033	<0.00020
TROL 1-2	L868655-10	9-Mar-10	<0.50	0.042	0.00049	0.015	0.0018	<0.00020
TROL 1-3A	L868655-11	9-Mar-10	<0.50	0.037	0.00046	0.014	0.0012	<0.00020
TROL 1-3B	L868655-12	9-Mar-10	<0.50	0.034	0.00043	0.013	0.0012	<0.00020

Table A3-1. Continued.

Sampling Site	Processing Date	Bismuth	Boron	Cadmium	Calcium	Dissolved Chloride	Chromium	Cobalt
Analytical Detection Limit		0.00050	0.0040	0.000017	0.020	0.10	0.00050	0.00010
AMIL 1-1	8-Mar-10	<0.00050	<0.0040	0.0012	0.151	<0.10	<0.00050	<0.00010
AMIL 1-2	8-Mar-10	<0.00050	<0.0040	0.0010	0.205	<0.10	<0.00050	<0.00010
AMIL 1-3	8-Mar-10	<0.00050	<0.0040	0.0009	0.131	<0.10	<0.00050	<0.00010
ATHL 1-1	8-Mar-10	<0.00050	<0.0040	0.0073	0.779	0.12	<0.00050	<0.00010
ATHL 1-2	8-Mar-10	<0.00050	<0.0040	0.0093	0.963	0.15	<0.00050	<0.00010
ATHL 1-3	8-Mar-10	<0.00050	0.0042	0.0084	1.06	0.37	<0.00050	<0.00010
ATHL 2-1	8-Mar-10	<0.00050	<0.0040	0.0024	0.086	<0.10	<0.00050	<0.00010
ATHL 2-2	8-Mar-10	<0.00050	<0.0040	0.0023	0.087	<0.10	<0.00050	<0.00010
ATHL 2-3	8-Mar-10	<0.00050	<0.0040	0.0025	0.096	<0.10	<0.00050	<0.00010
CORL 1-1	8-Mar-10	<0.00050	<0.0040	0.00016	6.96	0.15	<0.00050	<0.00010
CORL 1-2	8-Mar-10	<0.00050	0.0043	0.00010	6.24	0.19	<0.00050	<0.00010
CORL 1-3	8-Mar-10	<0.00050	<0.0040	0.00010	7.59	0.12	<0.00050	<0.00010
DOUL 1-1	8-Mar-10	<0.00050	<0.0040	0.038	0.264	0.61	<0.00050	0.00055
DOUL 1-2	8-Mar-10	<0.00050	<0.0040	0.035	0.494	0.72	<0.00050	0.00056
DOUL 1-3	8-Mar-10	<0.00050	<0.0040	0.034	0.244	0.63	<0.00050	0.00054
HAML 1-1	8-Mar-10	<0.00050	<0.0040	0.050	0.180	0.53	<0.00050	0.00035
HAML 1-2	8-Mar-10	<0.00050	<0.0040	0.046	0.220	0.44	<0.00050	0.00038
HAML 1-3	8-Mar-10	<0.00050	<0.0040	0.039	0.154	0.38	<0.00050	0.00029
HAPL 1-1	8-Mar-10	<0.00050	0.0061	0.091	9.66	60.3	0.0024	0.0021
HAPL 1-2	8-Mar-10	<0.00050	0.0050	0.098	7.32	38.7	0.0019	0.0018
HAPL 1-3	8-Mar-10	<0.00050	0.0051	0.093	8.30	45.5	0.0021	0.0018
HIDL 1-1	8-Mar-10	<0.00050	<0.0040	0.065	2.36	0.40	0.0010	0.0049
HIDL 1-2	8-Mar-10	<0.00050	<0.0040	0.062	3.07	0.40	0.00059	0.0026
HIDL 1-3	8-Mar-10	<0.00050	<0.0040	0.091	1.50	0.42	0.00082	0.0045
LOUL 1-1	8-Mar-10	<0.00050	<0.0040	0.108	1.09	0.21	0.00063	0.0014
LOUL 1-2	8-Mar-10	<0.00050	<0.0040	0.114	1.66	0.27	0.00074	0.0017
LOUL 1-3	8-Mar-10	<0.00050	<0.0040	0.079	0.571	0.18	<0.00050	0.00083
SIML 1-1	8-Mar-10	<0.00050	0.0045	0.00082	4.08	0.32	<0.00050	<0.00010
SIML 1-2	8-Mar-10	<0.00050	0.0045	0.00070	1.90	0.28	<0.00050	<0.00010
SIML 1-3	8-Mar-10	<0.00050	<0.0040	0.00069	0.819	0.18	<0.00050	<0.00010
TYRL 1-1	8-Mar-10	<0.00050	<0.0040	0.0050	0.097	<0.10	<0.00050	<0.00010
TYRL 1-2	8-Mar-10	<0.00050	<0.0040	0.012	0.169	<0.10	<0.00050	0.00010
TYRL 1-3	8-Mar-10	<0.00050	<0.0040	0.0084	0.130	<0.10	<0.00050	<0.00010
KISL 1-1	9-Mar-10	<0.00050	<0.0040	0.0097	0.095	<0.10	<0.00050	<0.00010
KISL 1-2	9-Mar-10	<0.00050	<0.0040	0.0061	0.061	<0.10	<0.00050	<0.00010
KISL 1-3A	9-Mar-10	<0.00050	<0.0040	0.0091	0.194	<0.10	<0.00050	<0.00010
KISL 1-3B	9-Mar-10	<0.00050	<0.0040	0.0092	0.186	<0.10	<0.00050	<0.00010
SCHL 2-1	9-Mar-10	<0.00050	<0.0040	0.0039	3.77	1.74	<0.00050	<0.00010
SCHL 2-2	9-Mar-10	<0.00050	<0.0040	0.0040	4.16	1.90	<0.00050	<0.00010
SCHL 2-3A	9-Mar-10	<0.00050	<0.0040	0.0047	3.88	1.87	<0.00050	<0.00010
SCHL 2-3B	9-Mar-10	<0.00050	<0.0040	0.0049	4.04	1.90	<0.00050	<0.00010
SCHL 1-1	9-Mar-10	<0.00050	0.0069	0.031	8.74	15.0	<0.00050	0.00026
SCHL 1-2	9-Mar-10	<0.00050	0.0077	0.038	7.76	17.4	<0.00050	0.00029
SCHL 1-3A	9-Mar-10	<0.00050	<0.0040	0.028	2.80	3.91	<0.00050	0.00024
SCHL 1-3B	9-Mar-10	<0.00050	<0.0040	0.029	2.81	3.90	<0.00050	0.00027
TROL 1-1	9-Mar-10	<0.00050	<0.0040	0.041	0.139	<0.10	<0.00050	0.00066
TROL 1-2	9-Mar-10	<0.00050	<0.0040	0.020	0.076	<0.10	<0.00050	0.00037
TROL 1-3A	9-Mar-10	<0.00050	<0.0040	0.017	0.061	<0.10	<0.00050	0.00037
TROL 1-3B	9-Mar-10	<0.00050	<0.0040	0.017	0.061	<0.10	<0.00050	0.00028

Table A3-1. Continued.

Sampling Site	Processing Date	Copper	Iron	Lead	Lithium	Magnesium	Manganese	Mercury
Analytical Detection Limit		0.00010	0.010	0.000050	0.0050	0.0050	0.000050	0.000010
AMIL 1-1	8-Mar-10	0.012	0.059	0.0036	<0.0050	0.071	0.0014	0.000014
AMIL 1-2	8-Mar-10	0.011	0.058	0.0032	<0.0050	0.083	0.0013	<0.000010
AMIL 1-3	8-Mar-10	0.0091	0.037	0.0028	<0.0050	0.057	0.0010	<0.000010
ATHL 1-1	8-Mar-10	0.048	0.038	0.017	<0.0050	0.244	0.0010	0.000037
ATHL 1-2	8-Mar-10	0.063	0.053	0.024	<0.0050	0.334	0.0011	0.000041
ATHL 1-3	8-Mar-10	0.063	0.052	0.021	<0.0050	1.10	0.0012	0.000034
ATHL 2-1	8-Mar-10	0.018	0.029	0.0085	<0.0050	0.032	0.00085	<0.000010
ATHL 2-2	8-Mar-10	0.019	0.030	0.0079	<0.0050	0.032	0.00086	0.000014
ATHL 2-3	8-Mar-10	0.019	0.026	0.0087	<0.0050	0.034	0.00091	<0.000010
CORL 1-1	8-Mar-10	0.0030	0.073	0.00067	<0.0050	4.02	0.0044	<0.000010
CORL 1-2	8-Mar-10	0.0015	0.057	0.00054	<0.0050	4.10	0.0035	<0.000010
CORL 1-3	8-Mar-10	0.0015	0.074	0.00054	<0.0050	5.01	0.0045	<0.000010
DOUL 1-1	8-Mar-10	0.435	0.333	0.099	<0.0050	0.131	0.0026	0.00022
DOUL 1-2	8-Mar-10	0.422	0.325	0.094	<0.0050	0.177	0.012	0.00033
DOUL 1-3	8-Mar-10	0.431	0.318	0.095	<0.0050	0.119	0.0025	0.00048
HAML 1-1	8-Mar-10	0.268	0.189	0.125	<0.0050	0.092	0.0020	0.00017
HAML 1-2	8-Mar-10	0.264	0.226	0.120	<0.0050	0.115	0.0023	0.00016
HAML 1-3	8-Mar-10	0.218	0.179	0.100	<0.0050	0.082	0.0019	0.00013
HAPL 1-1	8-Mar-10	1.20	1.52	0.170	<0.0050	3.15	0.024	0.0027
HAPL 1-2	8-Mar-10	1.07	1.17	0.196	<0.0050	2.08	0.023	0.0025
HAPL 1-3	8-Mar-10	0.990	1.35	0.160	<0.0050	2.56	0.024	0.00075
HIDL 1-1	8-Mar-10	2.89	3.13	0.252	<0.0050	0.541	0.036	0.0040
HIDL 1-2	8-Mar-10	1.52	1.47	0.198	<0.0050	0.495	0.029	0.0042
HIDL 1-3	8-Mar-10	2.63	2.58	0.224	<0.0050	0.402	0.031	0.0028
LOUL 1-1	8-Mar-10	0.999	0.863	0.256	<0.0050	0.478	0.010	0.0073
LOUL 1-2	8-Mar-10	1.16	1.03	0.232	<0.0050	0.551	0.012	0.0031
LOUL 1-3	8-Mar-10	0.609	0.492	0.178	<0.0050	0.309	0.008	0.0034
SIML 1-1	8-Mar-10	0.0052	0.014	0.0021	<0.0050	3.43	0.00094	<0.000010
SIML 1-2	8-Mar-10	0.0045	0.015	0.0017	<0.0050	2.59	0.00077	<0.000010
SIML 1-3	8-Mar-10	0.0048	0.019	0.0017	<0.0050	1.40	0.00072	<0.000010
TYRL 1-1	8-Mar-10	0.030	0.062	0.017	<0.0050	0.034	0.0016	<0.000010
TYRL 1-2	8-Mar-10	0.056	0.081	0.032	<0.0050	0.053	0.0028	<0.000010
TYRL 1-3	8-Mar-10	0.048	0.060	0.023	<0.0050	0.045	0.0018	<0.000010
KISL 1-1	9-Mar-10	0.069	0.063	0.028	<0.0050	0.030	0.0014	<0.000010
KISL 1-2	9-Mar-10	0.045	0.048	0.021	<0.0050	0.021	0.00085	<0.000010
KISL 1-3A	9-Mar-10	0.057	0.052	0.024	<0.0050	0.063	0.0014	<0.000010
KISL 1-3B	9-Mar-10	0.057	0.048	0.024	<0.0050	0.062	0.0014	<0.000010
SCHL 2-1	9-Mar-10	0.035	0.052	0.012	<0.0050	0.279	0.0013	<0.000010
SCHL 2-2	9-Mar-10	0.037	0.056	0.013	<0.0050	0.302	0.0014	<0.000010
SCHL 2-3A	9-Mar-10	0.046	0.065	0.014	<0.0050	0.297	0.0014	<0.000010
SCHL 2-3B	9-Mar-10	0.049	0.067	0.016	<0.0050	0.307	0.0015	<0.000010
SCHL 1-1	9-Mar-10	0.171	0.147	0.062	<0.0050	1.71	0.0025	0.000031
SCHL 1-2	9-Mar-10	0.189	0.192	0.071	<0.0050	2.03	0.0034	0.000025
SCHL 1-3A	9-Mar-10	0.181	0.163	0.070	<0.0050	0.481	0.0017	0.000029
SCHL 1-3B	9-Mar-10	0.209	0.195	0.072	<0.0050	0.488	0.0019	0.000031
TROL 1-1	9-Mar-10	0.503	0.429	0.114	<0.0050	0.065	0.0023	0.000017
TROL 1-2	9-Mar-10	0.258	0.264	0.063	<0.0050	0.039	0.0013	<0.000010
TROL 1-3A	9-Mar-10	0.222	0.223	0.056	<0.0050	0.032	0.0011	0.000015
TROL 1-3B	9-Mar-10	0.209	0.206	0.056	<0.0050	0.031	0.0010	0.000021

Table A3-1. Continued.

Sampling Site	Processing Date	Molybdenum	Nickel	Phosphorus	Potassium	Selenium	Silicon	Silver
Analytical Detection Limit		0.000050	0.00010	0.30	0.050	0.0005 / 0.0010	0.050	0.000010
AMIL 1-1	8-Mar-10	0.000072	0.00027	<0.30	<0.050	<0.00050	0.072	0.000025
AMIL 1-2	8-Mar-10	<0.000050	<0.00010	<0.30	<0.050	<0.00050	0.095	0.000013
AMIL 1-3	8-Mar-10	<0.000050	<0.00010	<0.30	<0.050	<0.00050	0.065	<0.000010
ATHL 1-1	8-Mar-10	<0.000050	<0.00010	<0.30	0.073	<0.00050	<0.050	0.000050
ATHL 1-2	8-Mar-10	<0.000050	<0.00010	<0.30	0.099	<0.00050	<0.050	0.000055
ATHL 1-3	8-Mar-10	<0.000050	<0.00010	<0.30	0.355	<0.00050	0.057	0.000054
ATHL 2-1	8-Mar-10	<0.000050	<0.00010	<0.30	0.081	<0.00050	<0.050	0.000020
ATHL 2-2	8-Mar-10	<0.000050	<0.00010	<0.30	<0.050	<0.00050	<0.050	0.000026
ATHL 2-3	8-Mar-10	<0.000050	<0.00010	<0.30	<0.050	<0.00050	<0.050	0.000016
CORL 1-1	8-Mar-10	<0.000050	0.00013	<0.30	<0.050	<0.00050	0.124	<0.000010
CORL 1-2	8-Mar-10	0.000058	0.00015	<0.30	0.125	<0.00050	0.308	<0.000010
CORL 1-3	8-Mar-10	<0.000050	0.00018	<0.30	0.074	<0.00050	0.198	<0.000010
DOUL 1-1	8-Mar-10	0.000067	0.00027	<0.30	<0.050	0.00080	0.129	0.00036
DOUL 1-2	8-Mar-10	0.000059	0.00022	<0.30	0.066	0.00093	0.130	0.00034
DOUL 1-3	8-Mar-10	0.000051	0.00021	<0.30	<0.050	0.00084	0.109	0.00034
HAML 1-1	8-Mar-10	0.000053	0.00024	<0.30	<0.050	0.00056	0.074	0.00020
HAML 1-2	8-Mar-10	0.000063	0.00018	<0.30	<0.050	0.00064	0.091	0.00025
HAML 1-3	8-Mar-10	<0.000050	0.00015	<0.30	<0.050	0.00050	0.080	0.00025
HAPL 1-1	8-Mar-10	0.00046	0.0017	<0.30	5.75	0.0024	1.28	0.00099
HAPL 1-2	8-Mar-10	0.00040	0.0014	<0.30	3.62	0.0024	0.906	0.00087
HAPL 1-3	8-Mar-10	0.00037	0.0017	<0.30	4.11	0.0019	1.11	0.00080
HIDL 1-1	8-Mar-10	0.00038	0.0015	<0.30	0.351	0.0036	0.792	0.0023
HIDL 1-2	8-Mar-10	0.00023	0.0012	<0.30	0.273	0.0026	0.433	0.0012
HIDL 1-3	8-Mar-10	0.00029	0.0014	<0.30	0.144	0.0031	0.595	0.0018
LOUL 1-1	8-Mar-10	0.00019	0.00068	<0.30	0.076	0.0016	0.349	0.00094
LOUL 1-2	8-Mar-10	0.00017	0.00075	<0.30	0.126	0.0018	0.400	0.00097
LOUL 1-3	8-Mar-10	0.00014	0.00060	<0.30	<0.050	0.0012	0.220	0.00049
SIML 1-1	8-Mar-10	<0.000050	<0.00010	<0.30	0.302	<0.00050	0.213	<0.000010
SIML 1-2	8-Mar-10	<0.000050	<0.00010	<0.30	0.259	<0.00050	0.119	<0.000010
SIML 1-3	8-Mar-10	<0.000050	<0.00010	<0.30	0.124	<0.00050	0.075	<0.000010
TYRL 1-1	8-Mar-10	0.000090	<0.00010	<0.30	<0.050	<0.00050	0.055	0.000028
TYRL 1-2	8-Mar-10	0.00012	0.00014	<0.30	<0.050	<0.00050	<0.050	0.000087
TYRL 1-3	8-Mar-10	<0.000050	<0.00010	<0.30	<0.050	<0.00050	<0.050	0.000030
KISL 1-1	9-Mar-10	<0.000050	<0.00010	<0.30	<0.050	<0.00050	<0.050	0.000058
KISL 1-2	9-Mar-10	<0.000050	<0.00010	<0.30	<0.050	<0.00050	<0.050	0.000040
KISL 1-3A	9-Mar-10	<0.000050	<0.00010	<0.30	<0.050	<0.00050	0.050	0.000043
KISL 1-3B	9-Mar-10	<0.000050	<0.00010	<0.30	<0.050	<0.00050	<0.050	0.000040
SCHL 2-1	9-Mar-10	<0.000050	<0.00010	<0.30	0.084	<0.00050	0.076	0.000045
SCHL 2-2	9-Mar-10	<0.000050	0.00012	<0.30	0.095	<0.00050	0.073	0.000039
SCHL 2-3A	9-Mar-10	<0.000050	<0.00010	<0.30	0.095	<0.00050	0.077	0.000051
SCHL 2-3B	9-Mar-10	<0.000050	<0.00010	<0.30	0.099	<0.00050	0.082	0.000047
SCHL 1-1	9-Mar-10	0.00024	0.00018	<0.30	0.759	<0.0010	0.106	0.00018
SCHL 1-2	9-Mar-10	0.00026	0.00023	<0.30	0.866	<0.0010	0.128	0.00021
SCHL 1-3A	9-Mar-10	0.00010	0.00017	<0.30	0.202	0.00062	0.088	0.00019
SCHL 1-3B	9-Mar-10	0.00011	0.00018	<0.30	0.207	0.00071	0.102	0.00023
TROL 1-1	9-Mar-10	0.000064	0.00017	<0.30	<0.050	0.00069	0.114	0.00035
TROL 1-2	9-Mar-10	<0.000050	0.00010	<0.30	<0.050	<0.00050	0.083	0.00021
TROL 1-3A	9-Mar-10	<0.000050	<0.00010	<0.30	<0.050	<0.00050	0.073	0.00019
TROL 1-3B	9-Mar-10	<0.000050	<0.00010	<0.30	<0.050	<0.00050	0.070	0.00017

Table A3-1. Continued.

Sampling Site	Processing Date	Dissolved						
		Sodium	Strontium	Sulfate	Thallium	Tin	Titanium	Uranium
Analytical Detection Limit		0.010	0.00010	0.50	0.000050	0.00010	0.010	0.000010
AMIL 1-1	8-Mar-10	0.046	0.00041	<0.50	<0.000050	0.00010	<0.010	0.000014
AMIL 1-2	8-Mar-10	0.045	0.00056	<0.50	<0.000050	<0.00010	<0.010	<0.000010
AMIL 1-3	8-Mar-10	0.042	0.00037	<0.50	<0.000050	<0.00010	<0.010	<0.000010
ATHL 1-1	8-Mar-10	0.164	0.0020	0.83	<0.000050	<0.00010	<0.010	<0.000010
ATHL 1-2	8-Mar-10	0.214	0.0025	0.99	<0.000050	<0.00010	<0.010	<0.000010
ATHL 1-3	8-Mar-10	0.605	0.0034	2.16	<0.000050	<0.00010	<0.010	<0.000010
ATHL 2-1	8-Mar-10	0.054	0.00026	<0.50	<0.000050	0.00017	<0.010	<0.000010
ATHL 2-2	8-Mar-10	0.050	0.00023	<0.50	<0.000050	<0.00010	<0.010	<0.000010
ATHL 2-3	8-Mar-10	0.059	0.00034	<0.50	<0.000050	<0.00010	<0.010	<0.000010
CORL 1-1	8-Mar-10	0.052	0.00239	<0.50	<0.000050	<0.00010	<0.010	<0.000010
CORL 1-2	8-Mar-10	0.265	0.0061	0.85	<0.000050	<0.00010	<0.010	0.000019
CORL 1-3	8-Mar-10	0.148	0.0034	0.55	<0.000050	<0.00010	<0.010	0.000015
DOUL 1-1	8-Mar-10	0.440	0.00058	1.01	0.00011	0.00033	<0.010	<0.000010
DOUL 1-2	8-Mar-10	0.511	0.0011	1.19	0.00010	0.00026	<0.010	<0.000010
DOUL 1-3	8-Mar-10	0.437	0.00051	0.95	0.00010	0.00023	<0.010	<0.000010
HAML 1-1	8-Mar-10	0.388	0.00039	0.86	0.00014	0.00024	<0.010	<0.000010
HAML 1-2	8-Mar-10	0.314	0.00044	0.85	0.00013	0.00028	<0.010	<0.000010
HAML 1-3	8-Mar-10	0.275	0.00035	0.71	0.00011	0.00023	<0.010	<0.000010
HAPL 1-1	8-Mar-10	29.3	0.019	8.57	0.00037	0.00061	0.032	0.000034
HAPL 1-2	8-Mar-10	19.0	0.014	7.23	0.00043	0.00061	0.025	0.000035
HAPL 1-3	8-Mar-10	21.9	0.016	7.50	0.00038	0.00054	0.030	0.000040
HIDL 1-1	8-Mar-10	0.348	0.0052	8.70	0.00029	0.00080	0.016	0.000039
HIDL 1-2	8-Mar-10	0.336	0.0052	10.6	0.00026	0.00052	<0.010	0.000031
HIDL 1-3	8-Mar-10	0.376	0.0042	6.92	0.00045	0.00065	0.012	0.000024
LOUL 1-1	8-Mar-10	0.196	0.0019	2.49	0.00034	0.00079	<0.010	0.000019
LOUL 1-2	8-Mar-10	0.240	0.0028	3.74	0.00034	0.00073	0.010	0.000023
LOUL 1-3	8-Mar-10	0.155	0.0011	1.60	0.00023	0.00048	<0.010	0.000010
SIML 1-1	8-Mar-10	0.642	0.0072	1.43	<0.000050	<0.00010	<0.010	0.000047
SIML 1-2	8-Mar-10	0.548	0.0035	1.11	<0.000050	<0.00010	<0.010	0.000040
SIML 1-3	8-Mar-10	0.300	0.0016	0.72	<0.000050	<0.00010	<0.010	0.000018
TYRL 1-1	8-Mar-10	0.044	0.00033	<0.50	<0.000050	<0.00010	<0.010	<0.000010
TYRL 1-2	8-Mar-10	0.057	0.00056	0.60	<0.000050	<0.00010	<0.010	<0.000010
TYRL 1-3	8-Mar-10	0.047	0.00043	<0.50	<0.000050	<0.00010	<0.010	<0.000010
KISL 1-1	9-Mar-10	0.039	0.00029	0.55	<0.000050	0.00012	<0.010	<0.000010
KISL 1-2	9-Mar-10	0.029	0.00023	<0.50	<0.000050	0.00012	<0.010	<0.000010
KISL 1-3A	9-Mar-10	0.066	0.00069	0.57	<0.000050	<0.00010	<0.010	<0.000010
KISL 1-3B	9-Mar-10	0.068	0.00066	0.57	<0.000050	<0.00010	<0.010	<0.000010
SCHL 2-1	9-Mar-10	0.592	0.026	7.28	<0.000050	<0.00010	<0.010	<0.000010
SCHL 2-2	9-Mar-10	0.638	0.028	8.01	<0.000050	0.00013	<0.010	<0.000010
SCHL 2-3A	9-Mar-10	0.635	0.027	7.42	<0.000050	<0.00010	<0.010	<0.000010
SCHL 2-3B	9-Mar-10	0.659	0.027	7.42	<0.000050	<0.00010	<0.010	<0.000010
SCHL 1-1	9-Mar-10	4.770	0.076	12.1	0.000085	0.00027	<0.010	<0.000010
SCHL 1-2	9-Mar-10	5.380	0.074	8.84	0.00010	0.00031	<0.010	0.000011
SCHL 1-3A	9-Mar-10	1.260	0.024	4.74	0.000078	0.00028	<0.010	<0.000010
SCHL 1-3B	9-Mar-10	1.270	0.024	4.73	0.000079	0.00030	<0.010	<0.000010
TROL 1-1	9-Mar-10	0.057	0.00051	1.13	0.00013	0.00037	<0.010	<0.000010
TROL 1-2	9-Mar-10	0.034	0.00031	0.60	0.000061	0.00022	<0.010	<0.000010
TROL 1-3A	9-Mar-10	0.027	0.00024	0.52	0.000057	0.00020	<0.010	<0.000010
TROL 1-3B	9-Mar-10	0.031	0.00022	0.52	0.000054	0.00017	<0.010	<0.000010

Table A3-1. Continued.

Sampling Site	Processing Date	Vanadium	Zinc
Analytical Detection Limit		0.00020	0.0010
AMIL 1-1	8-Mar-10	0.00040	0.020
AMIL 1-2	8-Mar-10	<0.00020	0.016
AMIL 1-3	8-Mar-10	<0.00020	0.015
ATHL 1-1	8-Mar-10	<0.00020	0.061
ATHL 1-2	8-Mar-10	<0.00020	0.076
ATHL 1-3	8-Mar-10	<0.00020	0.073
ATHL 2-1	8-Mar-10	<0.00020	0.025
ATHL 2-2	8-Mar-10	<0.00020	0.023
ATHL 2-3	8-Mar-10	<0.00020	0.024
CORL 1-1	8-Mar-10	0.00020	0.008
CORL 1-2	8-Mar-10	<0.00020	0.006
CORL 1-3	8-Mar-10	0.00022	0.009
DOUL 1-1	8-Mar-10	0.00031	0.320
DOUL 1-2	8-Mar-10	0.00031	0.302
DOUL 1-3	8-Mar-10	0.00029	0.284
HAML 1-1	8-Mar-10	0.00024	0.347
HAML 1-2	8-Mar-10	0.00028	0.333
HAML 1-3	8-Mar-10	0.00022	0.292
HAPL 1-1	8-Mar-10	0.0022	1.21
HAPL 1-2	8-Mar-10	0.0020	1.25
HAPL 1-3	8-Mar-10	0.0023	1.18
HIDL 1-1	8-Mar-10	0.0023	2.34
HIDL 1-2	8-Mar-10	0.0015	1.95
HIDL 1-3	8-Mar-10	0.0019	2.38
LOUL 1-1	8-Mar-10	0.00094	0.877
LOUL 1-2	8-Mar-10	0.0010	0.958
LOUL 1-3	8-Mar-10	0.00070	0.654
SIML 1-1	8-Mar-10	<0.00020	0.009
SIML 1-2	8-Mar-10	<0.00020	0.009
SIML 1-3	8-Mar-10	<0.00020	0.010
TYRL 1-1	8-Mar-10	<0.00020	0.050
TYRL 1-2	8-Mar-10	<0.00020	0.082
TYRL 1-3	8-Mar-10	<0.00020	0.063
KISL 1-1	9-Mar-10	<0.00020	0.077
KISL 1-2	9-Mar-10	<0.00020	0.052
KISL 1-3A	9-Mar-10	<0.00020	0.070
KISL 1-3B	9-Mar-10	<0.00020	0.070
SCHL 2-1	9-Mar-10	<0.00020	0.049
SCHL 2-2	9-Mar-10	<0.00020	0.051
SCHL 2-3A	9-Mar-10	<0.00020	0.057
SCHL 2-3B	9-Mar-10	<0.00020	0.059
SCHL 1-1	9-Mar-10	<0.0010	0.284
SCHL 1-2	9-Mar-10	<0.0010	0.328
SCHL 1-3A	9-Mar-10	0.00026	0.269
SCHL 1-3B	9-Mar-10	0.00029	0.273
TROL 1-1	9-Mar-10	0.00026	0.363
TROL 1-2	9-Mar-10	0.00020	0.193
TROL 1-3A	9-Mar-10	<0.00020	0.167
TROL 1-3B	9-Mar-10	<0.00020	0.163

Table A3-2. Routine concentrations measured in each snow sample collected in March 2010.

Sampling Site	ALS Code	Sampling Date	pH (pH units)	Conductivity (µmhos/cm)	Dissolved Nitrate (mg N/L)	Dissolved Nitrite (mg N/L)	Dissolved Nitrate/ Nitrite (mg N/L)	TKN (mg N/L)
Analytical Detection Limit			0.10	0.40	0.0050	0.0010	0.0050	0.050 / 0.20
AMIL 1-1	L868302-25	8-Mar-10	5.06	5.07	0.163	<0.0010	0.163	<0.20
AMIL 1-2	L868302-26	8-Mar-10	5.19	4.59	0.173	<0.0010	0.173	<0.20
AMIL 1-3	L868302-27	8-Mar-10	5.13	4.35	0.141	<0.0010	0.141	<0.20
ATHL 1-1	L868302-10	8-Mar-10	6.45	6.91	0.151	<0.0010	0.151	0.22
ATHL 1-2	L868302-11	8-Mar-10	6.60	8.52	0.167	<0.0010	0.167	<0.20
ATHL 1-3	L868302-12	8-Mar-10	6.77	16.30	0.170	<0.0010	0.170	0.24
ATHL 2-1	L868302-13	8-Mar-10	4.91	5.91	0.162	<0.0010	0.162	<0.20
ATHL 2-2	L868302-14	8-Mar-10	4.92	5.98	0.149	<0.0010	0.149	<0.20
ATHL 2-3	L868302-15	8-Mar-10	4.82	6.90	0.178	<0.0010	0.178	<0.20
CORL 1-1	L868302-19	8-Mar-10	7.26	12.90	0.133	<0.0010	0.133	<0.20
CORL 1-2	L868302-20	8-Mar-10	7.81	30.90	0.193	<0.0010	0.193	<0.20
CORL 1-3	L868302-21	8-Mar-10	7.48	18.60	0.119	<0.0010	0.119	<0.20
DOUL 1-1	L868302-22	8-Mar-10	5.52	7.37	0.167	<0.0010	0.167	<0.20
DOUL 1-2	L868302-23	8-Mar-10	5.80	8.60	0.169	<0.0010	0.169	<0.20
DOUL 1-3	L868302-24	8-Mar-10	5.54	7.27	0.169	<0.0010	0.169	<0.20
HAML 1-1	L868302-28	8-Mar-10	5.41	6.77	0.165	<0.0010	0.165	<0.20
HAML 1-2	L868302-29	8-Mar-10	5.44	6.34	0.161	<0.0010	0.161	<0.20
HAML 1-3	L868302-30	8-Mar-10	5.39	5.78	0.141	<0.0010	0.141	<0.20
HAPL 1-1	L868302-4	8-Mar-10	6.84	243	0.189	0.0087	0.198	0.35
HAPL 1-2	L868302-5	8-Mar-10	6.93	167	0.194	0.0069	0.201	0.32
HAPL 1-3	L868302-6	8-Mar-10	6.04	189	0.197	0.0064	0.204	0.277
HIDL 1-1	L868302-7	8-Mar-10	6.10	30.5	0.232	0.0010	0.233	0.24
HIDL 1-2	L868302-8	8-Mar-10	6.14	36.1	0.283	0.0011	0.284	0.27
HIDL 1-3	L868302-9	8-Mar-10	6.08	25.4	0.162	0.0014	0.163	0.31
LOUL 1-1	L868302-1	8-Mar-10	6.06	10.5	0.156	<0.0010	0.156	0.21
LOUL 1-2	L868302-2	8-Mar-10	6.11	13.4	0.177	<0.0010	0.177	<0.20
LOUL 1-3	L868302-3	8-Mar-10	5.97	7.75	0.150	<0.0010	0.150	<0.20
SIML 1-1	L868302-16	8-Mar-10	9.33	51.4	0.162	<0.0010	0.162	<0.20
SIML 1-2	L868302-17	8-Mar-10	8.42	32.7	0.118	<0.0010	0.118	<0.20
SIML 1-3	L868302-18	8-Mar-10	7.26	14.8	0.126	<0.0010	0.126	<0.20
TYRL 1-1	L868302-31	8-Mar-10	4.96	5.61	0.161	<0.0010	0.161	<0.20
TYRL 1-2	L868302-32	8-Mar-10	4.82	8.25	0.218	<0.0010	0.218	<0.20
TYRL 1-3	L868302-33	8-Mar-10	4.85	7.46	0.194	<0.0010	0.194	<0.20
KISL 1-1	L868655-13	9-Mar-10	4.77	8.20	0.187	<0.0010	0.187	<0.20
KISL 1-2	L868655-14	9-Mar-10	4.87	6.25	0.150	<0.0010	0.150	<0.20
KISL 1-3A	L868655-15	9-Mar-10	4.99	6.48	0.170	<0.0010	0.170	<0.20
KISL 1-3B	L868655-16	9-Mar-10	5.00	6.40	0.170	<0.0010	0.170	<0.20
SCHL 2-1	L868655-5	9-Mar-10	6.03	30.0	0.108	<0.0010	0.108	0.074
SCHL 2-2	L868655-6	9-Mar-10	6.03	33.8	0.111	<0.0010	0.111	<0.20
SCHL 2-3A	L868655-7	9-Mar-10	5.98	32.0	0.110	<0.0010	0.110	<0.20
SCHL 2-3B	L868655-8	9-Mar-10	5.86	30.8	0.111	<0.0010	0.111	0.101
SCHL 1-1	L868655-1	9-Mar-10	6.56	94.7	0.151	<0.0010	0.151	<0.20
SCHL 1-2	L868655-2	9-Mar-10	6.81	95.7	0.142	<0.0010	0.142	<0.20
SCHL 1-3A	L868655-3	9-Mar-10	5.73	32.0	0.123	<0.0010	0.123	<0.20
SCHL 1-3B	L868655-4	9-Mar-10	5.74	32.2	0.124	<0.0010	0.124	<0.20
TROL 1-1	L868655-9	9-Mar-10	4.90	8.40	0.212	<0.0010	0.212	<0.20
TROL 1-2	L868655-10	9-Mar-10	4.91	6.74	0.161	<0.0010	0.161	<0.20
TROL 1-3A	L868655-11	9-Mar-10	4.97	6.18	0.141	<0.0010	0.141	<0.20
TROL 1-3B	L868655-12	9-Mar-10	4.96	5.59	0.139	<0.0010	0.139	<0.20

APPENDIX 4.

RAW DEPOSITION RATES OF PARAMETERS

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Table A4-1. Deposition rates of metals (mg/m^2), as determined from snow cores collected in March 2010.	72
Table A4-2. pH, conductivity, and winter deposition rates (mg/m^2) of nitrate, nitrite, nitrate/nitrite, and total Kjeldahl nitrogen (TKN) as determined from snow cores collected in March 2010.....	77

Table A4-1. Deposition rates of metals (mg/m²), as determined from snow cores collected in March 2010. Rates were calculated from the volume of snow collected, the area sampled, and the concentration of each compound (values in blue bold were below the detection limit (DL) so one half the DL was used for these calculations; values in red italics were considered suspect).

Sampling Site	Processing Date	Hardness (as CaCO ₃)						
		(mg/L)	Aluminum	Antimony	Arsenic	Barium	Beryllium	Bismuth
AMIL 1-1	8-Mar-10	0.67	2.725	0.006	0.070	0.072	0.006	0.016
AMIL 1-2	8-Mar-10	0.85	2.947	0.002	0.058	0.050	0.006	0.016
AMIL 1-3	8-Mar-10	0.56	2.037	0.002	0.055	0.041	0.007	0.017
ATHL 1-1	8-Mar-10	2.95	0.945	0.010	0.296	0.058	0.006	0.014
ATHL 1-2	8-Mar-10	3.78	0.976	0.013	0.392	0.058	0.005	0.013
ATHL 1-3	8-Mar-10	7.16	1.204	0.014	0.402	0.080	0.006	0.015
ATHL 2-1	8-Mar-10	0.25	1.121	0.004	0.146	0.027	0.006	0.016
ATHL 2-2	8-Mar-10	0.25	1.433	0.005	0.170	0.029	0.008	0.019
ATHL 2-3	8-Mar-10	0.25	1.038	0.004	0.154	0.030	0.007	0.017
CORL 1-1	8-Mar-10	33.9	5.482	0.002	0.018	0.069	0.008	0.021
CORL 1-2	8-Mar-10	32.5	3.767	0.002	0.018	0.173	0.007	0.017
CORL 1-3	8-Mar-10	39.6	5.117	0.002	0.014	0.081	0.008	0.019
DOUL 1-1	8-Mar-10	1.20	5.092	0.060	1.679	0.247	0.007	0.017
DOUL 1-2	8-Mar-10	1.96	5.001	0.055	1.530	0.207	0.007	0.017
DOUL 1-3	8-Mar-10	1.10	4.192	0.050	1.385	0.161	0.006	0.016
HAML 1-1	8-Mar-10	0.83	2.788	0.062	1.780	0.146	0.007	0.018
HAML 1-2	8-Mar-10	1.02	4.081	0.072	2.159	0.156	0.008	0.020
HAML 1-3	8-Mar-10	0.72	3.326	0.064	1.918	0.167	0.008	0.021
HAPL 1-1	8-Mar-10	37.1	50.892	0.197	5.871	2.244	0.010	0.025
HAPL 1-2	8-Mar-10	26.9	35.698	0.175	5.271	1.780	0.009	0.022
HAPL 1-3	8-Mar-10	31.3	46.944	0.171	5.153	1.807	0.010	0.024
HIDL 1-1	8-Mar-10	8.12	32.215	0.238	6.567	1.746	0.008	0.019
HIDL 1-2	8-Mar-10	9.71	18.758	0.168	4.539	0.996	0.008	0.019
HIDL 1-3	8-Mar-10	5.39	25.965	0.213	5.201	1.462	0.008	0.019
LOUL 1-1	8-Mar-10	4.68	17.548	0.175	6.358	0.935	0.009	0.022
LOUL 1-2	8-Mar-10	6.41	17.578	0.158	4.967	0.887	0.008	0.020
LOUL 1-3	8-Mar-10	2.70	11.609	0.115	4.410	0.534	0.009	0.022
SIML 1-1	8-Mar-10	24.3	0.941	0.002	0.058	0.184	0.006	0.015
SIML 1-2	8-Mar-10	15.4	1.504	0.002	0.053	0.093	0.006	0.016
SIML 1-3	8-Mar-10	7.82	1.007	0.002	0.044	0.048	0.006	0.015
TYRL 1-1	8-Mar-10	0.25	2.195	0.009	0.277	0.074	0.007	0.019
TYRL 1-2	8-Mar-10	0.64	2.826	0.016	0.610	0.135	0.010	0.024
TYRL 1-3	8-Mar-10	0.51	2.307	0.014	0.519	0.076	0.009	0.023
KISL 1-1	9-Mar-10	0.25	1.653	0.018	0.635	0.069	0.008	0.021
KISL 1-2	9-Mar-10	0.25	1.537	0.012	0.426	0.045	0.008	0.021
KISL 1-3-mean	9-Mar-10	0.73	1.487	0.015	0.535	0.070	0.008	0.021
SCHL 2-1	9-Mar-10	10.6	1.357	0.008	0.225	0.059	0.006	0.016
SCHL 2-2	9-Mar-10	11.6	1.596	0.009	0.241	0.066	0.006	0.016
SCHL 2-3-mean	9-Mar-10	11.1	1.190	0.008	0.229	0.061	0.005	0.013
SCHL 1-1	9-Mar-10	28.8	2.385	0.056	1.465	0.297	0.007	0.018
SCHL 1-2	9-Mar-10	27.7	2.834	0.067	1.774	0.304	0.007	0.018
SCHL 1-3-mean	9-Mar-10	9.01	2.321	0.038	1.261	0.122	0.006	0.014
TROL 1-1	9-Mar-10	0.62	4.776	0.072	2.176	0.272	0.008	0.021
TROL 1-2	9-Mar-10	0.25	3.447	0.041	1.262	0.148	0.008	0.021
TROL 1-3-mean	9-Mar-10	0.25	2.957	0.037	1.105	0.096	0.008	0.021

Table A4-1. Continued.

Sampling Site	Processing Date	Boron	Cadmium	Calcium	Dissolved			Copper
					Chloride	Chromium	Cobalt	
AMIL 1-1	8-Mar-10	0.128	0.079	9.659	3.198	0.016	0.003	0.768
AMIL 1-2	8-Mar-10	0.125	0.064	12.827	3.128	0.016	0.003	0.695
AMIL 1-3	8-Mar-10	0.136	0.064	8.927	3.407	0.017	0.003	0.617
ATHL 1-1	8-Mar-10	0.112	0.408	43.810	6.749	0.014	0.003	2.711
ATHL 1-2	8-Mar-10	0.107	0.494	51.351	7.999	0.013	0.003	3.343
ATHL 1-3	8-Mar-10	0.250	0.501	63.170	22.050	0.015	0.003	3.754
ATHL 2-1	8-Mar-10	0.127	0.152	5.449	3.168	0.016	0.003	1.159
ATHL 2-2	8-Mar-10	0.150	0.170	6.526	3.750	0.019	0.004	1.418
ATHL 2-3	8-Mar-10	0.138	0.175	6.642	3.459	0.017	0.003	1.287
CORL 1-1	8-Mar-10	0.168	0.013	584.310	12.593	0.021	0.004	0.254
CORL 1-2	8-Mar-10	0.292	0.007	424.303	12.919	0.017	0.003	0.101
CORL 1-3	8-Mar-10	0.151	0.007	574.484	9.083	0.019	0.004	0.114
DOUL 1-1	8-Mar-10	0.140	2.672	18.466	42.667	0.017	0.038	30.426
DOUL 1-2	8-Mar-10	0.134	2.376	33.158	48.328	0.017	0.038	28.326
DOUL 1-3	8-Mar-10	0.127	2.178	15.496	40.011	0.016	0.034	27.372
HAML 1-1	8-Mar-10	0.143	3.553	12.868	37.889	0.018	0.025	19.159
HAML 1-2	8-Mar-10	0.158	3.640	17.334	34.667	0.020	0.030	20.800
HAML 1-3	8-Mar-10	0.165	3.244	12.679	31.286	0.021	0.024	17.948
HAPL 1-1	8-Mar-10	0.611	9.157	967.755	6040.952	0.237	0.205	120.218
HAPL 1-2	8-Mar-10	0.441	8.673	645.210	3411.149	0.165	0.158	94.313
HAPL 1-3	8-Mar-10	0.488	8.892	793.562	4350.251	0.205	0.174	94.654
HIDL 1-1	8-Mar-10	0.155	5.037	182.321	30.902	0.079	0.375	223.266
HIDL 1-2	8-Mar-10	0.154	4.778	236.982	30.877	0.046	0.200	117.333
HIDL 1-3	8-Mar-10	0.155	7.090	116.611	32.651	0.064	0.353	204.459
LOUL 1-1	8-Mar-10	0.176	9.524	96.120	18.518	0.056	0.123	88.095
LOUL 1-2	8-Mar-10	0.157	8.946	130.264	21.188	0.058	0.135	91.028
LOUL 1-3	8-Mar-10	0.180	7.109	51.386	16.199	0.022	0.075	54.806
SIML 1-1	8-Mar-10	0.273	0.049	247.586	19.419	0.015	0.003	0.315
SIML 1-2	8-Mar-10	0.280	0.043	118.115	17.406	0.016	0.003	0.277
SIML 1-3	8-Mar-10	0.123	0.042	50.307	11.056	0.015	0.003	0.294
TYRL 1-1	8-Mar-10	0.148	0.374	7.194	3.708	0.019	0.004	2.247
TYRL 1-2	8-Mar-10	0.196	1.154	16.525	4.889	0.024	0.010	5.486
TYRL 1-3	8-Mar-10	0.188	0.785	12.192	4.689	0.023	0.005	4.530
KISL 1-1	9-Mar-10	0.166	0.804	7.890	4.153	0.021	0.004	5.698
KISL 1-2	9-Mar-10	0.166	0.507	5.067	4.153	0.021	0.004	3.746
KISL 1-3-mean	9-Mar-10	0.166	0.759	15.781	4.153	0.021	0.004	4.734
SCHL 2-1	9-Mar-10	0.126	0.244	236.911	109.344	0.016	0.003	2.168
SCHL 2-2	9-Mar-10	0.126	0.250	261.420	119.398	0.016	0.003	2.306
SCHL 2-3-mean	9-Mar-10	0.104	0.249	204.945	97.556	0.013	0.003	2.474
SCHL 1-1	9-Mar-10	0.508	2.282	643.296	1104.055	0.018	0.019	12.586
SCHL 1-2	9-Mar-10	0.567	2.797	571.164	1280.703	0.018	0.021	13.911
SCHL 1-3-mean	9-Mar-10	0.115	1.638	161.182	224.391	0.014	0.015	11.205
TROL 1-1	9-Mar-10	0.166	3.364	11.545	4.153	0.021	0.055	41.778
TROL 1-2	9-Mar-10	0.166	1.636	6.312	4.153	0.021	0.031	21.429
TROL 1-3-mean	9-Mar-10	0.166	1.420	5.067	4.153	0.021	0.027	17.899

Table A4-1. Continued.

Sampling Site	Processing Date	Iron	Lead	Lithium	Magnesium	Manganese	Mercury	Molybdenum
AMIL 1-1	8-Mar-10	3.774	0.231	0.160	4.548	0.090	0.001	0.005
AMIL 1-2	8-Mar-10	3.629	0.197	0.156	5.162	0.082	0.000	0.002
AMIL 1-3	8-Mar-10	2.521	0.190	0.170	3.870	0.068	0.000	0.002
ATHL 1-1	8-Mar-10	2.137	0.979	0.141	13.722	0.056	0.002	0.001
ATHL 1-2	8-Mar-10	2.826	1.280	0.133	17.810	0.056	0.002	0.001
ATHL 1-3	8-Mar-10	3.099	1.228	0.149	65.554	0.073	0.002	0.001
ATHL 2-1	8-Mar-10	1.837	0.540	0.158	2.002	0.054	0.000	0.002
ATHL 2-2	8-Mar-10	2.250	0.595	0.188	2.370	0.064	0.001	0.002
ATHL 2-3	8-Mar-10	1.799	0.599	0.173	2.359	0.063	0.000	0.002
CORL 1-1	8-Mar-10	6.129	0.057	0.210	337.489	0.371	0.000	0.002
CORL 1-2	8-Mar-10	3.876	0.037	0.170	278.789	0.239	0.000	0.004
CORL 1-3	8-Mar-10	5.601	0.041	0.189	379.205	0.343	0.000	0.002
DOUL 1-1	8-Mar-10	23.292	6.925	0.175	9.163	0.185	0.016	0.005
DOUL 1-2	8-Mar-10	21.815	6.276	0.168	11.881	0.772	0.022	0.004
DOUL 1-3	8-Mar-10	20.196	6.014	0.159	7.558	0.157	0.031	0.003
HAML 1-1	8-Mar-10	13.512	8.936	0.179	6.556	0.144	0.012	0.004
HAML 1-2	8-Mar-10	17.806	9.455	0.197	9.061	0.184	0.013	0.005
HAML 1-3	8-Mar-10	14.737	8.233	0.206	6.710	0.159	0.011	0.002
HAPL 1-1	8-Mar-10	152.276	17.031	0.250	315.572	2.384	0.270	0.046
HAPL 1-2	8-Mar-10	103.128	17.276	0.220	183.338	2.010	0.220	0.035
HAPL 1-3	8-Mar-10	129.073	15.298	0.239	244.761	2.333	0.072	0.035
HIDL 1-1	8-Mar-10	241.807	19.468	0.193	41.795	2.797	0.309	0.029
HIDL 1-2	8-Mar-10	113.474	15.284	0.193	38.210	2.200	0.324	0.018
HIDL 1-3	8-Mar-10	200.572	17.414	0.194	31.252	2.410	0.218	0.022
LOUL 1-1	8-Mar-10	76.102	22.575	0.220	42.152	0.899	0.644	0.017
LOUL 1-2	8-Mar-10	80.827	18.206	0.196	43.238	0.957	0.243	0.014
LOUL 1-3	8-Mar-10	44.277	16.019	0.225	27.808	0.758	0.306	0.012
SIML 1-1	8-Mar-10	0.850	0.128	0.152	208.142	0.057	0.000	0.002
SIML 1-2	8-Mar-10	0.932	0.108	0.155	161.010	0.048	0.000	0.002
SIML 1-3	8-Mar-10	1.167	0.102	0.154	85.994	0.044	0.000	0.002
TYRL 1-1	8-Mar-10	4.598	1.276	0.185	2.522	0.119	0.000	0.007
TYRL 1-2	8-Mar-10	7.920	3.158	0.244	5.212	0.272	0.000	0.012
TYRL 1-3	8-Mar-10	5.627	2.129	0.234	4.249	0.172	0.000	0.002
KISL 1-1	9-Mar-10	5.233	2.359	0.208	2.459	0.112	0.000	0.002
KISL 1-2	9-Mar-10	3.987	1.744	0.208	1.728	0.071	0.000	0.002
KISL 1-3-mean	9-Mar-10	4.153	1.973	0.208	5.191	0.114	0.000	0.002
SCHL 2-1	9-Mar-10	3.268	0.754	0.157	17.533	0.083	0.000	0.002
SCHL 2-2	9-Mar-10	3.519	0.786	0.157	18.978	0.088	0.000	0.002
SCHL 2-3-mean	9-Mar-10	3.416	0.769	0.129	15.630	0.075	0.000	0.001
SCHL 1-1	9-Mar-10	10.820	4.527	0.184	125.862	0.186	0.002	0.017
SCHL 1-2	9-Mar-10	14.132	5.211	0.184	149.415	0.247	0.002	0.019
SCHL 1-3-mean	9-Mar-10	10.286	4.086	0.144	27.841	0.103	0.002	0.006
TROL 1-1	9-Mar-10	35.632	9.469	0.208	5.432	0.187	0.001	0.005
TROL 1-2	9-Mar-10	21.927	5.249	0.208	3.206	0.110	0.000	0.002
TROL 1-3-mean	9-Mar-10	17.816	4.622	0.208	2.637	0.090	0.001	0.002

Table A4-1. Continued.

Sampling Site	Processing Date	Nickel	Phosphorus	Potassium	Selenium	Silicon	Silver	Sodium
AMIL 1-1	8-Mar-10	0.017	9.595	1.599	0.016	4.606	0.002	2.943
AMIL 1-2	8-Mar-10	0.003	9.385	1.564	0.016	5.944	0.001	2.816
AMIL 1-3	8-Mar-10	0.003	10.221	1.704	0.017	4.429	0.000	2.862
ATHL 1-1	8-Mar-10	0.003	8.436	4.105	0.014	1.406	0.003	9.223
ATHL 1-2	8-Mar-10	0.003	7.999	5.279	0.013	1.333	0.003	11.411
ATHL 1-3	8-Mar-10	0.003	8.939	21.156	0.015	3.397	0.003	36.055
ATHL 2-1	8-Mar-10	0.003	9.504	5.132	0.016	1.584	0.001	3.421
ATHL 2-2	8-Mar-10	0.004	11.251	1.875	0.019	1.875	0.002	3.750
ATHL 2-3	8-Mar-10	0.003	10.377	1.730	0.017	1.730	0.001	4.082
CORL 1-1	8-Mar-10	0.011	12.593	2.099	0.021	10.410	0.000	4.366
CORL 1-2	8-Mar-10	0.010	10.200	8.500	0.017	20.943	0.000	18.019
CORL 1-3	8-Mar-10	0.014	11.353	5.601	0.019	14.987	0.000	11.202
DOUL 1-1	8-Mar-10	0.019	10.492	1.749	0.056	9.023	0.025	30.776
DOUL 1-2	8-Mar-10	0.015	10.068	4.430	0.062	8.726	0.023	34.300
DOUL 1-3	8-Mar-10	0.013	9.526	1.588	0.053	6.923	0.022	27.754
HAML 1-1	8-Mar-10	0.017	10.723	1.787	0.040	5.290	0.014	27.738
HAML 1-2	8-Mar-10	0.014	11.818	1.970	0.050	7.170	0.020	24.740
HAML 1-3	8-Mar-10	0.012	12.350	2.058	0.041	6.587	0.020	22.641
HAPL 1-1	8-Mar-10	0.170	15.027	576.044	0.240	128.232	0.099	2935.322
HAPL 1-2	8-Mar-10	0.123	13.222	319.079	0.212	79.858	0.076	1674.724
HAPL 1-3	8-Mar-10	0.160	14.341	392.957	0.182	106.127	0.077	2093.857
HIDL 1-1	8-Mar-10	0.114	11.588	27.116	0.274	61.186	0.180	26.885
HIDL 1-2	8-Mar-10	0.094	11.579	21.074	0.201	33.425	0.091	25.937
HIDL 1-3	8-Mar-10	0.111	11.661	11.195	0.240	46.256	0.143	29.231
LOUL 1-1	8-Mar-10	0.060	13.227	6.702	0.140	30.776	0.082	17.284
LOUL 1-2	8-Mar-10	0.059	11.771	9.888	0.141	31.389	0.076	18.833
LOUL 1-3	8-Mar-10	0.054	13.499	2.250	0.112	19.799	0.044	13.949
SIML 1-1	8-Mar-10	0.003	9.102	18.326	0.015	12.925	0.000	38.958
SIML 1-2	8-Mar-10	0.003	9.325	16.101	0.016	7.398	0.000	34.067
SIML 1-3	8-Mar-10	0.003	9.214	7.617	0.015	4.607	0.000	18.427
TYRL 1-1	8-Mar-10	0.004	11.125	1.854	0.019	4.079	0.002	3.263
TYRL 1-2	8-Mar-10	0.014	14.667	2.445	0.024	2.445	0.009	5.574
TYRL 1-3	8-Mar-10	0.005	14.068	2.345	0.023	2.345	0.003	4.408
KISL 1-1	9-Mar-10	0.004	12.459	2.076	0.021	2.076	0.005	3.239
KISL 1-2	9-Mar-10	0.004	12.459	2.076	0.021	2.076	0.003	2.409
KISL 1-3-mean	9-Mar-10	0.004	12.459	2.076	0.021	2.076	0.003	5.565
SCHL 2-1	9-Mar-10	0.003	9.426	5.279	0.016	4.776	0.003	37.202
SCHL 2-2	9-Mar-10	0.008	9.426	5.970	0.016	4.587	0.002	40.093
SCHL 2-3-mean	9-Mar-10	0.003	7.763	5.020	0.013	4.114	0.003	33.485
SCHL 1-1	9-Mar-10	0.013	11.041	55.865	0.037	7.802	0.014	351.089
SCHL 1-2	9-Mar-10	0.017	11.041	63.741	0.037	9.421	0.015	395.988
SCHL 1-3-mean	9-Mar-10	0.010	8.619	11.751	0.038	5.459	0.012	72.690
TROL 1-1	9-Mar-10	0.014	12.459	2.076	0.057	9.469	0.029	4.734
TROL 1-2	9-Mar-10	0.008	12.459	2.076	0.021	6.894	0.018	2.824
TROL 1-3-mean	9-Mar-10	0.004	12.459	2.076	0.021	5.939	0.015	2.409

Table A4-1. Continued.

Sampling Site	Processing	Dissolved							
	Date	Strontium	Sulfate	Thallium	Tin	Titanium	Uranium	Vanadium	Zinc
AMIL 1-1	8-Mar-10	0.026	15.992	0.002	0.006	0.320	0.001	0.026	1.254
AMIL 1-2	8-Mar-10	0.035	15.642	0.002	0.003	0.313	0.000	0.006	0.995
AMIL 1-3	8-Mar-10	0.025	17.036	0.002	0.003	0.341	0.000	0.007	1.043
ATHL 1-1	8-Mar-10	0.115	46.679	0.001	0.003	0.281	0.000	0.006	3.442
ATHL 1-2	8-Mar-10	0.132	52.791	0.001	0.003	0.267	0.000	0.005	4.037
ATHL 1-3	8-Mar-10	0.200	128.724	0.001	0.003	0.298	0.000	0.006	4.356
ATHL 2-1	8-Mar-10	0.016	15.839	0.002	0.011	0.317	0.000	0.006	1.609
ATHL 2-2	8-Mar-10	0.017	18.752	0.002	0.004	0.375	0.000	0.008	1.725
ATHL 2-3	8-Mar-10	0.024	17.296	0.002	0.003	0.346	0.000	0.007	1.653
CORL 1-1	8-Mar-10	0.201	20.988	0.002	0.004	0.420	0.000	0.017	0.663
CORL 1-2	8-Mar-10	0.414	57.798	0.002	0.003	0.340	0.001	0.007	0.388
CORL 1-3	8-Mar-10	0.257	41.629	0.002	0.004	0.378	0.001	0.017	0.658
DOUL 1-1	8-Mar-10	0.041	70.645	0.007	0.023	0.350	0.000	0.022	22.382
DOUL 1-2	8-Mar-10	0.071	79.876	0.007	0.017	0.336	0.000	0.021	20.271
DOUL 1-3	8-Mar-10	0.032	60.334	0.006	0.015	0.318	0.000	0.018	18.037
HAML 1-1	8-Mar-10	0.028	61.481	0.010	0.017	0.357	0.000	0.017	24.807
HAML 1-2	8-Mar-10	0.035	66.971	0.010	0.022	0.394	0.000	0.022	26.237
HAML 1-3	8-Mar-10	0.029	58.455	0.009	0.019	0.412	0.000	0.018	24.041
HAPL 1-1	8-Mar-10	1.873	858.557	0.037	0.061	3.206	0.003	0.220	121.220
HAPL 1-2	8-Mar-10	1.260	637.277	0.038	0.054	2.204	0.003	0.176	110.179
HAPL 1-3	8-Mar-10	1.501	717.074	0.036	0.052	2.868	0.004	0.220	112.820
HIDL 1-1	8-Mar-10	0.403	672.116	0.022	0.062	1.236	0.003	0.177	180.776
HIDL 1-2	8-Mar-10	0.401	818.245	0.020	0.040	0.386	0.002	0.117	150.526
HIDL 1-3	8-Mar-10	0.324	537.967	0.035	0.051	0.933	0.002	0.145	185.024
LOUL 1-1	8-Mar-10	0.167	219.576	0.030	0.070	0.441	0.002	0.083	77.337
LOUL 1-2	8-Mar-10	0.219	293.487	0.027	0.057	0.785	0.002	0.082	75.177
LOUL 1-3	8-Mar-10	0.097	143.989	0.020	0.043	0.450	0.001	0.063	58.856
SIML 1-1	8-Mar-10	0.436	86.777	0.002	0.003	0.303	0.003	0.006	0.564
SIML 1-2	8-Mar-10	0.214	69.004	0.002	0.003	0.311	0.002	0.006	0.566
SIML 1-3	8-Mar-10	0.100	44.226	0.002	0.003	0.307	0.001	0.006	0.602
TYRL 1-1	8-Mar-10	0.024	18.541	0.002	0.004	0.371	0.000	0.007	3.671
TYRL 1-2	8-Mar-10	0.055	58.670	0.002	0.005	0.489	0.000	0.010	7.999
TYRL 1-3	8-Mar-10	0.040	23.447	0.002	0.005	0.469	0.000	0.009	5.881
KISL 1-1	9-Mar-10	0.024	45.682	0.002	0.010	0.415	0.000	0.008	6.387
KISL 1-2	9-Mar-10	0.019	20.764	0.002	0.010	0.415	0.000	0.008	4.277
KISL 1-3-mean	9-Mar-10	0.056	47.343	0.002	0.004	0.415	0.000	0.008	5.831
SCHL 2-1	9-Mar-10	1.621	457.484	0.002	0.003	0.314	0.000	0.006	3.073
SCHL 2-2	9-Mar-10	1.766	503.358	0.002	0.008	0.314	0.000	0.006	3.217
SCHL 2-3-mean	9-Mar-10	1.397	384.014	0.001	0.003	0.259	0.000	0.005	2.984
SCHL 1-1	9-Mar-10	5.564	890.604	0.006	0.020	0.368	0.000	0.037	20.903
SCHL 1-2	9-Mar-10	5.469	650.656	0.008	0.023	0.368	0.001	0.037	24.142
SCHL 1-3-mean	9-Mar-10	1.365	272.084	0.005	0.017	0.287	0.000	0.016	15.572
TROL 1-1	9-Mar-10	0.042	93.855	0.010	0.031	0.415	0.000	0.022	30.150
TROL 1-2	9-Mar-10	0.026	49.835	0.005	0.018	0.415	0.000	0.017	16.030
TROL 1-3-mean	9-Mar-10	0.019	43.190	0.005	0.015	0.415	0.000	0.008	13.705

Table A4-2. pH, conductivity, and winter deposition rates (mg/m²) of nitrate, nitrite, nitrate/nitrite, and total Kjeldahl nitrogen (TKN) as determined from snow cores collected in March 2010. Rates were calculated from the volume of snow collected, the area sampled, and the concentration of each compound (values in blue bold were below the detection limit (DL), so one half the DL has been applied for these calculations).

Sampling Site	ALS Code	Sampling Date	pH (pH units)	Conductivity (µmhos/cm)	Dissolved Nitrate	Dissolved Nitrite	Dissolved Nitrate/Nitrite	TKN
Analytical Detection Limit			0.10	0.40				
AMIL 1-1	L868302-25	8-Mar-10	5.06	5.07	10.4267	0.0320	10.4267	6.3967
AMIL 1-2	L868302-26	8-Mar-10	5.19	4.59	10.8245	0.0313	10.8245	6.2570
AMIL 1-3	L868302-27	8-Mar-10	5.13	4.35	9.6081	0.0341	9.6081	6.8142
ATHL 1-1	L868302-10	8-Mar-10	6.45	6.91	8.4921	0.0281	8.4921	12.3726
ATHL 1-2	L868302-11	8-Mar-10	6.60	8.52	8.9052	0.0267	8.9052	5.3324
ATHL 1-3	L868302-12	8-Mar-10	6.77	16.30	10.1310	0.0298	10.1310	14.3026
ATHL 2-1	L868302-13	8-Mar-10	4.91	5.91	10.2639	0.0317	10.2639	6.3357
ATHL 2-2	L868302-14	8-Mar-10	4.92	5.98	11.1762	0.0375	11.1762	7.5008
ATHL 2-3	L868302-15	8-Mar-10	4.82	6.90	12.3145	0.0346	12.3145	6.9182
CORL 1-1	L868302-19	8-Mar-10	7.26	12.90	11.1657	0.0420	11.1657	8.3953
CORL 1-2	L868302-20	8-Mar-10	7.81	30.90	13.1235	0.0340	13.1235	6.7997
CORL 1-3	L868302-21	8-Mar-10	7.48	18.60	9.0071	0.0378	9.0071	7.5690
DOUL 1-1	L868302-22	8-Mar-10	5.52	7.37	11.6808	0.0350	11.6808	6.9945
DOUL 1-2	L868302-23	8-Mar-10	5.80	8.60	11.3437	0.0336	11.3437	6.7122
DOUL 1-3	L868302-24	8-Mar-10	5.54	7.27	10.7331	0.0318	10.7331	6.3509
HAML 1-1	L868302-28	8-Mar-10	5.41	6.77	11.7958	0.0357	11.7958	7.1490
HAML 1-2	L868302-29	8-Mar-10	5.44	6.34	12.6850	0.0394	12.6850	7.8789
HAML 1-3	L868302-30	8-Mar-10	5.39	5.78	11.6087	0.0412	11.6087	8.2331
HAPL 1-1	L868302-4	8-Mar-10	6.84	243	18.9343	0.8716	19.8360	35.0636
HAPL 1-2	L868302-5	8-Mar-10	6.93	167	17.0998	0.6082	17.7168	28.2059
HAPL 1-3	L868302-6	8-Mar-10	6.04	189	18.8352	0.6119	19.5044	26.4839
HIDL 1-1	L868302-7	8-Mar-10	6.10	30.5	17.9231	0.0773	18.0004	18.5411
HIDL 1-2	L868302-8	8-Mar-10	6.14	36.1	21.8456	0.0849	21.9228	20.8421
HIDL 1-3	L868302-9	8-Mar-10	6.08	25.4	12.5940	0.1088	12.6718	24.0997
LOUL 1-1	L868302-1	8-Mar-10	6.06	10.5	13.7566	0.0441	13.7566	18.5185
LOUL 1-2	L868302-2	8-Mar-10	6.11	13.4	13.8896	0.0392	13.8896	7.8472
LOUL 1-3	L868302-3	8-Mar-10	5.97	7.75	13.4990	0.0450	13.4990	8.9993
SIML 1-1	L868302-16	8-Mar-10	9.33	51.4	9.8306	0.0303	9.8306	6.0683
SIML 1-2	L868302-17	8-Mar-10	8.42	32.7	7.3356	0.0311	7.3356	6.2166
SIML 1-3	L868302-18	8-Mar-10	7.26	14.8	7.7395	0.0307	7.7395	6.1424
TYRL 1-1	L868302-31	8-Mar-10	4.96	5.61	11.9405	0.0371	11.9405	7.4164
TYRL 1-2	L868302-32	8-Mar-10	4.82	8.25	21.3167	0.0489	21.3167	9.7783
TYRL 1-3	L868302-33	8-Mar-10	4.85	7.46	18.1949	0.0469	18.1949	9.3788
KISL 1-1	L868655-13	9-Mar-10	4.77	8.20	15.5318	0.0415	15.5318	8.3058
KISL 1-2	L868655-14	9-Mar-10	4.87	6.25	12.4586	0.0415	12.4586	8.3058
KISL 1-3-mean	see QAQC	9-Mar-10	5.00	6.44	14.1198	0.0415	14.1198	8.3058
SCHL 2-1	L868655-5	9-Mar-10	6.03	30.0	6.7869	0.0314	6.7869	4.6503
SCHL 2-2	L868655-6	9-Mar-10	6.03	33.8	6.9754	0.0314	6.9754	6.2841
SCHL 2-3-mean	see QAQC	9-Mar-10	5.92	31.4	5.7188	0.0259	5.7188	5.2013
SCHL 1-1	L868655-1	9-Mar-10	6.56	94.7	11.1142	0.0368	11.1142	7.3604
SCHL 1-2	L868655-2	9-Mar-10	6.81	95.7	10.4517	0.0368	10.4517	7.3604
SCHL 1-3-mean	see QAQC	9-Mar-10	5.74	32.1	7.0966	0.0287	7.0966	5.7462
TROL 1-1	L868655-9	9-Mar-10	4.90	8.40	17.6082	0.0415	17.6082	8.3058
TROL 1-2	L868655-10	9-Mar-10	4.91	6.74	13.3723	0.0415	13.3723	8.3058
TROL 1-3-mean	see QAQC	9-Mar-10	4.97	5.89	11.6281	0.0415	11.6281	8.3058

