SCIENCE INTEGRITY KNOWLEDGE

BASELINE COUNTRY FOODS STUDY IN THE VICINITY OF THE WABUSH 3 MINE

Final Report

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BASELINE COUNTRY FOOD STUDY IN THE VICINITY OF THE WABUSH 3 MINE

1.0 INTRODUCTION

As part of the submission of the Environmental Impact Statement (EIS) for the Wabush 3 pit, Iron Ore Company of Canada (IOC) is required to establish baseline conditions in the area potentially impacted by this development. Since the Wabush 3 area is currently used for hunting, fishing and harvesting activities, a baseline Country Foods Study was conducted to assess baseline concentrations of metal constituents in berries, game birds, small mammals and fish.

Intrinsik Environmental Sciences' (hereafter referred to as Intrinsik) personnel were responsible for all aspects of the project with the exception of the small game, fish and berry samples and the laboratory analysis of the samples. Pinchin LeBlanc Environmental (hereafter referred to as Pinchin) was subcontracted by Intrinsik to collect the samples. Metals analysis[1] was conducted by the Maxxam Analytics Laboratory in Burnaby, BC (hereafter referred to as Maxxam).

In September, 2013, blueberries, partridgeberries and squashberries and co-located soil grab samples were collected by Pinchin the vicinity of the proposed Wabush 3 mine. Fish samples (i.e., brook trout) were collected in Dumbell Lake, a popular fishing area in the vicinity of the mine during the end of July / early August, 2014. Small game (i.e., snowshoe hare and ruffed grouse) samples were collected during August, 2014. All samples were sent for metals analysis to Maxxam Analytics Laboratory in Burnaby, BC.

Section 2.0 provides the methods used to conduct this assessment while analytical results are provided in Section 3.0. The evaluation of the data and discussion of the findings are provided in Section 4.0 while Section 5.0 provides conclusions of the assessment. A series of appendices (Appendix A to G) are also included to provide more detailed information in addition to figures, analytical results and calculations used in the assessment.

[1] The laboratory metals analysis included metals, along with some metalloids (e.g., arsenic) and ions (e.g., calcium, potassium). For the purpose of this study, these are hereafter referred to as metals.

2.0 METHODS

The country food study included three main steps i) information gathering and planning; ii) baseline data collection and laboratory analysis; and iii) data evaluation.

2.1 Information Gathering and Planning

To determine which species would be collected for the baseline country food study, the available information related to hunting, fishing and berry picking practices in the vicinity of the proposed Wabush 3 mine pit that was collected through the EIA process for the Project were reviewed. This included the review of draft EIS chapters (AMEC, 2014a) in addition to the Wabush 3 mine land, water and resource / ecological knowledge study (AMEC, 2014b).

In addition to reviewing information related to the Wabush 3 mine, information collected for other EISs being conducted in the area (*i.e.*, Alderon Kami Mine EIS, 2012) was also reviewed in addition to the Newfoundland and Labrador (NL) Department of Environment and Conservation website.

Based on the review of the available data, the following small game species and fish were selected for sampling and analysis:

- Snowshoe hare (small mammal);
- Spruce grouse (game bird); and
- Brook trout (pelagic fish).

Collection of benthic fish was also requested by IOC in the statement of work for the Baseline Country Food study. Following a review of data collected as part of the EIS (*e.g.*, EcoMetrix, 2014) and discussions with the EIS project team, benthic fish species do not appear to be present within areas potentially affected by the proposed mine and future predicted dust deposition (See Appendix A). Collection of benthic fish species was therefore not included in the baseline country food sampling study.

While not all of the species that are hunted or harvested in the vicinity of the Wabush 3 mine and consumed were selected for sampling, the selected species represent reasonable surrogates for other species. The selected species are expected to have similar or higher potential exposures to metals which may be associated with the Wabush 3 Project (for example due to their small home range, ingestion of vegetation / invertebrates and their incidental soil ingestion) than species not selected.

While some individuals may hunt and / or consume large mammals (such as caribou, moose, bear); large mammals were not selected for study in the baseline assessment as their potential chemical exposures as a result of the Wabush 3 mine Project would be limited due to their large home ranges.

2.2 Baseline Sample Collection and Laboratory Analysis

Berry sampling was conducted by the staff of Pinchin LeBlanc's Labrador office between September 12th - 25th, 2013, while small game and fish sampling was conducted between July 31st - August 23rd, 2014. Appropriate sampling permits were sought prior to initiating sampling (See Appendix B). Sampling methods followed protocols developed by Intrinsik which were based on recommendations provided in Health Canada's Supplemental Guidance on Human Health Risk Assessment for Country Foods (Health Canada, 2010a) and the Guidance for Including Country Foods in Human Health Risk Assessments for Federal Contaminated Sites document (Golder Associates, 2005) prepared for Health Canada. A summary of sampling methods are provided in this section, with the detailed sampling protocol in Appendix C. The sampling protocol was submitted to Health Canada for review and all questions were answered to their satisfaction prior to initiation of the study.

It was initially proposed that the following be collected as part of the country food study:

- 15 samples of snowshoe hare muscle, 10 samples of kidney and 10 samples of liver
- 15 samples of spruce grouse muscle, 10 samples of kidney and 10 of liver
- 15 brook trout fillet with skin off
- 15 brook trout fillets with skin on
- 30 berry (10 blueberry, partridgeberry and squashberry with co-located soil samples)

Given the number of variables associated with biological sampling, hunting and harvesting were limited in some areas and the final numbers collected of some species were slightly less than proposed (*i.e.*, a total of nine spruce grouse and seven blueberry were collected and analyzed; an additional partridgeberry sample was collected and analysed). A breakdown of the actual number of samples collected and analyzed for the selected species is provided Table 2-1. All samples were submitted to Maxxam Analytics laboratory in Burnaby, BC.

Table 2-1 Species, Tissues and Number of Samples Analyzed

Species	Tissue type	Number of samples
Snowshoe Hare	Muscle	15
	Organ (Kidney)	10
	Organ (Liver)	10
	Mammal QA/QC	3
Spruce Grouse	Muscle	9
	Organ (Kidney)	9
	Organ (Liver)	9
	Game Bird QA/QC	2
Brook trout (Pelagic Fish)	Fillet (Muscle)	15
	Skin and Muscle (combined)	15
	Pelagic fish QA/QC	2
Berries[1]	Blueberries (unwashed)	7
	Squashberries (unwashed)	10
	Partridgeberries (unwashed)	11
	Berry QA/QC	3
Study Total		**120 (plus field duplicates)**

Notes: QA/QC = quality assurance / quality control (field duplicate samples)

1. Soil grab samples were collected in the same locations as the blueberry and partridgeberry samples and sent for analysis.

Figure 2-1 shows the preferred area for collection of samples. All fish samples were collected from four nets at various locations within Dumbell Lake (See Appendix D). The location of these nets was selected following trolling the lake with a boat and using a fish finder. Specific sampling locations for grouse, hare and berry samples are provided in Appendix D. In addition to sampling locations, Appendix D provides sample transects (i.e., areas where traps were set but no samples caught as well as areas which were surveyed but found not suitable for data collection are also indicated); GPS sampling locations and biological information on species collected (e.g., body weight, length).

Once collected (and dissected, if applicable), tissue and berry samples were packed on ice and shipped to the Maxxam in Burnaby, BC for analysis of metals using either ICPMS or CVAA analytical methods. The Maxxam Burnaby lab was contracted as the lab is both CALA (Canadian Association for Laboratory Accreditation) and SCC (Standards Council of Canada) accredited. This lab has been used by the Canadian Food Inspection Agency for metals analysis of foods and was used to analyze country food samples for the First Nations Food Nutrition and Environment Study (FNFNES, 2012) funded by Health Canada (See individual reports, e.g., Chan et al., 2011; 2012, which can be found at: http://www.fnfnes.ca/download). To be part of these studies, this lab underwent a rigorous performance evaluation, including evaluation of detection limits.

Analytical results and laboratory certificates of approval for snowshoe hare, spruce grouse, brook trout and berries are provided in Appendix E. Soil grab samples were collected in the same locations as the samples in order to have paired soil / berry data. Soil samples were also sent to Maxxam in Burnaby, BC for metals analysis. Baseline soil data were used in the Wabush 3 HHRA (Intrinsik, 2014) for screening purposes. Analytical results for the soil grab samples are provided in Appendix E.

To ensure quality of data, field duplicates were collected at a number of sampling locations, selected at random by the sampling technicians. For animal tissue samples, duplicates were taken from the same animal. The total number of field duplicates collected comprised approximately 10% of the total number of tissue samples where possible (e.g., grouse kidneys were too small for field duplicate samples to be analyzed). Field duplicate samples were collected, processed, shipped, and analyzed in exactly the same manner as the other samples. Field duplicate samples were submitted blind to the lab.

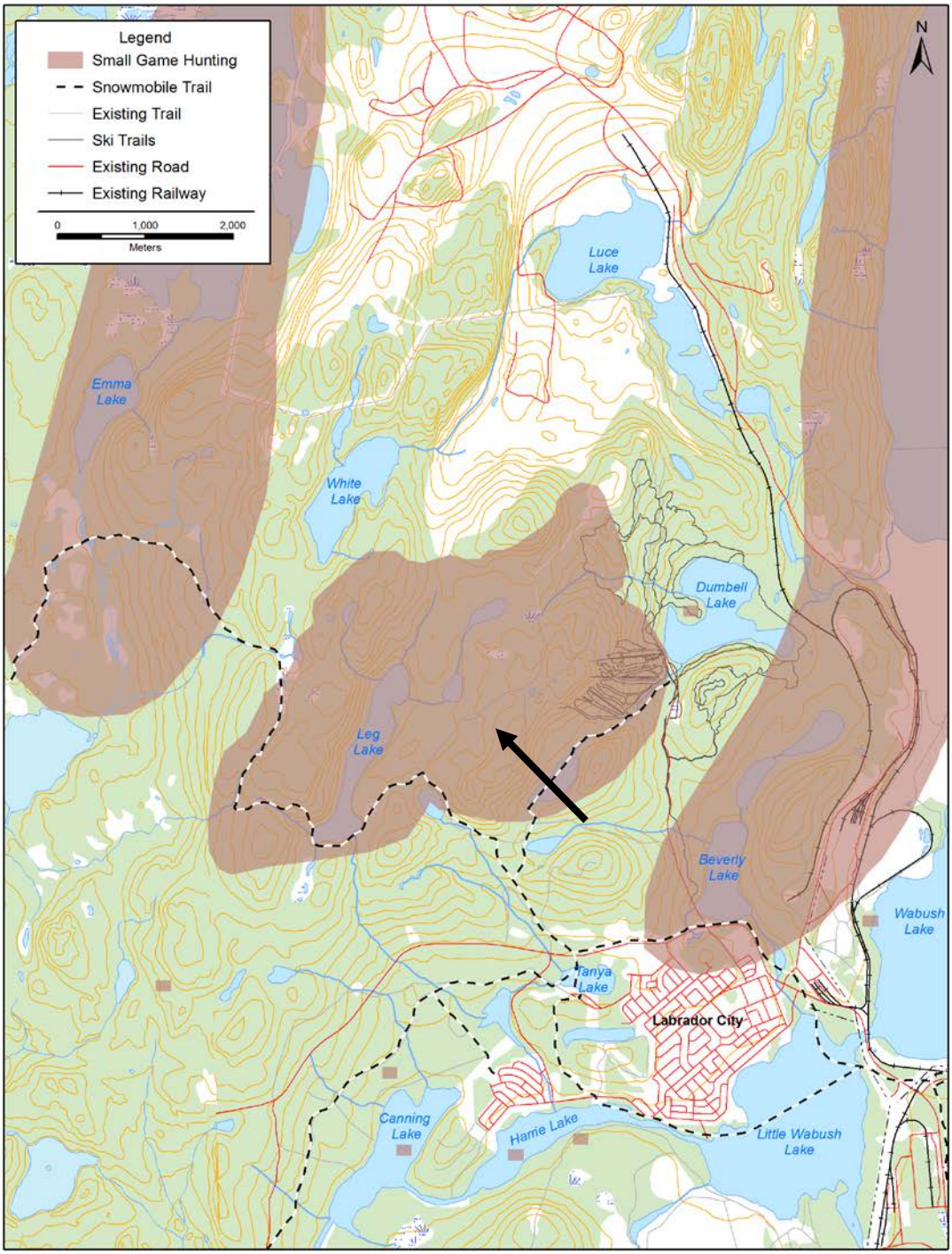

Figure 2-1 Preferred Location for Small Mammal and Game Bird Sampling (see arrow)

2.3 Data Evaluation Methods

2.3.1 Laboratory Quality Assurance / Quality Control (QA/QC)

The percent (%) recoveries provided by Maxxam for laboratory-spiked samples were reviewed to ensure that the results were consistent between samples. The MDL was reviewed to ensure that it was as proposed and that the values achieved by the laboratory were appropriate and consistent across samples. For samples where the percent recovery fell outside an acceptable range (i.e., 75% – 125%), lab comments and data were reviewed. A review of laboratory duplicate data was also undertaken to ensure that analyses were within acceptable ranges (*i.e.*, relative percent differences (RPD) of 35% or less). Section 3.5 provides a discussion of QA/QC outcomes.

2.3.2 Statistical Evaluation and Calculation of Exposure Point Concentrations

Intrinsik compiled and reviewed the analytical laboratory results of the tissue and berry samples. Summary statistics (*i.e.*, minimum, maximum, mean, 90th percentile and 95th percentile) for each metal in each media were calculated. For field duplicates, the higher of the two individual metal concentrations (between the original and duplicate sample) was reported in data summary tables. These data represent the baseline levels of metals in country foods consumed in the vicinity of the Wabush 3 mine.

Exposure point concentrations (EPCs) used in the development of the allowable serving per year for each chemical and country food item were developed based on the reported metal concentrations. For small game (i.e., hare and grouse) muscle, fish and berry tissues, when sufficient data were available (*i.e.*, at least 4 samples with concentrations greater than the reported detection limit), EPCs were represented by the 95 percent upper confidence limit of the mean (95% UCLM) of values (including both detected values and below detection limit values) as calculated by ProUCL (Version 4.1.01 by U.S. EPA, 2011) using the method recommended by ProUCL for that specific dataset. If insufficient data were available (*i.e.*, less than 4 samples with concentrations greater than the reported detection limit or less than 20% of samples were greater than the reported detection limit), the 95% UCLM was not calculated; in these cases, the maximum of all observed concentrations and all reported detection limits for that dataset was used as the EPC. The only exception to this was when a particular chemical was not detected in all samples of a particular sample type (i.e., chemical below detection limit in all berry samples, all hare samples, all grouse samples, or all fish samples). In such cases, ½ of the detection limit was used as the EPC. This occurred for the following chemicals and tissue types (See Section 3.0 for analytical results):

- Cadmium in fish (cadmium not detected in any fish fillet or fillet and skin samples)
- Thallium in hare (thallium not detected in any hare tissue samples)
- Arsenic, Chromium and Selenium in berries (these metals were not detected in any blueberry, partridgeberry or squash berry samples)

2.3.3 Selection of Metals for Further Evaluation

A subset of the metals analyzed by the lab for each tissue type was selected for further analysis. This analysis included determining the number of servings of a particular tissue type one could eat without exceeding the recommended exposure levels.

The selection of chemicals for further study focused on metals which, following a screening process, were selected for assessment in the Wabush 3 mine HHRA (See Appendix A of Intrinsik, 2014). In addition to evaluating select metals predicted to be associated with the Wabush 3 mine some metals were also included for further consideration. Criteria for addition of metals to be evaluated included:

- Measured soil concentration in the vicinity of the proposed Wabush 3 mine greater than CCME soil quality guidelines[2].
- Metals that are bioaccumulative or considered to be of concern (e.g., carcinogenic by the oral route).

Results of the screening to select chemicals for further evaluation are provided are Section 4-1.

2.3.4 Calculation of Number of Servings of Country Foods

Once the metals to be evaluated further were determined, calculated exposures to each of these metals were used to identify the number of meals of each species one could eat in a year before levels would be considered to represent greater than 20% of the Toxicity Reference Value (TRV), or greater than an incremental risk of 1:100,000, for carcinogenic metals (Health Canada, 2012). This was done to provide perspective on the current level of exposure through country food consumption in the vicinity of Wabush 3 Mine.

Assumptions used in the calculations were based on the following:

- Portion size of toddler meal assumed to be equal to recommended serving size of 75 g (recommended by Health Canada (2007) and from Canada's Food Guide; http://www.has.uwo.ca/hospitality/nutrition/pdf/foodguide.pdf);
- Portion size of adult meal assumed to be 150 g of fish fillets and small game muscle as recommended by Health Canada (2007) and 75 g for organ meat;
- Weight of a toddler (16.5 kg for a toddler, aged 7months to 4 years) and an adult (70.7 kg for adult >20 years old), were based on Health Canada recommendations (Health Canada, 2012);

[2] Certain metals having a maximum baseline soil concentration (out of over 50 samples) which exceeded CCME soil quality guidelines were not selected for assessment in the Wabush 3 HHRA (Intrinsik, 2014) as these chemical were anticipated to be released in minute concentrations as a result of the project and would not be expected to have a measureable increases in soil concentrations (outside natural variability). Nevertheless, out of a preponderance of caution, these metals were the country food assessment even though they are not considered to be mine related.

- Toxicity Reference Values (TRVs) were based on Health Canada where available and on the Health Canada recommended hierarchy in cases where values were not available (Health Canada 2010b);
- Country foods were assumed to represent 20% of allowable daily exposure with the exception of methyl mercury in fish which was assumed to represent 100% of allowable exposure as fish is virtually the only source of methyl mercury.
- Arsenic was evaluated using both carcinogenic and non-carcinogenic endpoints. For non-carcinogenic arsenic calculations, 20% of allowable daily exposure was used to estimate number of servings, whereas for carcinogenic arsenic calculations, incremental risk above background based on a 1:100,000 allowable risk level was used to estimate the number of servings, based on CCME (2006);
- Arsenic was assumed to be 25% inorganic arsenic in small game and fish tissue. Organic forms of arsenic are more readily excreted than inorganic arsenic, and are of lower human toxicity (Schoof et al., 1999; ATSDR, 2007). Yost et al. (1998) suggested that 21% to 40% of total dietary arsenic occurs in inorganic forms. In a later study, Schoof et al. (1999) found that the per cent inorganic arsenic out of the total arsenic measured in beef, chicken and pork were 0.8%, 1% and 4.4%, respectively. Levels in freshwater fish averaged approximately 1% (Schoof et al., 1999). Other arsenic in fish is largely present in the organic form, with only about 10% of the total arsenic measured in fish samples being in the inorganic form (Schoof et al., 1999; Schoof and Yager, 2007; Lorenzana et al., 2009; U.S. EPA, 2003). An inorganic arsenic concentration of 25% was considered to be a conservative average of the actual inorganic arsenic concentrations in country foods.

The maximum number of meals of each individual country food type was determined by the limiting metal; that is the metal for which the lowest number of meals was calculated. Results of these calculations are summarized in Section 4.0, with equations and calculations being provided in Appendix G.

3.0 ANALYTICAL RESULTS

A summary of the analytical results for small game, fish and berries are provided in the following sections. Original laboratory data and certificates of analysis can be found in Appendix E.

For each tissue type analyzed (i.e., snowshoe hare, spruce grouse, brook trout, blueberries, partridgeberries, and squashberries), the number of samples analyzed (N), reportable detection limit (RDL), minimum (Min), maximum (Max), mean, 90th percentile, and 95th percentile values are provided in Tables 3-1 to 3-11 along with the percent of samples analyzed that had non-detectable concentrations (% ND).

Metal RDLs within and between all tissue types analyzed (on a wet weight basis) were the same with the exception of two grouse kidney samples (i.e., GK-3 and GK-4) and one grouse duplicate liver samples (i.e., GL-12). These samples contained insufficient sample volume and RDLs for these samples were twice as high as the RDLs for other spruce grouse kidney and liver samples. As grouse liver sample GL-12 was a duplicate of sample GL-6, the detection limits for GL-6 are presented in Table 3-5. The range of grouse liver detection limits for GK-3 and GK-4 are provided in Table 3-6.

3.1 Snowshoe Hare

Fifteen snowshoe hare samples collected in the vicinity of the Wabush 3 mine site by Pinchin LeBlanc between August 15th and 23rd, 2014 were submitted for analysis. All fifteen samples were submitted for analysis of metals in muscle, while ten of these samples were also submitted metals in liver and kidney. Summaries of metal concentrations in snowshoe hare muscle, liver and kidney are provided in Tables 3-1 to 3-3, respectively. Full data sets and laboratory certificates of analysis are provided in Appendix E.

Table 3-1 Snowshoe Hare Muscle Sampling Results (mg/kg; wet weight; N=15)

Metals [a]	RDL	Min	Max	Mean [b]	90th Percentile	95th Percentile	% ND
Aluminum (Al)	0.20	<0.2	0.25	0.207	0.228	0.243	80
Antimony (Sb)	0.0010	<0.001	<0.001	NC	NC	NC	100
Arsenic (As)	0.010	<0.01	<0.01	NC	NC	NC	100
Barium (Ba)	0.020	<0.02	0.049	0.0258	0.04	0.0441	47
Beryllium (Be)	0.020	<0.02	<0.02	NC	NC	NC	100
Bismuth (Bi)	0.020	<0.02	<0.02	NC	NC	NC	100
Boron (B)	0.40	<0.4	<0.4	NC	NC	NC	100
Cadmium (Cd)	0.0020	<0.002	0.0056	0.00335	0.00506	0.00525	40
Calcium (Ca)	2.0	38.5	100	52.6	70.4	87.3	0
Chromium (Cr)	0.040	<0.04	0.047	0.0405	0.04	0.0421	93
Cobalt (Co)	0.0040	<0.004	0.0092	0.00567	0.0075	0.00801	27
Copper (Cu)	0.010	1.86	2.76	2.31	2.50	2.58	0
Iron (Fe)	2.0	18.4	44.7	30.9	36.7	40.1	0
Lead (Pb)	0.0020	<0.002	0.0035	0.00239	0.00312	0.00329	47
Magnesium (Mg)	2.0	275	348	306	331	342	0
Manganese (Mn)	0.020	0.211	0.789	0.366	0.592	0.671	0
Mercury (Hg)	0.0020	<0.002	0.005	0.00228	0.00266	0.00353	80
Molybdenum (Mo)	0.010	<0.01	<0.01	NC	NC	NC	100
Nickel (Ni)	0.010	<0.01	0.06	0.0355	0.0568	0.06	7
Phosphorus (P)	2.0	2160	2660	2434	2602	2625	0
Potassium (K)	2.0	3190	4410	3800	4246	4340	0
Selenium (Se)	0.010	0.023	0.065	0.047	0.0622	0.0636	0
Silver (Ag)	0.0040	<0.004	<0.004	NC	NC	NC	100
Sodium (Na)	2.0	405	1070	562	705	865	0
Strontium (Sr)	0.020	<0.02	0.097	0.0377	0.0516	0.0655	7
Thallium (Tl)	0.00040	0.00084	0.00583	0.00248	0.00460	0.005347	0
Tin (Sn)	0.020	<0.02	0.047	0.0254	0.0388	0.0435	53
Titanium (Ti)	0.20	<0.2	<0.2	NC	NC	NC	100
Uranium (U)	0.00040	<0.0004	0.00047	0.000404	0.0004	0.000421	93
Vanadium (V)	0.040	<0.04	<0.04	NC	NC	NC	100
Zinc (Zn)	0.040	13.8	17.2	15.8	16.9	17.0	0

Notes:
Data collected by Pinchin LeBlanc, Labrador City, NL, and analyzed by Maxxam Analytics in Burnaby, British Columbia (2014). Raw laboratory analytical data (Certificates of Analysis) are provided in Appendix E.
N = number of samples analyzed; "<" means less than detection limit; ND = non-detectable values; NC = not calculated as all samples were below the reportable detection limit; RDL = reportable detection limit.
a. Total metals
b. Mean calculated assuming non-detectable values were present at the reportable detection limit.

Table 3-2 Snowshoe Hare Liver Sampling Results (mg/kg; wet weight; N=10)

Metals [a]	RDL	Min	Max	Mean [b]	90th Percentile	95th Percentile	% ND
Aluminum (Al)	0.20	<0.2	1.03	0.383	0.607	0.819	30
Antimony (Sb)	0.0010	<0.001	<0.001	NC	NC	NC	100
Arsenic (As)	0.010	<0.01	0.015	0.0105	0.0105	0.0128	90
Barium (Ba)	0.020	0.025	0.15	0.071	0.115	0.132	0
Beryllium (Be)	0.020	<0.02	<0.02	NC	NC	NC	100
Bismuth (Bi)	0.020	<0.02	<0.02	NC	NC	NC	100
Boron (B)	0.40	<0.4	<0.4	NC	NC	NC	100
Cadmium (Cd)	0.0020	0.0366	0.562	0.174	0.336	0.449	0
Calcium (Ca)	2.0	65.9	133	99.0	130	132	0
Chromium (Cr)	0.040	<0.04	0.054	0.0418	0.0432	0.0486	70
Cobalt (Co)	0.0040	0.035	0.0642	0.0462	0.0593	0.0617	0
Copper (Cu)	0.010	3.72	5.86	4.80	5.81	5.83	0
Iron (Fe)	2.0	249	719	428	616	668	0
Lead (Pb)	0.0020	0.0191	0.281	0.104	0.204	0.242	0
Magnesium (Mg)	2.0	197	303	233	266	285	0
Manganese (Mn)	0.020	2.91	32.6	6.87	8.99	20.8	0
Mercury (Hg)	0.0020	0.0025	0.0362	0.0129	0.0286	0.0324	0
Molybdenum (Mo)	0.010	0.157	0.775	0.305	0.449	0.612	0
Nickel (Ni)	0.010	0.019	0.059	0.0393	0.0554	0.0572	0
Phosphorus (P)	2.0	2750	3610	3167	3484	3547	0
Potassium (K)	2.0	2410	3580	2882	3535	3558	0
Selenium (Se)	0.010	0.082	0.345	0.207	0.254	0.2996	0
Silver (Ag)	0.0040	0.006	0.0614	0.0205	0.0385	0.0500	0
Sodium (Na)	2.0	904	1500	1219	1401	1451	0
Strontium (Sr)	0.020	0.042	0.111	0.0745	0.105	0.108	0
Thallium (Tl)	0.00040	0.00177	0.0107	0.00458	0.00947	0.0101	0
Tin (Sn)	0.020	<0.02	0.055	0.0267	0.0352	0.0451	30
Titanium (Ti)	0.20	<0.2	<0.2	NC	NC	NC	100
Uranium (U)	0.00040	<0.0004	0.00061	0.000421	0.000421	0.000516	90
Vanadium (V)	0.040	<0.04	<0.04	NC	NC	NC	100
Zinc (Zn)	0.040	28.6	51.2	38.5	48.6	49.9	0

Notes:
Data collected by Pinchin LeBlanc, Labrador City, NL, and analyzed by Maxxam Analytics in Burnaby, British Columbia (2014). Raw laboratory analytical data (Certificates of Analysis) are provided in Appendix E.
N = number of samples analyzed; "<" means less than detection limit; ND = non-detectable values; NC = not calculated as all samples were below the reportable detection limit; RDL = reportable detection limit.
a. Total metals
b. Mean calculated assuming non-detectable values were present at the reportable detection limit.

Table 3-3 Snowshoe Hare Kidney Sampling Results (mg/kg; wet weight; N=10)

Metals	RDL	Min	Max	Mean [a]	90th Percentile	95th Percentile	% ND
Aluminum (Al)	0.20	0.2	0.46	0.333	0.442	0.451	0
Antimony (Sb)	0.0010	<0.001	<0.001	NC	NC	NC	100
Arsenic (As)	0.010	<0.01	0.015	0.0105	0.0105	0.0128	90
Barium (Ba)	0.020	0.071	0.404	0.171	0.246	0.325	0
Beryllium (Be)	0.020	<0.02	<0.02	NC	NC	NC	100
Bismuth (Bi)	0.020	<0.02	<0.02	NC	NC	NC	100
Boron (B)	0.40	<0.4	<0.4	NC	NC	NC	100
Cadmium (Cd)	0.0020	0.448	11.7	4.55	8.18	9.94	0
Calcium (Ca)	2.0	92.4	194	124	161	177	0
Chromium (Cr)	0.040	<0.04	0.063	0.0423	0.0423	0.0527	90
Cobalt (Co)	0.0040	0.0236	0.0874	0.0498	0.0736	0.0805	0
Copper (Cu)	0.010	4.44	5.17	4.88	5.17	5.17	0
Iron (Fe)	2.0	116	244	156	195	219	0
Lead (Pb)	0.0020	0.0189	0.114	0.0598	0.101	0.107	0
Magnesium (Mg)	2.0	231	321	266	302	312	0
Manganese (Mn)	0.020	2.52	20.4	5.85	6.89	13.6	0
Mercury (Hg)	0.0020	0.0426	0.369	0.116	0.184	0.276	0
Molybdenum (Mo)	0.010	0.046	0.322	0.134	0.233	0.277	0
Nickel (Ni)	0.010	0.044	0.23	0.101	0.211	0.221	0
Phosphorus (P)	2.0	3220	3920	3495	3812	3866	0
Potassium (K)	2.0	2640	3740	3041	3344	3542	0
Selenium (Se)	0.010	0.422	1.24	0.947	1.16	1.20	0
Silver (Ag)	0.0040	<0.004	0.0089	0.00511	0.00854	0.00872	70
Sodium (Na)	2.0	1260	1940	1618	1904	1922	0
Strontium (Sr)	0.020	0.063	0.167	0.117	0.149	0.158	0
Thallium (Tl)	0.00040	0.0114	0.0513	0.02	0.0280	0.0396	0
Tin (Sn)	0.020	<0.02	0.035	0.0241	0.0296	0.0323	50
Titanium (Ti)	0.20	<0.2	<0.2	NC	NC	NC	100
Uranium (U)	0.00040	<0.0004	<0.0004	NC	NC	NC	100
Vanadium (V)	0.040	<0.04	<0.04	NC	NC	NC	100
Zinc (Zn)	0.040	26.5	41.9	33.1	38.8	40.3	0

Notes:
Data collected by Pinchin LeBlanc, Labrador City, NL, and analyzed by Maxxam Analytics in Burnaby, British Columbia (2014). Raw laboratory analytical data (Certificates of Analysis) are provided in Appendix E.
N = number of samples analyzed; "<" means less than detection limit; ND = non-detectable values; NC = not calculated as all samples were below the reportable detection limit; RDL = reportable detection limit.
a. Total metals
b. Mean calculated assuming non-detectable values were present at the reportable detection limit.

3.2 Spruce Grouse

Nine spruce grouse were collected in the vicinity of the Wabush 3 mine site by Pinchin LeBlanc between August 13th and 23rd, 2014. All nine samples were submitted for analysis of metals in muscle, liver and kidney. Summaries of metal concentrations in grouse muscle, liver and kidney are provided in Tables 3-4 to 3-6, respectively with full data sets and laboratory certificates of analysis provided in Appendix E.

Table 3-4 Spruce Grouse Muscle Sampling Results (mg/kg; wet weight; N=9)

Metals [a]	RDL	Min	Max	Mean [b]	90th Percentile	95th Percentile	% ND
Aluminum (Al)	0.20	<0.2	1.82	0.738	1.44	1.63	22
Antimony (Sb)	0.0010	<0.001	0.0015	0.00108	0.00126	0.00138	67
Arsenic (As)	0.010	<0.01	0.031	0.0123	0.0142	0.0226	89
Barium (Ba)	0.020	<0.02	0.052	0.0257	0.0416	0.0468	78
Beryllium (Be)	0.020	<0.02	<0.02	NC	NC	NC	100
Bismuth (Bi)	0.020	<0.02	<0.02	NC	NC	NC	100
Boron (B)	0.40	<0.4	<0.4	NC	NC	NC	100
Cadmium (Cd)	0.0020	<0.002	0.0067	0.00358	0.00646	0.00658	33
Calcium (Ca)	2.0	40.5	119	64.4	88.0	104	0
Chromium (Cr)	0.040	<0.04	0.14	0.0662	0.103	0.122	22
Cobalt (Co)	0.0040	<0.004	0.0066	0.00456	0.0058	0.0062	56
Copper (Cu)	0.010	1.99	6.05	3.643	4.52	5.29	0
Iron (Fe)	2.0	26	78.1	59.8	71.5	74.8	0
Lead (Pb)	0.0020	<0.002	0.0095	0.00428	0.00598	0.00774	11
Magnesium (Mg)	2.0	360	633	476	543	588	0
Manganese (Mn)	0.020	0.372	0.954	0.507	0.684	0.819	0
Mercury (Hg)	0.0020	<0.002	0.0039	0.00224	0.00262	0.00326	78
Molybdenum (Mo)	0.010	0.017	0.054	0.0273	0.0348	0.0444	0
Nickel (Ni)	0.010	0.016	0.862	0.135	0.240	0.551	0
Phosphorus (P)	2.0	3120	4870	3934	4390	4630	0
Potassium (K)	2.0	4230	7220	5244	6300	6760	0
Selenium (Se)	0.010	0.09	0.228	0.165	0.215	0.222	0
Silver (Ag)	0.0040	<0.004	0.004	NC	NC	NC	100
Sodium (Na)	2.0	399	854	608	787	820	0
Strontium (Sr)	0.020	<0.02	0.181	0.0501	0.081	0.131	22
Thallium (Tl)	0.00040	<0.0004	0.00067	0.000454	0.00063	0.00065	78
Tin (Sn)	0.020	<0.02	0.14	0.0611	0.0992	0.120	11
Titanium (Ti)	0.20	<0.2	0.22	0.202	0.204	0.212	89
Uranium (U)	0.00040	<0.0004	0.00055	0.000418	0.000438	0.000494	78
Vanadium (V)	0.040	<0.04	<0.04	NC	NC	NC	100
Zinc (Zn)	0.040	6.17	9.42	8.036	8.9	9.16	0

Notes:
Data collected by Pinchin LeBlanc, Labrador City, NL, and analyzed by Maxxam Analytics in Burnaby, BC (2014). Raw laboratory analytical data (Certificates of Analysis) provided in Appendix E.
N = number of samples analyzed; "<" means less than detection limit; ND = non-detectable values; NC = not calculated as all samples were below the reportable detection limit; RDL = reportable detection limit.
a. Total metals
b. Mean calculated assuming non-detectable values were present at the RDL.

Table 3-5 Spruce Grouse Liver Sampling Results (mg/kg; wet weight; N=9)

Metals [a]	RDL [b]	Min	Max	Mean [c]	90th Percentile	95th Percentile	% ND
Aluminum (Al)	0.20	0.2	11.9	2.46	4.71	8.30	0
Antimony (Sb)	0.0010	<0.001	0.0013	0.00103	0.00106	0.00118	89
Arsenic (As)	0.010	<0.01	0.057	0.021	0.0282	0.0426	22
Barium (Ba)	0.020	0.023	0.138	0.0668	0.11	0.124	0
Beryllium (Be)	0.020	<0.02	<0.02	0.02	0.02	0.02	100
Bismuth (Bi)	0.020	<0.02	<0.02	0.02	0.02	0.02	100
Boron (B)	0.40	<0.4	<0.4	0.4	0.4	0.4	100
Cadmium (Cd)	0.0020	0.232	0.758	0.394	0.568	0.663	0
Calcium (Ca)	2.0	75	211	108	129	170	0
Chromium (Cr)	0.040	<0.04	<0.04	0.04	0.04	0.04	100
Cobalt (Co)	0.0040	0.0258	0.109	0.0532	0.0783	0.0936	0
Copper (Cu)	0.010	4.04	5.52	5.03	5.46	5.49	0
Iron (Fe)	2.0	417	1410	735	1170	1290	0
Lead (Pb)	0.0020	0.0139	0.0771	0.0314	0.0542	0.0657	0
Magnesium (Mg)	2.0	274	369	333	360	365	0
Manganese (Mn)	0.020	4.45	13.3	6.77	11.5	12.4	0
Mercury (Hg)	0.0020	0.0028	0.0137	0.00554	0.00946	0.0116	0
Molybdenum (Mo)	0.010	1.94	11	5.03	7.26	9.13	0
Nickel (Ni)	0.010	0.016	0.119	0.0469	0.087	0.103	0
Phosphorus (P)	2.0	4420	5910	5322	5878	5894	0
Potassium (K)	2.0	4040	5330	4786	5242	5286	0
Selenium (Se)	0.010	0.199	0.456	0.312	0.446	0.451	0
Silver (Ag)	0.0040	<0.004	0.0064	0.00488	0.00672	0.00736	67
Sodium (Na)	2.0	1370	1700	1502	1604	1652	0
Strontium (Sr)	0.020	0.027	0.117	0.0656	0.102	0.109	0
Thallium (Tl)	0.00040	<0.0004	0.00125	0.000712	0.00107	0.00116	44
Tin (Sn)	0.020	<0.02	0.043	0.0273	0.0406	0.0418	22
Titanium (Ti)	0.20	<0.2	0.42	0.256	0.404	0.412	67
Uranium (U)	0.00040	<0.0004	<0.0004	0.0004	0.0004	0.0004	100
Vanadium (V)	0.040	<0.04	<0.04	0.04	0.04	0.04	100
Zinc (Zn)	0.040	29	47.2	39.3	44.6	45.9	0

Notes:

Data collected by Pinchin LeBlanc, Labrador City, NL, and analyzed by Maxxam Analytics in Burnaby, British Columbia (2014). Raw laboratory analytical data (Certificates of Analysis) are provided in Appendix E.

N = number of samples analyzed; "<" means less than detection limit; ND = non-detectable values; NC = not calculated as all samples were below the reportable detection limit; RDL = reportable detection limit.

a. Total metals

b. One duplicate sample (GL-12 which was the duplicate for sample GL-6) had insufficient sample volume and detection limits for this sample were two times the RDLs presented. Calculations were derived using the original sample (GL-6) detection limits which are provided in the table.

c. Mean calculated assuming non-detectable values were present at the reportable detection limit.

Table 3-6 Spruce Grouse Kidney Sampling Results (mg/kg; wet weight; N=9)

Metals [a]	RDL [b]	Min	Max	Mean [c]	90th Percentile	95th Percentile	% ND
Aluminum (Al)	0.20-0.40	0.22	27.5	8.84	22.1	24.8	0
Antimony (Sb)	0.0010–0.0020	<0.001	0.0067	0.00204	0.00342	0.00506	56
Arsenic (As)	0.010–0.020	<0.01	0.046	0.0172	0.0252	0.0356	56
Barium (Ba)	0.020–0.040	0.297	1.75	1.08	1.502	1.63	0
Beryllium (Be)	0.020-0.040	<0.02	<0.04	NC	NC	NC	100
Bismuth (Bi)	0.020-0.040	<0.02	<0.04	NC	NC	NC	100
Boron (B)	0.40-0.80	<0.4	<0.8	NC	NC	NC	100
Cadmium (Cd)	0.0020-0.0040	0.37	3.99	1.95	3.45	3.72	0
Calcium (Ca)	2.0-4.0	117	1880	427	764	1322	0
Chromium (Cr)	0.040-0.080	<0.04	0.204	0.0726	0.110	0.157	56
Cobalt (Co)	0.0040-0.0080	0.0084	0.0452	0.0269	0.0366	0.0409	0
Copper (Cu)	0.010-0.020	3.74	5.23	4.49	4.92	5.07	0
Iron (Fe)	2.0-4.0	81.7	174	139	165	170	0
Lead (Pb)	0.0020-0.0040	0.0248	0.155	0.0725	0.119	0.137	0
Magnesium (Mg)	2.0-4.0	253	310	281	308	309	0
Manganese (Mn)	0.020-0.040	3.12	22.6	6.75	11.0	16.8	0
Mercury (Hg)	0.0020-0.0040	0.0041	0.0184	0.009	0.0158	0.0171	0
Molybdenum (Mo)	0.010-0.020	0.749	1.45	1.04	1.31	1.38	0
Nickel (Ni)	0.010-0.020	0.021	0.361	0.132	0.352	0.357	0
Phosphorus (P)	2.0-4.0	3830	4950	4320	4806	4878	0
Potassium (K)	2.0-4.0	3010	3630	3356	3614	3622	0
Selenium (Se)	0.010-0.020	0.44	1.14	0.740	1.04	1.09	0
Silver (Ag)	0.0040-0.0080	<0.004	<0.008	NC	NC	NC	100
Sodium (Na)	2.0-4.0	1780	2220	1961	2156	2188	0
Strontium (Sr)	0.020-0.040	0.063	1.09	0.283	0.51	0.8	0
Thallium (Tl)	0.00040-0.00080	0.00219	0.0109	0.00543	0.00895	0.00992	0
Tin (Sn)	0.020-0.040	<0.02	0.177	0.0474	0.0778	0.127	44
Titanium (Ti)	0.20-0.40	<0.2	1.2	0.526	1.14	1.17	56
Uranium (U)	0.00040-0.00080	<0.0004	0.00096	0.000589	0.000832	0.000896	78
Vanadium (V)	0.040-0.080	<0.04	<0.08	NC	NC	NC	100
Zinc (Zn)	0.040-0.080	22.5	31.6	26.6	29.8	30.7	0

Notes:

Data collected by Pinchin LeBlanc, Labrador City, NL, and analyzed by Maxxam Analytics in Burnaby, British Columbia (2014). Raw laboratory analytical data (Certificates of Analysis) are provided in Appendix E.

N = number of samples analyzed; "<" means less than detection limit; ND = non-detectable values; NC = not calculated as all samples were below the reportable detection limit; RDL = reportable detection limit.

a. Total metals

b. Samples GK-03 and GK-04 had insufficient sample volume and as such, detection limits were twice as high as the detection limits for the other samples. The range of RDLs is presented in this table with the higher of the detection limits being for samples GK-03 and GK-04 in the calculations.

c. Mean calculated assuming non-detectable values were present at the reportable detection limit.

d. Highest detected value reported was less than highest detection limit, therefore highest detected value reported in table.

3.3 Fish

Fifteen brook trout were collected between July 31st and August 2nd, 2014 by Pinchin LeBlanc. From these 15 brook trout, thirty samples were submitted for metals analysis (i.e., 15 samples of fillet alone and 15 samples of fillet and skin together). Summaries of metal concentration in fish fillet and fillet/skin combined are provided in Tables 3-7 and 3-8. Full data sets and laboratory certificates of analysis are provided in Appendix E.

Table 3-7 Brook Trout Fillet Sampling Results (mg/kg; wet weight; N=15)

Metals [a]	RDL	Min	Max	Mean [b]	90th Percentile	95th Percentile	% ND
Aluminum (Al)	0.20	<0.2	1.4	0.426	0.854	1.06	20
Antimony (Sb)	0.0010	<0.001	<0.001	NC	NC	NC	100
Arsenic (As)	0.010	<0.01	0.015	0.01147	0.0136	0.0143	47
Barium (Ba)	0.020	<0.02	<0.02	NC	NC	NC	100
Beryllium (Be)	0.020	<0.02	<0.02	NC	NC	NC	100
Bismuth (Bi)	0.020	<0.02	<0.02	NC	NC	NC	100
Boron (B)	0.40	<0.4	<0.4	NC	NC	NC	100
Cadmium (Cd)	0.0020	<0.002	<0.002	NC	NC	NC	100
Calcium (Ca)	2.0	69.6	385	137	170	245	0
Chromium (Cr)	0.040	<0.04	0.279	0.0637	0.0978	0.171	67
Cobalt (Co)	0.0040	<0.004	0.0071	0.00476	0.00596	0.00647	40
Copper (Cu)	0.010	0.417	0.877	0.626	0.786	0.815	0
Iron (Fe)	2.0	3.7	11.9	5.48	6.18	7.98	0
Lead (Pb)	0.0020	<0.002	0.0791	0.0116	0.0339	0.0515	47
Magnesium (Mg)	2.0	328	381	354	372	376	0
Manganese (Mn)	0.020	0.078	0.262	0.128	0.207	0.242	0
Mercury (Hg)	0.0020	0.0298	0.0723	0.0458	0.0583	0.0625	0
Molybdenum (Mo)	0.010	<0.01	0.025	0.011	0.01	0.0145	93
Nickel (Ni)	0.010	0.018	0.118	0.0463	0.0912	0.101	0
Phosphorus (P)	2.0	2760	3360	3069	3146	3213	0
Potassium (K)	2.0	4050	4940	4677	4902	4933	0
Selenium (Se)	0.010	0.315	0.513	0.383	0.464	0.503	0
Silver (Ag)	0.0040	<0.004	<0.004	NC	NC	NC	100
Sodium (Na)	2.0	194	458	348	409	427	0
Strontium (Sr)	0.020	0.022	0.215	0.0699	0.084	0.125	0
Thallium (Tl)	0.00040	0.00247	0.00655	0.00413	0.00532	0.00574	0
Tin (Sn)	0.020	<0.02	0.052	0.0306	0.0448	0.0492	40
Titanium (Ti)	0.20	<0.2	<0.2	NC	NC	NC	100
Uranium (U)	0.00040	<0.0004	<0.0004	NC	NC	NC	100
Vanadium (V)	0.040	<0.04	<0.04	NC	NC	NC	100
Zinc (Zn)	0.040	4.2	6.62	5.34	6.21	6.35	0

Notes:
Data collected by Pinchin LeBlanc, Labrador City, NL, and analyzed by Maxxam Analytics in Burnaby, British Columbia (2014). Raw laboratory analytical data (Certificates of Analysis) are provided in Appendix E.
N = number of samples analyzed; "<" means less than detection limit; ND = non-detectable values; NC = not calculated as all samples were below the reportable detection limit; RDL = reportable detection limit.
a. Total metals
b. Mean calculated assuming non-detectable values were present at the reportable detection limit.

Table 3-8 Brook Trout Fillet with Skin Sampling Results (mg/kg; wet weight; N=15)

Metals [a]	RDL	Min	Max	Mean [b]	90th Percentile	95th Percentile	% ND
Aluminum (Al)	0.20	<0.2	1.94	0.521	1.01	1.46	20
Antimony (Sb)	0.0010	<0.001	<0.001	NC	NC	NC	100
Arsenic (As)	0.010	<0.01	0.025	0.0178	0.0236	0.0243	20
Barium (Ba)	0.020	0.032	0.103	0.0657	0.0926	0.0988	0
Beryllium (Be)	0.020	<0.02	<0.02	NC	NC	NC	100
Bismuth (Bi)	0.020	<0.02	<0.02	NC	NC	NC	100
Boron (B)	0.40	<0.4	<0.4	NC	NC	NC	100
Cadmium (Cd)	0.0020	<0.002	<0.002	NC	NC	NC	100
Calcium (Ca)	2.0	390	791	546	745	769	0
Chromium (Cr)	0.040	<0.04	0.81 [c]	0.209	0.375	0.523	20
Cobalt (Co)	0.0040	<0.004	0.0095	0.00565	0.00706	0.00782	20
Copper (Cu)	0.010	0.557	8.36	1.87	3.48	5.14	0
Iron (Fe)	2.0	4.3	8.7	5.83	7.58	8.14	0
Lead (Pb)	0.0020	0.0021	0.131	0.0213	0.0475	0.0745	0
Magnesium (Mg)	2.0	328	390	358	377	382	0
Manganese (Mn)	0.020	0.226	0.781	0.421	0.590	0.647	0
Mercury (Hg)	0.0020	0.0295	0.0654	0.0466	0.0601	0.0619	0
Molybdenum (Mo)	0.010	<0.01	0.016	0.0105	0.0106	0.0125	93
Nickel (Ni)	0.010	0.02	0.461	0.129	0.243	0.318	0
Phosphorus (P)	2.0	3080	3510	3286	3490	3496	0
Potassium (K)	2.0	4250	4910	4636	4794	4840	0
Selenium (Se)	0.010	0.314	0.488	0.387	0.448	0.477	0
Silver (Ag)	0.0040	<0.004	<0.004	NC	NC	NC	100
Sodium (Na)	2.0	246	457	377	427	437	0
Strontium (Sr)	0.020	0.251	0.57	0.378	0.538	0.553	0
Thallium (Tl)	0.00040	0.00192	0.0063	0.0043	0.0057	0.00591	0
Tin (Sn)	0.020	<0.02	0.799	0.157	0.345	0.502	20
Titanium (Ti)	0.20	<0.2	0.36	0.211	0.206	0.255	87
Uranium (U)	0.00040	<0.0004	0.00047	0.0004	0.0004	0.000421	93
Vanadium (V)	0.040	<0.04	<0.04	NC	NC	NC	100
Zinc (Zn)	0.040	9.13	14.7	11.4	13.6	14	0

Notes:
Data collected by Pinchin LeBlanc, Labrador City, NL, and analyzed by Maxxam Analytics in Burnaby, British Columbia (2014). Raw laboratory analytical data (Certificates of Analysis) are provided in Appendix E.
N = number of samples analyzed; "<" means less than detection limit; ND = non-detectable values; NC = not calculated as all samples were below the reportable detection limit; RDL = reportable detection limit.
a. Total metals
b. Mean calculated assuming non-detectable values were present at the reportable detection limit.
c. Aluminum percent recover in laboratory duplicate sample was below control limit in this sample for chromium. Re-analysis yields similar results (10% of analytes failure allowed; See Appendix E).

3.4 Berries

Berry sampling occurred between September 12th and 25th, 2014, which was toward the end of the short harvesting season for these berries in Labrador. A total of 7 blueberry samples, 11 partridgeberry samples and 10 squashberry samples were collected by Pinchin LeBlanc. Unwashed berries were sent to the lab for analysis and summaries of metal concentration in blueberries, partridgeberries and squashberries provided in Tables 3-9 and 3-11. Full data sets and laboratory certificates of analysis are provided in Appendix E[3].

Table 3-9 Blueberryd Sampling Results (mg/kg; wet weight; N=7)

Metals [a]	RDL [b]	Min	Max	Mean [c]	90th Percentile	95th Percentile	% ND
Aluminum (Al)	0.20	1.45	4.81	2.61	4.63	4.72	0
Antimony (Sb)	0.0010	<0.001	<0.001	NC	NC	NC	100
Arsenic (As)	0.010	<0.01	<0.01	NC	NC	NC	100
Barium (Ba)	0.020	2.46	4.12	2.92	3.38	3.75	0
Beryllium (Be)	0.020	<0.02	<0.02	NC	NC	NC	100
Bismuth (Bi)	0.020	<0.02	<0.02	NC	NC	NC	100
Boron (B)	0.40	0.47	0.94	0.689	0.898	0.919	0
Cadmium (Cd)	0.0020	<0.002	<0.002	NC	NC	NC	100
Calcium (Ca)	2.0	196	281	231	270	275	0
Chromium (Cr)	0.040	<0.04	<0.04	NC	NC	NC	100
Cobalt (Co)	0.0040	<0.004	0.0067	0.00443	0.00526	0.00598	71
Copper (Cu)	0.050	0.577	0.899	0.704	0.849	0.874	0
Iron (Fe)	10	<10	79	26.1	56.8	67.9	14
Lead (Pb)	0.0020	<0.002	0.0046	0.00274	0.0037	0.00415	29
Magnesium (Mg)	2.0	71.1	113	88.7	106.	110	0
Manganese (Mn)	0.020	83.4	154	120	149	152	0
Mercury (Hg)	0.0020	<0.002	0.0048	0.00259	0.00354	0.00417	57
Molybdenum (Mo)	0.010	<0.01	0.022	0.01443	0.0208	0.0214	29
Nickel (Ni)	0.010	0.074	0.131	0.105	0.123	0.127	0
Phosphorus (P)	2.0	183	220	191	204	212	0
Potassium (K)	2.0	733	845	796	843	844	0
Selenium (Se)	0.010	<0.01	<0.01	NC	NC	NC	100
Silver (Ag)	0.0040	<0.004	<0.004	NC	NC	NC	100
Sodium (Na)	2.0	<2	<2	2	2	2	100
Strontium (Sr)	0.020	0.189	1.02	0.421	0.666	0.843	0
Thallium (Tl)	0.00040	<0.0004	<0.0004	NC	NC	NC	100
Tin (Sn)	0.020	<0.02	<0.02	NC	NC	NC	100
Titanium (Ti)	0.20	<0.2	0.4	0.244	0.346	0.373	71
Uranium (U)	0.00040	<0.0004	0.00044	0.000406	0.000416	0.000428	86
Vanadium (V)	0.040	<0.04	<0.04	NC	NC	NC	100
Zinc (Zn)	0.040	0.965	1.63	1.33	1.53	1.58	0

[3] Reportable detection limits (RDLs) for berries presented in Table 3-9 to Table 3-11 and Appendix E are in wet weight and differ from those in Attachment 2 of Appendix C which are in dry weight. Attachment 2 of Appendix C reports typical reportable detection limits for the Maxxam Burnaby lab for metals in vegetation and biota. These tables were provided to Intrinsik by Maxxam prior to sample analysis and were included in the Study Protocol (Appendix C). The normal method used by Maxxam for the digestion and analysis of plant tissues was designed with dry plants such as grasses and leaves in mind. Because of the high moisture content of the berries, the wet-weight (rather than dry-weight) method was able to be used by Maxxam which offered better detection limits than were originally presented in Appendix C.

Notes:
Data collected by Pinchin LeBlanc, Labrador City, NL, and analyzed by Maxxam Analytics in Burnaby, British Columbia (2014). Raw laboratory analytical data (Certificates of Analysis) are provided in Appendix E.
N = number of samples analyzed; "<" means less than detection limit; ND = non-detectable values; NC = not calculated as all samples were below the reportable detection limit; RDL = reportable detection limit
a. Total metals
b. The RDLs presented in this table are in wet weight and differ from those presented in Attachment 2 of Appendix C which are in dry weight.
c. Mean calculated assuming non-detectable values were present at the reportable detection limit.
d. The moisture percentage in blueberries determined by Maxxam Analytics ranges from 80% to 87% (See Appendix E).

Table 3-10 Partridgeberryd Sampling Results (mg/kg; wet weight; N=11)

Metals [a]	RDL [b]	Min	Max	Mean [c]	90th Percentile	95th Percentile	% ND
Aluminum (Al)	0.20	3.21	8.12	5.85	7.08	7.6	0
Antimony (Sb)	0.0010	<0.001	<0.001	NC	NC	NC	100
Arsenic (As)	0.010	<0.01	<0.01	NC	NC	NC	100
Barium (Ba)	0.020	1.23	2.37	1.76	2.17	2.27	0
Beryllium (Be)	0.020	<0.02	<0.02	NC	NC	NC	100
Bismuth (Bi)	0.020	<0.02	<0.02	NC	NC	NC	100
Boron (B)	0.40	<0.4	0.94	0.675	0.94	0.94	18
Cadmium (Cd)	0.0020	<0.002	0.0033	0.00228	0.0033	0.0033	64
Calcium (Ca)	2.0	115	217	150	173	195	0
Chromium (Cr)	0.040	<0.04	<0.04	NC	NC	NC	100
Cobalt (Co)	0.0040	<0.004	<0.004	NC	NC	NC	100
Copper (Cu)	0.050	0.285	0.573	0.444	0.512	0.543	0
Iron (Fe)	10	<10	19	13.1	16	17.5	36
Lead (Pb)	0.0020	<0.002	0.0081	0.00329	0.0063	0.0072	36
Magnesium (Mg)	2.0	53	82.3	67.0	81.4	81.9	0
Manganese (Mn)	0.020	35.5	72.5	50.2	63.4	68.0	0
Mercury (Hg)	0.0020	<0.002	0.0031	0.00215	0.0025	0.0028	82
Molybdenum (Mo)	0.010	<0.01	0.014	0.0109	0.013	0.0135	73
Nickel (Ni)	0.010	0.03	0.119	0.0618	0.09	0.105	0
Phosphorus (P)	2.0	82.9	172	127	157	165	0
Potassium (K)	2.0	658	879	770	841	860	0
Selenium (Se)	0.010	<0.01	<0.01	NC	NC	NC	100
Silver (Ag)	0.0040	<0.004	<0.004	NC	NC	NC	100
Sodium (Na)	2.0	<2	6.9	2.45	2.1	4.5	82
Strontium (Sr)	0.020	0.17	0.898	0.316	0.482	0.69	0
Thallium (Tl)	0.00040	<0.0004	0.00155	0.000518	0.00048	0.001015	73
Tin (Sn)	0.020	<0.02	<0.02	NC	NC	NC	100
Titanium (Ti)	0.20	<0.2	0.44	0.245	0.39	0.415	73
Uranium (U)	0.00040	<0.0004	<0.0004	NC	NC	NC	100
Vanadium (V)	0.040	<0.04	<0.04	NC	NC	NC	100
Zinc (Zn)	0.040	0.908	1.43	1.11	1.41	1.42	0

Notes:
Data collected by Pinchin LeBlanc, Labrador City, NL, and analyzed by Maxxam Analytics in Burnaby, British Columbia (2014). Raw laboratory analytical data (Certificates of Analysis) are provided in Appendix E.
N = number of samples analyzed; "<" means less than detection limit; ND = non-detectable values; NC = not calculated as all samples were below the reportable detection limit; RDL = reportable detection limit
a. Total metals; b. The RDLs presented in this table are in wet weight and differ from those presented in Attachment 2 of Appendix C which are in dry weight; c. Mean calculated assuming non-detectable values were present at the reportable detection limit; d. The moisture percentage in partridgeberries determined by Maxxam Analytics is from 86% to 88%.

Table 3-11 Squashberryd Sampling Results (mg/kg; wet weight; N=10)

Metals [a]	RDL [b]	Min	Max	Mean [c]	90th Percentile	95th Percentile	% ND
Aluminum (Al)	0.20	0.41	2.66	1.11	1.90	2.28	0
Antimony (Sb)	0.0010	<0.001	<0.001	NC	NC	NC	100
Arsenic (As)	0.010	<0.01	<0.01	NC	NC	NC	100
Barium (Ba)	0.020	0.39	1.59	0.931	1.19	1.39	0
Beryllium (Be)	0.020	<0.02	<0.02	NC	NC	NC	100
Bismuth (Bi)	0.020	<0.02	<0.02	NC	NC	NC	100
Boron (B)	0.40	0.42	4.53	1.34	1.94	3.23	0
Cadmium (Cd)	0.0020	<0.002	0.0109	0.00457	0.00703	0.00897	20
Calcium (Ca)	2.0	177	418	296	396	407	0
Chromium (Cr)	0.040	<0.04	<0.04	NC	NC	NC	100
Cobalt (Co)	0.0040	<0.004	<0.004	NC	NC	NC	100
Copper (Cu)	0.050	0.275	0.675	0.437	0.516	0.595	0
Iron (Fe)	10	<10	14	10.5	11.3	12.7	70
Lead (Pb)	0.0020	<0.002	0.0021	0.00202	0.0021	0.0021	80
Magnesium (Mg)	2.0	96.5	200	156	198	199	0
Manganese (Mn)	0.020	0.441	1.15	0.865	1.11	1.13	0
Mercury (Hg)	0.0020	<0.002	<0.002	NC	NC	NC	100
Molybdenum (Mo)	0.010	0.01	0.061	0.0245	0.043	0.052	10
Nickel (Ni)	0.010	0.047	0.148	0.0789	0.144	0.146	0
Phosphorus (P)	2.0	145	312	226	282	297.2	0
Potassium (K)	2.0	1360	2490	1656	1869	2180	0
Selenium (Se)	0.010	<0.01	<0.01	NC	NC	NC	100
Silver (Ag)	0.0040	<0.004	<0.004	NC	NC	NC	100
Sodium (Na)	2.0	<2	<2	NC	NC	NC	100
Strontium (Sr)	0.020	0.184	0.87	0.524	0.843	0.857	0
Thallium (Tl)	0.00040	<0.0004	<0.0004	NC	NC	NC	100
Tin (Sn)	0.020	<0.02	0.05	0.0245	0.0365	0.0433	80
Titanium (Ti)	0.20	<0.2	<0.2	NC	NC	NC	100
Uranium (U)	0.00040	<0.0004	<0.0004	NC	NC	NC	90
Vanadium (V)	0.040	<0.04	<0.04	NC	NC	NC	100
Zinc (Zn)	0.040	0.937	1.98	1.48	1.78	1.88	0

Notes:
Data collected by Pinchin LeBlanc, Labrador City, NL, and analyzed by Maxxam Analytics in Burnaby, British Columbia (2014). Raw laboratory analytical data (Certificates of Analysis) are provided in Appendix E.
N = number of samples analyzed; "<" means less than detection limit; ND = non-detectable values; NC = not calculated as all samples were below the reportable detection limit; RDL = reportable detection limit
a. Total metals
b. The RDLs presented in this table are in wet weight and differ from those presented in Attachment 2 of Appendix C which are in dry weight.
c. Mean calculated assuming non-detectable values were present at the reportable detection limit.
d. The moisture percentage in partridgeberries determined by Maxxam Analytics ranges from 81% to 88%.

3.5 QA/QC Results

The percent (%) recoveries provided by Maxxam for laboratory-spiked samples were reviewed. Laboratory percent recoveries met control limits (i.e., 75% to 125%) with the exception of a few samples. The laboratory indicated that 10% failure of analytes is allowed and the lab is below this limit. Laboratory duplicate data were also reviewed and results were within acceptable ranges (*i.e.*, relative percent differences (RPD) were within 35% as per laboratory QA/QC limits). For these samples, the lab indicated that the overall quality control for the analysis met the acceptability criteria. Laboratory QA/QC results are provided in Appendix E. Laboratory QA/QC is considered acceptable.

The RPD was also calculated for field duplicates. The RPDs of field duplicates were well within the 35% limit for 90% of analytes, for the hare muscle, hare liver and kidney, grouse muscle, and blueberry, partridge berry and squashberry duplicate samples. The grouse liver, and brook trout fillet and fillet with skin duplicate samples, had greater than 10% of analytes with RPDs of more than 35%. Some analytes were more than 35% higher than the original samples while others were more than 35% lower. The differences are likely due to the heterogeneity of the biological samples being analyzed.

Given the results of the QA/QC, data are considered acceptable.

3.6 Statistical Analysis Results and Exposure Point Concentrations

The EPCs used in the development of dietary limits for each food item were calculated from the concentrations reported by the lab. EPC values were the 95%UCLM metal concentration, the maximum detected concentration, maximum detection limit or ½ of the detection limit (See Section 2.3.2 for further details). EPCs for each species and tissue type by metal are provided in Appendix F.

4.0 COUNTRY FOOD EVALUATION AND DISCUSSION

Details of the selection of metals for further selection are provided in Section 4.1 while the results of the allowable meals per month of each country food type are provided in Section 4.2.

4.1 Metals Selected for Further Evaluation

As indicated in Section 2.3.3, a subset of metals analyzed in each tissue type was selected for further analysis which included determining the number of servings of country food (by tissue type) one could eat without exceeding 20% of the recommended exposure levels (100% for methyl mercury). The initial list of metals focussed on those considered to be associated with Wabush 3 mine activities. Additional metals were included for assessment if baseline soil concentrations exceeded CCME soil quality guidelines and whether the metal was bioaccumulative or was considered to be of concern (e.g., carcinogenic by the oral route). Details of this process are provided below.

The COPCs for the Wabush 3 mine HHRA via the oral route included: aluminum, chromium, iron, manganese, silica, titanium and benzo(a)pyrene (B(a)P).

Silica was not carried forward for further assessment as silicon, the form present in soils, is essentially non-toxic. Silica is a respiratory health issue, and is not an issue of concern with respect to consumption of country foods. B(a)P and other PAHs are not expected to be present in baseline soil or tissue samples. As such, tissue samples were not analysed for PAHs. B(a)P was assessed in the HHRA as it is to be released from mining vehicles at the mine and could deposit on to soils. Future soil concentrations of B(a)P as a result of the Wabush 3 mine were predicted to be 3.21E-10 mg/kg (Intrinsik, 2014). Given this extremely low concentration, tissue concentrations of B(a)P would not be expected to increase as a result of the Project. Therefore the following metals were carried forward for further assessment:

- Aluminum
- Chromium
- Iron
- Manganese
- Titanium

As part of the Wabush 3 HHRA, a comparison of soil samples collected in the vicinity of the mine and areas where people pick berries / hunt, were compared to CCME soil quality guidelines to see whether baseline soil concentrations may already exceed guideline levels (See Appendix A of the Wabush 3 HHRA; Intrinsik, 2014). Of over 55 soil samples collected, aluminum, cobalt, iron, manganese, thallium and vanadium had maximum concentrations greater than guidelines. As such, cobalt, thallium and vanadium were also selected for further evaluation in the country food study, to be conservative.

Subsequently when tissue analytical data were examined (See Section 3.0), vanadium was not detected in any tissue type of any of the species analyzed (with a detection limit of 0.04 mg/kg). Using the vanadium detection limit as the exposure point concentration (EPC) in this assessment could result in unrealistically high exposures which are not related to actual exposures but rather are an artifact of using the detection limit. As all samples were below the detection limit and the detection limit of 0.04 mg/kg), it can reasonably be assumed that vanadium is not present in country foods at levels which would be of concern. As such, vanadium was excluded from further assessment.

To account for potentially bioaccumulative metals, cadmium, mercury and selenium were included for further evaluation. In addition, arsenic was also included for evaluation as it has both carcinogenic and non-carcinogenic endpoints. Mercury in fish was evaluated as methyl mercury and the fraction of the allowable daily dose was compared to a value of 1.0 because fish is the only source of methyl mercury in the diet.

The final list of metals for which further evaluation was conducted are:

- Arsenic
- Aluminum
- Cadmium
- Cobalt
- Chromium
- Iron
- Manganese
- Mercury
- Selenium
- Titanium
- Thallium

For the metals evaluated, Health Canada (2010b) TRVs were selected where available. Where a Health Canada TRV was not available, a TRV was obtained from another regulatory agency as per Health Canada (2010b) guidance. TRVs used in the assessment are provided in Table 4-1 and Appendix G.

Table 4-1 Summary of Oral TRVs for Chronic Exposures to Metals and Other COPCs

COPC	*Type*	*Value (mg/kg/day)*	*Critical Health Effect*	*Source*
Aluminum	RfD	0.143	Reproductive and developmental, neurological, liver and kidney effects	WHO 2014, 2010a,b
Arsenic	RSD	0.0000056 [a]	Cancer: bladder, lung, liver	Health Canada (cancer) (2010)
	RfD	0.0003	Hyperpigmentation, keratosis and possible vascular complications	IRIS (non-cancer) (US EPA, 1993)
Cadmium	Provisional TDI	0.001	Kidney effects (renal tubular dysfunction)	Health Canada (2010)
Chromium $^{3+}$	RfD	1.5 [b]	Reduced absolute weight of livers and spleen (rats)	U.S. EPA (1998)
Cobalt	Chronic oral value	0.001	Bone marrow effects (polycythemia)	MOE (2011) chronic oral value modified from ATSDR (2004)
Iron	Provisional TRV	0.70	Adverse gastrointestinal effects (humans)	U.S. EPA (2006b) provisional peer-reviewed TRV
Manganese	UL (HC)	0.136 0.156	CNS effects (Parkinsonian-like Neurotoxicity)	Health Canada (2010) UL(HC) for 7 months to 4 years
Mercury	TDI	0.0003	Nephrotoxicity	Health Canada (2010)
Methylmercury	TDI	0.0002	Neurotoxicity	Health Canada (2010) oral TDI for children <12 years and women of child bearing age
Selenium	UL(HC)	0.0062 0.0057	Selenosis	Health Canada (2010) UL(HC) for 7 months to 4 years and 20+ years, respectively
Thallium	Provisional TRV	0.00002	Hair follicle atrophy (based on no observable adverse effect level)	U.S. EPA (2012) provisional peer reviewed toxicity value for thallium sulphate
Titanium	NA[c]	NA	NA	NA

Notes:
RfD; Reference Dose; RSD: risk specific dose; NA = not applicable; UL (HC) = Health Canada tolerable upper intake level
a. Health Canada (2010) risk specific dose is based on 1 in 100,000 risk level; calculated by dividing 1 x 10^{-5}/oral slope factor of 1.8 (mg/kg-d)-1 (0.00001/1.8 = 0.0000056.
b. Health Canada (2010) oral TDI for total chromium of 0.001 mg/kg/day was not used in this assessment as it is based on a chromium +6 in drinking water study. There is a low likelihood of chromium +6 being present in country foods as a result of the operation of the mine as chromium +6 is not being released from the mine. The U.S. EPA (1998) RfD for chromium +3 was used instead.
c. No oral RFD for titanium could be found in the literature reviewed. Evaluations of titanium dioxide by JECFA, SCF, and EFSA have each concluded that there are no safety concerns associated with the use of titanium dioxide as a food additive at levels ranging up to 3% (US EPA, 2005). As such, titanium via the oral route was not considered further.

4.2 Allowable Servings per Year

The number of servings of a particular country food type one could consume without exceeding 20% of the recommended exposure level (100% for methyl mercury in fish) for non-carcinogens, or an incremental risk of 1:100,000 over background for carcinogens, were calculated for each metal evaluated. The maximum number of servings of each individual country food type was then determined by the limiting metal; that is the metal for which the lowest number of servings was calculated. The maximum servings per year of each country food type for both toddlers and adults are provided in Table 4-2. Equations and data used in this calculation are provided in Appendix G.

Based on the data provided in Table 4-2 for all of the metals in each of the county food types, measured cadmium concentrations in hare kidney and grouse kidney resulted in calculation of the lowest number of servings per year for both the toddler and the adult (1 to 6 servings respectively for the toddler and 3 to 13, respectively for the adult).

Table 4-2 Number of Allowable Servings of Country Foods / Year 1

	Hare			Grouse			Brook Trout Fillet	Brook Trout Fillet and Skin	Blueberry	Partridgeberry	Squashberry
	Muscle	Liver	Kidney	Muscle	Liver	Kidney					
Servings / Year (Toddler)	101	22	1	58	12	6	69	66	16	39	360
Limiting Metal	Thallium	Iron	Cadmium	Arsenic	Iron	Cadmium	Thallium	Thallium	Manganese	Manganese	Arsenic
Servings / Year (Adult)	216	47	3	124	26	13	147	114	39	96	771
Limiting Metal	Thallium	Iron	Cadmium	Arsenic	Iron	Cadmium	Thallium	Chromium	Manganese	Manganese	Arsenic

Notes:

Shaded cell indicates allowable servings per year were less than 24.

1. Allowable meals per year by tissue type. Calculated assuming amount of country food type one could consume without exceeding 20% of Health Canada TRV for all metals with the exception of methyl mercury which was assumed to equal 100% of the TRV as methyl mercury in fish is the only source of methyl mercury. Serving size assumed 75g for toddlers; and for adults 75 g per meal for berries and organ meats and 150 g for fish and game muscle.
2. Limiting metal = the metal having the lowest number of allowable servings out of all metals evaluated for each country food type.

Calculations were conducted to estimate the number of hare kidneys and grouse kidneys within a serving, in order to provide additional perspective. Kidney weights of snowshoe hare and spruce grouse collected in the Wabush 3 area averaged approximately 11 g and 5 g, respectively. Based on the portion size of 75 g, 1 serving of hare kidneys per year for a toddler would amount to consuming 7 kidneys/year and 3 servings of hare kidneys in a year for the adult would amount to the consumption of 20 kidneys/year. For the grouse, 6 servings of kidneys by the toddler would amount to consuming 90 kidneys/year and 13 servings of kidneys by an adult in a year would amount to consumption of 195 kidneys/year. These calculations indicate that while the estimated allowable servings per year are low, the actual number of kidneys one would have to eat to reach or exceed the estimated allowable level is large.

For additional perspective, country food types with allowable servings being calculated at less than 24 per year (*i.e.*, snowshoe hare liver and kidney; grouse liver and kidney and blueberries) were evaluated further by comparing the mean concentration of the limiting metal for each tissue type to concentrations measured in a large country food study conducted in the Yukon (Gamberg Consulting, 2000), to gain further perspective on the concentrations measured within the Study area.

The Yukon survey was conducted to determine baseline game meat concentrations, and hence, provides comparable perspective. Table 4-3 provides a comparison of snowshoe hare and spruce grouse mean tissue concentrations in the vicinity of the Wabush 3 Project site to concentrations from the Yukon Study (Gamberg Consulting, 2000), while Table 4-4 compares blueberry concentrations.

Based on Table 4-2, the limiting metals in hare and grouse liver and kidneys were iron and cadmium, respectively. Metals are naturally occurring in the environment, and wild game accumulate metals from their food sources, while vegetation accumulate metals via root uptake. Certain metals have the propensity to accumulate more than others and physiological functions of mammal organs further affect accumulation potential, particularly in organ meats (such as kidney and liver). Given this, it is helpful to understand whether the measured concentrations of metals in this study are similar to those in other baseline studies, recognizing that there could be differences in methodologies between baseline studies which could factor into variable results (e.g., use of different analytical laboratories; analytical methods; detection limits). In addition, geology between areas vary, and accumulation of metals will obviously differ between areas with differing geological composition (particularly in enriched mining areas). Comparison of snowshoe hare and spruce grouse mean tissue concentrations of cadmium and iron in organ meats and muscle show that concentrations in the vicinity of the Wabush 3 project site are either lower or within the range of those found in the Yukon with the exception of iron in the spruce grouse liver (Table 4-3). It is not surprising that iron concentrations are higher in the Wabush 3 areas as the area is naturally enriched in iron, hence the reason for the mine.

Table 4-3 Comparison of Site Small Game Tissue Concentrations to Country Food Concentrations in the Yukon

Metal of Interest	Snowshoe Hare Mean Metal Concentrations (mg/kg; ww)				Spruce Grouse Mean Metal Concentrations (mg/kg; ww)			
	Kidney		Liver		Kidney		Liver	
	Wabush 3	Yukon [a] (N=28)	Wabush 3	Yukon [a] (N=28)	Wabush 3	Yukon [a] (N=48)	Wabush 3	Yukon [a] (N=38)
Cadmium	4.6	7.6	0.174	0.59	1.95	20.99	0.39	2.28
Iron	156	85 – 157[b]	428	292 – 522[b]	139	79-146.2[c]	735	231.3 – 413.4[e]

Notes:
a. Metals in Yukon country food data are from Gamberg Consulting (2000). Metals analyzed in this survey were provided as dry weight concentrations. To convert from a dry weight (dw) tissue concentration to a wet weight (ww) concentration, the following equation was used: ww = dw x (1 - % moisture). The percent moisture content for the snowshoe hare was assumed to be 68% (0.68) based on percent water content data for mammals in U.S. EPA (1993).
c. N = 5 for this element, due to statistical summaries provided in the Gamburg report (all samples not summed for these elements)(Gamberg Consulting, 2000).
d. A total of 28 hare were reported, but author summarized metals levels by area for these metals. Hence values presented are the range of reported means from different areas in the Yukon (Gamburg Consulting, 2000).
e. N = 38; values are reported as a range of means from different parts of the Yukon; all values are spruce grouse (Gamberg Consulting, 2000).

Manganese is the limiting metal in the blueberry samples (See Table 4-2). A comparison of the mean blueberry concentration in the vicinity of the Wabush 3 project site to concentrations in the Yukon (Gamberg Consulting, 2000) is provided in Table 4-4. The Wabush 3 range and mean manganese blueberry concentrations (83.4 mg/kg to 154 mg/kg with a mean of 120 mg/kg) are greater than concentrations in samples collected in the Yukon (range of 2 samples of 2.8 to 27 mg/kg and mean of 3 samples of 24 mg/kg) and concentrations of manganese in blueberries from Health Canada's Total Diet Study (Health Canada, 2004, 2005, 2006, 2007b) which ranged from 4.8 mg/kg to 22.7 mg/kg. The mean manganese soil concentration (from soil samples collected in the same location as the Wabush 3 blueberry samples) is 1303 mg/kg (See Appendix D). This mean soil concentration is higher than the mean background manganese soil concentration of 520 mg/kg reported for 173 samples collected from widely dispersed areas in Canada (McKeague and Wolynetz, 1980) and also higher than the estimated background range of 330 mg/kg provided by ATSDR (2012). Given site manganese soil concentrations are higher than background concentrations in other areas it is not surprising that blueberries have elevated manganese concentrations as blueberries tend to accumulate this metal (Spectrum Analytics, 2014).

Table 4-4 Comparison of Site Blueberry Tissue Concentrations to Country Food Concentrations in the Yukon

Metal of Interest	Blueberry Mean Metal Concentrations (mg/kg; ww)			
	Wabush 3 (N=7)	Yukon [a,c] (Hanes Junction) (N=1)	Yukon [a,c] (Watson Lake) (N=1)	Yukon [a] (Whitehorse) (N=3)
Manganese	120	2.8	27	24

Notes:
a. Metals in Yukon country food data are from Gamberg Consulting (2000). Metals analyzed in this survey were provided as dry weight concentrations. To convert from a dry weight (dw) tissue concentration to a wet weight (ww) concentration, the following equation was used: ww = dw x (1 - % moisture). The percent moisture content for blueberries in the Yukon was assumed to be 86%. The mean moisture content of blueberries collected within the vicinity of the Wabush 3 project site was similar at 85% (See Appendix D).
b. Wabush 3 berry data were provided by the lab in mg/kg wet weight. Moisture levels of the Wabush 3 berries were analyzed by the lab and blueberries had a mean moisture content of 85%.
c. N =1 as such could not calculate mean.

Since the allowable meals per month were calculated using uncooked versus cooked foods, this adds some uncertainty into the study. However given the chemicals of interest are metals, cooking would not be expected to change tissue concentrations to a large degree.

To account for the possibility of additive effects chemical mixtures, metals which act upon similar target tissues or have the same mechanism of action were examined. A discussion of this is provided in Appendix G. Results of the consideration of mixtures would not alter the conclusions of this country food study with the possible exception of cadmium (which is a limiting metal in the grouse and hare kidney; Table 4-2). Aluminum, cadmium and mercury can affect the kidney depending upon concentrations in the tissue. In light of this, allowable serving sizes could be reduced based on the combined presence of these two elements. However there are a number of conservation assumptions in this study, particularly the assumption that both metals are 100% bioaccessible in tissues in addition to conservatism built into the toxicity reference value, which have likely cause and underestimation of the allowable number of servings per year. The additivity of the effects of cadmium, aluminum and mercury remains an uncertainty in the study.

The human health risk assessment conducted for the Wabush 3 EIA used estimated country food concentrations, as opposed to measured data, as this study had not yet been completed. Therefore, a validation check was undertaken to compare Hazard Quotients (HQs) based on measured data (from this study), to those based on estimated country food tissue levels. The outcomes of this comparison are presented in Attachment H. In conclusion, the use of the measured rather than estimated country food tissue concentrations in the HHRA modelling would not affect conclusions of the Wabush 3 HHRA.

5.0 CONCLUSION

This study provides a reasonable database of baseline metal concentrations in a variety of country foods harvested near the Wabush 3 project site. These data can be used in the future as points of comparison.

The number of servings of a particular country food type one could consume annually without exceeding recommended exposure levels was greater than 24 servings for all country food tissue types with the exception of iron in grouse liver and hare liver for the toddler, cadmium in hare kidney for the toddler and adult, cadmium in grouse kidney for the toddler and manganese in blueberries for the toddler. When mean concentrations of the limiting metal for small game tissue types were compared to concentrations measured in similar tissues from a large country food study conducted in the Yukon (Gamberg Consulting, 2000), concentrations were generally lower or similar, which suggests concentrations measured in the Study area are not unusual and largely reflect natural exposures, and enrichment.

Blueberry concentrations from the study were greater than those found in the Yukon; however manganese soil concentrations collected in the same locations as blueberry samples, were also elevated and are likely a function of natural enrichment and the ability of blueberries to accumulate manganese.

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DISCLAIMER AND SIGNOFF

Intrinsik Environmental Sciences Inc. (Intrinsik) provided this report for Iron Ore Company of Canada Limited (hereafter referred to as IOC) solely for the purpose stated in the report. The information contained in this report was prepared and interpreted exclusively for IOC and may not be used in any manner by any other party. Intrinsik does not accept any responsibility for the use of this report for any purpose other than as specifically intended by IOC. Intrinsik does not have, and does not accept, any responsibility or duty of care whether based in negligence or otherwise, in relation to the use of this report in whole or in part by any third party. Any alternate use, including that by a third party, or any reliance on or decision made based on this report, are the sole responsibility of the alternative user or third party. Intrinsik does not accept responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

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Intrinsik has reserved all rights in this report, unless specifically agreed to otherwise in writing with IOC.

Prepared by:

Intrinsik Environmental Sciences Inc.

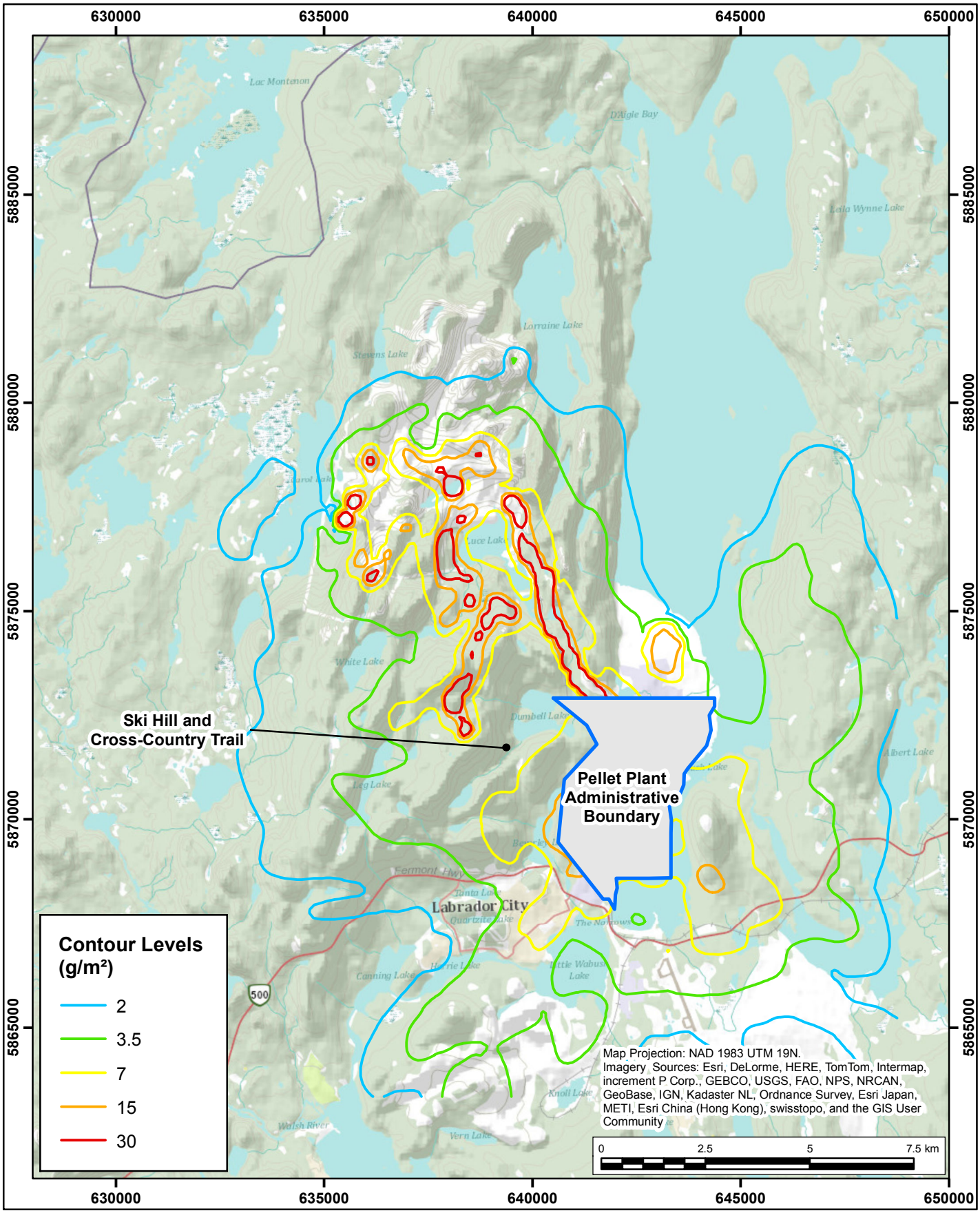
Lisa Marshall, B.Sc., PBD, M.E.S.
Environmental Scientist

Intrinsik Environmental Sciences Inc.

Christine Moore, M.Sc.
Senior Scientist

APPENDIX A

DUSTFALL ISOPLETH FIGURES



Dustfall - 30 Day Averaging Period

Future Build Scenario

POI Limit = 7 g/m²/30 Days

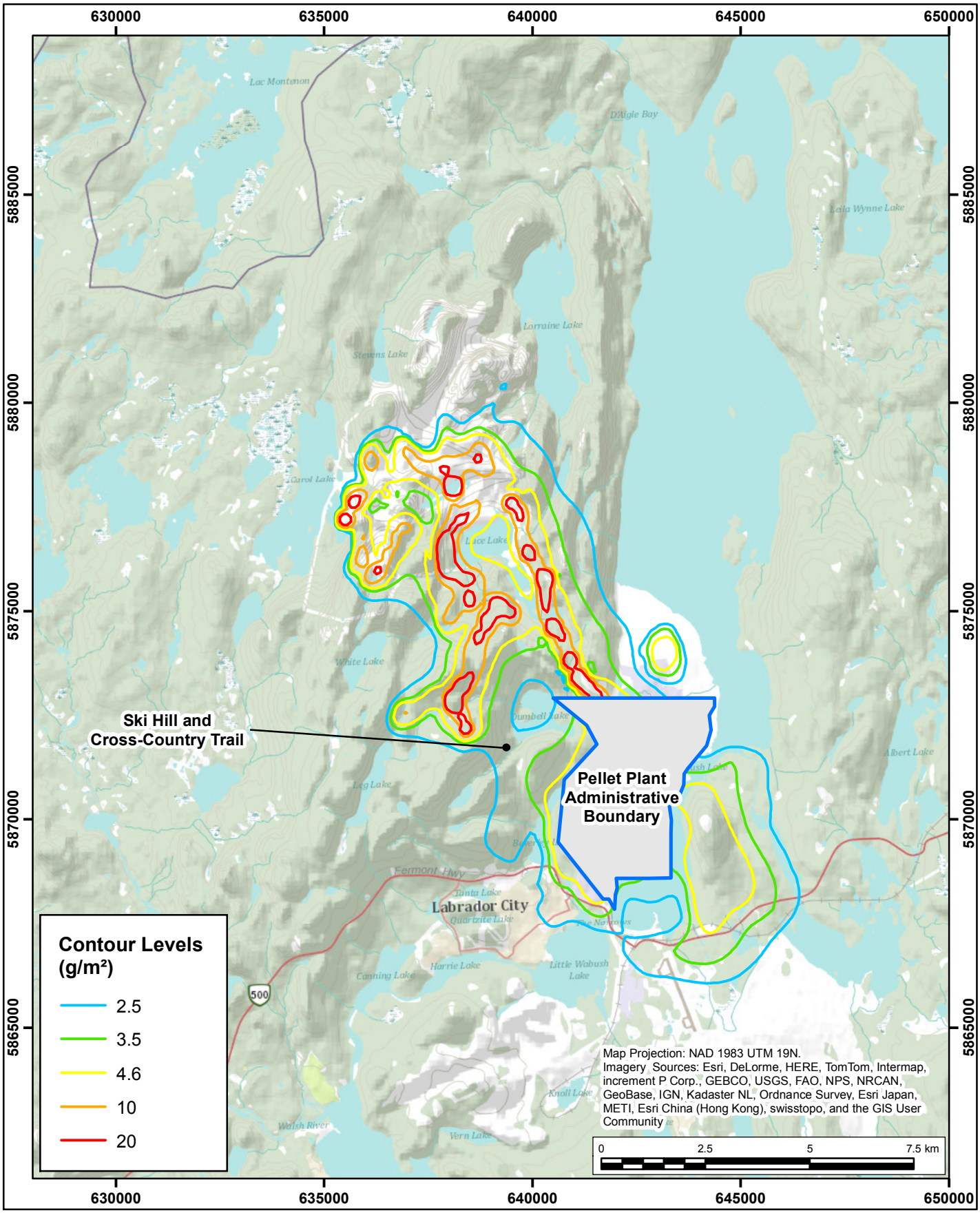
Iron Ore Company of Canada - Labrador City, Newfoundland and Labrador

True North

Project #1400675

Drawn by:	NBN	Figure:	
Approx. Scale:	1:125,000		
Date Revised:	Apr. 22, 2014		

RWDI



Dustfall - Annual Averaging Period

Future Build Scenario

POI Limit = 4.6 g/m²/30 Days for an Averaging Period of 1 Year

Iron Ore Company of Canada - Labrador City, Newfoundland and Labrador

True North

Project #1400675

Drawn by:	NBN	Figure:	
Approx. Scale:	1:125,000		
Date Revised:	Apr. 22, 2014		

RWDI

APPENDIX B

SAMPLING PERMITS

Fisheries and Oceans Pêches et Océans

2014

EXPERIMENTAL (SCIENTIFIC) LICENCE

NL-2639-14

Intrinsik Environmental Sciences Inc.
5121 Sackville Street
Suite 506
Halifax NS B3J 1K1

Contact : Lisa Marshall 902-429-0278 ex 225
Ross O'Keefe (Pinchin) 709-944-6766

Amendment #1

Pursuant to Section 52 of the Fishery (General) Regulations, permission is hereby granted to **Intrinsik Environmental Science Inc.** and/or their designate(s), to conduct scientific research subject to the following conditions:

1. This licence is valid from **July 31, 2014 – August 31, 2014.**

2. **Purpose:** Fish will be caught and fillet samples analysed for metals. Data to be used to determine baseline metal concentrations in fish as part of a country food assessment for the IOC Wabush 3 Mine Project in Labrador City, NL.

3. **Areas of Activity**: Dumbell Lake, Labrador City, NL (map attached).

4. **Species to be captured or killed:** Fifteen (15) Brook Trout, Lake Trout and Lake Chub. However, given the methods used, other fish may be collected at the same time which could include Northern Pike and Ouananiche. Given the likelihood of the collection of fish species other than the two targeted species, up to fifty (50) fish may be collected. Incidental catches will be released from nets where possible. ***Nets will be attended at all times and will not be left overnight.***

5. **Designates:** Ross O'Keefe, Pinchin Leblanc Environmental.

6. **Type of Biological Sampling:** Fillet samples (lethal sampling).

7. **Type of Gear Used:** Trawl line and/or gillnet (1 - 6 inch mesh).

8. If there are any unusual mortalities or diseases identified, please notify Dr. John Brattey, Science Branch, Department of Fisheries and Oceans, St. John's, NL, A1C 5X1.

9. Fish caught under the authority of this license cannot be sold.

10. Prior to activities taking place, the Supervisor, Conservation and Protection shall be notified of your activities (**Goose Bay, 896-6153**).

11. Requests for amendments to this licence (i.e. changes or additions to species, quantities, gear, etc.) shall be made in writing to experimentallicenses@dfo-mpo.gc.ca or fax 772-5133.

12. This licence must be carried at all times and must be produced for inspection upon request of a Fishery Officer.

Canada

Fisheries and Oceans | Pêches et Océans

2014

EXPERIMENTAL (SCIENTIFIC) LICENCE

NL-2639-14

Intrinsik Environmental Sciences Inc.
5121 Sackville Street
Suite 506
Halifax NS B3J 1K1

Contact : Lisa Marshall 902-429-0278 ex 225
Ross O'Keefe (Pinchin) 709-944-6766

Amendment #1

Canada

From: Callahan, Chris <chriscallahan@gov.nl.ca>
Sent: August-05-14 1:31 PM
To: Lisa Marshall
Cc: Pardy, Shelley; Humber, Jessica
Subject: RE: Permit IW 2014-30
Attachments: Attachment_from_Wildlife_gov_nl_ca_20140715_121435.pdf

Lisa Marshall,

Re: Request to extend Permit # IW2014-30 (Country Food Assessment of the Iron Ore of Canada Wabush 3 Mine Project)
Date: August 5, 2014

This email is confirmation that the Wildlife Division has extended the duration of Permit # IW2014-30 (attached). The original permit is now valid between July 1, 2014 and August 31, 2014. The conditions outlined in the original permit must be adhered. A printed copy of this email must be attached to the original permit.

If further information is required please contact Chris Callahan.

Chris Callahan, RPF
Ecosystem Management Ecologist, Small Game Management Environment and Conservation, Wildlife Division
117 Riverside Drive, Corner Brook, NL
A2H 7S1
709-637-2067

Newfoundland Labrador

Government of Newfoundland and Labrador
Department of Environment and Conservation

Scientific Research Permit

(as under section 86 of the Wildlife Regulations, Consolidated Newfoundland and Labrador Regulation 1156/96)

Permit request #: IW2014-30

Issued to: **Lisa Marshall** - Intrinsik Environmental Sciences Inc., 5121 Sackville St. Suite 506, Halifax, NS B3J 1K1
Ross O'Keefe - Pinchin LeBlanc Environmental, 30 Circular Road Labrador City, NL A2V 2K3

Study Title: Country Food Assessment of the Iron Ore of Canada Wabush 3 Mine Project

Permit to:
- Capture up to 15 Spruce Grouse and 15 Snowshoe Hare by shooting or snaring.
- Collect and transport muscle and organ samples.

Location of the Project: In the area around Labrador City – White Lake, Leg Lake, Dumbell Lake, Beverly Lake

Conditions:
- All permits issued prior to this date are now void
- Other nominees included under this permit include: Wanda Taylor, Matthew Weaver, and Danielle Gascon.
- All provincial regulations and guidelines for snaring and hunting with regards to safe, responsible, and humane procedures must be followed.
- Any animals found alive during snaring must be euthanized quickly and humanely as per methods submitted.
- A field report is due **one month** after completion of field work. The field report must include a digital copy of data collected, location and specimen information, as well as a report of any non-target captures and mortalities.
- Any final reports or publications arising from this work must be shared with the Wildlife Division
- The Wildlife Division must be notified as soon as possible if any non-target species are captured, injured or killed during this work.
- It is the proponent's responsibility to ensure all required permits are in place prior to conducting research.
- The Wildlife Division reserves the right to revoke this permit at any time.

Date of Commencement: July 1, 2014
Date of Expiration: August 15, 2014

July 15, 2014.
Date

Shelley Moos
Senior Manager

117 Riverside Drive, Brakes Cove, P.O. Box 2007, Corner Brook, Newfoundland and Labrador, A2H 7S1
Telephone (709) 637-2026 Facsimile (709) 637-2080

APPENDIX C

SAMPLING PROTOCOL

SCIENCE INTEGRITY KNOWLEDGE

WABUSH 3 BASELINE COUNTRY FOODS STUDY SAMPLING PROTOCOLS

FINAL

July 23, 2014

Prepared For:

Callie Andrews, B.Sc., EP
Iron Ore Company of Canada
2 Avalon Drive
Labrador City, NL
A2V 2Y6

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WABUSH 3 BASELINE COUNTRY FOODS STUDY SAMPLING PROTOCOLS

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1.0 INTRODUCTION

As part of the submission of the Environmental Impact Statement (EIS) for the Wabush 3 pit, IOC is required to establish baseline conditions in the area potentially impacted by this development. Since the Wabush 3 area is used for hunting, fishing and harvesting activities, a baseline Country Foods Study is being conducted to assess baseline concentrations of metal constituents in berries, game birds, small mammals and fish.

IOC has contracted Intrinsik Environmental Sciences (hereafter Intrinsik) to conduct the baseline Country Food Study. Intrinsik has subcontracted Pinchin LeBlanc Environmental (hereafter Pinchin) to conduct the field sampling program.

In September, 2013, blueberries, partridgeberries and squash berries and co-located soil grab samples were collected by Pinchin the vicinity of the proposed Wabush 3 mine. The berry and soil samples were sent for metals analysis to Maxxam Analytics Laboratory in Burnaby, BC.

In addition to the berry and soil sampling conducted in 2013, IOC proposes to augment the data set with samples of small game (i.e., small mammal and game bird) and fish for the baseline country food survey. This document provides the sampling protocols that will be followed in the collection of the small game and fish samples in the vicinity of the Wabush 3 project in 2014.

2.0 SPECIES TO BE COLLECTED AND ANALYSED

The fish and small game species to be collected were selected following a review information sources including:

- the Wabush 3 Open Pit Mine Project Land, Water and Resource / Ecological Knowledge Study (AMEC, 2014a),
- the IOC EIS process and draft EIA chapters;
- EISs being conducted in the area (*e.g.*, Alderon Kami Mine EIS);
- the Newfoundland and Labrador (NL) Department of Environment and Conservation website: http://www.env.gov.nl.ca/env/wildlife/wildlife_research/small_game.html.

Based on the review of the available data, the following small game species and fish were selected for sampling and analysis:

- Snowshoe hare (small mammal);
- Spruce grouse (game bird); and
- Brook trout (pelagic fish).

Collection of benthic fish was also requested by IOC in the statement of work for the Baseline Country Food study. Following a review of data collected as part of the EIS (*e.g.*, EcoMetrix baseline aquatic assessment, 2014) and discussions with the EIS project team, benthic fish species do not appear to be present within areas potentially affected by the proposed mine and future predicted dust deposition (See Attachment 1). Collection of benthic fish species will therefore not be included in the baseline country food sampling study.

The number and types of samples proposed to be collected are provided in Table 2-1. Given the number of variables associated with biological sampling, hunting and/or fishing may be limited or unsuccessful in some areas. The final sample size (numbers of tissue samples collected) will depend upon the success of the hunting and fishing efforts. As such, in addition to GPS locating where samples were collected, areas where samples were attempted to be collected, but where hunting / fishing efforts were unsuccessful will be noted.

Sampling will be conducted by Pinchin LeBlanc Environmental and led by Labrador office manager Mr. Ross O'Keefe. All sampling will be conducted in the vicinity of the proposed Wabush 3 mine (Figure 2-1). Fish samples will be collected from Dumbell Lake (Figure 2-2). Dumbell Lake is an important area for recreational activities including fishing, there is at least one cottage along the sandy shores and it is in close proximity to the Project site (EcoMetrix, 2012; AMEC, 2014a).

Small game sampling will take place in the area in which small game hunting occurs in the vicinity of the proposed Wabush 3 pit (Figure 2-2) as identified by AMEC in the EIS (AMEC, 2014b; draft small game sampling map), where possible. While there are 3 general areas identified on Figure 2-2 where small game hunting occurs[1], efforts will be mainly focused on

[1] Hunting does not occur on the IOC property. Similarly, sampling for the Country Food Study will not occur on the IOC property.

collecting samples in the highlighted area around Leg Lake and Dumbell Lake (see arrow on Figure 2-2) as these areas are located in higher dust deposition areas (See Attachment 1). An opportunistic sampling approach will be used and attempts will be made to collect samples from a variety of areas within the small game hunting area identified.

Table 2-1 Species, Tissues and Potential Number of Samples to Be Collected and Analyzed

Species	**Tissue type**	**Number of samples**
Snowshoe Hare	Muscle	15
	Organ (Kidney)	10
	Organ (Liver)	10
	Mammal QA/QC	3
Spruce Grouse	Muscle	15
	Organ (Kidney)	10
	Organ (Liver)	10
	Game Bird QA/QC	3
Brook trout (Pelagic Fish)	Fillet (Muscle)	15
	Skin and Muscle (combined)	15
	Pelagic fish QA/QC	2
Study Total		**108**

All samples will be submitted to Maxxam Analytics laboratory in Burnaby, BC. The Maxxam Burnaby lab has both CAEL and SCC accreditation. Achievable detection limits for biota tissue at this Maxxam lab are provided in Attachment 2.

Figure 2-1 Aerial Photo of Proposed Wabush 3 Pit Location (areas outlined in purple) and Surrounding Area

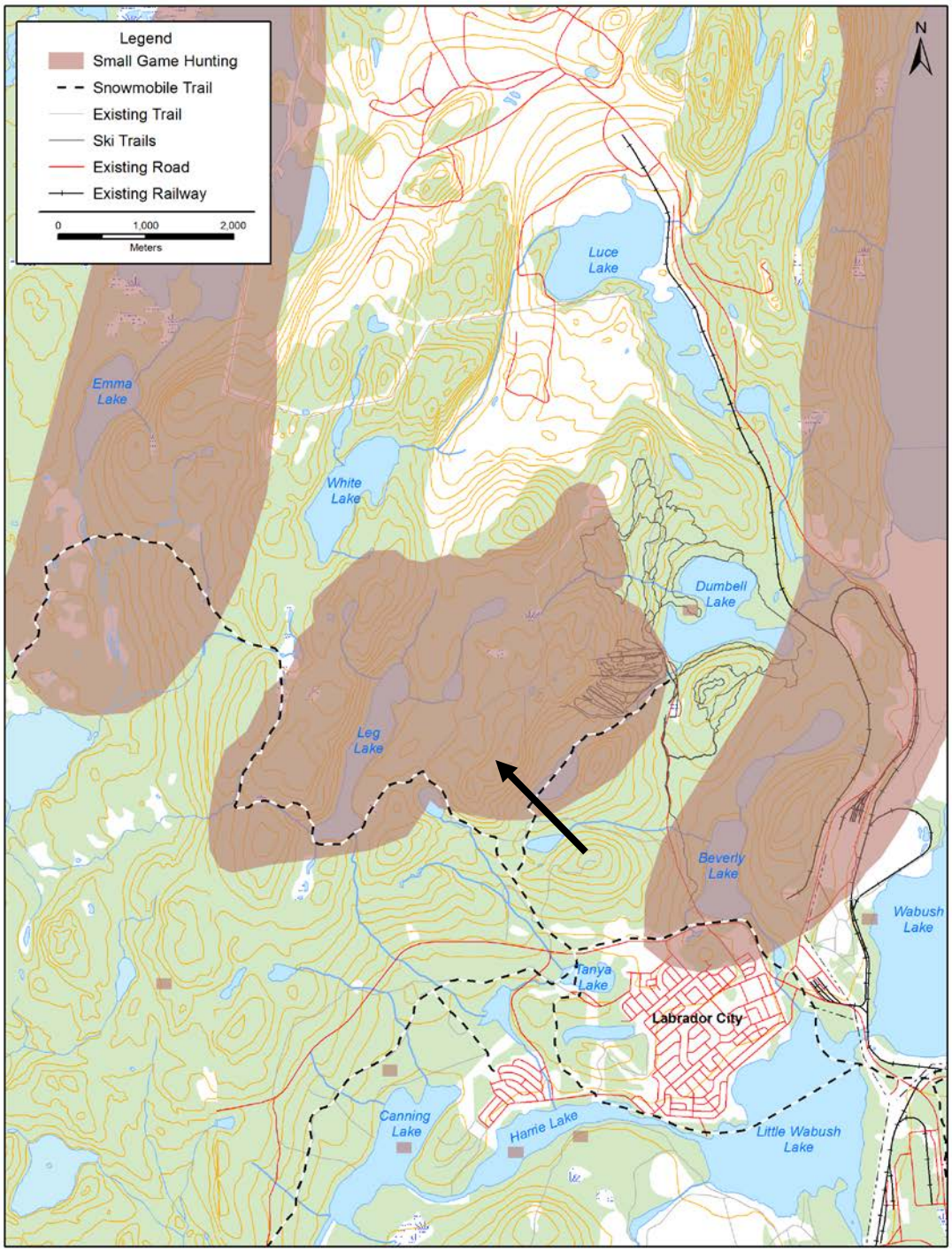


Figure 2-2 Location of Area Lakes and Area Where Small Mammal and Game Bird Sampling is Proposed to Occur (see arrow)

3.0 SAMPLE PROTOCOLS

Field logs and sample sheets that correspond to the samples taken will be maintained by the field technicians throughout both events. Required permits for fish and small game will be obtained based on provincial and federal requirements and original copies will be sent via e-mail to Pinchin for use during sampling. Sampling permits will be kept on-hand while sampling is being conducted.

The following protocols are based on the recommendations provided in Health Canada's Supplemental Guidance on Human Health Risk Assessment for Country Foods (2010).

Health Canada suggests collection of a minimum 5 to 10 tissue samples per area sampled. The aim of this program is to collect 15 small mammal and 20 mammal organs (10 samples of each organ; kidney and liver) 15 game bird and 20 game bird organs (10 samples of each organ; kidney and liver); 15 pelagic fish and 15 fish skin and muscle (combined) which are more than the suggested values. Based on guidance provided by Health Canada (2010), tissue samples from different individuals will not be composited.

The Health Canada guidance of at least 5% of the samples submitted for duplicate analysis will be exceeded through the submission of one sample of each tissue type for duplicate analysis.

3.1 Fish Sampling

Fish sampling (i.e., brook trout) will be conducted in Dumbell Lake. This lake is divided into three major basins (i.e., north, south and east; EcoMetrix, 2012). The eastern basin is shallow and gillnetting by EcoMetrix in this area in 2011 collected no fish (EcoMatrix, 2012); therefore the eastern basin will not be targeted for fish collection in this study. The northern and southern basins are deeper and fishing will be focused in these areas. Attempts will also be made to collect samples from areas in the lake routinely used for fishing.

Fifteen brook trout muscle samples, and 15 brook trout muscle and skin combined samples will be collected for the program and sent for analysis. Where fish are big enough, the fish muscle and fish muscle and skin combined samples will be collected from the same fish. Samples will be clearly labeled so it can be identified from which fish paired fish muscle and fish muscle and skin combined samples were collected. Fish samples will be weighed and analyzed for metals on a wet weight basis. Where possible, samples from larger fish (which would represent sizes typically eaten by locals) are to be submitted for analysis.

In the event that 15 of the target species cannot be caught, additional samples of other fish will be collected to supplement the data, where possible. Possible additional species of interest could include: lake trout and lake chub (based on fish collected by EcoMetrix in Dumbell Lake in 2011; See EcoMetrix, 2012).

The sampling protocol to be used is as follows:

- Fish will be caught using either gill nets (mesh size 1 to 6 inches) or trawl lines. Unwanted fish will be thrown back where possible.
- Fork-length, fish weight and GPS locations of each sample will be recorded. Samplers will strive to catch fish that would be of comparable size to those caught and eaten by locals. As such, collected fish will be pan-sized or larger.
- During the sampling event, fish caught each day will be kept on loose ice. At the end of each day, desired species (*i.e.*, brook trout) having the desired size will be dissected to obtain fillet samples. Fillet samples will then be frozen. Any unwanted fish will be frozen and may be filleted at a later time depending upon success of the sampling event to collect adequate numbers of desired species / sized fish.
- Fifteen fish muscle samples will be dissected from 15 individual fish.
- Fifteen combined muscle / skin samples will be collected from 15 individual fish. Were fish are big enough the fish muscle and combined fish muscle and skin samples will be collected from the same fish. Duplicate samples should be done on the largest fish sampled.
- Dissections will be conducted on a clean dry surface free of soils and / or sediments. During filleting, samplers will wear nitrile gloves, which will be changed between each sample/fish. Fillet samples will be taken from the dorsal side of each selected fish. Skin will be removed for the 15 muscle only samples but kept attached to the muscle for the 15 muscle and skin combined samples.
- The lab requires a minimum of 10 g of tissue for analysis (for both skin and fillet). Given there may be unforeseen circumstances (*e.g.*, a need to re-analyze a sample) it is prudent to collect additional volume of sample. As such, it is recommended, where possible, that a minimum of 40 to 50 grams of tissue per sample be taken (*e.g.*, 40 to 50 g of fillet and 40 to 50 g of skin / fillet combined). Fillets and skin / fillets will be removed using a clean stainless steel knife, which will be cleaned and wiped between each fish, to ensure no cross contamination between samples.
- All tissue samples will be place in zip-lock baggies, which will be labeled with the species, sample number, and a unique reference number. In this case, BT-1F, BT-2F, *etc*. (up to BT-15F) for brook trout fillets and BT-1FS, BT-2FS (up to BT-15 FS) for brook trout samples where both fillet and skin are to be analyzed together. Fillet and fillet + skin samples should be clearly labeled so data from the fillet and skin + fillet samples of the same fish can be compared.
- One duplicate QA/QC sample will be taken from one of the brook trout sampled. Two fillet samples will be taken from the selected fish (sample and duplicate sample). Similarly one QA/QC skin and fillet combined sample is to be collected from one of the brook trout sampled. Samples are to be labeled in sequence and similar to other tissue samples so the lab is unaware that these are duplicate samples (*e.g.*, BT-16F for brook trout fillet QA/QC and BT-16FS for brook trout skin + fillet QA/QC). The details of which fishes the duplicate samples came from will be noted in the field notes.
- The fillets and skin + fillet samples will be kept on ice and shipped frozen to preserve sample quality for lab analysis.

- All fish (fillet / skin) samples will be sent to Maxxam's Burnaby BC lab for analysis using courier and labeled as follows:

  Maxxam Analytics
  Environmental Testing
  Attn: Samantha Freigen
  4606 Canada Way
  Burnaby, BC
  V5G 1K5

  Phone number: (604)-639-8418

- The attached chain of custody form (See Attachment 3) will accompany the samples and will indicate that analysis results be sent to lmarshall@intrinsik.com. Quote number: B13-242-AH will be referenced. Analysis to be conducted on a wet weight basis for total metals (analysis method CRC-ICPMS metals).

3.2 Game Meat Sampling

It is the aim of this program to collect a total of 15 snowshoe hare and 15 spruce grouse from areas around Wabush 3 mine where locals have indicated they hunt and trap (based on the map provided by AMEC, 2014b; See Figure 2-2). In addition 20 snowshoe hare organ (10 liver and 10 kidney) and 20 grouse organ (10 liver and 10 kidney) samples are to be collected.

The sampling protocol to be used is as follows:

- Capture of species will be done using either snares (in the case of hare, and possibly grouse), or a shotgun (grouse; no lead shot will be used).
- Traps will be checked once daily, if at all possible. Any animals found alive will be euthanized quickly and with minimal stress and pain.
- For each sample, GPS coordinates of the successful sampling locations will be recorded in Excel format along with sample number and locations of samples are to be identified on a map.
- Prior to freezing, for each animal captured, data will be recorded including the weight (g) and total length (mm) of animals, sex and age (if possible), condition of animal (*e.g.*, healthy; pelt in good condition; underweight) along with any other relevant field observations (e.g., habitat where animal was collected). All notes are to be recorded in Excel format.
- Where possible, tissues from larger / older animals are to be submitted for analysis. Organ samples should be collected from the largest animals caught.

- All snowshoe hare and grouse (muscle and organ) samples will be sent to Maxxam's Burnaby BC lab for analysis using courier and labeled as follows:

  Maxxam Analytics
  Environmental Testing
  Attn: Samantha Freigen
  4606 Canada Way
  Burnaby, BC
  V5G 1K5

  Phone number: (604)-639-8418

- The attached chain of custody form (See Attachment 3) will accompany the samples and will indicate that analysis results be sent to lmarshall@intrinsik.com. Quote number: B13-242-AH will be referenced. Analysis to be conducted on a wet weight basis for total metals (analysis method CRC-ICPMS metals).

Specific details for the snowshoe hare and grouse sampling are provided in the following sections.

3.2.1 Snowshoe Hare

- Once captured and killed, a sample of muscle tissue from the thigh will be taken. Dissections will be conducted on a clean dry surface free of soils or other debris. Samples will be taken with a stainless steel knife, which will be cleaned with water or soapy water, and dried with a clean paper towel between each sample, to ensure no cross-contamination. Fur will be removed. The lab requires a minimum of 10 g of tissue for analysis; however a minimum of 40 to 50 grams of tissue will be taken per sample where possible.
- Each muscle sample will be placed in a zip lock bag with the date of collection, sample location, tissue type, and a unique reference number. In this case, HM-1 would be used to represent a hare muscle sample (HM) from animal 1.
- Samplers will be careful to avoid getting soil and other debris on the tissue samples to avoid cross contamination
- QAQC samples will be taken for one hare. This will involve taking an additional thigh muscle sample from a single hare, which will serve as a field duplicate. The samples will be submitted separately with the duplicate sample being labeled similar to other samples (*e.g.*, HM-16). The details of which hare the duplicate sample came from will be noted in the field notes.
- In addition a total of 10 liver and 10 kidney samples will also be collected from 10 snowshoe hare samples and labeled accordingly (*e.g.*, HL-1; HK-1, *etc.*). The liver and kidney samples are to come from the same individual snowshoe hare (*e.g.*, collect one muscle, one liver and one kidney sample from the same snowshoe hare). The snowshoe hare selected for analysis organ analysis should be among the largest snowshoe hare collected. Organ samples are to be sent to lab for metals analysis.

- In addition, one QA/QC hare liver and one QA/QC hare kidney organ sample will be collected. These samples are to be collected from one of the hares that have had an organ sample collected (*e.g.*, if left liver lobe is taken as one sample, right liver lobe can be sent for duplicate analysis). Duplicate samples will be labeled in sequence to ensure blind analysis at lab. The details of which hare and hare organ the duplicate sample came from will be noted in the field notes.
- All bagged samples will be kept on ice to preserve sample integrity.
- Samples will be frozen prior to shipment and packed accordingly to preserve sample quality for lab analysis.
- The remaining animal parts will be discarded appropriately.

3.2.2 Spruce Grouse

- Once captured and killed, a sample of muscle tissue (*i.e.*, breast meat) will be taken from the grouse (maximum total 15). The sample will be collected away from the area where the grouse was shot, if relevant.
- Dissections will be conducted on a clean dry surface free of soils or other debris. Samples will be taken with a stainless steel knife, which will be cleaned with water or soapy water, and dried with a clean paper towel between each sample, to ensure no cross-contamination. Feathers will be removed. The lab requires a minimum of 10 g of tissue for analysis; however a minimum of 40 to 50 grams of tissue will be taken per sample where possible.
- Each muscle sample will be placed in a zip lock bag with the date of collection, sample location, tissue type, and a unique reference number. In this case, GM-1 would be used to represent a grouse muscle sample (GM) from animal 1 (up to GM-15).
- Samplers will be careful to avoid getting soil and other debris on the tissue samples to avoid cross contamination
- QAQC samples will be taken for one grouse. This will involve taking an additional breast meat sample from a single grouse, which will serve as a field duplicate. The samples will be submitted separately with the one of the samples labeled similar to other samples. Duplicate samples will be labeled in sequence to ensure blind analysis at lab (*e.g.*, GM-16). The details of which grouse the duplicate sample came from will be noted in the field notes.
- In addition a total of 10 liver and 10 kidney samples will also be collected from 10 grouse samples and labeled accordingly (*e.g.*, GL-1; GK-1, *etc*.). The liver and kidney samples are to come from the same individual grouse (*e.g.*, collect one muscle, one liver and one kidney sample from the same grouse). The grouse selected for analysis should be among the largest grouse collected. Organ samples are to be sent to lab for metals analysis.
- In addition, one QA/QC grouse liver and one QA/QC grouse kidney organ sample will be collected. These samples are to be collected from one of the grouse that have had an organ sample collected (*e.g.*, if left liver lobe is taken as one sample, right liver lobe can be sent for duplicate analysis). Duplicate samples will be labeled in sequence to ensure blind analysis at lab. The details of which grouse and grouse organ the duplicate sample came from will be noted in the field notes.
- All bagged samples will be kept on ice to preserve sample integrity.

- Samples will be frozen prior to shipment and packed accordingly to preserve sample quality for lab analysis.

Shipment of All Tissue Samples:

- Samples will be labeled, frozen, and packed on loose ice in coolers to be shipped to the laboratory promptly after sampling.
- Samples will be well sealed (to prevent compromising sample if sample melts and sample bag opens). The loose ice and samples are to be placed in a garbage bag in the cooler. Samples should be covered well with ice. Having the garbage bag around all ice and samples will keep water in the bag and not in the cooler if ice melts.
- Samples will be accompanied by Chain of Custody forms.
- QA/QC procedures will be respected and documented throughout the sampling events.
- The lab is to be contacted 24-hours prior to sample shipment to let them know samples are on the way.

4.0 REFERENCES

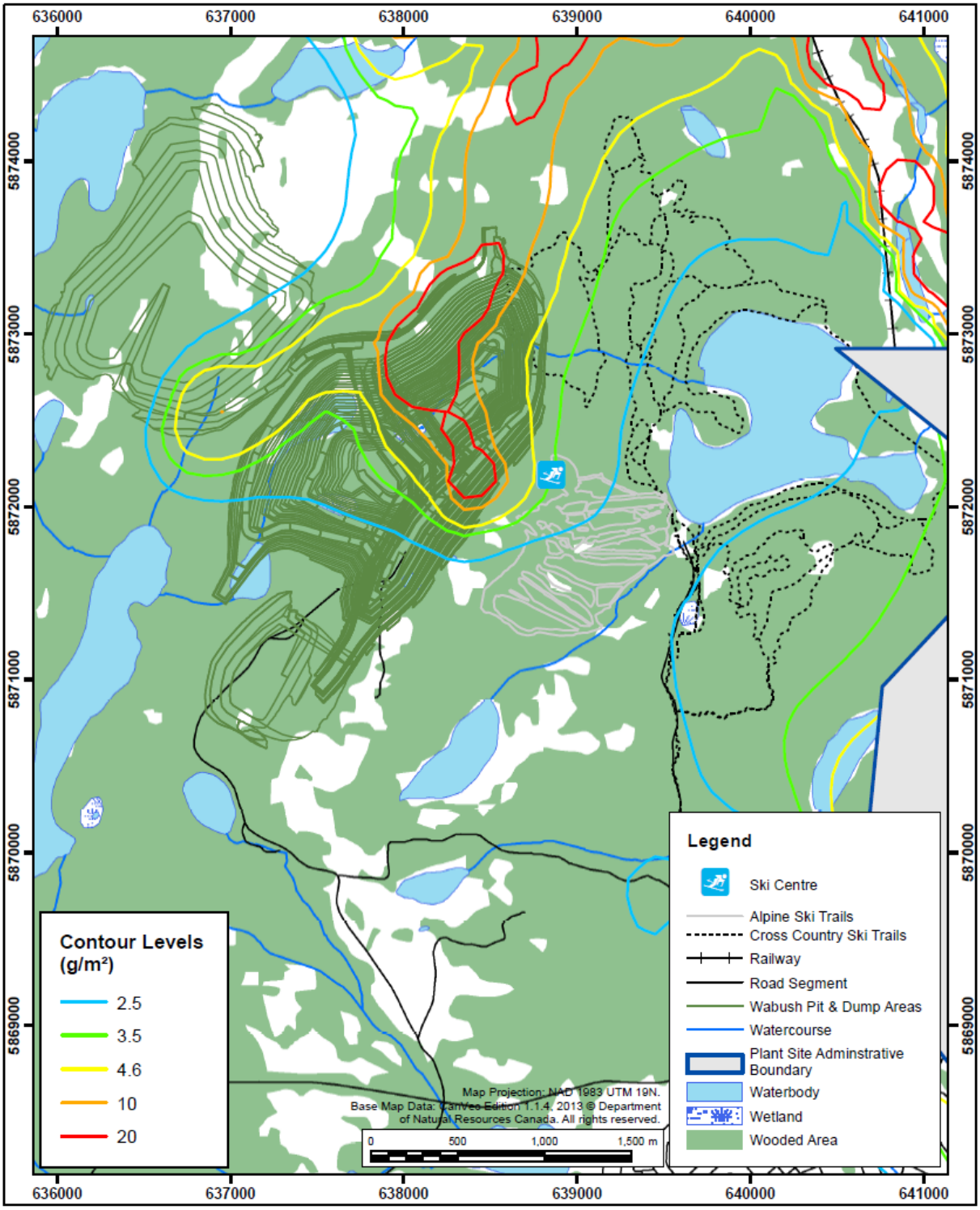
AMEC. 2014a. IOC Wabush 3 Open Pit Mine Workshops and Interviews, January and February 2014. Land, Water and Resource Use / Ecological Knowledge Study.

AMEC. 2014b. Draft VEC Chapters and Figures for the Wabush 3 EIA.

EcoMetrix. 2012. Baseline aquatic assessment of Magy, Trout and Dumbell Lakes and tow Wabush 6 Area Ponds. 2011. EcoMetrix Incorporated.

ATTACHMENT 1

ISOPLETH FUGIRE OF THE PREDICTED FUTURE ANNUAL AVERAGE DUSTFALL (g/m^2/30 days) AS A RESULT OF THE WABUSH 3 MINE



Dustfall - Annual Averaging Period

Future Build Scenario

POI Limit = 4.6 g/m²/30 Days for an Averaging Period of 1 Year

Iron Ore Company of Canada - Labrador City, Newfoundland and Labrador

Project #1400675

True North

Drawn by:	NBN	Figure:	
Approx. Scale:	1:30,000		
Date Revised:	Apr. 29, 2014		

RWDI

ATTACHMENT 2
DETECTION LIMITS FOR ICP METALS ANALYSIS

PARAMETER	METHOD DESCRIPTION	RDL(mg/kg)	PRICE
METALS			
METALS IN VEGETATION	CRC - ICPMS	-	$
Aluminum	-	1.0	-
Antimony	-	0.005	-
Arsenic	-	0.05	-
Barium	-	0.1	-
Beryllium	-	0.1	-
Bismuth	-	0.1	-
Boron	-	2.0	-
Cadmium	-	0.01	-
Calcium	-	10.0	-
Chromium	-	0.2	-
Cobalt	-	0.02	-
Copper	-	0.05	-
Iron	-	10.0	-
Lead	-	0.01	-
Lithium	-	0.5	-
Magnesium	-	10.0	-
Manganese	-	0.1	-
Mercury	-	0.01	-
Molybdenum	-	0.05	-
Nickel	-	0.05	-
Phosphorus	-	10.0	-
Potassium	-	10.0	-
Selenium	-	0.05	-
Silicon	-	50.0	-
Silver	-	0.02	-
Sodium	-	10.0	-
Strontium	-	0.1	-
Sulphur	-	300	-
Tellurium	-	0.1	-
Thallium	-	0.002	-
Thorium	-	0.05	-
Tin	-	0.1	-
Titanium	-	1.0	-
Tungsten	-	0.05	-
Uranium	-	0.002	-
Vanadium	-	0.02	-
Zinc	-	0.2	-

PARAMETER	METHOD DESCRIPTION	RDL(mg/kg)	PRICE
METALS			
METALS IN TISSUE, WET WEIGHT	CRC - ICPMS	-	$
Aluminum	-	0.2	-
Antimony	-	0.001	-
Arsenic	-	0.01	-
Barium	-	0.02	-
Beryllium	-	0.02	-
Bismuth	-	0.02	-
Boron	-	0.4	-
Cadmium	-	0.002	-
Calcium	-	2.0	-
Chromium	-	0.04	-
Cobalt	-	0.004	-
Copper	-	0.01	-
Iron	-	2.0	-
Lead	-	0.002	-
Magnesium	-	2.0	-
Manganese	-	0.02	-
Molybdenum	-	0.01	-
Nickel	-	0.01	-
Phosphorus	-	2.0	-
Potassium	-	2.0	-
Selenium	-	0.01	-
Silver	-	0.004	-
Sodium	-	2.0	-
Strontium	-	0.02	-
Thallium	-	0.0004	-
Tin	-	0.02	-
Titanium	-	0.2	-
Uranium	-	0.0004	-
Vanadium	-	0.04	-
Zinc	-	0.04	-
Mercury	CVAF	0.002	$
Methyl Mercury	HPLC - ICPMS	4.0 ng/g	$

ATTACHMENT 3

STANDARD CHAIN OF CUSTODY FORM

Maxxam

Burnaby: 4606 Canada Way, Burnaby, BC V5G 1K5 Ph: (604) 734-7276 Fax: (604) 731-2386, Toll Free: (800) 665-8566

CHAIN OF CUSTODY RECORD

Click here to get the COC number

Maxxam Job #: **COC #:** Page: of

Invoice To: Require Report? Yes ☐ No ☐

Company Name:
Contact Name:
Address:
PC:
Phone / Fax#: Ph: Fax:
E-mail

Report To:

Company Name:
Contact Name:
Address:
PC:
Phone / Fax#: Ph: Fax:
E-mail

PO #:	
Quotation #:	
Project # :	
Proj. Name:	
Location:	
Sampled by:	

REGULATORY REQUIREMENTS:

- ☐ CSR
- ☐ CCME
- ☐ BC Water Quality
- ☐ Other
- ☐ DRINKING WATER

SERVICE REQUESTED:

- ☑ Regular Turn Around Time (TAT) (5 days for most tests)
- ☐ **RUSH** (Please contact the lab) ☐ 1 Day ☐ 2 Day ☐ 3 Day

Date Required:

SPECIAL INSTRUCTIONS:

Return Cooler ☐ **Ship Sample Bottles (please specify)** ☐

ANALYSIS REQUESTED

	Sample Identification	Lab Use Only: Lab Identification	Sample Type	Date/Time(24hr) Sampled	BTEX/VPH ☐ / MTBE ☐	VOC/VPH ☐	EPH ☐ / TEH ☐	PAH ☐ / LEPH/HEPH ☐	CCME-PHC (Fractions 1-4 Plus BTEX) ☐	CCME-PHC (Fractions 2-4) ☐	CCME-PHC (Fraction 1 Plus BTEX) ☐	PCB ☐	Phenols by 4AAP ☐ / Phenols by GCMS ☐	TOG ☐ / MOG ☐ / SMOG ☐	Dissolved Metals (DM) ☐ / Field Filtered? Y ☐ N ☐	Field Acidified? Y ☐ N ☐	Total Metals ☐ / Field Acidified? Y ☐ N ☐	Nitrate ☐ / Nitrite ☐ / Ammonia ☐	Chloride ☐ / Fluoride ☐ / Sulphate ☐	Total Suspended Solids (TSS) ☐ / TDS ☐	pH ☐ / Conductivity ☐ / Alkalinity ☐	BOD ☐ / COD ☐	Coliform: Total & E.coli ☐ / Fecal ☐	Asbestos ☐	HOLD ☐	Number of Containers	Samples are from a Drinking Water Source? YES ☐ NO ☐	Does source supply multiple households? YES ☐ NO ☐
1																													
2																													
3																													
4																													
5																													
6																													
7																													
8																													
9																													
10																													
11																													
12																													

Print name and sign			Print name and sign				Laboratory Use Only			
***Relinquished By:**	Date (yy/mm/dd):	Time (24 hr):	**Received by :**	Date (yy/mm/dd):	Time (24 hr):	Time Sensitive ☐	Temperature on Receipt (°C) A) B) C)	**Custody Seal**	Yes	No
							Just sampled & rec'd on ice: ☐	Present?	☐	☐
								Intact?	☐	☐

***IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORDS. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.**

APPENDIX D

GPS LOCATIONS OF SAMPLES, MAPS AND SPECIES DATA

APPENDIX D-1.0 INTRODUCTION

This appendix provides figures of sampling locations for country food samples. In addition, GPS locations of samples and species data are provided.

Figure D-1 provides the preferred area for sample collection. Figure D-2 provides the location of transects along which berries were attempted to be found while Figures D-3 to D-5 provide actual berry sampling locations.

Figures D-6 and D-7 show the locations of nets used to collect fish from Dumbell Lake. All fish samples were collected from four nets within Dumbell Lake (See Appendix D). The location of these nets was selected following trolling the lake with a boat and using a fish finder. Based on sampling methods used for fish (i.e., nets), a few additional fish (e.g., brook trout, splak and laker) were caught in fish nets. These samples were not analyzed and were disposed of properly. The individual brook trout samples submitted for analysis were chosen based on body weight (i.e., animals with higher body weights were selected as they would be more likely to have accumulated metals over time) and based on which samples which would best represent the size that locals would consume.

Figures D-8, D-9 and D-10 show the sampling transects for grouse and hare sampling and locations where snares were set in addition to where hare and grouse samples were collected. Grouse sampling locations are indicated as G-01 to G-09, while hare sampling locations correspond to snare numbers listed in Tables D-1 to D-3 (i.e., SN- 124, SN-127, SN-131, SN-152, SN-156, SN-157, SN-168, SN-172, SN-179, SN-161, SN-173, SN-181, SN-203, SN-204). Two additional hare were caught in snares than were needed for analysis. One had been almost completely eaten by a predator and was not send for analysis. The other hare was from an area where sufficient samples had been collected and was not sent for analysis. Both samples were disposed of properly.

Tables D-1, D-2 and D-3 provide GPS locations for samples collected in addition to species data (i.e., weight, length, sex).

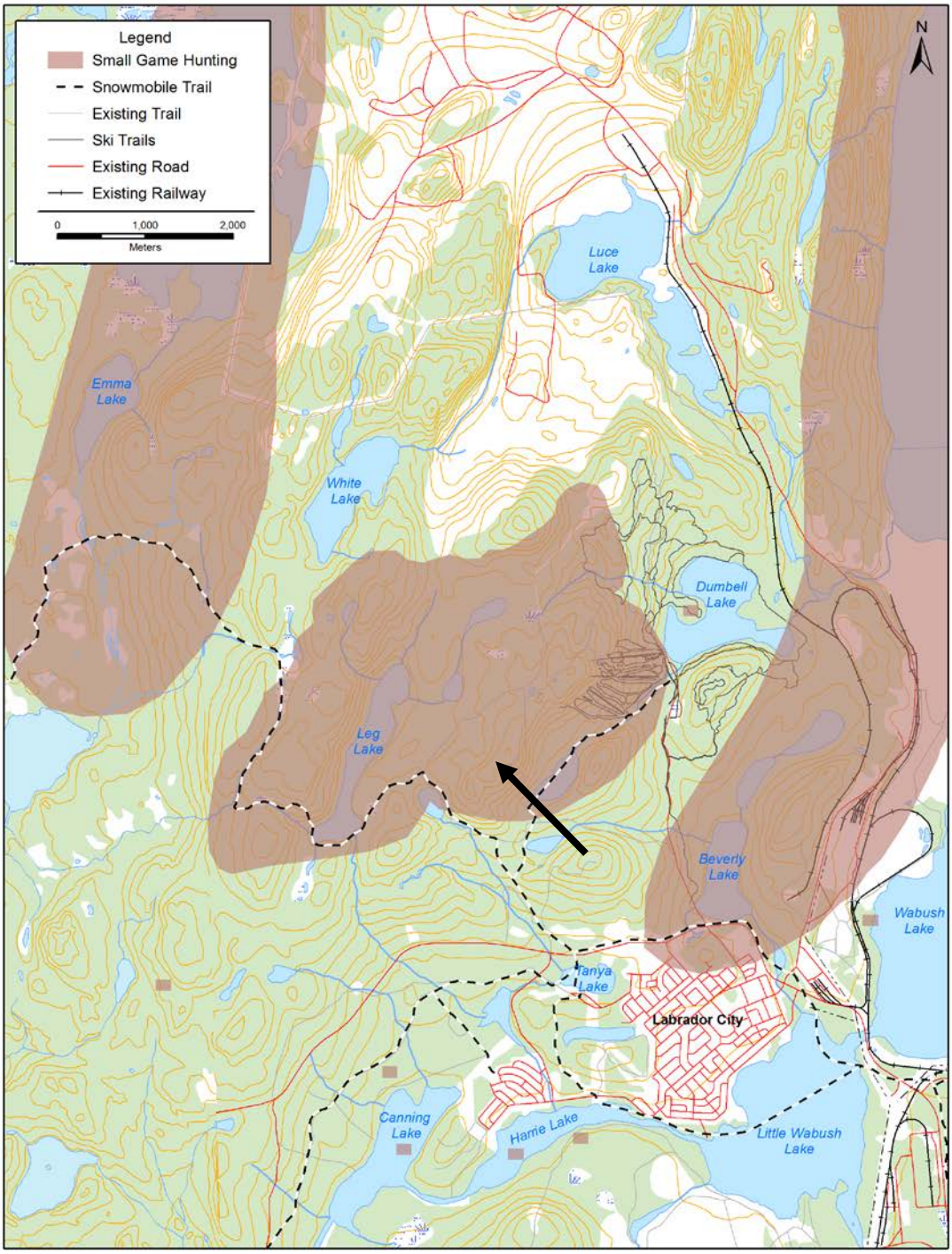


Figure D-1 Preferred Location for Small Mammal and Game Bird Sampling (see arrow)

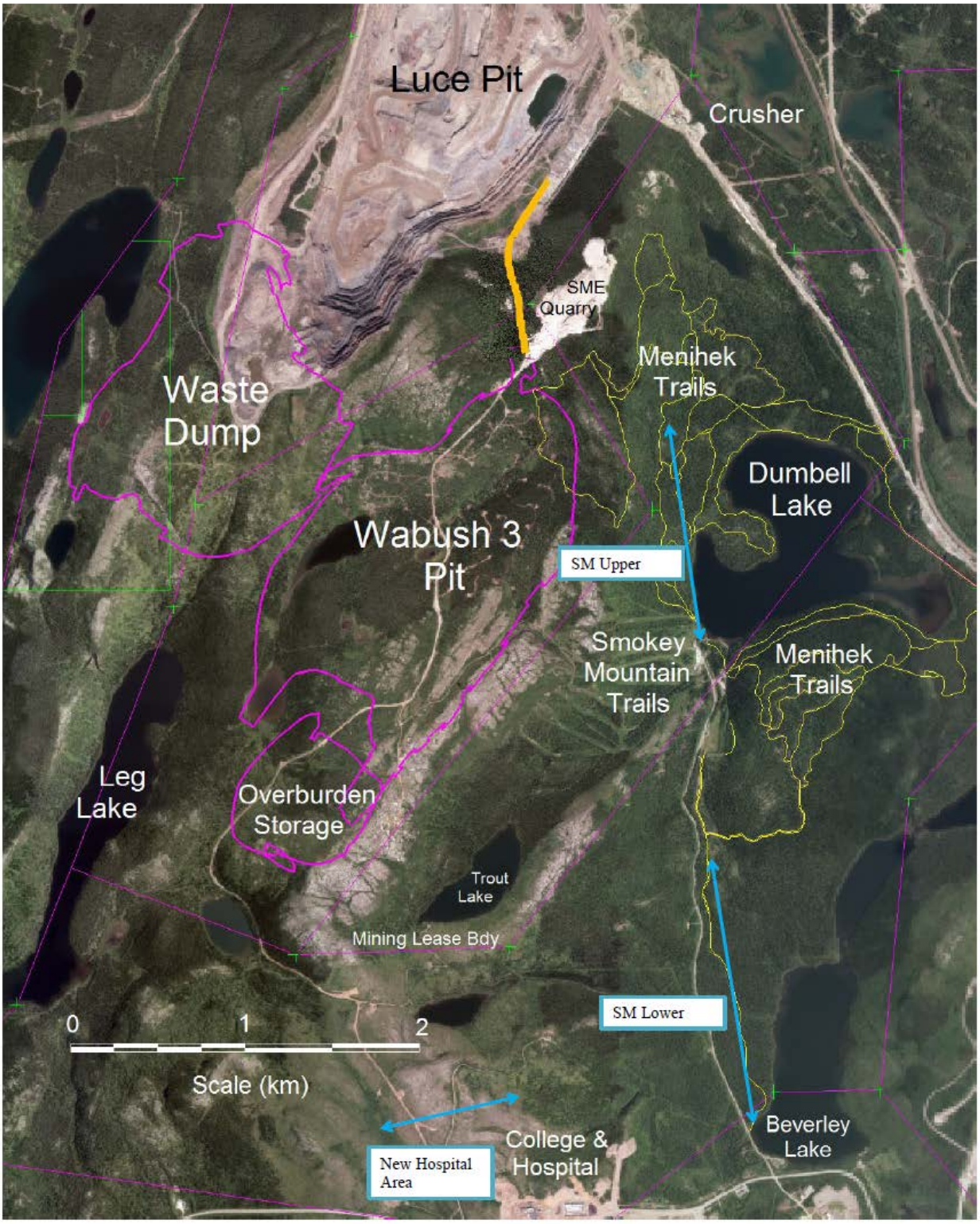


Figure D-2 Transects Showing General Location of 2013 Soil and Berry Samples

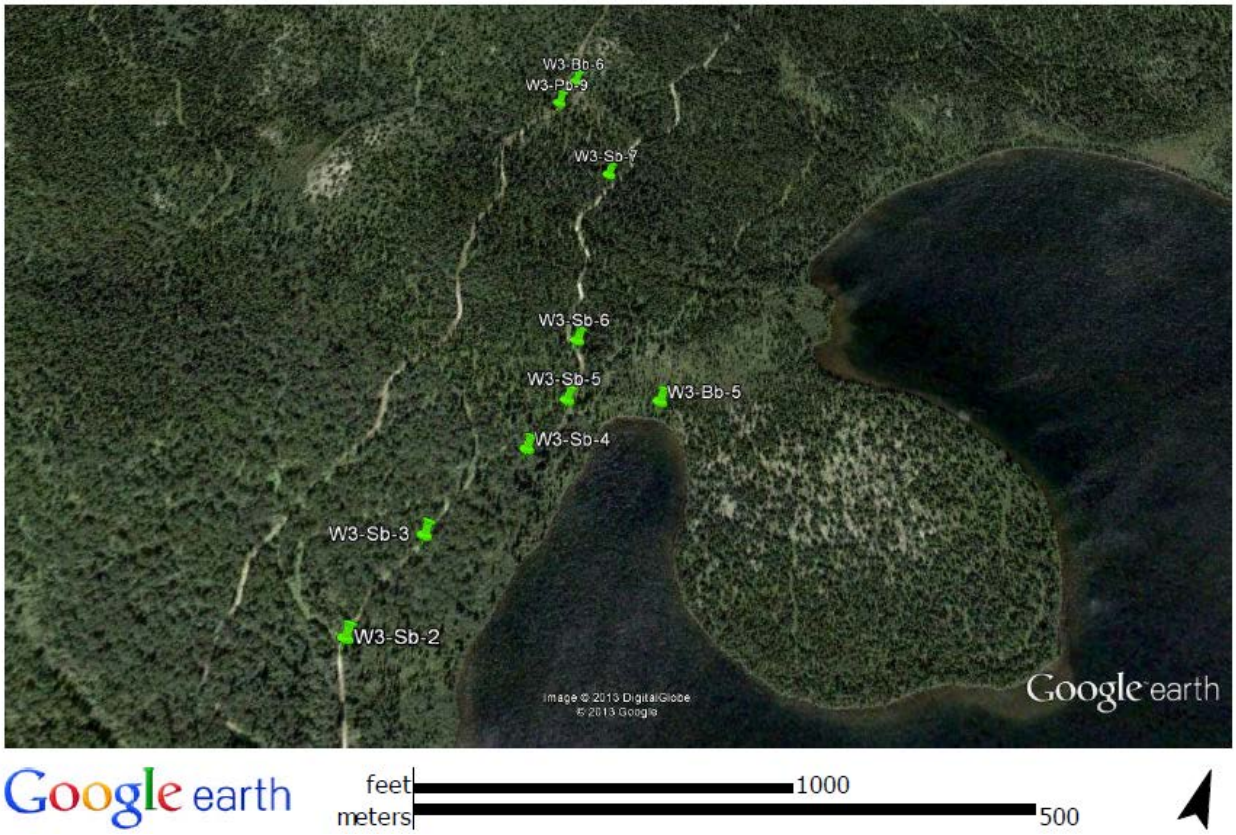


Figure D-3 Soil and Berry Sampling Locations from the Upper Smokey Mountain

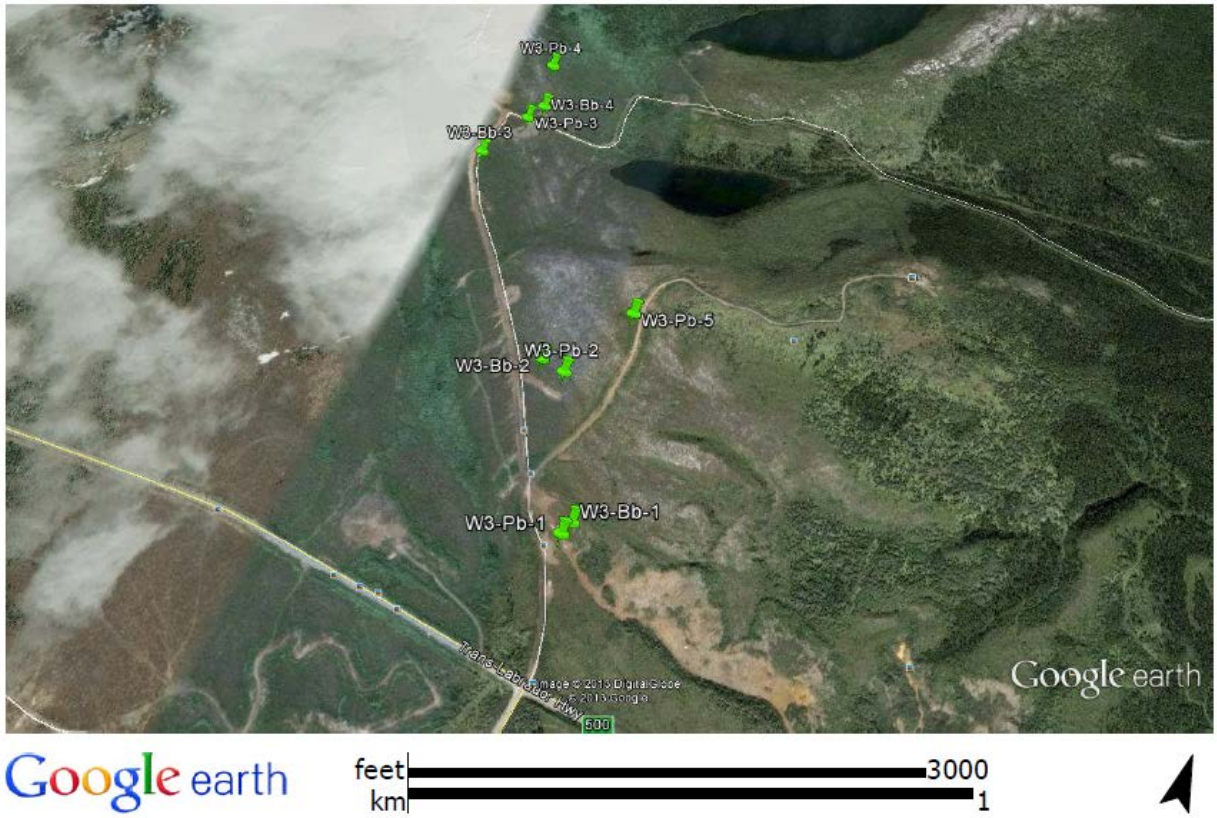


Figure D-4 Soil and Berry Sampling Locations from the New Hospital Area

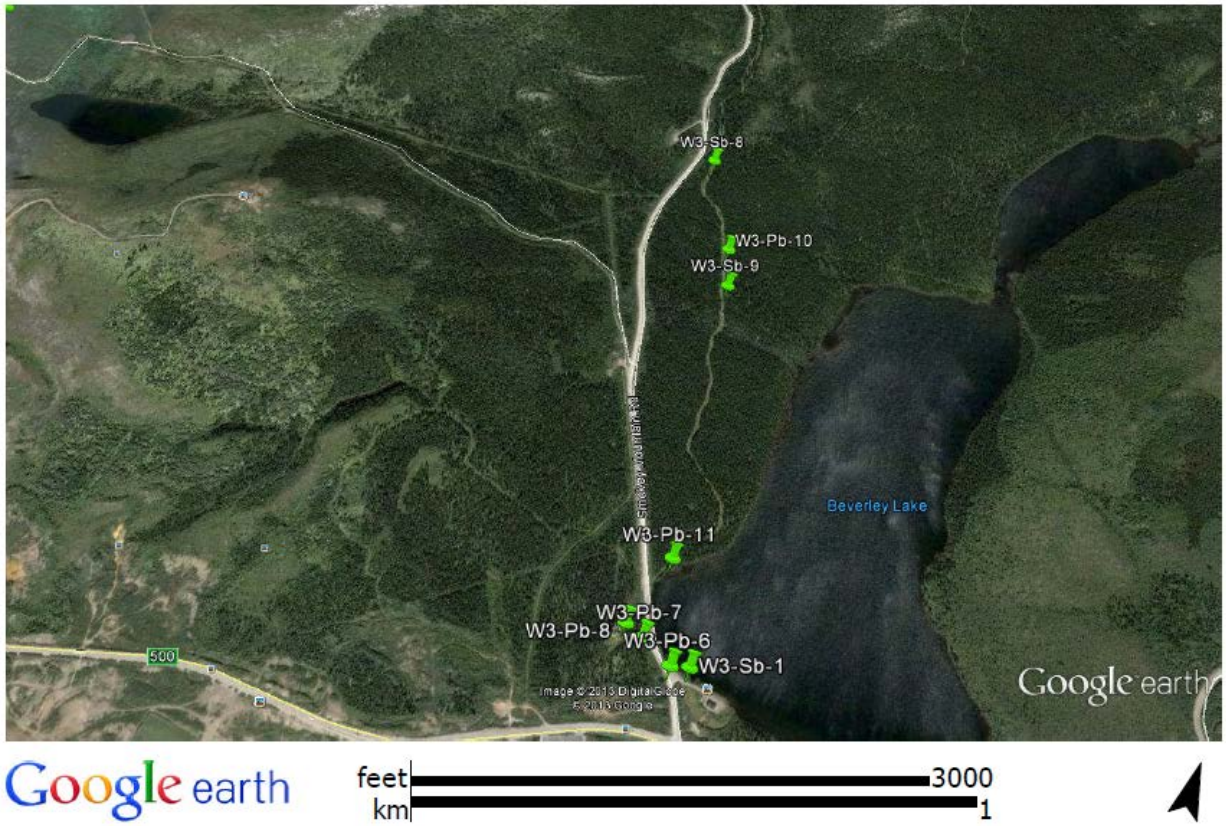


Figure D-5 Soil and Berry Sampling Locations from the Lower Smokey Mountain

Figure D-6 Fish Net 1 and Net 2 Locations for Fish Sampling within Dumbell Lake

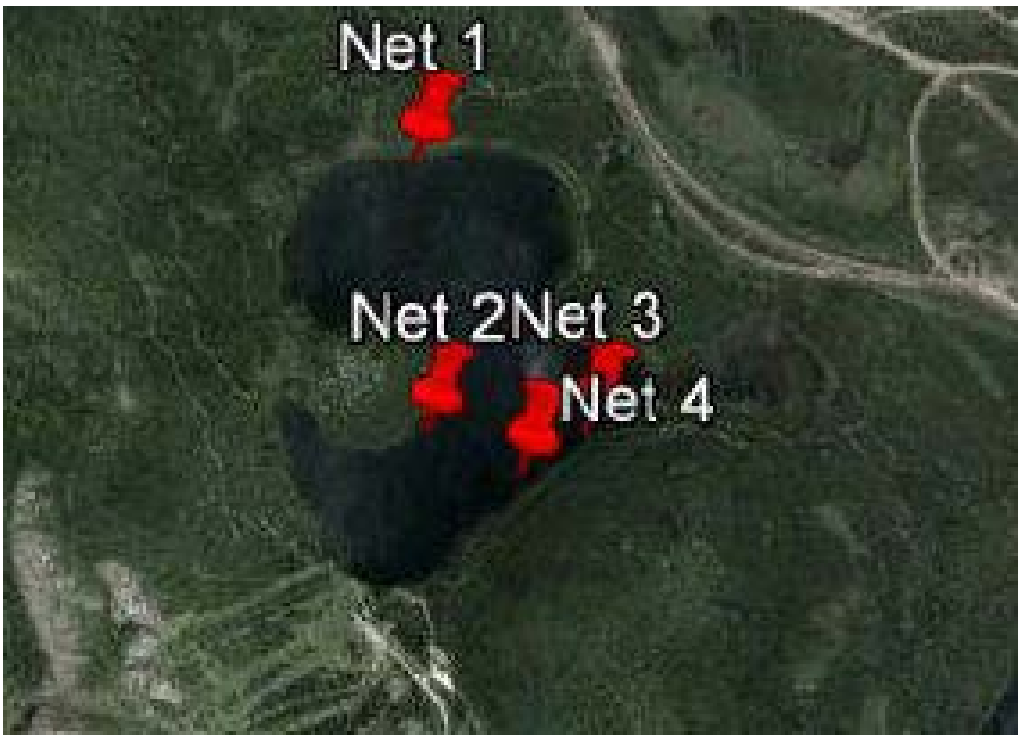


Figure D-7 Fish Net 1, Net 2, Net 3 and Net 4 Locations for Fish Sampling within Dumbell Lake

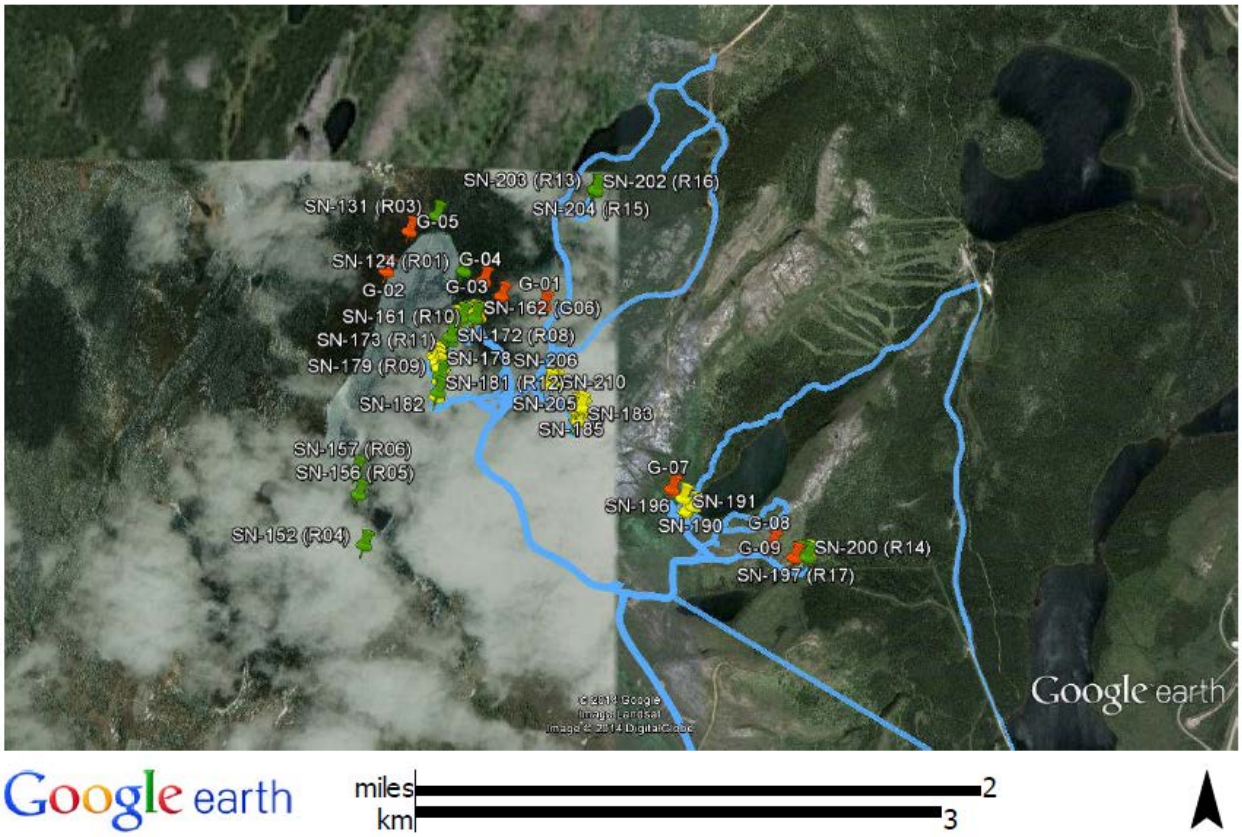


Figure D-8 Sampling Transects for Hare and Grouse Sampling, Snare Locations and Grouse Sampling Locations

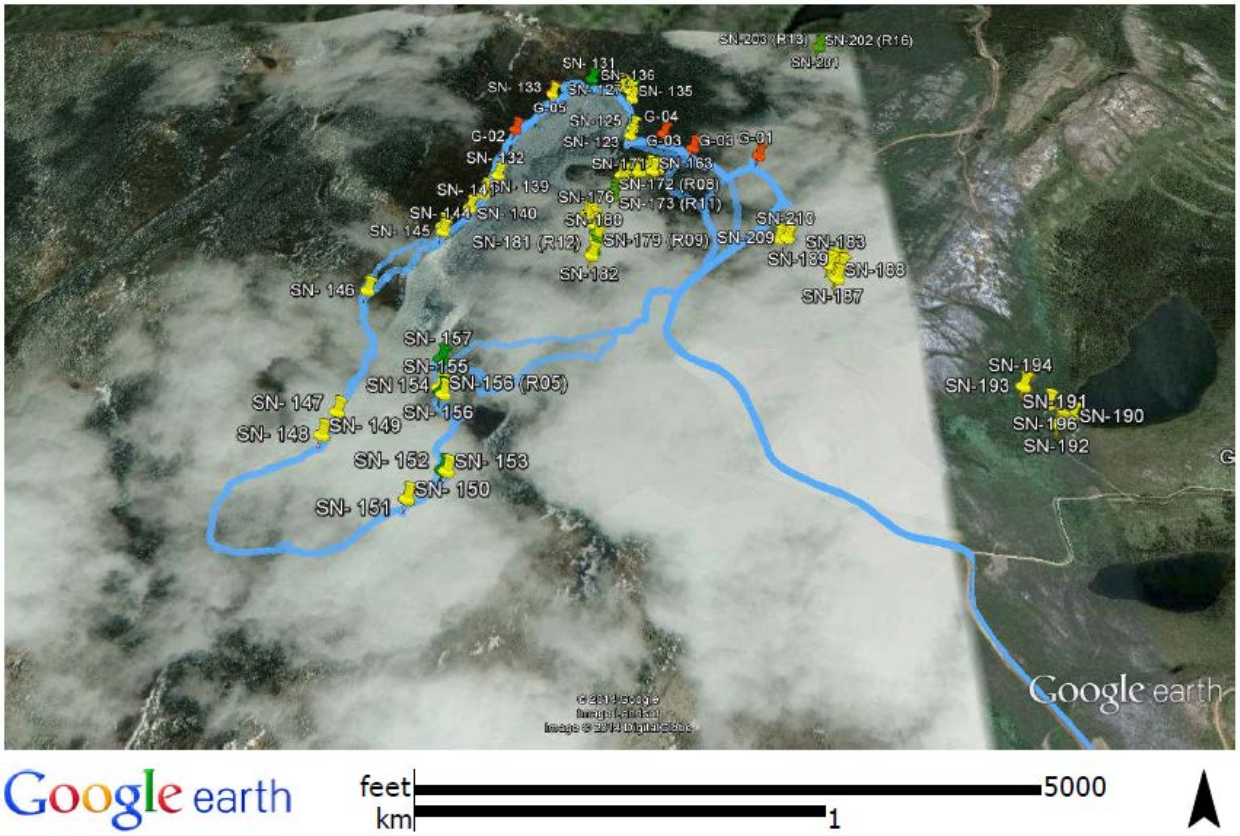
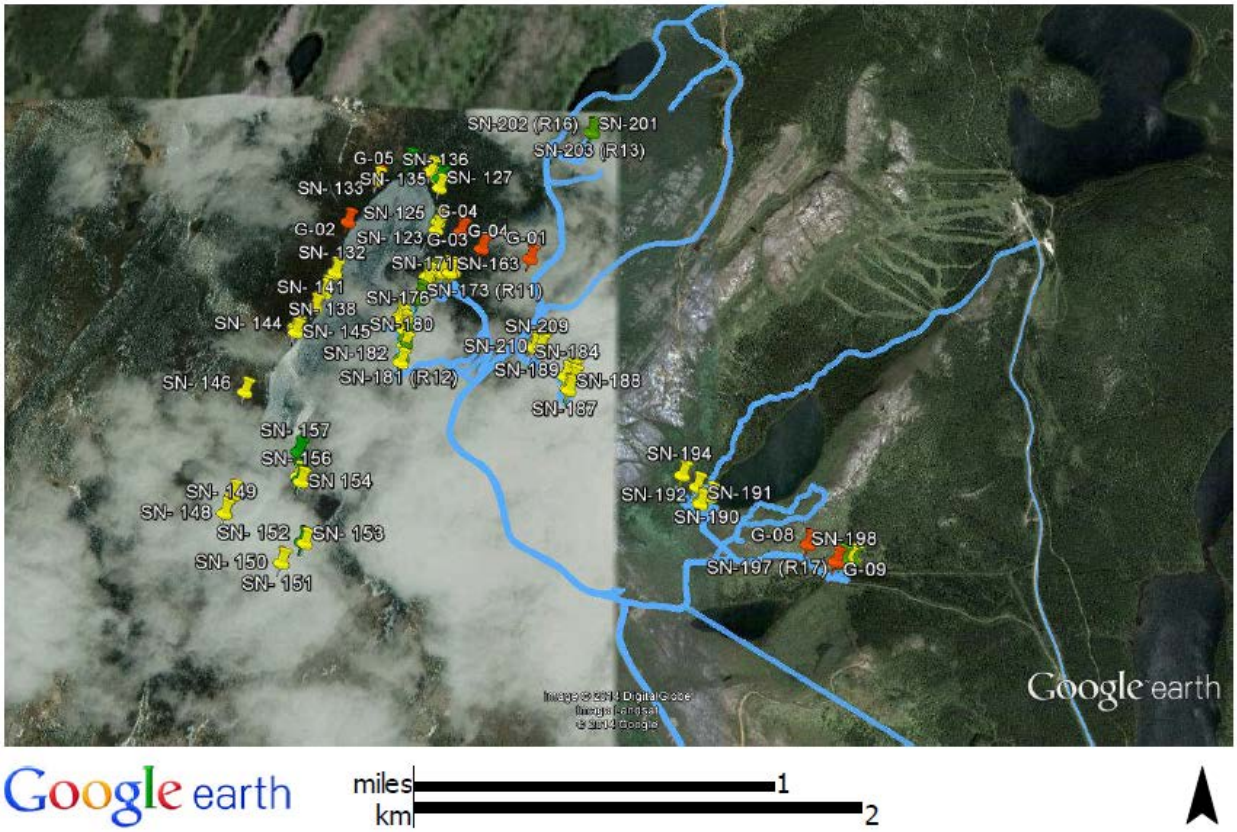


Figure D-9 Sampling Transects for Hare and Grouse Sampling, Snare Locations and Grouse Sampling Locations



Google earth miles 1 km 2

Figure D-10 Sampling Transects for Hare and Grouse Sampling, Snare Locations and Grouse Sampling Locations

Table D-1 Snowshoe Hare Sampling Locations, Sample Numbers and Corresponding Snare Numbers in Addition to Species Data

GPS Coordinates	Date	Male or Female / Juvenile or Mature	Hare Number	Snare Number	Total Weight (ounces)	Length (cm)	Sample Number	Laboratory Sample Label	Post Dissection Weight (grams)	Tissue Type [Muscle (M), Kidney (K) and Liver (L)]
0636642. 5871604. Elv. 2360ft	15-Aug-14	Not provided	1	124	25	32	HM-1	HM-1	65.88	M
							HK-1	HK-1	8.03	K
							HL-1	HL-1	26.99	L
0636637. 5871827. Elv. 2350ft	15-Aug-14	Male	2	127	50	41	HM-2	HM-2	90.58	M
							HK-2	HK-2	#REF!	K
							HL-2	HL-2	32.97	L
0636474. 5871917. Elv. 2356ft	15-Aug-14	Female/ Juvenile	3	131	30	36	HM-3	HM-3	38.96	M
							HK-3	HK-3	10.41	K
							HL-3	HL-3	34.8	L
0636129. 5870029. Elv. 2361ft	15-Aug-14	Male	4	152	55	45	HM-4	HM-4	82.05	M
							HK-4	HK-4	13.03	K
							HL-4	HL-4	67.41	L
0636087. 5870313. Elv. 2392ft	15-Aug-14	Female	5	156	59	46	HM-5	HM-5	96.08	M
							HK-5	HK-5	17.69	K
							HL-5	HL-5	81.47	L
0636068. 5870445. Elv. 2383ft	15-Aug-14	Female	6	157	27	36	HM-6	HM-6	35.11	M
							HK-6	HK-6	8.25	K
							HL-6	HL-6	41.26	L
0636640. 5871336. Elv. 2396ft	19-Aug-14	Juvenile Female	7	168	26.4	36.5	HM-7	HM-7	51.33	M
							HK-7	HK-7	8.10	K
							HL-7	HL-7	27.30	L
0636579. 5871224. Elv. 2386ft	19-Aug-14	Female	8	172	35.8	37.5	HM-8	HM-8	82.59	M
							HK-8	HK-8	9.36	K
							HL-8	HL-8	39.56	L
0636533. 5870999. Elv. 2445ft	19-Aug-14	Female	9	179	65.8	47	HM-9	HM-9	102.16	M
							HK-9	HK-9	12.38	K
							HL-9	HL-9	74.75	L

Table D-1 Snowshoe Hare Sampling Locations, Sample Numbers and Corresponding Snare Numbers in Addition to Species Data

0636719. 5871336. Elv. 2421ft	20-Aug-14	Male	10	161	48.6	45	HM-10	HM-10	77.11	M
							HK-10	HK-10	13.10	K
							HL-10	HL-10	55.62	L
0636581. 5871199. Elv. 2400ft	20-Aug-14	Male	11	173	58.9	46	HM-11	HM-11	90.9	M
							HK-11	HK-11	16.5	K
							HL-11	HL-11	77.42	L
0636525. 5870905. Elv. 2478ft	20-Aug-14	Male	12	181	54.2	44	HM-12	HM-12	85.01	M
							HK-12	HK-12	10.96	K
							HL-12	HL-12	64.42	L
0637387. 5872081. Elv. 2546ft	20-Aug-14	Male	13	203	45.4	43	HM-13	HM-13	82.22	M
							HK-13	HK-13	12.25	K
							HL-13	HL-13	51.79	L
0637380. 5872082. Elv. 2542ft	23-Aug-14	Female	15	204	64.7	46.5	HM-15	HM-14	93.29	M
								HM-19	91.19	
							HK-15	HK-14	9.28	K
								HK-19	9.28	
							HL-15	HL-14	45.74	L
								HL-19	54.74	
0638614. 5870031. Elv. 2141ft	23-Aug-14	Female	17	197	32.6	38	HM-17	HM-15	59.74	M
							HK-17	HK-15	11.32	K
							HL-17	HL-15	43.09	L

Notes:

Highlighted cell indicates sample was used as field duplicate sample

Samples collected and data recorded by Pinchin LeBlanc Environmental

Table D-2 Spruce Grouse Sampling Locations, Sample Numbers and Species Data

GPS Coordinates	Date	Male or Female / Juvenile or Mature	Grouse Number	Snare Number	Total Weight (ounces)	Length (cm)	Sample Number	Laboratory Sample Label	Post Dissection Weight (grams)	Tissue Type [Muscle (M), Kidney (K) and Liver (L)]
637108. 5871416. Elv. 2441ft	13-Aug-14	Female	1	NA	18	31	GM-1	GM-1	56.7	M
							GK-1	GK-1	2.01	K
							GL-1	GL-1	10.1	L
0636198. 5871591. Elv. 2350ft	13-Aug-14	Female	2	NA	17	32	GM-2	GM-2	28.35	M
							GK-2	GK-2	2.35	K
							GL-2	GL-2	11.1	L
0636868. 5871461. Elv. 2436ft	14-Aug-14	Female	3	NA	16	29	GM-3	GM-3	56.7	M
							GK-3	GK-3	3.84	K
							GL-3	GL-3	11.46	L
0636761. 5871547. Elv. 2401ft	14-Aug-14	Female	4	NA	20	32.5	GM-4	GM-4	56.7	M
							GK-4	GK-4	3.76	K
							GL-4	GL-4	12.8	L
0636322. 5871823. Elv. 2362	14-Aug-14	Female	5	NA	16	28	GM-5	GM-5	56.7	M
							GK-5	GK-5	7.38	K
							GL-5	GL-5	13.23	L
0636725. 5871337. Elv. 2423ft	20-Aug-14	Male	6	162	19.4	40	GM-6	GM-6	86.65	M
								GM-12	81.50	
							GK-6	GK-6	7.49	K
							GL-6	GL-6	10.6	L
								GL-12	7.88	
0637869. 5870394. Elv. 2333	20-Aug-14	Male	7	NA	20.3	38	GM-7	GM-7	87.64	M
							GK-7	GK-7	7.16	K
							GL-7	GL-7	18.03	L
0638455. 5870093. Elv. 2213ft	23-Aug-14	J. Female	8	NA	12	29.5	GM-8	GM-8	53.65	M
							GK-8	GK-8	4.97	K
							GL-8	GL-8	12.28	L
0638585. 5870020. Elv. 2152ft	23-Aug-14	Female	9	NA	16	32	GM-9	GM-9	71.59	M
							GK-9	GK-9	5.8	K
							GL-9	GL-9	11.21	L

Notes:
NA = not applicable
Highlighted cell indicates sample was used as field duplicate sample
Samples collected and data recorded by Pinchin LeBlanc Environmental

Table D-3 Brook Trout Sampling Locations, Net Locations, Fillet and Fillet with Skin Sampling Numbers and Species Data

GPS Coordinates	Net Number	Male or Female	Sample Bag Number	Fish Number	Total Length (cm)	Total Weight (ounces)	Age	Post Dissection Weight (ounces)	Fillet (F) or Fillet and Skin (FS)	Laboratory Sample Label
0640193. 5873050	1	Male	1	1	31.75	12	M	3	FS	BT-1FS
		Male	2	1	31.75	12	M	3	F	BT-1F
		Female	3	2	28.58	9	M	2	FS	BT-2FS
		Female	4	2	28.58	9	M	2	F	BT-2F
		Male	9	5	25.4	7	J	2	FS	BT-3FS
		Male	10	5	25.4	7	J	1	F	BT-3F
0639926. 5872325	2	Female	15	8	27	7	M	2	FS	BT-4FS
		Female	16	8	27	7	M	2	F	BT-4F
		Male	17	9	24	5	M	1	FS	BT-5FS
		Male	18	9	24	5	M	1	F	BT-5F
		Male	19	10	23	5	M	1	FS	BT-6FS
		Male	20	10	23	5	M	1	F	BT-6F
0640193. 5873050	1	Male	25	12	33.5	16	M	2	FS	BT-7FS
		Male	26	12	33.5	16	M	2	FS	BT-16FS
		Male	27	12	33.5	16	M	2	F	BT-7F
		Male	28	12	33.5	16	M	2	F	BT-16F
0639926. 5872325	2	Female	33	15	25	7	M	2	FS	BT-8FS
		Female	34	15	25	7	M	2	F	BT-8F
0640336. 5872173	3	Female	39	18	30.25	13	M	4	FS	BT-9FS
		Female	40	18	30.25	13	M	3	F	BT-9F
		Female	41	19	27	8	M	2	FS	BT-10FS
		Female	42	19	27	8	M	2	F	BT-10F
		Female	43	20	25.5	7	M	2	FS	BT-11FS
		Female	44	20	25.5	7	M	2	F	BT-11F
		Male	51	24	29	11	M	3	FS	BT-12FS
		Male	52	24	29	11	M	2	F	BT-12F

Table D-3 Brook Trout Sampling Locations, Net Locations, Fillet and Fillet with Skin Sampling Numbers and Species Data

GPS Coordinates	Net Number	Male or Female	Sample Bag Number	Fish Number	Total Length (cm)	Total Weight (ounces)	Age	Post Dissection Weight (ounces)	Fillet (F) or Fillet and Skin (FS)	Laboratory Sample Label
0640122.5872125	4	Male	53	25	30.5	11	M	4	FS	BT-13FS
		Male	54	25	30.5	11	M	3	F	BT-13F
		Female	55	26	29	11	M	4	FS	BT-14FS
		Female	56	26	29	11	M	3	F	BT-14F
		Female	57	27	29.5	11	M	4	FS	BT-15FS
		Female	58	27	29.5	11	M	3	F	BT-15F
		Female	61	29	26.5	9	M	2	FS	NA
		Female	62	29	26.5	9	M	2	F	NA

Notes:

Age: Juvenile (J); Mature (M); NA = not applicable as sample not analyzed

Highlighted cell indicates sample was used as field duplicate sample

Samples collected and data recorded by Pinchin LeBlanc Environmental

APPENDIX E

LABORATORY RESULTS AND CERTIFICATES OF ANALYSIS

Maxxam
A Bureau Veritas Group Company

Success Through Science®

Your Project #: 06-01-00114
Site#: LABRADOR CITY
Site Location: BASELINE COUNTRY FOODS ASSESSMENT

Attention:Lisa Marshall

Intrinsik Environmental Services
5121 Sackville Street
SUITE 506
Halifax, NS
CANADA B3J 1K1

Your C.O.C. #: 08396562, 08396563, 08396564, 08396565

Report Date: 2014/11/07
Report #: R1679739
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B478587
Received: 2014/09/05, 09:30

Sample Matrix: TISSUE
Samples Received: 29

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Elements by CRC ICPMS - Tissue Wet Wt	9	2014/11/04	2014/11/06	BBY7SOP-00002, BBY7SOP -00013	EPA 6020a,200.3 R1 m
Elements by CRC ICPMS - Tissue Wet Wt	20	2014/11/04	2014/11/07	BBY7SOP-00002, BBY7SOP -00013	EPA 6020a,200.3 R1 m

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Samantha Fregien, Project Manager
Email: SFregien@maxxam.ca
Phone# (604) 734 7276
==========
This report has been generated and distributed using a secure automated process.
Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam
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Success Through Science®

Maxxam Job #: B478587
Report Date: 2014/11/07

Intrinsik Environmental Services
Client Project #: 06-01-00114
Site Location: BASELINE COUNTRY FOODS ASSESSMENT

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Maxxam ID		KN4029	KN4030	KN4031	KN4032	KN4033	KN4034		
Sampling Date		2014/08/15	2014/08/15	2014/08/15	2014/08/15	2014/08/15	2014/08/15		
COC Number		08396562	08396562	08396562	08396562	08396562	08396562		
	Units	**HM-1**	**HM-2**	**HM-3**	**HM-4**	**HM-5**	**HM-6**	**RDL**	**QC Batch**
Total Metals by ICPMS									
Total Aluminum (Al)	mg/kg	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	7706839
Total Antimony (Sb)	mg/kg	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	7706839
Total Arsenic (As)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	7706839
Total Barium (Ba)	mg/kg	0.037	0.026	0.042	0.022	0.028	0.020	0.020	7706839
Total Beryllium (Be)	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	7706839
Total Bismuth (Bi)	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	7706839
Total Boron (B)	mg/kg	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	0.40	7706839
Total Cadmium (Cd)	mg/kg	<0.0020	0.0038	<0.0020	0.0037	0.0056	<0.0020	0.0020	7706839
Total Calcium (Ca)	mg/kg	100	47.3	52.9	48.3	53.4	45.1	2.0	7706839
Total Chromium (Cr)	mg/kg	<0.040	0.047	<0.040	<0.040	<0.040	<0.040	0.040	7706839
Total Cobalt (Co)	mg/kg	<0.0040	0.0064	0.0045	0.0061	0.0092	0.0049	0.0040	7706839
Total Copper (Cu)	mg/kg	1.86	2.43	2.37	2.76	2.21	2.50	0.010	7706839
Total Iron (Fe)	mg/kg	28.8	29.3	29.0	34.4	32.2	29.6	2.0	7706839
Total Lead (Pb)	mg/kg	0.0020	<0.0020	0.0021	<0.0020	0.0030	0.0024	0.0020	7706839
Total Magnesium (Mg)	mg/kg	286	315	290	307	275	293	2.0	7706839
Total Manganese (Mn)	mg/kg	0.308	0.219	0.479	0.620	0.789	0.398	0.020	7706839
Total Mercury (Hg)	mg/kg	0.0029	<0.0020	<0.0020	<0.0020	<0.0020	0.0050	0.0020	7706839
Total Molybdenum (Mo)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	7706839
Total Nickel (Ni)	mg/kg	0.046	0.060	0.031	0.031	0.050	0.031	0.010	7706839
Total Phosphorus (P)	mg/kg	2540	2550	2280	2410	2180	2310	2.0	7706839
Total Potassium (K)	mg/kg	4020	3970	3670	3510	3370	3580	2.0	7706839
Total Selenium (Se)	mg/kg	0.046	0.047	0.023	0.057	0.061	0.065	0.010	7706839
Total Silver (Ag)	mg/kg	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	0.0040	7706839
Total Sodium (Na)	mg/kg	777	598	535	550	430	478	2.0	7706839
Total Strontium (Sr)	mg/kg	0.052	0.039	0.049	0.030	0.026	0.039	0.020	7706839
Total Thallium (Tl)	mg/kg	0.00141	0.00583	0.00378	0.00096	0.00211	0.00166	0.00040	7706839
Total Tin (Sn)	mg/kg	<0.020	0.029	0.047	0.021	0.022	0.026	0.020	7706839
Total Titanium (Ti)	mg/kg	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	7706839
Total Uranium (U)	mg/kg	0.00047	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	0.00040	7706839
Total Vanadium (V)	mg/kg	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	7706839
Total Zinc (Zn)	mg/kg	16.4	16.3	14.2	15.8	14.2	14.1	0.040	7706839

RDL = Reportable Detection Limit

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B478587
Report Date: 2014/11/07

Intrinsik Environmental Services
Client Project #: 06-01-00114
Site Location: BASELINE COUNTRY FOODS ASSESSMENT

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Maxxam ID		KN4035	KN4036	KN4037	KN4038	KN4039	KN4040		
Sampling Date		2014/08/19	2014/08/19	2014/08/19	2014/08/20	2014/08/20	2014/08/20		
COC Number		08396562	08396562	08396562	08396562	08396562	08396562		
	Units	**HM-7**	**HM-8**	**HM-9**	**HM-10**	**HM-11**	**HM-12**	**RDL**	**QC Batch**
Total Metals by ICPMS									
Total Aluminum (Al)	mg/kg	<0.20	<0.20	0.21	<0.20	<0.20	<0.20	0.20	7706839
Total Antimony (Sb)	mg/kg	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	7706839
Total Arsenic (As)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	7706839
Total Barium (Ba)	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	7706839
Total Beryllium (Be)	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	7706839
Total Bismuth (Bi)	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	7706839
Total Boron (B)	mg/kg	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	0.40	7706839
Total Cadmium (Cd)	mg/kg	<0.0020	<0.0020	0.0039	0.0051	0.0050	0.0041	0.0020	7706839
Total Calcium (Ca)	mg/kg	38.5	50.0	43.3	44.4	43.8	47.1	2.0	7706839
Total Chromium (Cr)	mg/kg	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	7706839
Total Cobalt (Co)	mg/kg	0.0053	<0.0040	<0.0040	0.0075	0.0050	0.0075	0.0040	7706839
Total Copper (Cu)	mg/kg	2.33	2.14	2.05	2.18	2.49	2.38	0.010	7706839
Total Iron (Fe)	mg/kg	18.4	24.5	27.5	28.4	31.0	34.5	2.0	7706839
Total Lead (Pb)	mg/kg	<0.0020	0.0035	0.0030	<0.0020	<0.0020	<0.0020	0.0020	7706839
Total Magnesium (Mg)	mg/kg	316	318	319	300	307	348	2.0	7706839
Total Manganese (Mn)	mg/kg	0.256	0.218	0.217	0.211	0.287	0.331	0.020	7706839
Total Mercury (Hg)	mg/kg	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.0020	7706839
Total Molybdenum (Mo)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	7706839
Total Nickel (Ni)	mg/kg	0.052	0.016	0.022	0.033	0.047	0.060	0.010	7706839
Total Phosphorus (P)	mg/kg	2560	2590	2340	2410	2570	2660	2.0	7706839
Total Potassium (K)	mg/kg	4310	4410	3740	3700	3750	4150	2.0	7706839
Total Selenium (Se)	mg/kg	0.030	0.038	0.029	0.042	0.063	0.053	0.010	7706839
Total Silver (Ag)	mg/kg	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	0.0040	7706839
Total Sodium (Na)	mg/kg	417	405	421	557	523	576	2.0	7706839
Total Strontium (Sr)	mg/kg	0.032	0.036	0.024	0.021	0.022	<0.020	0.020	7706839
Total Thallium (Tl)	mg/kg	0.00147	0.00191	0.00367	0.00084	0.00090	0.00317	0.00040	7706839
Total Tin (Sn)	mg/kg	0.042	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	7706839
Total Titanium (Ti)	mg/kg	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	7706839
Total Uranium (U)	mg/kg	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	0.00040	7706839
Total Vanadium (V)	mg/kg	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	7706839
Total Zinc (Zn)	mg/kg	16.5	15.6	15.7	16.8	16.9	17.2	0.040	7706839

RDL = Reportable Detection Limit

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B478587
Report Date: 2014/11/07

Intrinsik Environmental Services
Client Project #: 06-01-00114
Site Location: BASELINE COUNTRY FOODS ASSESSMENT

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Maxxam ID		KN4041	KN4042	KN4043	KN4045	KN4047	KN4048		
Sampling Date		2014/08/20	2014/08/23	2014/08/23	2014/08/15	2014/08/15	2014/08/15		
COC Number		08396563	08396563	08396563	08396563	08396563	08396563		
	Units	**HM-13**	**HM-14**	**HM-15**	**HL-1**	**HL-3**	**HL-4**	**RDL**	**QC Batch**
Total Metals by ICPMS									
Total Aluminum (Al)	mg/kg	<0.20	0.24	0.25	0.24	<0.20	1.03	0.20	7706839
Total Antimony (Sb)	mg/kg	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	7706839
Total Arsenic (As)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	7706839
Total Barium (Ba)	mg/kg	<0.020	0.023	0.049	0.032	0.104	0.045	0.020	7706839
Total Beryllium (Be)	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	7706839
Total Bismuth (Bi)	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	7706839
Total Boron (B)	mg/kg	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	0.40	7706839
Total Cadmium (Cd)	mg/kg	0.0029	0.0033	<0.0020	0.0366	0.0966	0.211	0.0020	7706839
Total Calcium (Ca)	mg/kg	43.4	45.2	81.8	97.8	86.1	133	2.0	7706839
Total Chromium (Cr)	mg/kg	<0.040	<0.040	<0.040	0.054	0.042	<0.040	0.040	7706839
Total Cobalt (Co)	mg/kg	0.0064	0.0058	<0.0040	0.0476	0.0367	0.0442	0.0040	7706839
Total Copper (Cu)	mg/kg	2.31	2.04	2.31	4.95	5.80	3.72	0.010	7706839
Total Iron (Fe)	mg/kg	32.9	34.4	44.7	334	378	343	2.0	7706839
Total Lead (Pb)	mg/kg	<0.0020	0.0028	0.0026	0.0191	0.0377	0.0706	0.0020	7706839
Total Magnesium (Mg)	mg/kg	304	306	278	303	232	197	2.0	7706839
Total Manganese (Mn)	mg/kg	0.266	0.288	0.550	4.74	6.37	3.05	0.020	7706839
Total Mercury (Hg)	mg/kg	<0.0020	<0.0020	<0.0020	0.0146	0.0035	0.0026	0.0020	7706839
Total Molybdenum (Mo)	mg/kg	<0.010	<0.010	<0.010	0.218	0.296	0.158	0.010	7706839
Total Nickel (Ni)	mg/kg	<0.010	0.023	0.019	0.059	0.055	0.050	0.010	7706839
Total Phosphorus (P)	mg/kg	2340	2350	2160	3470	3190	2750	2.0	7706839
Total Potassium (K)	mg/kg	3590	3620	3190	3580	2650	2450	2.0	7706839
Total Selenium (Se)	mg/kg	0.046	0.056	0.049	0.230	0.082	0.244	0.010	7706839
Total Silver (Ag)	mg/kg	<0.0040	<0.0040	<0.0040	0.0185	0.0614	0.0154	0.0040	7706839
Total Sodium (Na)	mg/kg	540	488	1070	1310	1320	1190	2.0	7706839
Total Strontium (Sr)	mg/kg	0.027	0.097	0.051	0.069	0.104	0.055	0.020	7706839
Total Thallium (Tl)	mg/kg	0.00171	0.00215	0.00514	0.00213	0.00933	0.00200	0.00040	7706839
Total Tin (Sn)	mg/kg	<0.020	<0.020	<0.020	0.033	0.020	0.055	0.020	7706839
Total Titanium (Ti)	mg/kg	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	7706839
Total Uranium (U)	mg/kg	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	0.00040	7706839
Total Vanadium (V)	mg/kg	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	7706839
Total Zinc (Zn)	mg/kg	13.8	15.1	16.0	51.2	29.2	30.5	0.040	7706839

RDL = Reportable Detection Limit

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B478587
Report Date: 2014/11/07

Intrinsik Environmental Services
Client Project #: 06-01-00114
Site Location: BASELINE COUNTRY FOODS ASSESSMENT

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Maxxam ID		KN4050	KN4052		KN4057	KN4058	KN4059		
Sampling Date		2014/08/15	2014/08/19		2014/08/20	2014/08/20	2014/08/15		
COC Number		08396563	08396563		08396564	08396564	08396564		
	Units	**HL-6**	**HL-8**	**QC Batch**	**HL-10**	**HL-11**	**HK-1**	**RDL**	**QC Batch**
Total Metals by ICPMS									
Total Aluminum (Al)	mg/kg	<0.20	<0.20	7706839	0.48	0.33	0.28	0.20	7706848
Total Antimony (Sb)	mg/kg	<0.0010	<0.0010	7706839	<0.0010	<0.0010	<0.0010	0.0010	7706848
Total Arsenic (As)	mg/kg	<0.010	<0.010	7706839	<0.010	<0.010	<0.010	0.010	7706848
Total Barium (Ba)	mg/kg	0.044	0.025	7706839	0.085	0.047	0.075	0.020	7706848
Total Beryllium (Be)	mg/kg	<0.020	<0.020	7706839	<0.020	<0.020	<0.020	0.020	7706848
Total Bismuth (Bi)	mg/kg	<0.020	<0.020	7706839	<0.020	<0.020	<0.020	0.020	7706848
Total Boron (B)	mg/kg	<0.40	<0.40	7706839	<0.40	<0.40	<0.40	0.40	7706848
Total Cadmium (Cd)	mg/kg	0.0484	0.0820	7706839	0.562	0.311	0.448	0.0020	7706848
Total Calcium (Ca)	mg/kg	117	65.9	7706839	130	81.3	92.4	2.0	7706848
Total Chromium (Cr)	mg/kg	<0.040	<0.040	7706839	<0.040	<0.040	<0.040	0.040	7706848
Total Cobalt (Co)	mg/kg	0.0587	0.0448	7706839	0.0467	0.0350	0.0236	0.0040	7706848
Total Copper (Cu)	mg/kg	4.66	5.26	7706839	4.36	4.52	4.44	0.010	7706848
Total Iron (Fe)	mg/kg	323	249	7706839	719	605	170	2.0	7706848
Total Lead (Pb)	mg/kg	0.0524	0.0735	7706839	0.281	0.195	0.0189	0.0020	7706848
Total Magnesium (Mg)	mg/kg	242	217	7706839	262	204	278	2.0	7706848
Total Manganese (Mn)	mg/kg	4.31	4.37	7706839	3.73	3.44	2.52	0.020	7706848
Total Mercury (Hg)	mg/kg	0.0362	0.0140	7706839	0.0071	0.0025	0.108	0.0020	7706848
Total Molybdenum (Mo)	mg/kg	0.158	0.399	7706839	0.271	0.157	0.046	0.010	7706848
Total Nickel (Ni)	mg/kg	0.025	0.027	7706839	0.048	0.034	0.047	0.010	7706848
Total Phosphorus (P)	mg/kg	3120	2760	7706839	3610	3130	3800	2.0	7706848
Total Potassium (K)	mg/kg	3020	2850	7706839	3530	2900	3190	2.0	7706848
Total Selenium (Se)	mg/kg	0.345	0.171	7706839	0.231	0.198	0.824	0.010	7706848
Total Silver (Ag)	mg/kg	0.0360	0.0249	7706839	0.0066	0.0118	0.0085	0.0040	7706848
Total Sodium (Na)	mg/kg	1390	904	7706839	1500	1190	1270	2.0	7706848
Total Strontium (Sr)	mg/kg	0.073	0.064	7706839	0.111	0.065	0.063	0.020	7706848
Total Thallium (Tl)	mg/kg	0.00429	0.00279	7706839	0.00177	0.00215	0.0114	0.00040	7706848
Total Tin (Sn)	mg/kg	0.022	0.021	7706839	0.028	<0.020	<0.020	0.020	7706848
Total Titanium (Ti)	mg/kg	<0.20	<0.20	7706839	<0.20	<0.20	<0.20	0.20	7706848
Total Uranium (U)	mg/kg	<0.00040	<0.00040	7706839	0.00061	<0.00040	<0.00040	0.00040	7706848
Total Vanadium (V)	mg/kg	<0.040	<0.040	7706839	<0.040	<0.040	<0.040	0.040	7706848
Total Zinc (Zn)	mg/kg	44.5	37.3	7706839	48.3	37.7	41.9	0.040	7706848

RDL = Reportable Detection Limit

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Maxxam Job #: B478587
Report Date: 2014/11/07

Intrinsik Environmental Services
Client Project #: 06-01-00114
Site Location: BASELINE COUNTRY FOODS ASSESSMENT

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Maxxam ID		KN4061	KN4062	KN4064	KN4066	KN4068	KN4069		
Sampling Date		2014/08/15	2014/08/15	2014/08/15	2014/08/19	2014/08/19	2014/08/19		
COC Number		08396564	08396564	08396564	08396564	08396565	08396565		
	Units	**HK-3**	**HK-4**	**HK-6**	**HK-8**	**HK-10**	**HK-11**	**RDL**	**QC Batch**
Total Metals by ICPMS									
Total Aluminum (Al)	mg/kg	0.28	0.46	0.25	0.35	0.20	0.33	0.20	7706848
Total Antimony (Sb)	mg/kg	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	7706848
Total Arsenic (As)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	7706848
Total Barium (Ba)	mg/kg	0.228	0.124	0.172	0.071	0.121	0.162	0.020	7706848
Total Beryllium (Be)	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	7706848
Total Bismuth (Bi)	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	7706848
Total Boron (B)	mg/kg	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	0.40	7706848
Total Cadmium (Cd)	mg/kg	1.30	7.69	0.893	1.07	7.79	11.7	0.0020	7706848
Total Calcium (Ca)	mg/kg	139	157	113	97.9	134	103	2.0	7706848
Total Chromium (Cr)	mg/kg	<0.040	<0.040	<0.040	<0.040	<0.040	0.063	0.040	7706848
Total Cobalt (Co)	mg/kg	0.0324	0.0874	0.0345	0.0412	0.0661	0.0700	0.0040	7706848
Total Copper (Cu)	mg/kg	4.98	4.83	4.83	5.17	5.05	4.93	0.010	7706848
Total Iron (Fe)	mg/kg	145	189	149	116	152	244	2.0	7706848
Total Lead (Pb)	mg/kg	0.0509	0.0425	0.0788	0.0994	0.0391	0.0361	0.0020	7706848
Total Magnesium (Mg)	mg/kg	260	273	247	300	261	231	2.0	7706848
Total Manganese (Mn)	mg/kg	4.28	5.39	3.83	3.52	4.54	3.88	0.020	7706848
Total Mercury (Hg)	mg/kg	0.0447	0.0490	0.369	0.132	0.0426	0.0548	0.0020	7706848
Total Molybdenum (Mo)	mg/kg	0.145	0.121	0.081	0.109	0.121	0.126	0.010	7706848
Total Nickel (Ni)	mg/kg	0.053	0.230	0.069	0.057	0.057	0.209	0.010	7706848
Total Phosphorus (P)	mg/kg	3530	3240	3440	3640	3320	3400	2.0	7706848
Total Potassium (K)	mg/kg	2680	2890	3260	3300	2640	2970	2.0	7706848
Total Selenium (Se)	mg/kg	0.422	1.10	1.01	0.781	1.24	1.15	0.010	7706848
Total Silver (Ag)	mg/kg	<0.0040	0.0057	0.0089	<0.0040	<0.0040	<0.0040	0.0040	7706848
Total Sodium (Na)	mg/kg	1900	1650	1510	1290	1940	1760	2.0	7706848
Total Strontium (Sr)	mg/kg	0.167	0.112	0.106	0.108	0.132	0.115	0.020	7706848
Total Thallium (Tl)	mg/kg	0.0254	0.0124	0.0157	0.0117	0.0143	0.0177	0.00040	7706848
Total Tin (Sn)	mg/kg	0.035	<0.020	<0.020	<0.020	0.029	<0.020	0.020	7706848
Total Titanium (Ti)	mg/kg	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	7706848
Total Uranium (U)	mg/kg	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	0.00040	7706848
Total Vanadium (V)	mg/kg	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	7706848
Total Zinc (Zn)	mg/kg	26.5	31.5	28.6	35.9	33.1	38.4	0.040	7706848

RDL = Reportable Detection Limit

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Maxxam Job #: B478587
Report Date: 2014/11/07

Intrinsik Environmental Services
Client Project #: 06-01-00114
Site Location: BASELINE COUNTRY FOODS ASSESSMENT

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	1.7°C
Package 2	3.0°C
Package 3	1.3°C

Results relate only to the items tested.

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Maxxam Job #: B478587
Report Date: 2014/11/07

QUALITY ASSURANCE REPORT

Intrinsik Environmental Services
Client Project #: 06-01-00114
Site Location: BASELINE COUNTRY FOODS ASSESSMENT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
7706839	Total Aluminum (Al)	2014/11/07					<0.20	mg/kg	NC	35		
7706839	Total Antimony (Sb)	2014/11/07					<0.0010	mg/kg	NC	35		
7706839	Total Arsenic (As)	2014/11/07	103	75 - 125	105	75 - 125	<0.010	mg/kg	NC	35	123	75 - 125
7706839	Total Barium (Ba)	2014/11/07	103	75 - 125	107	75 - 125	<0.020	mg/kg	NC	35		
7706839	Total Beryllium (Be)	2014/11/07	100	75 - 125	106	75 - 125	<0.020	mg/kg	NC	35		
7706839	Total Bismuth (Bi)	2014/11/07					<0.020	mg/kg	NC	35		
7706839	Total Boron (B)	2014/11/07					<0.40	mg/kg	NC	35		
7706839	Total Cadmium (Cd)	2014/11/07	105	75 - 125	107	75 - 125	<0.0020	mg/kg	NC	35	108	75 - 125
7706839	Total Calcium (Ca)	2014/11/07					<2.0	mg/kg	18	35		
7706839	Total Chromium (Cr)	2014/11/07	99	75 - 125	110	75 - 125	<0.040	mg/kg	NC	35	92	75 - 125
7706839	Total Cobalt (Co)	2014/11/07	103	75 - 125	112	75 - 125	<0.0040	mg/kg	NC	35		
7706839	Total Copper (Cu)	2014/11/07	NC	75 - 125	112	75 - 125	0.017, RDL=0.010	mg/kg	3.4	35	108	75 - 125
7706839	Total Iron (Fe)	2014/11/07					<2.0	mg/kg	14	35	109	75 - 125
7706839	Total Lead (Pb)	2014/11/07	102	75 - 125	108	75 - 125	<0.0020	mg/kg	NC	35	110	75 - 125
7706839	Total Magnesium (Mg)	2014/11/07					<2.0	mg/kg	12	35		
7706839	Total Manganese (Mn)	2014/11/07	92	75 - 125	104	75 - 125	<0.020	mg/kg	33	35	105	75 - 125
7706839	Total Mercury (Hg)	2014/11/07	109	75 - 125	114	75 - 125	<0.0020	mg/kg	NC	35	113	75 - 125
7706839	Total Molybdenum (Mo)	2014/11/07					<0.010	mg/kg	NC	35	107	75 - 125
7706839	Total Nickel (Ni)	2014/11/07	101	75 - 125	104	75 - 125	0.013, RDL=0.010	mg/kg	NC	35	116	75 - 125
7706839	Total Phosphorus (P)	2014/11/07					<2.0	mg/kg	5.0	35		
7706839	Total Potassium (K)	2014/11/07					<2.0	mg/kg	2.0	35		
7706839	Total Selenium (Se)	2014/11/07	98	75 - 125	103	75 - 125	<0.010	mg/kg	NC	35	96	75 - 125
7706839	Total Silver (Ag)	2014/11/07	99	75 - 125	100	75 - 125	<0.0040	mg/kg	NC	35		
7706839	Total Sodium (Na)	2014/11/07					<2.0	mg/kg	1.3	35		
7706839	Total Strontium (Sr)	2014/11/07	101	75 - 125	107	75 - 125	<0.020	mg/kg	NC	35	109	75 - 125
7706839	Total Thallium (Tl)	2014/11/07	103	75 - 125	106	75 - 125	<0.00040	mg/kg	NC	35		
7706839	Total Tin (Sn)	2014/11/07					<0.020	mg/kg	NC	35		
7706839	Total Titanium (Ti)	2014/11/07					<0.20	mg/kg	NC	35		
7706839	Total Uranium (U)	2014/11/07	100	75 - 125	108	75 - 125	<0.00040	mg/kg	NC	35		
7706839	Total Vanadium (V)	2014/11/07	99	75 - 125	109	75 - 125	<0.040	mg/kg	NC	35	113	75 - 125
7706839	Total Zinc (Zn)	2014/11/07	NC	75 - 125	104	75 - 125	<0.040	mg/kg	4.8	35	113	75 - 125

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Maxxam Job #: B478587
Report Date: 2014/11/07

QUALITY ASSURANCE REPORT(CONT'D)

Intrinsik Environmental Services
Client Project #: 06-01-00114
Site Location: BASELINE COUNTRY FOODS ASSESSMENT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
7706848	Total Aluminum (Al)	2014/11/06					<0.20	mg/kg	NC	35		
7706848	Total Antimony (Sb)	2014/11/06					<0.0010	mg/kg	NC	35		
7706848	Total Arsenic (As)	2014/11/06	103	75 - 125	101	75 - 125	<0.010	mg/kg	NC	35	124	75 - 125
7706848	Total Barium (Ba)	2014/11/06	96	75 - 125	101	75 - 125	<0.020	mg/kg	NC	35		
7706848	Total Beryllium (Be)	2014/11/06	97	75 - 125	101	75 - 125	<0.020	mg/kg	NC	35		
7706848	Total Bismuth (Bi)	2014/11/06					<0.020	mg/kg	NC	35		
7706848	Total Boron (B)	2014/11/06					<0.40	mg/kg	NC	35		
7706848	Total Cadmium (Cd)	2014/11/06	99	75 - 125	100	75 - 125	<0.0020	mg/kg	7.5	35	103	75 - 125
7706848	Total Calcium (Ca)	2014/11/06					<2.0	mg/kg	4.7	35		
7706848	Total Chromium (Cr)	2014/11/06	93	75 - 125	104	75 - 125	<0.040	mg/kg	NC	35	85	75 - 125
7706848	Total Cobalt (Co)	2014/11/06	96	75 - 125	106	75 - 125	<0.0040	mg/kg	2.0	35		
7706848	Total Copper (Cu)	2014/11/06	NC	75 - 125	110	75 - 125	<0.010	mg/kg	3.9	35	98	75 - 125
7706848	Total Iron (Fe)	2014/11/06					<2.0	mg/kg	4.3	35	107	75 - 125
7706848	Total Lead (Pb)	2014/11/06	99	75 - 125	103	75 - 125	<0.0020	mg/kg	4.6	35	101	75 - 125
7706848	Total Magnesium (Mg)	2014/11/06					<2.0	mg/kg	3.8	35		
7706848	Total Manganese (Mn)	2014/11/06	NC	75 - 125	102	75 - 125	<0.020	mg/kg	0.94	35	97	75 - 125
7706848	Total Mercury (Hg)	2014/11/06	110	75 - 125	113	75 - 125	<0.0020	mg/kg	0.12	35	108	75 - 125
7706848	Total Molybdenum (Mo)	2014/11/06					<0.010	mg/kg	12	35	101	75 - 125
7706848	Total Nickel (Ni)	2014/11/06	92	75 - 125	107	75 - 125	<0.010	mg/kg	NC	35	106	75 - 125
7706848	Total Phosphorus (P)	2014/11/06					<2.0	mg/kg	3.7	35		
7706848	Total Potassium (K)	2014/11/06					<2.0	mg/kg	1.9	35		
7706848	Total Selenium (Se)	2014/11/06	96	75 - 125	96	75 - 125	<0.010	mg/kg	2.4	35	91	75 - 125
7706848	Total Silver (Ag)	2014/11/06	102	75 - 125	95	75 - 125	<0.0040	mg/kg	NC	35		
7706848	Total Sodium (Na)	2014/11/06					<2.0	mg/kg	3.3	35		
7706848	Total Strontium (Sr)	2014/11/06	97	75 - 125	102	75 - 125	<0.020	mg/kg	NC	35	102	75 - 125
7706848	Total Thallium (Tl)	2014/11/06	99	75 - 125	98	75 - 125	<0.00040	mg/kg	0.19	35		
7706848	Total Tin (Sn)	2014/11/06					<0.020	mg/kg	NC	35		
7706848	Total Titanium (Ti)	2014/11/06					<0.20	mg/kg	NC	35		
7706848	Total Uranium (U)	2014/11/06	98	75 - 125	100	75 - 125	0.00048, RDL=0.00040	mg/kg	NC	35		
7706848	Total Vanadium (V)	2014/11/06	92	75 - 125	103	75 - 125	<0.040	mg/kg	NC	35	101	75 - 125

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QUALITY ASSURANCE REPORT(CONT'D)

Intrinsik Environmental Services
Client Project #: 06-01-00114
Site Location: BASELINE COUNTRY FOODS ASSESSMENT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
7706848	Total Zinc (Zn)	2014/11/06	NC	75 - 125	104	75 - 125	0.054, RDL=0.040	mg/kg	0.43	35	104	75 - 125

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

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Intrinsik Environmental Services
Client Project #: 06-01-00114
Site Location: BASELINE COUNTRY FOODS ASSESSMENT

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Rob Reinert, Data Validation Coordinator

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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Maxxam

Burnaby: 4606 Canada Way, Burnaby, BC V5G 1K5 Ph: (604) 734-7276 Fax: (604) 731-2386, Toll Free: (800) 665-8566

CHAIN OF CUSTODY RECORD

Maxxam Job #: B478587 COC #: 08396562 Page: 1 of 4

Invoice To: Require Report? Yes ☑ No ☐

Company Name: Intrinsik Environmental Sciences Inc.
Contact Name:
Address: 5121 Sackville St., Suite 506
Halifax, NS PC: B3J 1K1
Phone / Fax#: Ph: 902-429-278 Fax: 902-429-0279
E-mail: lmarshall@intrinsik.com

Report To:

Company Name: Intrinsik Environmental Sciences Inc.
Contact Name:
Address: 5121 Sackville St., Suite 506
Halifax, NS PC: B3J 1K1
Phone / Fax#: Ph: 902-429-278 Fax: 902-429-0279
E-mail: lmarshall@intrinsik.com

PO #:
Quotation #: B13-242-AH
Project # : 06-01-00114
Proj. Name: Baseline Country Foods Assessment
Location: Labrador City, NL
Sampled by: ROK / WT/ MW

REGULATORY REQUIREMENTS:
☐ CSR
☐ CCME
☐ BC Water Quality
☐ Other
☐ DRINKING WATER

SERVICE REQUESTED:
◉ Regular Turn Around Time (TAT) (5 days for most tests)
RUSH (Please contact the lab)
○ 1 Day ○ 2 Day ○ 3 Day
Date Required:

SPECIAL INSTRUCTIONS:
Return Cooler ☑ **Ship Sample Bottles (please specify)** ☐
Please use analysis method CRC-ICPMS metals.

ANALYSIS REQUESTED

	Sample Identification	Lab Identification (Lab Use Only)	Sample Type	Date/Time(24hr) Sampled	Dissolved Metals (DM) Field Filtered? Y ☐ N ☐	Total Metals Field Acidified? Y ☐ N ☐	Please Analyse for total metals wet weight Field Acidified? Y ☐ N ☐	Number of Containers
1	HM-1	KN4029	Tissue	14/08/15			X	
2	HM-2	KN4030	Tissue	14/08/15			X	
3	HM-3	KN4031	Tissue	14/08/15			X	
4	HM-4	KN4032	Tissue	14/08/15			X	
5	HM-5	KN4033	Tissue	14/08/15			X	
6	HM-6	KN4034	Tissue	14/08/15			X	
7	HM-7	KN4035	Tissue	14/08/19			X	
8	HM-8	KN4036	Tissue	14/08/19			X	
9	HM-9	KN4037	Tissue	14/08/19			X	
10	HM-10	KN4038	Tissue	14/08/20			X	
11	HM-11	KN4039	Tissue	14/08/20			X	
12	HM-12	KN4040	Tissue	14/08/20			X	

B478587

Print name and sign *Relinquished By:	Date (yy/mm/dd):	Time (24hr):	Print name and sign Received by :	Date (yy/mm/dd):	Time (24 hr):	Time Sensitive	Laboratory Use Only Temperature on Receipt (°C)	Custody Seal	Yes	No
Danielle Gascon	14/09/03	08:00	Joanne Chen JOUAN CHEN	2014/09/05	09:30	☐	A) 3 B) 1 C) 1	Present?	☐	☑
DGascon							Just sampled & rec'd on ice: ☐ 3,3,3 / 1,1,2	Intact?	☐	☑

*IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORDS. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

BBY FCD-00077R2_C

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CHAIN OF CUSTODY RECORD

Maxxam Job #: B478587 COC #: 08396564 Page: 3 of 4

Invoice To: Require Report? Yes ☑ No ☐

Company Name: Intrinsik Environmental Sciences Inc.
Contact Name:
Address: 5121 Sackville St., Suite 506
Halifax, NS PC: B3J 1K1
Phone / Fax#: Ph: 902-429-278 Fax: 902-429-0279
E-mail: lmarshall@intrinsik.com

Report To:

Company Name: Intrinsik Environmental Sciences Inc.
Contact Name:
Address: 5121 Sackville St., Suite 506
Halifax, NS PC: B3J 1K1
Phone / Fax#: Ph: 902-429-278 Fax: 902-429-0279
E-mail: lmarshall@intrinsik.com

PO #:
Quotation #: B13-242-AH
Project #: 06-01-00114
Proj. Name: Baseline Country Foods Assessment
Location: Labrador City, NL
Sampled by: ROK / WT/ MW

REGULATORY REQUIREMENTS:
☐ CSR
☐ CCME
☐ BC Water Quality
☐ Other
☐ DRINKING WATER

SERVICE REQUESTED:
◉ Regular Turn Around Time (TAT) (5 days for most tests)
RUSH (Please contact the lab)
○ 1 Day ○ 2 Day ○ 3 Day
Date Required:

SPECIAL INSTRUCTIONS:
Return Cooler ☑ **Ship Sample Bottles (please specify)** ☐
Please use analysis method CRC-ICPMS metals.

ANALYSIS REQUESTED

	Sample Identification	Lab Identification (Lab Use Only)	Sample Type	Date/Time(24hr) Sampled	Dissolved Metals (DM) Field Filtered? Y ☐ N ☐	Total Metals Field Acidified? Y ☐ N ☐	Please Analyse for total metals wet weight	Number of Containers
1	HL-9	KN4056	Tissue	14/08/19			X	
2	HL-10	KN4057	Tissue	14/08/20			X	
3	HL-11	KN4058	Tissue	14/08/20			X	
4	HK-1	KN4059	Tissue	14/08/15			X	
5	HK-2	KN4060	Tissue	14/08/15			X	
6	HK-3	KN4061	Tissue	14/08/15			X	
7	HK-4	KN4062	Tissue	14/08/15			X	
8	HK-5	KN4063	Tissue	14/08/15			X	
9	HK-6	KN4064	Tissue	14/08/15			X	
10	HK-7	KN4065	Tissue	14/08/19			X	
11	HK-8	KN4066	Tissue	14/08/19			X	
12	HK-9	KN4067	Tissue	14/08/19			X	

B478587

Print name and sign			Print name and sign				Laboratory Use Only		
*Relinquished By:	Date (yy/mm/dd):	Time (24hr):	Received by:	Date (yy/mm/dd):	Time (24 hr):	Time Sensitive	Temperature on Receipt (°C)	Custody Seal	Yes / No
Danielle Gascon	14/09/03	08:00	JOU AN CHEN	2014/09/05	09:30	☐	A) 3 B) 1 C) 1	Present?	☐ / ☑
DGascon							Just sampled & rec'd on ice: ☐	Intact?	☐ / ☑
							3,3,3 / 1,1,2		

*IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORDS. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

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CHAIN OF CUSTODY RECORD

Maxxam Job #: B478587 **COC #:** 08396563 Page: 2 of 4

Invoice To: Require Report? Yes ☑ No ☐

Company Name: Intrinsik Environmental Sciences Inc.
Contact Name:
Address: 5121 Sackville St., Suite 506
Halifax, NS PC: B3J 1K1
Phone / Fax#: Ph: 902-429-278 Fax: 902-429-0279
E-mail: lmarshall@intrinsik.com

Report To:

Company Name: Intrinsik Environmental Sciences Inc.
Contact Name:
Address: 5121 Sackville St., Suite 506
Halifax, NS PC: B3J 1K1
Phone / Fax#: Ph: 902-429-278 Fax: 902-429-0279
E-mail: lmarshall@intrinsik.com

PO #:
Quotation #: B13-242-AH
Project # : 06-01-00114
Proj. Name: Baseline Country Foods Assessment
Location: Labrador City, NL
Sampled by: ROK / WT/ MW

REGULATORY REQUIREMENTS:
- ☐ CSR
- ☐ CCME
- ☐ BC Water Quality
- ☐ Other
- ☐ DRINKING WATER

SERVICE REQUESTED:
- ◉ Regular Turn Around Time (TAT) (5 days for most tests)
- **RUSH** (Please contact the lab) ○ 1 Day ○ 2 Day ○ 3 Day
- Date Required:

SPECIAL INSTRUCTIONS:
Return Cooler ☑ **Ship Sample Bottles (please specify)** ☐
Please use analysis method CRC-ICPMS metals.

ANALYSIS REQUESTED

	Sample Identification	Lab Use Only: Lab Identification	Sample Type	Date/Time(24hr) Sampled	Dissolved Metals (DM) Field Filtered? Y N	Total Metals Field Acidified? Y N	Please Analyse for total metals wet weight	Field Acidified? Y N	Number of Containers
1	HM-13	KN4041	Tissue	14/08/20			X		
2	HM-14	KN4042	Tissue	14/08/23			X		
3	HM-15	KN4043	Tissue	14/08/23			X		
4	HM-16	KN4044	Tissue	14/08/15			X		
5	HL-1	KN4045	Tissue	14/08/15			X		
6	HL-2	KN4046	Tissue	14/08/15			X		
7	HL-3	KN4047	Tissue	14/08/15			X		
8	HL-4	KN4048	Tissue	14/08/15			X		
9	HL-5	KN4049	Tissue	14/08/15			X		
10	HL-6	KN4050	Tissue	14/08/15			X		
11	HL-7	KN4051	Tissue	14/08/19			X		
12	HL-8	KN4052	Tissue	14/08/19			X		

B478587

Print name and sign *Relinquished By:	Date (yy/mm/dd):	Time (24hr):	Print name and sign Received by :	Date (yy/mm/dd):	Time (24 hr):	Time Sensitive	Laboratory Use Only: Temperature on Receipt (°C)	Custody Seal	Yes	No
Danielle Gascon	14/09/03	08:00	Jovan Chen JOVAN CHEN	2014/09/05	09:30	☐	A) 3 B) 1 C) 1	Present?	☐	☑
DGascon							Just sampled & rec'd on ice: ☐	Intact?	☐	☑
							3,3,3 / 1,1,2			

*IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORDS. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

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CHAIN OF CUSTODY RECORD

Maxxam Job #: B478587 **COC #:** 08396565 Page: 4 of 4

Invoice To: Require Report? Yes ☑ No ☐

Company Name: Intrinsik Environmental Sciences Inc.
Contact Name:
Address: 5121 Sackville St., Suite 506
Halifax, NS PC: B3J 1K1
Phone / Fax#: Ph: 902-429-278 Fax: 902-429-0279
E-mail: lmarshall@intrinsik.com

Report To:

Company Name: Intrinsik Environmental Sciences Inc.
Contact Name:
Address: 5121 Sackville St., Suite 506
Halifax, NS PC: B3J 1K1
Phone / Fax#: Ph: 902-429-278 Fax: 902-429-0279
E-mail: lmarshall@intrinsik.com

PO #:
Quotation #: B13-242-AH
Project #: 06-01-00114
Proj. Name: Baseline Country Foods Assessment
Location: Labrador City, NL
Sampled by: ROK / WT/ MW

REGULATORY REQUIREMENTS:
- ☐ CSR
- ☐ CCME
- ☐ BC Water Quality
- ☐ Other
- ☐ DRINKING WATER

SERVICE REQUESTED:
- ◉ Regular Turn Around Time (TAT) (5 days for most tests)
- **RUSH** (Please contact the lab) ○ 1 Day ○ 2 Day ○ 3 Day
- Date Required:

SPECIAL INSTRUCTIONS:
Return Cooler ☑ **Ship Sample Bottles (please specify)** ☐
Please use analysis method CRC-ICPMS metals.

ANALYSIS REQUESTED

	Sample Identification	Lab Identification (Lab Use Only)	Sample Type	Date/Time(24hr) Sampled	Dissolved Metals (DM) Field Filtered? Y ☐ N ☐	Total Metals Field Addified? Y ☐ N ☐	Please Analyse for total metals wet weight Field Addified? Y ☐ N ☐	Number of Containers
1	HK-10	KN4068	Tissue	14/08/20			X	
2	HK-11	KN4069	Tissue	14/08/20			X	
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								

B478587

Print name and sign			Print name and sign				Laboratory Use Only		
*Relinquished By:	Date (yy/mm/dd):	Time (24hr):	Received by:	Date (yy/mm/dd)	Time (24 hr)	Time Sensitive	Temperature on Receipt (°C)	Custody Seal	Yes / No
Danielle Gascon	14/09/03	08:00	JOANNE CHEN JULIAN CHEN	2014/09/05	09:30	☐	A) 3 B) 1 C) 1	Present?	☐ / ☑
DGascon							Just sampled & rec'd on ice: ☐	Intact?	☐ / ☑

*IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORDS. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

3,3,3 / 1,1,2

BBY FCD-00077R2_C

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Your Project #: 06-01-00114
Site#: LABRADOR CITY, NL
Site Location: BASELINE COUNTRY FOODS ASSESSMENT
Your C.O.C. #: 08396560, 08396561

Attention:Lisa Marshall

Intrinsik Environmental Services
5121 Sackville Street
SUITE 506
Halifax, NS
CANADA B3J 1K1

Report Date: 2014/11/07
Report #: R1679740
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B478592
Received: 2014/09/05, 09:30

Sample Matrix: TISSUE
Samples Received: 9

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Elements by CRC ICPMS - Tissue Wet Wt	9	2014/11/04	2014/11/06	BBY7SOP-00002, BBY7SOP -00013	EPA 6020a,200.3 R1 m

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Samantha Fregien, Project Manager
Email: SFregien@maxxam.ca
Phone# (604) 734 7276
==========
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Maxxam Job #: B478592
Report Date: 2014/11/07

Intrinsik Environmental Services
Client Project #: 06-01-00114
Site Location: BASELINE COUNTRY FOODS ASSESSMENT

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Maxxam ID		KN4164	KN4165	KN4166	KN4167	KN4168	KN4169		
Sampling Date		2014/08/20	2014/08/20	2014/08/23	2014/08/23	2014/08/23	2014/08/23		
COC Number		08396560	08396560	08396560	08396560	08396560	08396560		
	Units	**HK-13**	**HL-13**	**HK-14**	**HL-14**	**HK-15**	**HL-15**	**RDL**	**QC Batch**
Total Metals by ICPMS									
Total Aluminum (Al)	mg/kg	0.38	0.56	0.35	0.35	0.36	0.24	0.20	7706848
Total Antimony (Sb)	mg/kg	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	7706848
Total Arsenic (As)	mg/kg	<0.010	<0.010	<0.010	<0.010	0.015	0.015	0.010	7706848
Total Barium (Ba)	mg/kg	0.147	0.067	0.210	0.111	0.404	0.150	0.020	7706848
Total Beryllium (Be)	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	7706848
Total Bismuth (Bi)	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	7706848
Total Boron (B)	mg/kg	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	0.40	7706848
Total Cadmium (Cd)	mg/kg	7.77	0.220	6.42	0.128	0.458	0.0425	0.0020	7706848
Total Calcium (Ca)	mg/kg	101	112	105	73.9	194	92.6	2.0	7706848
Total Chromium (Cr)	mg/kg	<0.040	<0.040	<0.040	0.042	<0.040	<0.040	0.040	7706848
Total Cobalt (Co)	mg/kg	0.0721	0.0462	0.0419	0.0380	0.0292	0.0642	0.0040	7706848
Total Copper (Cu)	mg/kg	4.69	4.14	4.69	4.75	5.17	5.86	0.010	7706848
Total Iron (Fe)	mg/kg	140	462	81.3	400	131	383	2.0	7706848
Total Lead (Pb)	mg/kg	0.0786	0.0910	0.114	0.191	0.0392	0.0276	0.0020	7706848
Total Magnesium (Mg)	mg/kg	256	240	235	209	321	228	2.0	7706848
Total Manganese (Mn)	mg/kg	5.14	3.21	5.03	2.91	20.4	32.6	0.020	7706848
Total Mercury (Hg)	mg/kg	0.163	0.0126	0.143	0.0277	0.0528	0.0079	0.0020	7706848
Total Molybdenum (Mo)	mg/kg	0.223	0.413	0.322	0.775	0.047	0.203	0.010	7706848
Total Nickel (Ni)	mg/kg	0.155	0.019	0.085	0.050	0.044	0.026	0.010	7706848
Total Phosphorus (P)	mg/kg	3440	3180	3220	3170	3920	3290	2.0	7706848
Total Potassium (K)	mg/kg	2810	2820	2930	2570	3740	2410	2.0	7706848
Total Selenium (Se)	mg/kg	1.05	0.202	0.917	0.175	0.979	0.187	0.010	7706848
Total Silver (Ag)	mg/kg	<0.0040	0.0060	<0.0040	0.0171	<0.0040	0.0071	0.0040	7706848
Total Sodium (Na)	mg/kg	1740	1260	1810	1150	1260	927	2.0	7706848
Total Strontium (Sr)	mg/kg	0.147	0.085	0.078	0.042	0.138	0.077	0.020	7706848
Total Thallium (Tl)	mg/kg	0.0172	0.00394	0.0229	0.00668	0.0513	0.0107	0.00040	7706848
Total Tin (Sn)	mg/kg	0.022	<0.020	<0.020	0.025	0.028	<0.020	0.020	7706848
Total Titanium (Ti)	mg/kg	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	7706848
Total Uranium (U)	mg/kg	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	0.00040	7706848
Total Vanadium (V)	mg/kg	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	7706848
Total Zinc (Zn)	mg/kg	33.8	40.2	27.8	28.6	33.1	37.9	0.040	7706848

RDL = Reportable Detection Limit

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Maxxam Job #: B478592
Report Date: 2014/11/07

Intrinsik Environmental Services
Client Project #: 06-01-00114
Site Location: BASELINE COUNTRY FOODS ASSESSMENT

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Maxxam ID		KN4187	KN4188	KN4189		
Sampling Date		2014/08/18	2014/08/18	2014/08/18		
COC Number		08396561	08396561	08396561		
	Units	**HM-19**	**HK-19**	**HL-19**	**RDL**	**QC Batch**
Total Metals by ICPMS						
Total Aluminum (Al)	mg/kg	<0.20	0.44	0.24	0.20	7706848
Total Antimony (Sb)	mg/kg	<0.0010	<0.0010	<0.0010	0.0010	7706848
Total Arsenic (As)	mg/kg	<0.010	<0.010	<0.010	0.010	7706848
Total Barium (Ba)	mg/kg	<0.020	0.198	0.026	0.020	7706848
Total Beryllium (Be)	mg/kg	<0.020	<0.020	<0.020	0.020	7706848
Total Bismuth (Bi)	mg/kg	<0.020	<0.020	<0.020	0.020	7706848
Total Boron (B)	mg/kg	<0.40	<0.40	<0.40	0.40	7706848
Total Cadmium (Cd)	mg/kg	0.0042	5.65	0.119	0.0020	7706848
Total Calcium (Ca)	mg/kg	49.3	112	60.6	2.0	7706848
Total Chromium (Cr)	mg/kg	<0.040	<0.040	<0.040	0.040	7706848
Total Cobalt (Co)	mg/kg	0.0063	0.0397	0.0309	0.0040	7706848
Total Copper (Cu)	mg/kg	2.35	4.49	4.62	0.010	7706848
Total Iron (Fe)	mg/kg	38.1	119	486	2.0	7706848
Total Lead (Pb)	mg/kg	0.0032	0.109	0.189	0.0020	7706848
Total Magnesium (Mg)	mg/kg	339	217	194	2.0	7706848
Total Manganese (Mn)	mg/kg	0.345	3.88	2.43	0.020	7706848
Total Mercury (Hg)	mg/kg	0.0023	0.131	0.0242	0.0020	7706848
Total Molybdenum (Mo)	mg/kg	<0.010	0.288	0.636	0.010	7706848
Total Nickel (Ni)	mg/kg	0.025	0.071	0.041	0.010	7706848
Total Phosphorus (P)	mg/kg	2610	2950	2930	2.0	7706848
Total Potassium (K)	mg/kg	4050	2730	2610	2.0	7706848
Total Selenium (Se)	mg/kg	0.056	0.879	0.175	0.010	7706848
Total Silver (Ag)	mg/kg	<0.0040	<0.0040	0.0142	0.0040	7706848
Total Sodium (Na)	mg/kg	552	1860	1200	2.0	7706848
Total Strontium (Sr)	mg/kg	<0.020	0.073	0.032	0.020	7706848
Total Thallium (Tl)	mg/kg	0.00268	0.0204	0.00537	0.00040	7706848
Total Tin (Sn)	mg/kg	0.034	0.027	0.028	0.020	7706848
Total Titanium (Ti)	mg/kg	<0.20	<0.20	<0.20	0.20	7706848
Total Uranium (U)	mg/kg	<0.00040	<0.00040	<0.00040	0.00040	7706848
Total Vanadium (V)	mg/kg	<0.040	<0.040	<0.040	0.040	7706848
Total Zinc (Zn)	mg/kg	16.9	25.4	26.4	0.040	7706848
RDL = Reportable Detection Limit						

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Maxxam Job #: B478592
Report Date: 2014/11/07

Intrinsik Environmental Services
Client Project #: 06-01-00114
Site Location: BASELINE COUNTRY FOODS ASSESSMENT

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	1.7°C
Package 2	3.0°C
Package 3	1.3°C

Results relate only to the items tested.

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Maxxam Job #: B478592
Report Date: 2014/11/07

QUALITY ASSURANCE REPORT

Intrinsik Environmental Services
Client Project #: 06-01-00114
Site Location: BASELINE COUNTRY FOODS ASSESSMENT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
7706848	Total Aluminum (Al)	2014/11/06					<0.20	mg/kg	NC	35		
7706848	Total Antimony (Sb)	2014/11/06					<0.0010	mg/kg	NC	35		
7706848	Total Arsenic (As)	2014/11/06	103	75 - 125	101	75 - 125	<0.010	mg/kg	NC	35	124	75 - 125
7706848	Total Barium (Ba)	2014/11/06	96	75 - 125	101	75 - 125	<0.020	mg/kg	NC	35		
7706848	Total Beryllium (Be)	2014/11/06	97	75 - 125	101	75 - 125	<0.020	mg/kg	NC	35		
7706848	Total Bismuth (Bi)	2014/11/06					<0.020	mg/kg	NC	35		
7706848	Total Boron (B)	2014/11/06					<0.40	mg/kg	NC	35		
7706848	Total Cadmium (Cd)	2014/11/06	99	75 - 125	100	75 - 125	<0.0020	mg/kg	7.5	35	103	75 - 125
7706848	Total Calcium (Ca)	2014/11/06					<2.0	mg/kg	4.7	35		
7706848	Total Chromium (Cr)	2014/11/06	93	75 - 125	104	75 - 125	<0.040	mg/kg	NC	35	85	75 - 125
7706848	Total Cobalt (Co)	2014/11/06	96	75 - 125	106	75 - 125	<0.0040	mg/kg	2.0	35		
7706848	Total Copper (Cu)	2014/11/06	NC	75 - 125	110	75 - 125	<0.010	mg/kg	3.9	35	98	75 - 125
7706848	Total Iron (Fe)	2014/11/06					<2.0	mg/kg	4.3	35	107	75 - 125
7706848	Total Lead (Pb)	2014/11/06	99	75 - 125	103	75 - 125	<0.0020	mg/kg	4.6	35	101	75 - 125
7706848	Total Magnesium (Mg)	2014/11/06					<2.0	mg/kg	3.8	35		
7706848	Total Manganese (Mn)	2014/11/06	NC	75 - 125	102	75 - 125	<0.020	mg/kg	0.94	35	97	75 - 125
7706848	Total Mercury (Hg)	2014/11/06	110	75 - 125	113	75 - 125	<0.0020	mg/kg	0.12	35	108	75 - 125
7706848	Total Molybdenum (Mo)	2014/11/06					<0.010	mg/kg	12	35	101	75 - 125
7706848	Total Nickel (Ni)	2014/11/06	92	75 - 125	107	75 - 125	<0.010	mg/kg	NC	35	106	75 - 125
7706848	Total Phosphorus (P)	2014/11/06					<2.0	mg/kg	3.7	35		
7706848	Total Potassium (K)	2014/11/06					<2.0	mg/kg	1.9	35		
7706848	Total Selenium (Se)	2014/11/06	96	75 - 125	96	75 - 125	<0.010	mg/kg	2.4	35	91	75 - 125
7706848	Total Silver (Ag)	2014/11/06	102	75 - 125	95	75 - 125	<0.0040	mg/kg	NC	35		
7706848	Total Sodium (Na)	2014/11/06					<2.0	mg/kg	3.3	35		
7706848	Total Strontium (Sr)	2014/11/06	97	75 - 125	102	75 - 125	<0.020	mg/kg	NC	35	102	75 - 125
7706848	Total Thallium (Tl)	2014/11/06	99	75 - 125	98	75 - 125	<0.00040	mg/kg	0.19	35		
7706848	Total Tin (Sn)	2014/11/06					<0.020	mg/kg	NC	35		
7706848	Total Titanium (Ti)	2014/11/06					<0.20	mg/kg	NC	35		
7706848	Total Uranium (U)	2014/11/06	98	75 - 125	100	75 - 125	0.00048, RDL=0.00040	mg/kg	NC	35		
7706848	Total Vanadium (V)	2014/11/06	92	75 - 125	103	75 - 125	<0.040	mg/kg	NC	35	101	75 - 125

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Maxxam Job #: B478592
Report Date: 2014/11/07

QUALITY ASSURANCE REPORT(CONT'D)

Intrinsik Environmental Services
Client Project #: 06-01-00114
Site Location: BASELINE COUNTRY FOODS ASSESSMENT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
7706848	Total Zinc (Zn)	2014/11/06	NC	75 - 125	104	75 - 125	0.054, RDL=0.040	mg/kg	0.43	35	104	75 - 125

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

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Maxxam Job #: B478592
Report Date: 2014/11/07

Intrinsik Environmental Services
Client Project #: 06-01-00114
Site Location: BASELINE COUNTRY FOODS ASSESSMENT

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Rob Reinert, Data Validation Coordinator

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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CHAIN OF CUSTODY RECORD

Click here to get the COC number

Maxxam Job #: **COC #:** Page: 2 of 3

Invoice To: Require Report? Yes ☑ No ☐

Company Name: Intrinsik Environmental Sciences Inc.
Contact Name:
Address: 5121 Sackville St., Suite 506
Halifax, NS PC: B3J 1K1
Phone / Fax#: Ph: 902-429-278 Fax: 902-429-0279
E-mail lmarshall@intrinsik.com

Report To:

Company Name: Intrinsik Environmental Sciences Inc.
Contact Name:
Address: 5121 Sackville St., Suite 506
Halifax, NS PC: B3J 1K1
Phone / Fax#: Ph: 902-429-278 Fax: 902-429-0279
E-mail lmarshall@intrinsik.com

PO #:
Quotation #: B13-242-AH
Project # : 06-01-00114
Proj. Name: Baseline Country Foods Assessment
Location: Labrador City, NL
Sampled by: ROK / WT/ MW

REGULATORY REQUIREMENTS:

- ☐ CSR
- ☐ CCME
- ☐ BC Water Quality
- ☐ Other
- ☐ DRINKING WATER

SERVICE REQUESTED:

- ◉ Regular Turn Around Time (TAT) (5 days for most tests)
- **RUSH** (Please contact the lab)
- ○ 1 Day ○ 2 Day ○ 3 Day

Date Required:

SPECIAL INSTRUCTIONS:

Return Cooler ☑ **Ship Sample Bottles (please specify)** ☐

Please use analysis method CRC-ICPMS metals.

ANALYSIS REQUESTED

	Sample Identification	Lab Identification (Lab Use Only)	Sample Type	Date/Time(24hr) Sampled	Dissolved Metals (DM) Field Filtered? Y N	Total Metals Field Acidified? Y N	Please Analyse for total metals wet weight Field Acidified? Y N	Number of Containers
1	HM-13		Tissue	14/08/20			X	
2	HM-14		Tissue	14/08/23			X	
3	HM-15		Tissue	14/08/23			X	
4	HM-19		Tissue	14/08/23			X	
5	HL-3		Tissue	14/08/15			X	
6	HL-4		Tissue	14/08/15			X	
7	HL-11		Tissue	14/08/20			X	
8	HL-14		Tissue	14/08/23			X	
9	HL-15		Tissue	14/08/23			X	
10	HL-19		Tissue	14/08/23			X	
11								
12								

Print name and sign *Relinquished By:	Date (yy/mm/dd):	Time (24hr):	Print name and sign Received by :	Date (yy/mm/dd):	Time (24 hr):	Time Sensitive ☐	Laboratory Use Only: Temperature on Receipt (°C) A) B) C)	Custody Seal	Yes	No
Danielle Gascon	14/09/03	08:00					Just sampled & rec'd on ice: ☐	Present?	☐	☐
								Intact?	☐	☐

*IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORDS. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

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CHAIN OF CUSTODY RECORD

Maxxam Job #: B478592 **COC #:** 08396560 Page: 1 of 2

Invoice To: Require Report? Yes ☑ No ☐

Company Name: Iron Ore Company of Canada
Contact Name:
Address: 2 Avalon Drive
Labrador City, NL PC: A2V 2Y6
Phone / Fax#: Ph: 709-944-8400 Fax:
E-mail

Report To:

Company Name: Intrinsik Environmental Sciences Inc.
Contact Name:
Address: 5121 Sackville St., Suite 506
Halifax, NS PC: B3J 1K1
Phone / Fax#: Ph: 902-429-278 Fax: 902-429-0279
E-mail lmarshall@intrinsik.com

PO #:
Quotation #: B13-242-AH
Project #: 06-01-00114
Proj. Name: Baseline Country Foods Assessment
Location: Labrador City, NL
Sampled by: ROK / WT/ MW

REGULATORY REQUIREMENTS:
- ☐ CSR
- ☐ CCME
- ☐ BC Water Quality
- ☐ Other
- ☐ DRINKING WATER

SERVICE REQUESTED:
- ◉ Regular Turn Around Time (TAT) (5 days for most tests)
- **RUSH** (Please contact the lab)
- ○ 1 Day ○ 2 Day ○ 3 Day

Date Required:

SPECIAL INSTRUCTIONS:
Return Cooler ☑ **Ship Sample Bottles (please specify)** ☐
Please use analysis method CRC-ICPMS metals.

ANALYSIS REQUESTED

	Sample Identification	Lab Use Only: Lab Identification	Sample Type	Date/Time(24hr) Sampled	Dissolved Metals (DM) Field Filtered?	Dissolved Metals (DM) Field Acidified?	Total Metals Field Acidified?	Please Analyse for total metals wet weight	Number of Containers
1	HL-12	KN4162	Tissue	14/08/20				X	
2	HK-12	KN4163	Tissue	14/08/20				X	
3	HK-13	KN4164	Tissue	14/08/20				X	
4	HL-13	KN4165	Tissue	14/08/20				X	
5	HK-14	KN4166	Tissue	14/08/23				X	
6	HL-14	KN4167	Tissue	14/08/23				X	
7	HK-15	KN4168	Tissue	14/08/23				X	
8	HL-15	KN4169	Tissue	14/08/23				X	
9	HK-16	KN4170	Tissue	14/08/15				X	
10	HL-16	KN4171	Tissue	14/08/15				X	
11	HM-17	KN4172	Tissue	14/08/17				X	
12	HK-17	KN4173	Tissue	14/08/17				X	

B478592

Print name and sign *Relinquished By:	Date (yy/mm/dd):	Time (24hr):	Print name and sign Received by:	Date (yy/mm/dd):	Time (24 hr):	Time Sensitive	Laboratory Use Only: Temperature on Receipt (°C)	Custody Seal	Yes	No
Danielle Gascon	14/09/03	08:00	JUAN CHEN	2014/09/05	09:30	☐	A) 3 B) 1 C) 1	Present?	☐	☐
DGascon							Just sampled & rec'd on ice: ☐ 3,3,3/1,1,3	Intact?	☐	☐

*IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORDS. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

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CHAIN OF CUSTODY RECORD

Maxxam Job #: B478592 **COC #:** 08396561 Page: 2 of 2

Invoice To: Require Report? Yes ☑ No ☐

Company Name: Iron Ore Company of Canada
Contact Name:
Address: 2 Avalon Drive
Labrador City, NL PC: A2V 2Y6
Phone / Fax#: Ph: 709-944-8400 Fax:
E-mail

Report To:

Company Name: Intrinsik Environmental Sciences Inc.
Contact Name:
Address: 5121 Sackville St., Suite 506
Halifax, NS PC: B3J 1K1
Phone / Fax#: Ph: 902-429-278 Fax: 902-429-0279
E-mail lmarshall@intrinsik.com

PO #:
Quotation #: B13-242-AH
Project # : 06-01-00114
Proj. Name: Baseline Country Foods Assessment
Location: Labrador City, NL
Sampled by: ROK / WT/ MW

REGULATORY REQUIREMENTS:
☐ CSR
☐ CCME
☐ BC Water Quality
☐ Other
☐ DRINKING WATER

SERVICE REQUESTED:
◉ Regular Turn Around Time (TAT) (5 days for most tests)
RUSH (Please contact the lab)
○ 1 Day ○ 2 Day ○ 3 Day
Date Required:

SPECIAL INSTRUCTIONS:
Return Cooler ☑ **Ship Sample Bottles (please specify)** ☐
Please use analysis method CRC-ICPMS metals.

ANALYSIS REQUESTED

	Sample Identification	Lab Identification (Lab Use Only)	Sample Type	Date/Time(24hr) Sampled	Dissolved Metals (DM) Field Filtered? Y ☐ N ☐	Total Metals Field Acidified? Y ☐ N ☐	Please Analyse for total metals wet weight Field Acidified? Y ☐ N ☐	Number of Containers
1	HL-17	KN4183	Tissue	17/08/17			X	
2	HM-18	KN4184	Tissue	14/08/19			X	
3	HK-18	KN4185	Tissue	14/08/19			X	
4	HL-18	KN4186	Tissue	14/08/19			X	
5	HM-19	KN4187	Tissue	14/08/23			X	
6	HK-19	KN4188	Tissue	14/08/23			X	
7	HL-19	KN4189	Tissue	14/08/23			X	
8								
9								
10								
11								
12								

B478592

Print name and sign *Relinquished By:	Date (yy/mm/dd):	Time (24hr):	Print name and sign Received by :	Date (yy/mm/dd):	Time (24 hr):	Time Sensitive ☐	Laboratory Use Only: Temperature on Receipt (°C)	Custody Seal	Yes	No
Danielle Gascon	14/09/03	08:00	Jerome Chen JOU AN CHEN	2014/09/05	09:30		A) 3 B) 1 C) 1	Present?	☐	☑
							Just sampled & rec'd on ice: ☐	Intact?	☐	☑

*IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORDS. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

3,3,3,1,1,2

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CHAIN OF CUSTODY RECORD

Click here to get the COC number

Maxxam Job #: **COC #:** Page: 1 of 1

Invoice To: Require Report? Yes ☑ No ☐

Company Name: Iron Ore Company of Canada
Contact Name:
Address: 2 Avalon Drive
Labrador City, NL PC: A2V 2Y6
Phone / Fax#: Ph: 709-944-8400 Fax:
E-mail

Report To:

Company Name: Intrinsik Environmental Sciences Inc.
Contact Name:
Address: 5121 Sackville St., Suite 506
Halifax, NS PC: B3J 1K1
Phone / Fax#: Ph: 902-429-278 Fax: 902-429-0279
E-mail lmarshall@intrinsik.com

PO #:
Quotation #: B13-242-AH
Project # : 06-01-00114
Proj. Name: Baseline Country Foods Assessment
Location: Labrador City, NL
Sampled by: ROK / WT/ MW

REGULATORY REQUIREMENTS:

- ☐ CSR
- ☐ CCME
- ☐ BC Water Quality
- ☐ Other
- ☐ DRINKING WATER

SERVICE REQUESTED:

- ◉ Regular Turn Around Time (TAT) (5 days for most tests)
- **RUSH** (Please contact the lab)
- ○ 1 Day ○ 2 Day ○ 3 Day

Date Required:

SPECIAL INSTRUCTIONS:

Return Cooler ☑ **Ship Sample Bottles (please specify)** ☐

Please use analysis method CRC-ICPMS metals.

ANALYSIS REQUESTED

	Sample Identification	Lab Identification (Lab Use Only)	Sample Type	Date/Time(24hr) Sampled	Dissolved Metals (DM) Field Filtered? Y / N	Total Metals Field Acidified? Y / N	Please Analyse for total metals wet weight Field Acidified? Y / N	Number of Containers
1	HL-1		Tissue	14/08/15			X	
2	HL-6		Tissue	14/08/15			X	
3	HL-8		Tissue	14/08/19			X	
4	HL-10		Tissue	14/08/20			X	
5	HL-13		Tissue	14/08/20			X	
6	HK-1		Tissue	14/08/15			X	
7	HK-6		Tissue	14/08/15			X	
8	Hk-8		Tissue	14/08/19			X	
9	HK-10		Tissue	14/08/20			X	
10	HK-13		Tissue	14/08/20			X	
11								
12								

Print name and sign *Relinquished By:	Date (yy/mm/dd):	Time (24hr):	Print name and sign Received by :	Date (yy/mm/dd):	Time (24 hr):	Time Sensitive ☐	Laboratory Use Only: Temperature on Receipt (°C)	Custody Seal	Yes	No
Danielle Gascon	14/09/03	08:00					A) B) C)	Present?	☐	☐
							Just sampled & rec'd on ice: ☐	Intact?	☐	☐

*IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORDS. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

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Your Project #: 06-01-00114
Site#: LABRADOR CITY, NL
Site Location: BASELINE COUNTRY FOODS ASSESSMENT
Your C.O.C. #: 08396557, 08396558, 08396559

Attention:Lisa Marshall

Intrinsik Environmental Services
5121 Sackville Street
SUITE 506
Halifax, NS
CANADA B3J 1K1

Report Date: 2014/11/04
Report #: R1677085
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B478576
Received: 2014/09/05, 09:30

Sample Matrix: TISSUE
Samples Received: 29

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Elements by CRC ICPMS - Tissue Wet Wt	29	2014/11/02	2014/11/04	BBY7SOP-00002, BBY7SOP -00013	EPA 6020a,200.3 R1 m

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Samantha Fregien, Project Manager
Email: SFregien@maxxam.ca
Phone# (604) 734 7276
==========
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Maxxam Job #: B478576
Report Date: 2014/11/04

Intrinsik Environmental Services
Client Project #: 06-01-00114
Site Location: BASELINE COUNTRY FOODS ASSESSMENT

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Maxxam ID		KN3827	KN3828	KN3829	KN3830	KN3831	KN3832		
Sampling Date		2014/08/13	2014/08/13	2014/08/14	2014/08/14	2014/08/14	2014/08/20		
COC Number		08396557	08396557	08396557	08396557	08396557	08396557		
	Units	**GM-1**	**GM-2**	**GM-3**	**GM-4**	**GM-5**	**GM-6**	**RDL**	**QC Batch**
Total Metals by ICPMS									
Total Aluminum (Al)	mg/kg	1.07	0.76	0.71	0.23	0.30	<0.20	0.20	7703822
Total Antimony (Sb)	mg/kg	<0.0010	<0.0010	0.0015	<0.0010	0.0012	<0.0010	0.0010	7703822
Total Arsenic (As)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	7703822
Total Barium (Ba)	mg/kg	<0.020	<0.020	<0.020	<0.020	0.039	<0.020	0.020	7703822
Total Beryllium (Be)	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	7703822
Total Bismuth (Bi)	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	7703822
Total Boron (B)	mg/kg	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	0.40	7703822
Total Cadmium (Cd)	mg/kg	0.0064	0.0067	<0.0020	0.0034	0.0029	<0.0020	0.0020	7703822
Total Calcium (Ca)	mg/kg	46.8	57.8	80.3	61.5	40.5	42.7	2.0	7703822
Total Chromium (Cr)	mg/kg	0.049	<0.040	<0.040	0.059	0.094	0.063	0.040	7703822
Total Cobalt (Co)	mg/kg	<0.0040	<0.0040	0.0041	<0.0040	0.0056	<0.0040	0.0040	7703822
Total Copper (Cu)	mg/kg	3.98	3.19	2.86	3.81	3.27	3.50	0.010	7703822
Total Iron (Fe)	mg/kg	65.9	78.1	53.1	65.9	52.1	63.7	2.0	7703822
Total Lead (Pb)	mg/kg	0.0035	0.0035	0.0046	0.0031	0.0035	<0.0020	0.0020	7703822
Total Magnesium (Mg)	mg/kg	479	520	447	427	360	442	2.0	7703822
Total Manganese (Mn)	mg/kg	0.510	0.519	0.398	0.617	0.390	0.372	0.020	7703822
Total Mercury (Hg)	mg/kg	0.0023	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.0020	7703822
Total Molybdenum (Mo)	mg/kg	0.028	0.026	0.030	0.022	0.018	0.016	0.010	7703822
Total Nickel (Ni)	mg/kg	0.027	0.016	0.026	0.050	0.065	0.039	0.010	7703822
Total Phosphorus (P)	mg/kg	3970	4270	3580	3790	3120	3660	2.0	7703822
Total Potassium (K)	mg/kg	5230	6070	4800	4430	4230	4670	2.0	7703822
Total Selenium (Se)	mg/kg	0.134	0.090	0.212	0.188	0.122	0.187	0.010	7703822
Total Silver (Ag)	mg/kg	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	0.0040	7703822
Total Sodium (Na)	mg/kg	399	663	590	770	442	759	2.0	7703822
Total Strontium (Sr)	mg/kg	0.032	0.033	0.039	0.025	0.181	<0.020	0.020	7703822
Total Thallium (Tl)	mg/kg	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	0.00040	7703822
Total Tin (Sn)	mg/kg	0.027	<0.020	0.030	0.058	0.089	0.058	0.020	7703822
Total Titanium (Ti)	mg/kg	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	7703822
Total Uranium (U)	mg/kg	0.00055	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	0.00040	7703822
Total Vanadium (V)	mg/kg	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	7703822
Total Zinc (Zn)	mg/kg	8.57	8.77	7.27	7.64	6.17	7.67	0.040	7703822

RDL = Reportable Detection Limit

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Maxxam Job #: B478576
Report Date: 2014/11/04

Intrinsik Environmental Services
Client Project #: 06-01-00114
Site Location: BASELINE COUNTRY FOODS ASSESSMENT

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Maxxam ID		KN3833	KN3834	KN3835	KN3838	KN3904	KN3905		
Sampling Date		2014/08/20	2014/08/23	2014/08/23	2014/08/20	2014/08/13	2014/08/13		
COC Number		08396557	08396557	08396557	08396557	08396558	08396558		
	Units	**GM-7**	**GM-8**	**GM-9**	**GM-12**	**GL-1**	**GL-2**	**RDL**	**QC Batch**
Total Metals by ICPMS									
Total Aluminum (Al)	mg/kg	<0.20	1.35	1.82	<0.20	2.91	1.15	0.20	7703822
Total Antimony (Sb)	mg/kg	<0.0010	0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	7703822
Total Arsenic (As)	mg/kg	<0.010	0.031	<0.010	<0.010	0.019	<0.010	0.010	7703822
Total Barium (Ba)	mg/kg	<0.020	<0.020	0.052	<0.020	0.084	0.023	0.020	7703822
Total Beryllium (Be)	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	7703822
Total Bismuth (Bi)	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	7703822
Total Boron (B)	mg/kg	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	0.40	7703822
Total Cadmium (Cd)	mg/kg	0.0042	<0.0020	0.0026	<0.0020	0.520	0.431	0.0020	7703822
Total Calcium (Ca)	mg/kg	54.0	75.3	119	44.3	102	86.9	2.0	7703822
Total Chromium (Cr)	mg/kg	0.140	0.061	0.050	<0.040	<0.040	<0.040	0.040	7703822
Total Cobalt (Co)	mg/kg	0.0047	0.0066	<0.0040	<0.0040	0.0396	0.0388	0.0040	7703822
Total Copper (Cu)	mg/kg	4.14	1.99	6.05	3.29	5.16	4.29	0.010	7703822
Total Iron (Fe)	mg/kg	69.8	26.0	62.6	64.3	434	680	2.0	7703822
Total Lead (Pb)	mg/kg	0.0037	0.0051	0.0095	<0.0020	0.0383	0.0175	0.0020	7703822
Total Magnesium (Mg)	mg/kg	488	633	490	415	328	299	2.0	7703822
Total Manganese (Mn)	mg/kg	0.401	0.402	0.954	0.329	4.97	4.81	0.020	7703822
Total Mercury (Hg)	mg/kg	<0.0020	0.0039	<0.0020	<0.0020	0.0050	0.0051	0.0020	7703822
Total Molybdenum (Mo)	mg/kg	0.054	0.027	0.024	0.017	2.58	4.87	0.010	7703822
Total Nickel (Ni)	mg/kg	0.085	0.862	0.043	0.041	0.042	0.047	0.010	7703822
Total Phosphorus (P)	mg/kg	4120	4870	4000	3690	5380	4810	2.0	7703822
Total Potassium (K)	mg/kg	5310	7220	5240	4600	4640	4260	2.0	7703822
Total Selenium (Se)	mg/kg	0.153	0.228	0.167	0.195	0.265	0.199	0.010	7703822
Total Silver (Ag)	mg/kg	<0.0040	<0.0040	<0.0040	<0.0040	0.0046	<0.0040	0.0040	7703822
Total Sodium (Na)	mg/kg	854	427	565	721	1480	1370	2.0	7703822
Total Strontium (Sr)	mg/kg	<0.020	0.045	0.056	<0.020	0.076	0.070	0.020	7703822
Total Thallium (Tl)	mg/kg	0.00062	0.00067	<0.00040	<0.00040	<0.00040	<0.00040	0.00040	7703822
Total Tin (Sn)	mg/kg	0.140	0.070	0.058	<0.020	0.023	0.023	0.020	7703822
Total Titanium (Ti)	mg/kg	<0.20	<0.20	0.22	<0.20	0.22	<0.20	0.20	7703822
Total Uranium (U)	mg/kg	<0.00040	0.00041	<0.00040	<0.00040	<0.00040	<0.00040	0.00040	7703822
Total Vanadium (V)	mg/kg	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	7703822
Total Zinc (Zn)	mg/kg	8.42	9.42	8.31	7.75	39.1	34.5	0.040	7703822

RDL = Reportable Detection Limit

Maxxam Analytics International Corporation o/a Maxxam Analytics Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

Maxxam Job #: B478576
Report Date: 2014/11/04

Intrinsik Environmental Services
Client Project #: 06-01-00114
Site Location: BASELINE COUNTRY FOODS ASSESSMENT

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Maxxam ID		KN3906	KN3907	KN3908	KN3909	KN3910	KN3911		
Sampling Date		2014/08/14	2014/08/14	2014/08/14	2014/08/20	2014/08/20	2014/08/23		
COC Number		08396558	08396558	08396558	08396558	08396558	08396558		
	Units	**GL-3**	**GL-4**	**GL-5**	**GL-6**	**GL-7**	**GL-8**	**RDL**	**QC Batch**
Total Metals by ICPMS									
Total Aluminum (Al)	mg/kg	1.22	2.46	0.20	0.21	0.30	1.43	0.20	7703822
Total Antimony (Sb)	mg/kg	<0.0010	0.0013	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	7703822
Total Arsenic (As)	mg/kg	0.021	0.019	0.011	0.012	0.018	0.057	0.010	7703822
Total Barium (Ba)	mg/kg	0.068	0.103	0.030	0.070	0.043	0.042	0.020	7703822
Total Beryllium (Be)	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	7703822
Total Bismuth (Bi)	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	7703822
Total Boron (B)	mg/kg	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	0.40	7703822
Total Cadmium (Cd)	mg/kg	0.305	0.405	0.758	0.235	0.326	0.232	0.0020	7703822
Total Calcium (Ca)	mg/kg	211	105	93.2	94.7	75.0	99.0	2.0	7703822
Total Chromium (Cr)	mg/kg	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	7703822
Total Cobalt (Co)	mg/kg	0.0555	0.0304	0.0706	0.0258	0.0481	0.109	0.0040	7703822
Total Copper (Cu)	mg/kg	5.12	5.45	5.44	5.24	4.04	5.52	0.010	7703822
Total Iron (Fe)	mg/kg	465	1410	589	1110	847	417	2.0	7703822
Total Lead (Pb)	mg/kg	0.0183	0.0771	0.0139	0.0205	0.0208	0.0274	0.0020	7703822
Total Magnesium (Mg)	mg/kg	338	330	369	358	274	347	2.0	7703822
Total Manganese (Mn)	mg/kg	5.01	13.3	4.51	11.0	4.45	6.74	0.020	7703822
Total Mercury (Hg)	mg/kg	0.0051	0.0084	0.0028	0.0036	0.0034	0.0137	0.0020	7703822
Total Molybdenum (Mo)	mg/kg	3.31	11.0	5.24	6.32	4.77	1.94	0.010	7703822
Total Nickel (Ni)	mg/kg	0.079	0.022	0.020	0.025	0.016	0.018	0.010	7703822
Total Phosphorus (P)	mg/kg	5150	5250	5910	5870	4420	5570	2.0	7703822
Total Potassium (K)	mg/kg	4880	4710	5110	4880	4040	5330	2.0	7703822
Total Selenium (Se)	mg/kg	0.322	0.456	0.256	0.378	0.205	0.443	0.010	7703822
Total Silver (Ag)	mg/kg	0.0064	0.0049	<0.0040	<0.0040	<0.0040	<0.0040	0.0040	7703822
Total Sodium (Na)	mg/kg	1520	1570	1580	1700	1430	1440	2.0	7703822
Total Strontium (Sr)	mg/kg	0.117	0.070	0.036	0.046	0.027	0.050	0.020	7703822
Total Thallium (Tl)	mg/kg	<0.00040	0.00077	0.00048	0.00068	0.00102	0.00089	0.00040	7703822
Total Tin (Sn)	mg/kg	<0.020	0.025	0.021	0.030	0.030	0.021	0.020	7703822
Total Titanium (Ti)	mg/kg	<0.20	0.26	<0.20	<0.20	<0.20	<0.20	0.20	7703822
Total Uranium (U)	mg/kg	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	0.00040	7703822
Total Vanadium (V)	mg/kg	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	7703822
Total Zinc (Zn)	mg/kg	36.2	41.4	43.9	40.4	29.0	47.2	0.040	7703822

RDL = Reportable Detection Limit

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ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Maxxam ID		KN3912		KN3913			KN3919	KN3920		
Sampling Date		2014/08/23		2014/08/20			2014/08/13	2014/08/13		
COC Number		08396558		08396558			08396559	08396559		
	Units	**GL-9**	**RDL**	**GL-12**	**RDL**	**QC Batch**	**GK-1**	**GK-2**	**RDL**	**QC Batch**
Total Metals by ICPMS										
Total Aluminum (Al)	mg/kg	11.9	0.20	0.59	0.40	7703822	20.4	0.63	0.20	7703859
Total Antimony (Sb)	mg/kg	<0.0010	0.0010	<0.0020	0.0020	7703822	0.0026	<0.0010	0.0010	7703859
Total Arsenic (As)	mg/kg	0.014	0.010	<0.020	0.020	7703822	0.015	<0.010	0.010	7703859
Total Barium (Ba)	mg/kg	0.138	0.020	0.043	0.040	7703822	1.34	0.868	0.020	7703859
Total Beryllium (Be)	mg/kg	<0.020	0.020	<0.040	0.040	7703822	<0.020	<0.020	0.020	7703859
Total Bismuth (Bi)	mg/kg	<0.020	0.020	<0.040	0.040	7703822	<0.020	<0.020	0.020	7703859
Total Boron (B)	mg/kg	<0.40	0.40	<0.80	0.80	7703822	<0.40	<0.40	0.40	7703859
Total Cadmium (Cd)	mg/kg	0.334	0.0020	0.151	0.0040	7703822	2.17	3.32	0.0020	7703859
Total Calcium (Ca)	mg/kg	109	2.0	80.5	4.0	7703822	362	258	2.0	7703859
Total Chromium (Cr)	mg/kg	<0.040	0.040	<0.080	0.080	7703822	0.061	<0.040	0.040	7703859
Total Cobalt (Co)	mg/kg	0.0607	0.0040	0.0181	0.0080	7703822	0.0319	0.0208	0.0040	7703859
Total Copper (Cu)	mg/kg	5.03	0.010	3.86	0.020	7703822	5.23	4.84	0.010	7703859
Total Iron (Fe)	mg/kg	664	2.0	801	4.0	7703822	150	163	2.0	7703859
Total Lead (Pb)	mg/kg	0.0485	0.0020	0.0171	0.0040	7703822	0.110	0.0473	0.0020	7703859
Total Magnesium (Mg)	mg/kg	351	2.0	265	4.0	7703822	295	307	2.0	7703859
Total Manganese (Mn)	mg/kg	6.12	0.020	6.30	0.040	7703822	8.07	3.51	0.020	7703859
Total Mercury (Hg)	mg/kg	0.0028	0.0020	<0.0040	0.0040	7703822	0.0074	0.0094	0.0020	7703859
Total Molybdenum (Mo)	mg/kg	5.21	0.010	4.06	0.020	7703822	1.45	1.12	0.010	7703859
Total Nickel (Ni)	mg/kg	0.059	0.010	0.119	0.020	7703822	0.350	0.111	0.010	7703859
Total Phosphorus (P)	mg/kg	5540	2.0	4080	4.0	7703822	4470	4950	2.0	7703859
Total Potassium (K)	mg/kg	5220	2.0	4030	4.0	7703822	3610	3420	2.0	7703859
Total Selenium (Se)	mg/kg	0.285	0.010	0.294	0.020	7703822	0.708	0.573	0.010	7703859
Total Silver (Ag)	mg/kg	<0.0040	0.0040	<0.0080	0.0080	7703822	<0.0040	<0.0040	0.0040	7703859
Total Sodium (Na)	mg/kg	1430	2.0	1430	4.0	7703822	1840	2220	2.0	7703859
Total Strontium (Sr)	mg/kg	0.098	0.020	0.042	0.040	7703822	0.336	0.166	0.020	7703859
Total Thallium (Tl)	mg/kg	0.00125	0.00040	<0.00080	0.00080	7703822	0.00219	0.00286	0.00040	7703859
Total Tin (Sn)	mg/kg	0.043	0.020	<0.040	0.040	7703822	<0.020	<0.020	0.020	7703859
Total Titanium (Ti)	mg/kg	0.42	0.20	<0.40	0.40	7703822	1.20	<0.20	0.20	7703859
Total Uranium (U)	mg/kg	<0.00040	0.00040	<0.00080	0.00080	7703822	0.00096	<0.00040	0.00040	7703859
Total Vanadium (V)	mg/kg	<0.040	0.040	<0.080	0.080	7703822	<0.040	<0.040	0.040	7703859
Total Zinc (Zn)	mg/kg	42.0	0.040	28.8	0.080	7703822	31.6	28.0	0.040	7703859

RDL = Reportable Detection Limit

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ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Maxxam ID		KN3921	KN3922		KN3923	KN3924	KN3925		
Sampling Date		2014/08/14	2014/08/14		2014/08/14	2014/08/20	2014/08/20		
COC Number		08396559	08396559		08396559	08396559	08396559		
	Units	**GK-3**	**GK-4**	**RDL**	**GK-5**	**GK-6**	**GK-7**	**RDL**	**QC Batch**
Total Metals by ICPMS									
Total Aluminum (Al)	mg/kg	4.92	27.5	0.40	0.45	0.27	0.22	0.20	7703859
Total Antimony (Sb)	mg/kg	<0.0020	0.0067	0.0020	<0.0010	<0.0010	<0.0010	0.0010	7703859
Total Arsenic (As)	mg/kg	<0.020	<0.020	0.020	<0.010	<0.010	0.014	0.010	7703859
Total Barium (Ba)	mg/kg	0.892	1.44	0.040	0.894	1.11	0.297	0.020	7703859
Total Beryllium (Be)	mg/kg	<0.040	<0.040	0.040	<0.020	<0.020	<0.020	0.020	7703859
Total Bismuth (Bi)	mg/kg	<0.040	<0.040	0.040	<0.020	<0.020	<0.020	0.020	7703859
Total Boron (B)	mg/kg	<0.80	<0.80	0.80	<0.40	<0.40	<0.40	0.40	7703859
Total Cadmium (Cd)	mg/kg	1.25	2.63	0.0040	3.99	0.848	1.90	0.0020	7703859
Total Calcium (Ca)	mg/kg	1880	234	4.0	117	118	267	2.0	7703859
Total Chromium (Cr)	mg/kg	<0.080	0.086	0.080	0.204	<0.040	<0.040	0.040	7703859
Total Cobalt (Co)	mg/kg	0.0233	0.0246	0.0080	0.0275	0.0084	0.0257	0.0040	7703859
Total Copper (Cu)	mg/kg	4.60	4.50	0.020	4.77	3.74	4.07	0.010	7703859
Total Iron (Fe)	mg/kg	124	152	4.0	81.7	139	174	2.0	7703859
Total Lead (Pb)	mg/kg	0.0597	0.100	0.0040	0.0317	0.0248	0.0431	0.0020	7703859
Total Magnesium (Mg)	mg/kg	289	310	4.0	280	255	253	2.0	7703859
Total Manganese (Mn)	mg/kg	5.63	22.6	0.040	3.15	3.89	3.12	0.020	7703859
Total Mercury (Hg)	mg/kg	0.0096	0.0151	0.0040	0.0072	0.0041	0.0053	0.0020	7703859
Total Molybdenum (Mo)	mg/kg	1.27	1.01	0.020	1.13	0.775	0.749	0.010	7703859
Total Nickel (Ni)	mg/kg	0.058	0.097	0.020	0.361	0.021	0.066	0.010	7703859
Total Phosphorus (P)	mg/kg	4770	4010	4.0	4670	4070	4240	2.0	7703859
Total Potassium (K)	mg/kg	3480	3630	4.0	3510	3050	3320	2.0	7703859
Total Selenium (Se)	mg/kg	0.783	1.14	0.020	0.715	0.692	0.587	0.010	7703859
Total Silver (Ag)	mg/kg	<0.0080	<0.0080	0.0080	<0.0040	<0.0040	<0.0040	0.0040	7703859
Total Sodium (Na)	mg/kg	1870	1780	4.0	1940	2130	2140	2.0	7703859
Total Strontium (Sr)	mg/kg	1.09	0.283	0.040	0.068	0.063	0.097	0.020	7703859
Total Thallium (Tl)	mg/kg	0.00376	0.00525	0.00080	0.00380	0.00585	0.0109	0.00040	7703859
Total Tin (Sn)	mg/kg	0.046	<0.040	0.040	0.028	0.023	0.053	0.020	7703859
Total Titanium (Ti)	mg/kg	<0.40	1.13	0.40	<0.20	<0.20	<0.20	0.20	7703859
Total Uranium (U)	mg/kg	<0.00080	<0.00080	0.00080	<0.00040	<0.00040	<0.00040	0.00040	7703859
Total Vanadium (V)	mg/kg	<0.080	<0.080	0.080	<0.040	<0.040	<0.040	0.040	7703859
Total Zinc (Zn)	mg/kg	26.8	28.9	0.080	29.4	24.2	25.6	0.040	7703859
RDL = Reportable Detection Limit									

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ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Maxxam ID		KN3926	KN3927		
Sampling Date		2014/08/23	2014/08/23		
COC Number		08396559	08396559		
	Units	**GK-8**	**GK-9**	**RDL**	**QC Batch**
Total Metals by ICPMS					
Total Aluminum (Al)	mg/kg	4.36	20.8	0.20	7703859
Total Antimony (Sb)	mg/kg	0.0014	0.0017	0.0010	7703859
Total Arsenic (As)	mg/kg	0.046	0.010	0.010	7703859
Total Barium (Ba)	mg/kg	1.12	1.75	0.020	7703859
Total Beryllium (Be)	mg/kg	<0.020	<0.020	0.020	7703859
Total Bismuth (Bi)	mg/kg	<0.020	<0.020	0.020	7703859
Total Boron (B)	mg/kg	<0.40	<0.40	0.40	7703859
Total Cadmium (Cd)	mg/kg	0.370	1.06	0.0020	7703859
Total Calcium (Ca)	mg/kg	119	485	2.0	7703859
Total Chromium (Cr)	mg/kg	<0.040	0.062	0.040	7703859
Total Cobalt (Co)	mg/kg	0.0452	0.0345	0.0040	7703859
Total Copper (Cu)	mg/kg	4.60	4.07	0.010	7703859
Total Iron (Fe)	mg/kg	110	153	2.0	7703859
Total Lead (Pb)	mg/kg	0.0805	0.155	0.0020	7703859
Total Magnesium (Mg)	mg/kg	266	277	2.0	7703859
Total Manganese (Mn)	mg/kg	4.28	6.51	0.020	7703859
Total Mercury (Hg)	mg/kg	0.0184	0.0045	0.0020	7703859
Total Molybdenum (Mo)	mg/kg	0.957	0.856	0.010	7703859
Total Nickel (Ni)	mg/kg	0.035	0.087	0.010	7703859
Total Phosphorus (P)	mg/kg	3870	3830	2.0	7703859
Total Potassium (K)	mg/kg	3010	3170	2.0	7703859
Total Selenium (Se)	mg/kg	1.02	0.440	0.010	7703859
Total Silver (Ag)	mg/kg	<0.0040	<0.0040	0.0040	7703859
Total Sodium (Na)	mg/kg	1800	1930	2.0	7703859
Total Strontium (Sr)	mg/kg	0.078	0.365	0.020	7703859
Total Thallium (Tl)	mg/kg	0.00580	0.00846	0.00040	7703859
Total Tin (Sn)	mg/kg	0.177	<0.020	0.020	7703859
Total Titanium (Ti)	mg/kg	0.24	0.96	0.20	7703859
Total Uranium (U)	mg/kg	<0.00040	0.00074	0.00040	7703859
Total Vanadium (V)	mg/kg	<0.040	<0.040	0.040	7703859
Total Zinc (Zn)	mg/kg	22.6	22.5	0.040	7703859
RDL = Reportable Detection Limit					

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Intrinsik Environmental Services
Client Project #: 06-01-00114
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GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	1.7°C
Package 2	3.0°C
Package 3	1.3°C

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE) Comments

Sample KN3913-01 Elements by CRC ICPMS - Tissue Wet Wt: Detection limits raised due to insufficient sample volume.
Sample KN3921-01 Elements by CRC ICPMS - Tissue Wet Wt: Detection limits raised due to insufficient sample volume.
Sample KN3922-01 Elements by CRC ICPMS - Tissue Wet Wt: Detection limits raised due to insufficient sample volume.

Results relate only to the items tested.

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Success Through Science®

Maxxam Job #: B478576
Report Date: 2014/11/04

QUALITY ASSURANCE REPORT

Intrinsik Environmental Services
Client Project #: 06-01-00114
Site Location: BASELINE COUNTRY FOODS ASSESSMENT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
7703822	Total Aluminum (Al)	2014/11/04					<0.20	mg/kg	NC	35		
7703822	Total Antimony (Sb)	2014/11/04					<0.0010	mg/kg	NC	35		
7703822	Total Arsenic (As)	2014/11/04	104	75 - 125	116	75 - 125	<0.010	mg/kg	NC	35	121	75 - 125
7703822	Total Barium (Ba)	2014/11/04	100	75 - 125	117	75 - 125	<0.020	mg/kg	NC	35		
7703822	Total Beryllium (Be)	2014/11/04	101	75 - 125	115	75 - 125	<0.020	mg/kg	NC	35		
7703822	Total Bismuth (Bi)	2014/11/04					<0.020	mg/kg	NC	35		
7703822	Total Boron (B)	2014/11/04					<0.40	mg/kg	NC	35		
7703822	Total Cadmium (Cd)	2014/11/04	100	75 - 125	112	75 - 125	<0.0020	mg/kg	NC	35	102	75 - 125
7703822	Total Calcium (Ca)	2014/11/04					<2.0	mg/kg	15	35		
7703822	Total Chromium (Cr)	2014/11/04	94	75 - 125	116	75 - 125	<0.040	mg/kg	NC	35	82	75 - 125
7703822	Total Cobalt (Co)	2014/11/04	98	75 - 125	118	75 - 125	<0.0040	mg/kg	NC	35		
7703822	Total Copper (Cu)	2014/11/04	NC	75 - 125	110	75 - 125	<0.010	mg/kg	12	35	89	75 - 125
7703822	Total Iron (Fe)	2014/11/04					<2.0	mg/kg	15	35	106	75 - 125
7703822	Total Lead (Pb)	2014/11/04	100	75 - 125	112	75 - 125	<0.0020	mg/kg	NC	35	105	75 - 125
7703822	Total Magnesium (Mg)	2014/11/04					<2.0	mg/kg	6.9	35		
7703822	Total Manganese (Mn)	2014/11/04	NC	75 - 125	120	75 - 125	<0.020	mg/kg	11	35	97	75 - 125
7703822	Total Mercury (Hg)	2014/11/04	90	75 - 125	123	75 - 125	0.0023, RDL=0.0020	mg/kg	NC	35	105	75 - 125
7703822	Total Molybdenum (Mo)	2014/11/04					<0.010	mg/kg	NC	35	100	75 - 125
7703822	Total Nickel (Ni)	2014/11/04	97	75 - 125	120	75 - 125	<0.010	mg/kg	NC	35	97	75 - 125
7703822	Total Phosphorus (P)	2014/11/04					<2.0	mg/kg	9.0	35		
7703822	Total Potassium (K)	2014/11/04					<2.0	mg/kg	9.3	35		
7703822	Total Selenium (Se)	2014/11/04	95	75 - 125	108	75 - 125	<0.010	mg/kg	9.1	35	103	75 - 125
7703822	Total Silver (Ag)	2014/11/04	96	75 - 125	108	75 - 125	<0.0040	mg/kg	NC	35		
7703822	Total Sodium (Na)	2014/11/04					<2.0	mg/kg	9.0	35		
7703822	Total Strontium (Sr)	2014/11/04	100	75 - 125	115	75 - 125	<0.020	mg/kg	NC	35	102	75 - 125
7703822	Total Thallium (Tl)	2014/11/04	98	75 - 125	104	75 - 125	<0.00040	mg/kg	NC	35		
7703822	Total Tin (Sn)	2014/11/04					<0.020	mg/kg	NC	35		
7703822	Total Titanium (Ti)	2014/11/04					<0.20	mg/kg	NC	35		
7703822	Total Uranium (U)	2014/11/04	99	75 - 125	110	75 - 125	<0.00040	mg/kg	NC	35		
7703822	Total Vanadium (V)	2014/11/04	95	75 - 125	113	75 - 125	<0.040	mg/kg	NC	35	97	75 - 125
7703822	Total Zinc (Zn)	2014/11/04	NC	75 - 125	120	75 - 125	<0.040	mg/kg	10	35	102	75 - 125

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Maxxam Job #: B478576
Report Date: 2014/11/04

QUALITY ASSURANCE REPORT(CONT'D)

Intrinsik Environmental Services
Client Project #: 06-01-00114
Site Location: BASELINE COUNTRY FOODS ASSESSMENT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
7703859	Total Aluminum (Al)	2014/11/04					<0.20	mg/kg	NC	35		
7703859	Total Antimony (Sb)	2014/11/04					<0.0010	mg/kg	NC	35		
7703859	Total Arsenic (As)	2014/11/04	110	75 - 125	114	75 - 125	<0.010	mg/kg	NC	35	111	75 - 125
7703859	Total Barium (Ba)	2014/11/04	107	75 - 125	104	75 - 125	<0.020	mg/kg	NC	35		
7703859	Total Beryllium (Be)	2014/11/04	105	75 - 125	99	75 - 125	<0.020	mg/kg	NC	35		
7703859	Total Bismuth (Bi)	2014/11/04					<0.020	mg/kg	NC	35		
7703859	Total Boron (B)	2014/11/04					<0.40	mg/kg	NC	35		
7703859	Total Cadmium (Cd)	2014/11/04	106	75 - 125	108	75 - 125	<0.0020	mg/kg	NC	35	101	75 - 125
7703859	Total Calcium (Ca)	2014/11/04					<2.0	mg/kg	5.7	35		
7703859	Total Chromium (Cr)	2014/11/04	101	75 - 125	112	75 - 125	<0.040	mg/kg	NC	35	93	75 - 125
7703859	Total Cobalt (Co)	2014/11/04	104	75 - 125	111	75 - 125	<0.0040	mg/kg	11	35		
7703859	Total Copper (Cu)	2014/11/04	NC	75 - 125	114	75 - 125	<0.010	mg/kg	13	35	89	75 - 125
7703859	Total Iron (Fe)	2014/11/04					<2.0	mg/kg	NC	35	108	75 - 125
7703859	Total Lead (Pb)	2014/11/04	100	75 - 125	107	75 - 125	<0.0020	mg/kg	NC	35	103	75 - 125
7703859	Total Magnesium (Mg)	2014/11/04					<2.0	mg/kg	11	35		
7703859	Total Manganese (Mn)	2014/11/04	NC	75 - 125	111	75 - 125	<0.020	mg/kg	13	35	96	75 - 125
7703859	Total Mercury (Hg)	2014/11/04	102	75 - 125	112	75 - 125	<0.0020	mg/kg	NC	35	85	75 - 125
7703859	Total Molybdenum (Mo)	2014/11/04					<0.010	mg/kg	NC	35	100	75 - 125
7703859	Total Nickel (Ni)	2014/11/04	104	75 - 125	114	75 - 125	<0.010	mg/kg	0.34	35	98	75 - 125
7703859	Total Phosphorus (P)	2014/11/04					<2.0	mg/kg	11	35		
7703859	Total Potassium (K)	2014/11/04					<2.0	mg/kg	7.2	35		
7703859	Total Selenium (Se)	2014/11/04	104	75 - 125	107	75 - 125	<0.010	mg/kg	NC	35	97	75 - 125
7703859	Total Silver (Ag)	2014/11/04	98	75 - 125	112	75 - 125	<0.0040	mg/kg	NC	35		
7703859	Total Sodium (Na)	2014/11/04					<2.0	mg/kg	5.8	35		
7703859	Total Strontium (Sr)	2014/11/04	105	75 - 125	110	75 - 125	<0.020	mg/kg	5.5	35	102	75 - 125
7703859	Total Thallium (Tl)	2014/11/04	92	75 - 125	97	75 - 125	<0.00040	mg/kg	NC	35		
7703859	Total Tin (Sn)	2014/11/04					<0.020	mg/kg	23	35		
7703859	Total Titanium (Ti)	2014/11/04					<0.20	mg/kg	NC	35		
7703859	Total Uranium (U)	2014/11/04	98	75 - 125	100	75 - 125	<0.00040	mg/kg	NC	35		
7703859	Total Vanadium (V)	2014/11/04	103	75 - 125	112	75 - 125	<0.040	mg/kg	NC	35	100	75 - 125

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Maxxam Job #: B478576
Report Date: 2014/11/04

QUALITY ASSURANCE REPORT(CONT'D)

Intrinsik Environmental Services
Client Project #: 06-01-00114
Site Location: BASELINE COUNTRY FOODS ASSESSMENT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
7703859	Total Zinc (Zn)	2014/11/04	NC	75 - 125	121	75 - 125	<0.040	mg/kg	9.6	35	105	75 - 125

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

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Maxxam Job #: B478576
Report Date: 2014/11/04

Intrinsik Environmental Services
Client Project #: 06-01-00114
Site Location: BASELINE COUNTRY FOODS ASSESSMENT

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Rob Reinert, Data Validation Coordinator

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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CHAIN OF CUSTODY RECORD

Maxxam Job #: B478576 **COC #:** 08396557 Page: 1 of 3

Invoice To: Require Report? Yes ☑ No ☐

Company Name: Intrinsik Environmental Sciences Inc.
Contact Name:
Address: 5121 Sackville St., Suite 506
Halifax, NS PC: B3J 1K1
Phone / Fax#: Ph: 902-429-278 Fax: 902-429-0279
E-mail lmarshall@intrinsik.com

Report To:

Company Name: Intrinsik Environmental Sciences Inc.
Contact Name:
Address: 5121 Sackville St., Suite 506
Halifax, NS PC: B3J 1K1
Phone / Fax#: Ph: 902-429-278 Fax: 902-429-0279
E-mail lmarshall@intrinsik.com

PO #:
Quotation #: B13-242-AH
Project # : 06-01-00114
Proj. Name: Baseline Country Foods Assessment
Location: Labrador City, NL
Sampled by: ROK / WT/ MW

REGULATORY REQUIREMENTS:
☐ CSR
☐ CCME
☐ BC Water Quality
☐ Other
☐ DRINKING WATER

SERVICE REQUESTED:
◉ Regular Turn Around Time (TAT) (5 days for most tests)
RUSH (Please contact the lab)
○ 1 Day ○ 2 Day ○ 3 Day
Date Required:

SPECIAL INSTRUCTIONS:
Return Cooler ☑ **Ship Sample Bottles (please specify)** ☐
Please use analysis method CRC-ICPMS metals.

ANALYSIS REQUESTED

	Sample Identification	Lab Identification (Lab Use Only)	Sample Type	Date/Time(24hr) Sampled	Dissolved Metals (DM) Field Filtered? Y N	Total Metals Field Acidified? Y N	Please Analyse for total metals wet weight	Number of Containers
1	GM-1	KN3827	Tissue	14/08/13			X	
2	GM-2	KN3828	Tissue	14/08/13			X	
3	GM-3	KN3829	Tissue	14/08/14			X	
4	GM-4	KN3830	Tissue	14/08/14			X	
5	GM-5	KN3831	Tissue	14/08/14			X	
6	GM-6	KN3832	Tissue	14/08/20			X	
7	GM-7	KN3833	Tissue	14/08/20			X	
8	GM-8	KN3834	Tissue	14/08/23			X	
9	GM-9	KN3835	Tissue	14/08/23			X	
10	GM-10	KN3836	Tissue	14/08/13			X	
11	GM-11	KN3837	Tissue	14/08/14			X	
12	GM-12	KN3838	Tissue	14/08/20			X	

B478576

Print name and sign *Relinquished By:	Date (yy/mm/dd):	Time (24hr):	Print name and sign Received by :	Date (yy/mm/dd):	Time (24 hr):	Time Sensitive	Laboratory Use Only: Temperature on Receipt (°C)	Custody Seal	Yes	No
Danielle Gascon	14/09/03	08:00	JOU AN CHEN	2014/09/05	09:30	☐	A) 3 B) 1 C) 1	Present?	☐	☑
							Just sampled & rec'd on ice: ☐	Intact?	☐	☑

*IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORDS. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

3,3,3 / 1,1,2

BBY FCD-00077R2_C

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CHAIN OF CUSTODY RECORD

Maxxam Job #: B478576 **COC #:** 08396558 Page: 2 of 3

Invoice To: Require Report? Yes ☑ No ☐

Company Name: Intrinsik Environmental Sciences Inc.
Contact Name:
Address: 5121 Sackville St., Suite 506
Halifax, NS PC: B3J 1K1
Phone / Fax#: Ph: 902-429-278 Fax: 902-429-0279
E-mail: lmarshall@intrinsik.com

Report To:

Company Name: Intrinsik Environmental Sciences Inc.
Contact Name:
Address: 5121 Sackville St., Suite 506
Halifax, NS PC: B3J 1K1
Phone / Fax#: Ph: 902-429-278 Fax: 902-429-0279
E-mail: lmarshall@intrinsik.com

PO #:
Quotation #: B13-242-AH
Project # : 06-01-00114
Proj. Name: Baseline Country Foods Assessment
Location: Labrador City, NL
Sampled by: ROK / WT/ MW

REGULATORY REQUIREMENTS:
- ☐ CSR
- ☐ CCME
- ☐ BC Water Quality
- ☐ Other
- ☐ DRINKING WATER

SERVICE REQUESTED:
- ◉ Regular Turn Around Time (TAT) (5 days for most tests)
- **RUSH** (Please contact the lab)
- ○ 1 Day ○ 2 Day ○ 3 Day
- Date Required:

SPECIAL INSTRUCTIONS:
Return Cooler ☑ **Ship Sample Bottles (please specify)** ☐
Please use analysis method CRC-ICPMS metals.

ANALYSIS REQUESTED

	Sample Identification	Lab Identification (Lab Use Only)	Sample Type	Date/Time(24hr) Sampled	Dissolved Metals (DM) Y ☐ N ☐ Field Filtered?	Total Metals Y ☐ N ☐ Field Acidified?	Please Analyse for total metals wet weight Y ☐ N ☐ Field Acidified?	Number of Containers
1	GM-13	KN3903	Tissue	14/08/20			X	
2	GL-1	KN3904	Tissue	14/08/13			X	
3	GL-2	KN3905	Tissue	14/08/13			X	
4	GL-3	KN3906	Tissue	14/08/14			X	
5	GL-4	KN3907	Tissue	14/08/14			X	
6	GL-5	KN3908	Tissue	14/08/14			X	
7	GL-6	KN3909	Tissue	14/08/20			X	
8	GL-7	KN3910	Tissue	14/08/20			X	
9	GL-8	KN3911	Tissue	14/08/23			X	
10	GL-9	KN3912	Tissue	14/08/23			X	
11	GL-12	KN3913	Tissue	14/08/20			X	
12	GL-13	KN3914	Tissue	14/08/20			X	

B478576

Print name and sign: *Relinquished By:	Date (yy/mm/dd):	Time (24hr):	Print name and sign: Received by :	Date (yy/mm/dd):	Time (24 hr):	Time Sensitive ☐
Danielle Gascon	14/09/03	08:00	Joanne Chen JOUAN CHEN	2014/09/05	09:30	
D Gascon						

Laboratory Use Only: Temperature on Receipt (°C) A) 3 B) 1 C) 1; Just sampled & rec'd on ice: ☐; 3,3,3 / 1,1,2

Custody Seal	Yes	No
Present?	☐	☑
Intact?	☐	☑

*IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORDS. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

BBY FCD-00077R2_C

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CHAIN OF CUSTODY RECORD

Click here to get the COC number

Maxxam Job #: COC #: Page: 1 of 1

Invoice To: Require Report? Yes ☑ No ☐

Company Name: Iron Ore Company of Canada
Contact Name:
Address: 2 Avalon Drive
Labrador City, NL PC: A2V 2Y6
Phone / Fax#: Ph: 709-944-8400 Fax:
E-mail

Report To:

Company Name: Intrinsik Environmental Sciences Inc.
Contact Name:
Address: 5121 Sackville St., Suite 506
Halifax, NS PC: B3J 1K1
Phone / Fax#: Ph: 902-429-278 Fax: 902-429-0279
E-mail: lmarshall@intrinsik.com

PO #:	
Quotation #:	B13-242-AH
Project # :	06-01-00114
Proj. Name:	Baseline Country Foods Assessment
Location:	Labrador City, NL
Sampled by:	ROK / WT/ MW

REGULATORY REQUIREMENTS:

- ☐ CSR
- ☐ CCME
- ☐ BC Water Quality
- ☐ Other
- ☐ DRINKING WATER

SERVICE REQUESTED:

- ● Regular Turn Around Time (TAT) (5 days for most tests)
- **RUSH** (Please contact the lab)
- ○ 1 Day ○ 2 Day ○ 3 Day

Date Required:

SPECIAL INSTRUCTIONS:

Return Cooler ☑ **Ship Sample Bottles (please specify)** ☐

Please use analysis method CRC-ICPMS metals.

ANALYSIS REQUESTED

	Sample Identification	Lab Identification (Lab Use Only)	Sample Type	Date/Time(24hr) Sampled	Dissolved Metals (DM) Field Filtered? ☐ Y ☐ N	Field Acidified? ☐ Y ☐ N	Total Metals Field Acidified? ☐ Y ☐ N	Please Analyse for total metals wet weight	Number of Containers
1	GL-1		Tissue	14/08/13				X	
2	GL-4		Tissue	14/08/14				X	
3	GL-7		Tissue	14/08/20				X	
4	GL-9		Tissue	14/08/23				X	
5	GK-1		Tissue	14/08/13				X	
6	GK-4		Tissue	14/08/14				X	
7	GK-7		Tissue	14/08/20				X	
8	GK-9		Tissue	14/08/23				X	
9									
10									
11									
12									

*Relinquished By: (Print name and sign)	Date (yy/mm/dd):	Time (24hr):	Received by : (Print name and sign)	Date (yy/mm/dd):	Time (24 hr):	Time Sensitive ☐
Danielle Gascon	14/09/03	08:00				

Laboratory Use Only

Temperature on Receipt (°C)	Custody Seal	Yes	No
A) B) C)	Present?	☐	☐
Just sampled & rec'd on ice: ☐	Intact?	☐	☐

*IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORDS. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

BBY PCD-00077R2_C

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CHAIN OF CUSTODY RECORD

Click here to get the COC number

Maxxam Job #: COC #: Page: 1 of 2

Invoice To: Require Report? Yes ☑ No ☐

Company Name: Intrinsik Environmental Sciences Inc.
Contact Name:
Address: 5121 Sackville St., Suite 506
Halifax, NS PC B3J 1K1
Phone / Fax#: Ph 902-429-278 Fax 902-429-0279
E-mail lmarshall@intrinsik.com

Report To:

Company Name: Intrinsik Environmental Sciences Inc.
Contact Name:
Address: 5121 Sackville St., Suite 506
Halifax, NS PC B3J 1K1
Phone / Fax#: Ph 902-429-278 Fax 902-429-0279
E-mail lmarshall@intrinsik.com

PO #:	
Quotation #:	B13-242-AH
Project # :	06-01-00114
Proj. Name:	Baseline Country Foods Assessment
Location:	Labrador City, NL
Sampled by:	ROK / WT/ MW

REGULATORY REQUIREMENTS:

- ☐ CSR
- ☐ CCME
- ☐ BC Water Quality
- ☐ Other
- ☐ DRINKING WATER

SERVICE REQUESTED:

- ● Regular Turn Around Time (TAT) (5 days for most tests)
- **RUSH** (Please contact the lab)
- ○ 1 Day ○ 2 Day ○ 3 Day

Date Required:

SPECIAL INSTRUCTIONS:

Return Cooler ☑ **Ship Sample Bottles (please specify)** ☐

Please use analysis method CRC-ICPMS metals.

ANALYSIS REQUESTED

	Sample Identification	Lab Identification (Lab Use Only)	Sample Type	Date/Time(24hr) Sampled	Dissolved Metals (DM) Y ☐ N ☐	Field Filtered? Y ☐ N ☐	Total Metals Y ☐ N ☐	Field Acidified?	Please Analyse for total metals wet weight	Number of Containers
1	GM-1		Tissue	14/08/13					X	
2	GM-2		Tissue	14/08/13					X	
3	GM-3		Tissue	14/08/14					X	
4	GM-4		Tissue	14/08/14					X	
5	GM-5		Tissue	14/08/14					X	
6	GM-6		Tissue	14/08/20					X	
7	GM-7		Tissue	14/08/20					X	
8	GM-8		Tissue	14/08/23					X	
9	GM-9		Tissue	14/08/23					X	
10	GM-12		Tissue	14/08/20					X	
11										
12										

Print name and sign *Relinquished By:	Date (yy/mm/dd):	Time (24hr):	Print name and sign Received by :	Date (yy/mm/dd):	Time (24 hr):	Time Sensitive ☐
Danielle Gascon	14/09/03	08:00				

Laboratory Use Only

Temperature on Receipt (°C)	Custody Seal	Yes	No
A) B) C)	Present?	☐	☐
Just sampled & rec'd on ice: ☐	Intact?	☐	☐

*IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORDS. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

BBY PCD-00077R2_C

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Maxxam

Burnaby: 4606 Canada Way, Burnaby, BC V5G 1K5 Ph: (604) 734-7276 Fax: (604) 731-2386, Toll Free: (800) 665-8566

CHAIN OF CUSTODY RECORD

Click here to get the COC number

Maxxam Job #: COC #: Page: 2 of 2

Invoice To: Require Report? Yes ☑ No ☐

Company Name: Intrinsik Environmental Sciences Inc.
Contact Name:
Address: 5121 Sackville St., Suite 506
Halifax, NS PC B3J 1K1
Phone / Fax#: Ph 902-429-278 Fax 902-429-0279
E-mail: lmarshall@intrinsik.com

Report To:

Company Name: Intrinsik Environmental Sciences Inc.
Contact Name:
Address: 5121 Sackville St., Suite 506
Halifax, NS PC B3J 1K1
Phone / Fax#: Ph 902-429-278 Fax 902-429-0279
E-mail: lmarshall@intrinsik.com

PO #:	
Quotation #:	B13-242-AH
Project # :	06-01-00114
Proj. Name:	Baseline Country Foods Assessment
Location:	Labrador City, NL
Sampled by:	ROK / WT/ MW

REGULATORY REQUIREMENTS:

- ☐ CSR
- ☐ CCME
- ☐ BC Water Quality
- ☐ Other
- ☐ DRINKING WATER

SERVICE REQUESTED:

- ● Regular Turn Around Time (TAT) (5 days for most tests)
- **RUSH** (Please contact the lab) ○ 1 Day ○ 2 Day ○ 3 Day
- Date Required:

SPECIAL INSTRUCTIONS:

Return Cooler ☑ **Ship Sample Bottles (please specify)** ☐

Please use analysis method CRC-ICPMS metals.

ANALYSIS REQUESTED

	Sample Identification	Lab Identification (Lab Use Only)	Sample Type	Date/Time(24hr) Sampled	Dissolved Metals (DM) Y ☐ N ☐	Field Filtered? Y ☐ N ☐	Total Metals Y ☐ N ☐	Field Acidified? Y ☐ N ☐	Please Analyse for total metals wet weight	Number of Containers
1	GL-2		Tissue	14/08/13					X	
2	GL-3		Tissue	14/08/14					X	
3	GL-5		Tissue	14/08/14					X	
4	GL-6		Tissue	14/08/20					X	
5	GL-8		Tissue	14/08/23					X	
6	GL-12		Tissue	14/08/20					X	
7	GK-2		Tissue	14/08/13					X	
8	GK-3		Tissue	14/08/14					X	
9	GK-5		Tissue	14/08/14					X	
10	GK-6		Tissue	14/08/20					X	
11	GK-8		Tissue	14/08/23					X	
12										

Print name and sign *Relinquished By:	Date (yy/mm/dd):	Time (24hr):	Print name and sign Received by :	Date (yy/mm/dd):	Time (24 hr):	Time Sensitive ☐	Laboratory Use Only: Temperature on Receipt (°C)	Custody Seal	Yes	No
Danielle Gascon	14/09/03	08:00					A) B) C)	Present?	☐	☐
							Just sampled & rec'd on ice: ☐	Intact?	☐	☐

*IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORDS. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

BBY PCD-00077R2_C

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Your Project #: 06-01-00114
Site#: LABRADOR CITY, NL
Site Location: BASELINE COUNTRY FOODS ASSESSMENT
Your C.O.C. #: 08396555, 08396556

Attention:Lisa Marshall

Intrinsik Environmental Services
5121 Sackville Street
SUITE 506
Halifax, NS
CANADA B3J 1K1

Report Date: 2014/11/04
Report #: R1677197
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B478567
Received: 2014/09/05, 09:30

Sample Matrix: TISSUE
Samples Received: 16

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Elements by CRC ICPMS - Tissue Wet Wt	16	2014/11/02	2014/11/04	BBY7SOP-00002, BBY7SOP -00013	EPA 6020a,200.3 R1 m

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Samantha Fregien, Project Manager
Email: SFregien@maxxam.ca
Phone# (604) 734 7276
==========
This report has been generated and distributed using a secure automated process.
Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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Maxxam Job #: B478567
Report Date: 2014/11/04

Intrinsik Environmental Services
Client Project #: 06-01-00114
Site Location: BASELINE COUNTRY FOODS ASSESSMENT

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Maxxam ID		KN3723	KN3724	KN3725	KN3726	KN3727	KN3728		
Sampling Date		2014/07/31	2014/07/31	2014/07/31	2014/07/31	2014/07/31	2014/07/31		
COC Number		08396555	08396555	08396555	08396555	08396555	08396555		
	Units	**BT-1F**	**BT-2F**	**BT-3F**	**BT-4F**	**BT-5F**	**BT-6F**	**RDL**	**QC Batch**
Total Metals by ICPMS									
Total Aluminum (Al)	mg/kg	0.22	<0.20	<0.20	0.36	0.91	0.54	0.20	7703773
Total Antimony (Sb)	mg/kg	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	7703773
Total Arsenic (As)	mg/kg	<0.010	<0.010	<0.010	0.013	0.011	<0.010	0.010	7703773
Total Barium (Ba)	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	7703773
Total Beryllium (Be)	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	7703773
Total Bismuth (Bi)	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	7703773
Total Boron (B)	mg/kg	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	0.40	7703773
Total Cadmium (Cd)	mg/kg	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.0020	7703773
Total Calcium (Ca)	mg/kg	131	385	132	133	122	126	2.0	7703773
Total Chromium (Cr)	mg/kg	<0.040	<0.040	0.054	<0.040	<0.040	<0.040	0.040	7703773
Total Cobalt (Co)	mg/kg	0.0051	0.0041	<0.0040	<0.0040	<0.0040	0.0048	0.0040	7703773
Total Copper (Cu)	mg/kg	0.417	0.436	0.780	0.719	0.699	0.613	0.010	7703773
Total Iron (Fe)	mg/kg	5.7	3.7	3.8	5.9	11.9	6.3	2.0	7703773
Total Lead (Pb)	mg/kg	0.0022	<0.0020	<0.0020	0.0254	0.0791	0.0396	0.0020	7703773
Total Magnesium (Mg)	mg/kg	370	374	360	355	328	336	2.0	7703773
Total Manganese (Mn)	mg/kg	0.111	0.233	0.112	0.141	0.262	0.142	0.020	7703773
Total Mercury (Hg)	mg/kg	0.0583	0.0460	0.0298	0.0441	0.0376	0.0309	0.0020	7703773
Total Molybdenum (Mo)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	7703773
Total Nickel (Ni)	mg/kg	0.057	0.029	0.035	0.041	0.050	0.087	0.010	7703773
Total Phosphorus (P)	mg/kg	3150	3360	3100	3110	2760	2920	2.0	7703773
Total Potassium (K)	mg/kg	4700	4930	4600	4940	4050	4540	2.0	7703773
Total Selenium (Se)	mg/kg	0.513	0.361	0.499	0.395	0.331	0.349	0.010	7703773
Total Silver (Ag)	mg/kg	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	0.0040	7703773
Total Sodium (Na)	mg/kg	404	369	362	203	307	194	2.0	7703773
Total Strontium (Sr)	mg/kg	0.081	0.215	0.061	0.071	0.077	0.060	0.020	7703773
Total Thallium (Tl)	mg/kg	0.00282	0.00361	0.00336	0.00655	0.00497	0.00315	0.00040	7703773
Total Tin (Sn)	mg/kg	<0.020	<0.020	0.040	0.027	0.027	0.035	0.020	7703773
Total Titanium (Ti)	mg/kg	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	7703773
Total Uranium (U)	mg/kg	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	0.00040	7703773
Total Vanadium (V)	mg/kg	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	7703773
Total Zinc (Zn)	mg/kg	5.71	4.99	5.75	5.10	5.69	5.71	0.040	7703773

RDL = Reportable Detection Limit

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Maxxam Job #: B478567
Report Date: 2014/11/04

Intrinsik Environmental Services
Client Project #: 06-01-00114
Site Location: BASELINE COUNTRY FOODS ASSESSMENT

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Maxxam ID		KN3729	KN3730	KN3731	KN3732	KN3733	KN3734		
Sampling Date		2014/08/01	2014/08/01	2014/08/02	2014/08/02	2014/08/02	2014/08/02		
COC Number		08396555	08396555	08396555	08396555	08396555	08396555		
	Units	**BT-7F**	**BT-8F**	**BT-9F**	**BT-10F**	**BT-11F**	**BT-12F**	**RDL**	**QC Batch**
Total Metals by ICPMS									
Total Aluminum (Al)	mg/kg	1.40	0.21	<0.20	0.31	0.25	0.77	0.20	7703773
Total Antimony (Sb)	mg/kg	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	7703773
Total Arsenic (As)	mg/kg	<0.010	0.013	0.015	0.014	0.011	<0.010	0.010	7703773
Total Barium (Ba)	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	7703773
Total Beryllium (Be)	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	7703773
Total Bismuth (Bi)	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	7703773
Total Boron (B)	mg/kg	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	0.40	7703773
Total Cadmium (Cd)	mg/kg	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.0020	7703773
Total Calcium (Ca)	mg/kg	148	119	77.2	124	116	185	2.0	7703773
Total Chromium (Cr)	mg/kg	<0.040	<0.040	<0.040	<0.040	0.125	0.057	0.040	7703773
Total Cobalt (Co)	mg/kg	0.0055	0.0049	0.0062	0.0056	<0.0040	0.0043	0.0040	7703773
Total Copper (Cu)	mg/kg	0.397	0.469	0.610	0.534	0.877	0.675	0.010	7703773
Total Iron (Fe)	mg/kg	4.2	4.1	5.1	4.6	5.4	5.8	2.0	7703773
Total Lead (Pb)	mg/kg	<0.0020	0.0027	<0.0020	0.0023	<0.0020	0.0037	0.0020	7703773
Total Magnesium (Mg)	mg/kg	330	342	352	331	358	354	2.0	7703773
Total Manganese (Mn)	mg/kg	0.109	0.078	0.081	0.127	0.104	0.168	0.020	7703773
Total Mercury (Hg)	mg/kg	0.0551	0.0396	0.0452	0.0438	0.0473	0.0723	0.0020	7703773
Total Molybdenum (Mo)	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	7703773
Total Nickel (Ni)	mg/kg	0.023	0.019	0.021	0.018	0.094	0.045	0.010	7703773
Total Phosphorus (P)	mg/kg	2830	2980	3130	2970	3130	3140	2.0	7703773
Total Potassium (K)	mg/kg	4310	4560	4810	4610	4860	4730	2.0	7703773
Total Selenium (Se)	mg/kg	0.377	0.353	0.382	0.397	0.386	0.341	0.010	7703773
Total Silver (Ag)	mg/kg	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	0.0040	7703773
Total Sodium (Na)	mg/kg	349	334	340	360	368	458	2.0	7703773
Total Strontium (Sr)	mg/kg	0.077	0.064	0.034	0.073	0.048	0.086	0.020	7703773
Total Thallium (Tl)	mg/kg	0.00386	0.00503	0.00539	0.00513	0.00522	0.00247	0.00040	7703773
Total Tin (Sn)	mg/kg	0.020	<0.020	<0.020	<0.020	0.052	0.030	0.020	7703773
Total Titanium (Ti)	mg/kg	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	7703773
Total Uranium (U)	mg/kg	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	0.00040	7703773
Total Vanadium (V)	mg/kg	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	7703773
Total Zinc (Zn)	mg/kg	3.82	4.74	5.33	6.24	4.20	6.17	0.040	7703773
RDL = Reportable Detection Limit									

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Maxxam Job #: B478567
Report Date: 2014/11/04

Intrinsik Environmental Services
Client Project #: 06-01-00114
Site Location: BASELINE COUNTRY FOODS ASSESSMENT

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Maxxam ID		KN3735	KN3736	KN3737	KN3738		
Sampling Date		2014/08/02	2014/08/02	2014/08/02	2014/08/02		
COC Number		08396556	08396556	08396556	08396556		
	Units	**BT-13F**	**BT-14F**	**BT-15F**	**BT-16F**	**RDL**	**QC Batch**
Total Metals by ICPMS							
Total Aluminum (Al)	mg/kg	0.21	0.33	0.28	<0.20	0.20	7703773
Total Antimony (Sb)	mg/kg	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	7703773
Total Arsenic (As)	mg/kg	<0.010	<0.010	0.013	0.012	0.010	7703773
Total Barium (Ba)	mg/kg	<0.020	<0.020	<0.020	<0.020	0.020	7703773
Total Beryllium (Be)	mg/kg	<0.020	<0.020	<0.020	<0.020	0.020	7703773
Total Bismuth (Bi)	mg/kg	<0.020	<0.020	<0.020	<0.020	0.020	7703773
Total Boron (B)	mg/kg	<0.40	<0.40	<0.40	<0.40	0.40	7703773
Total Cadmium (Cd)	mg/kg	<0.0020	<0.0020	<0.0020	<0.0020	0.0020	7703773
Total Calcium (Ca)	mg/kg	69.6	108	73.7	73.6	2.0	7703773
Total Chromium (Cr)	mg/kg	<0.040	<0.040	0.040	0.279	0.040	7703773
Total Cobalt (Co)	mg/kg	<0.0040	<0.0040	0.0053	0.0071	0.0040	7703773
Total Copper (Cu)	mg/kg	0.541	0.457	0.789	0.781	0.010	7703773
Total Iron (Fe)	mg/kg	5.4	4.0	4.5	6.0	2.0	7703773
Total Lead (Pb)	mg/kg	0.0044	<0.0020	<0.0020	<0.0020	0.0020	7703773
Total Magnesium (Mg)	mg/kg	351	352	381	363	2.0	7703773
Total Manganese (Mn)	mg/kg	0.097	0.082	0.081	0.095	0.020	7703773
Total Mercury (Hg)	mg/kg	0.0426	0.0521	0.0398	0.0582	0.0020	7703773
Total Molybdenum (Mo)	mg/kg	<0.010	<0.010	<0.010	0.025	0.010	7703773
Total Nickel (Ni)	mg/kg	0.022	0.024	0.035	0.118	0.010	7703773
Total Phosphorus (P)	mg/kg	3080	3080	3130	2990	2.0	7703773
Total Potassium (K)	mg/kg	4810	4620	4770	4620	2.0	7703773
Total Selenium (Se)	mg/kg	0.315	0.341	0.368	0.411	0.010	7703773
Total Silver (Ag)	mg/kg	<0.0040	<0.0040	<0.0040	<0.0040	0.0040	7703773
Total Sodium (Na)	mg/kg	378	380	413	325	2.0	7703773
Total Strontium (Sr)	mg/kg	0.022	0.047	0.033	0.038	0.020	7703773
Total Thallium (Tl)	mg/kg	0.00278	0.00299	0.00429	0.00414	0.00040	7703773
Total Tin (Sn)	mg/kg	0.048	<0.020	0.040	0.040	0.020	7703773
Total Titanium (Ti)	mg/kg	<0.20	<0.20	<0.20	<0.20	0.20	7703773
Total Uranium (U)	mg/kg	<0.00040	<0.00040	<0.00040	<0.00040	0.00040	7703773
Total Vanadium (V)	mg/kg	<0.040	<0.040	<0.040	<0.040	0.040	7703773
Total Zinc (Zn)	mg/kg	4.41	5.05	6.62	4.38	0.040	7703773
RDL = Reportable Detection Limit							

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Maxxam Job #: B478567
Report Date: 2014/11/04

Intrinsik Environmental Services
Client Project #: 06-01-00114
Site Location: BASELINE COUNTRY FOODS ASSESSMENT

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	1.7°C
Package 2	3.0°C
Package 3	1.3°C

Results relate only to the items tested.

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Maxxam Job #: B478567
Report Date: 2014/11/04

QUALITY ASSURANCE REPORT

Intrinsik Environmental Services
Client Project #: 06-01-00114
Site Location: BASELINE COUNTRY FOODS ASSESSMENT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
7703773	Total Aluminum (Al)	2014/11/04					<0.20	mg/kg	NC	35		
7703773	Total Antimony (Sb)	2014/11/04					<0.0010	mg/kg	NC	35		
7703773	Total Arsenic (As)	2014/11/04	109	75 - 125	99	75 - 125	<0.010	mg/kg	NC	35	116	75 - 125
7703773	Total Barium (Ba)	2014/11/04	103	75 - 125	97	75 - 125	<0.020	mg/kg	NC	35		
7703773	Total Beryllium (Be)	2014/11/04	103	75 - 125	93	75 - 125	<0.020	mg/kg	NC	35		
7703773	Total Bismuth (Bi)	2014/11/04					<0.020	mg/kg	NC	35		
7703773	Total Boron (B)	2014/11/04					<0.40	mg/kg	NC	35		
7703773	Total Cadmium (Cd)	2014/11/04	102	75 - 125	94	75 - 125	<0.0020	mg/kg	NC	35	97	75 - 125
7703773	Total Calcium (Ca)	2014/11/04					<2.0	mg/kg	5.2	35		
7703773	Total Chromium (Cr)	2014/11/04	100	75 - 125	94	75 - 125	<0.040	mg/kg	NC	35	75	75 - 125
7703773	Total Cobalt (Co)	2014/11/04	98	75 - 125	93	75 - 125	<0.0040	mg/kg	NC	35		
7703773	Total Copper (Cu)	2014/11/04	111	75 - 125	94	75 - 125	<0.010	mg/kg	5.3	35	93	75 - 125
7703773	Total Iron (Fe)	2014/11/04					<2.0	mg/kg	NC	35	95	75 - 125
7703773	Total Lead (Pb)	2014/11/04	102	75 - 125	94	75 - 125	<0.0020	mg/kg	NC	35	98	75 - 125
7703773	Total Magnesium (Mg)	2014/11/04					<2.0	mg/kg	0.71	35		
7703773	Total Manganese (Mn)	2014/11/04	86	75 - 125	95	75 - 125	<0.020	mg/kg	7.5	35	95	75 - 125
7703773	Total Mercury (Hg)	2014/11/04	NC	75 - 125	99	75 - 125	<0.0020	mg/kg	1.5	35	111	75 - 125
7703773	Total Molybdenum (Mo)	2014/11/04					<0.010	mg/kg	NC	35	109	75 - 125
7703773	Total Nickel (Ni)	2014/11/04	96	75 - 125	97	75 - 125	0.014, RDL=0.010	mg/kg	NC	35	94	75 - 125
7703773	Total Phosphorus (P)	2014/11/04					<2.0	mg/kg	2.8	35		
7703773	Total Potassium (K)	2014/11/04					<2.0	mg/kg	3.1	35		
7703773	Total Selenium (Se)	2014/11/04	103	75 - 125	90	75 - 125	<0.010	mg/kg	0.58	35	91	75 - 125
7703773	Total Silver (Ag)	2014/11/04	87	75 - 125	76	75 - 125	<0.0040	mg/kg	NC	35		
7703773	Total Sodium (Na)	2014/11/04					<2.0	mg/kg	2.6	35		
7703773	Total Strontium (Sr)	2014/11/04	89	75 - 125	97	75 - 125	<0.020	mg/kg	4.6	35	100	75 - 125
7703773	Total Thallium (Tl)	2014/11/04	105	75 - 125	104	75 - 125	<0.00040	mg/kg	0.28	35		
7703773	Total Tin (Sn)	2014/11/04					<0.020	mg/kg	NC	35		
7703773	Total Titanium (Ti)	2014/11/04					<0.20	mg/kg	NC	35		
7703773	Total Uranium (U)	2014/11/04	100	75 - 125	91	75 - 125	<0.00040	mg/kg	NC	35		
7703773	Total Vanadium (V)	2014/11/04	103	75 - 125	91	75 - 125	<0.040	mg/kg	NC	35	94	75 - 125

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Maxxam Job #: B478567
Report Date: 2014/11/04

QUALITY ASSURANCE REPORT(CONT'D)

Intrinsik Environmental Services
Client Project #: 06-01-00114
Site Location: BASELINE COUNTRY FOODS ASSESSMENT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
7703773	Total Zinc (Zn)	2014/11/04	NC	75 - 125	92	75 - 125	<0.040	mg/kg	3.5	35	96	75 - 125

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

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Maxxam Job #: B478567
Report Date: 2014/11/04

Intrinsik Environmental Services
Client Project #: 06-01-00114
Site Location: BASELINE COUNTRY FOODS ASSESSMENT

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Andy Lu, Data Validation Coordinator

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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CHAIN OF CUSTODY RECORD

Maxxam Job #: B478567 **COC #:** 08396556 Page: 2 of 2

Invoice To: Require Report? Yes ☑ No ☐

Company Name: Intrinsik Environmental Sciences Inc.
Contact Name:
Address: 5121 Sackville St., Suite 506
Halifax, NS PC: B3J 1K1
Phone / Fax#: Ph: 902-429-278 Fax: 902-429-0279
E-mail lmarshall@intrinsik.com

Report To:

Company Name: Intrinsik Environmental Sciences Inc.
Contact Name:
Address: 5121 Sackville St., Suite 506
Halifax, NS PC: B3J 1K1
Phone / Fax#: Ph: 902-429-278 Fax: 902-429-0279
E-mail lmarshall@intrinsik.com

PO #:
Quotation #: B13-242-AH
Project # : 06-01-00114
Proj. Name: Baseline Country Foods Assessment
Location: Labrador City, NL
Sampled by: ROK / WT/ MW

REGULATORY REQUIREMENTS:

☐ CSR
☐ CCME
☐ BC Water Quality
☐ Other
☐ DRINKING WATER

SERVICE REQUESTED:

◉ Regular Turn Around Time (TAT)
(5 days for most tests)
RUSH (Please contact the lab)
○ 1 Day ○ 2 Day ○ 3 Day
Date Required:

SPECIAL INSTRUCTIONS:
Return Cooler ☑ **Ship Sample Bottles (please specify)** ☐
Please use analysis method CRC-ICPMS metals.
All samples ending in FS - To be analyzed with skin on

ANALYSIS REQUESTED

	Sample Identification	Lab Identification (Lab Use Only)	Sample Type	Date/Time(24hr) Sampled	Dissolved Metals (DM) Field Filtered? Y N	Field Acidified? Y N	Total Metals Field Acidified? Y N	Please Analyse for total metals wet weight	Number of Containers
1	BT-13F	KN3735	Tissue	14/08/02				X	
2	BT-14F	KN3736	Tissue	14/08/02				X	
3	BT-15F	KN3737	Tissue	14/08/02				X	
4	BT-16F	KN3738	Tissue	14/08/02				X	
5		KN3739							
6									
7									
8									
9									
10									
11									
12									

B478567

Print name and sign			Print name and sign				Laboratory Use Only			
*Relinquished By:	Date (yy/mm/dd):	Time (24hr):	Received by :	Date (yy/mm/dd):	Time (24 hr):	Time Sensitive ☐	Temperature on Receipt (°C)	Custody Seal	Yes	No
Danielle Gascon	14/09/03	08:00	JOU AN CHEN	2014/09/05	09:30		A) 3 B) 1 C) 1	Present?	☐	☑
							Just sampled & rec'd on ice: ☐	Intact?	☐	☑

*IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORDS. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

3,3,3 / 1,1,2

BBY FCD-00077R2_C

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CHAIN OF CUSTODY RECORD

Maxxam Job #: B478567 COC #: 08396555 (COC number) Page: 1 of 2

Invoice To: Require Report? Yes ☑ No ☐

Company Name: Intrinsik Environmental Sciences Inc.
Contact Name:
Address: 5121 Sackville St., Suite 506
Halifax, NS PC: B3J 1K1
Phone / Fax#: Ph: 902-429-278 Fax: 902-429-0279
E-mail: lmarshall@intrinsik.com

Report To:

Company Name: Intrinsik Environmental Sciences Inc.
Contact Name:
Address: 5121 Sackville St., Suite 506
Halifax, NS PC: B3J 1K1
Phone / Fax#: Ph: 902-429-278 Fax: 902-429-0279
E-mail: lmarshall@intrinsik.com

PO #:
Quotation #: B13-242-AH
Project # : 06-01-00114
Proj. Name: Baseline Country Foods Assessment
Location: Labrador City, NL
Sampled by: ROK / WT/ MW

REGULATORY REQUIREMENTS:
- ☐ CSR
- ☐ CCME
- ☐ BC Water Quality
- ☐ Other
- ☐ DRINKING WATER

SERVICE REQUESTED:
- ◉ Regular Turn Around Time (TAT) (5 days for most tests)
- **RUSH** (Please contact the lab) ○ 1 Day ○ 2 Day ○ 3 Day
- Date Required:

SPECIAL INSTRUCTIONS:
Return Cooler ☑ **Ship Sample Bottles (please specify)** ☐
Please use analysis method CRC-ICPMS metals.

ANALYSIS REQUESTED

	Sample Identification	Lab Identification (Lab Use Only)	Sample Type	Date/Time(24hr) Sampled	Dissolved Metals (DM) Field Filtered? Y ☐ N ☐	Total Metals Field Acidified? Y ☐ N ☐	Please Analyse for total metals wet weight Field Acidified? Y ☐ N ☐	Number of Containers
1	BT-1F	KN3723	Tissue	14/07/31			X	
2	BT-2F	KN3724	Tissue	14/07/31			X	
3	BT-3F	KN3725	Tissue	14/07/31			X	
4	BT-4F	KN3726	Tissue	14/07/31			X	
5	BT-5F	KN3727	Tissue	14/07/31			X	
6	BT-6F	KN3728	Tissue	14/07/31			X	
7	BT-7F	KN3729	Tissue	14/08/01			X	
8	BT-8F	KN3730	Tissue	14/08/01			X	
9	BT-9F	KN3731	Tissue	14/08/02			X	
10	BT-10F	KN3732	Tissue	14/08/02			X	
11	BT-11F	KN3733	Tissue	14/08/02			X	
12	BT-12F	KN3734	Tissue	14/08/02			X	

B478567

Print name and sign	Date (yy/mm/dd):	Time (24hr):	Print name and sign: Received by :	Date (yy/mm/dd):	Time (24 hr):	Time Sensitive
*Relinquished By: Danielle Gascon	14/09/03	08:00	JOVAN CHEN	2014/09/05	09:30	☐

Laboratory Use Only: Temperature on Receipt (°C) A) 3 B) 1 C) 1; Just sampled & rec'd on ice: ☐; 3,3,3/1,1,2

Custody Seal: Present? Yes ☐ No ☑; Intact? Yes ☐ No ☑

*IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORDS. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

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Your Project #: 06-01-00114
Site#: LABRADOR CITY, NL
Site Location: BASELINE COUNTRY FOODS ASSESSMENT
Your C.O.C. #: 08396553, 08396554

Attention:Lisa Marshall

Intrinsik Environmental Services
5121 Sackville Street
SUITE 506
Halifax, NS
CANADA B3J 1K1

Report Date: 2014/11/04
Report #: R1677172
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B478568
Received: 2014/09/05, 09:30

Sample Matrix: TISSUE
Samples Received: 16

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Elements by CRC ICPMS - Tissue Wet Wt	16	2014/11/02	2014/11/04	BBY7SOP-00002, BBY7SOP -00013	EPA 6020a,200.3 R1 m

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Samantha Fregien, Project Manager
Email: SFregien@maxxam.ca
Phone# (604) 734 7276
==========
This report has been generated and distributed using a secure automated process.
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Maxxam Job #: B478568
Report Date: 2014/11/04

Intrinsik Environmental Services
Client Project #: 06-01-00114
Site Location: BASELINE COUNTRY FOODS ASSESSMENT

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Maxxam ID		KN3740	KN3741	KN3742	KN3743	KN3744	KN3745		
Sampling Date		2014/07/31	2014/07/31	2014/07/31	2014/07/31	2014/07/31	2014/07/31		
COC Number		08396553	08396553	08396553	08396553	08396553	08396553		
	Units	**BT-1FS**	**BT-2FS**	**BT-3FS**	**BT-4FS**	**BT-5FS**	**BT-6FS**	**RDL**	**QC Batch**
Total Metals by ICPMS									
Total Aluminum (Al)	mg/kg	<0.20	<0.20	0.28	0.53	0.34	0.64	0.20	7703678
Total Antimony (Sb)	mg/kg	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	7703678
Total Arsenic (As)	mg/kg	<0.010	0.012	<0.010	0.016	0.016	0.013	0.010	7703678
Total Barium (Ba)	mg/kg	0.097	0.080	0.070	0.052	0.077	0.050	0.020	7703678
Total Beryllium (Be)	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	7703678
Total Bismuth (Bi)	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	7703678
Total Boron (B)	mg/kg	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	0.40	7703678
Total Cadmium (Cd)	mg/kg	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.0020	7703678
Total Calcium (Ca)	mg/kg	760	723	547	477	562	431	2.0	7703678
Total Chromium (Cr)	mg/kg	0.206	0.099	0.338	0.400	0.157	0.336	0.040	7703678
Total Cobalt (Co)	mg/kg	0.0061	0.0053	0.0052	0.0049	<0.0040	0.0071	0.0040	7703678
Total Copper (Cu)	mg/kg	0.841	0.721	2.88	3.76	0.643	3.07	0.010	7703678
Total Iron (Fe)	mg/kg	5.4	5.6	5.7	7.1	5.2	7.0	2.0	7703678
Total Lead (Pb)	mg/kg	0.0130	0.0044	0.0098	0.0434	0.0157	0.131	0.0020	7703678
Total Magnesium (Mg)	mg/kg	369	369	328	343	340	335	2.0	7703678
Total Manganese (Mn)	mg/kg	0.581	0.590	0.589	0.332	0.424	0.317	0.020	7703678
Total Mercury (Hg)	mg/kg	0.0604	0.0475	0.0295	0.0441	0.0409	0.0334	0.0020	7703678
Total Molybdenum (Mo)	mg/kg	<0.010	<0.010	<0.010	0.011	<0.010	<0.010	0.010	7703678
Total Nickel (Ni)	mg/kg	0.115	0.077	0.187	0.224	0.110	0.256	0.010	7703678
Total Phosphorus (P)	mg/kg	3510	3490	3170	3110	3240	3080	2.0	7703678
Total Potassium (K)	mg/kg	4670	4810	4400	4670	4710	4500	2.0	7703678
Total Selenium (Se)	mg/kg	0.472	0.373	0.488	0.393	0.326	0.349	0.010	7703678
Total Silver (Ag)	mg/kg	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	0.0040	7703678
Total Sodium (Na)	mg/kg	429	398	389	283	363	246	2.0	7703678
Total Strontium (Sr)	mg/kg	0.526	0.546	0.376	0.318	0.454	0.290	0.020	7703678
Total Thallium (Tl)	mg/kg	0.00328	0.00390	0.00353	0.00630	0.00511	0.00343	0.00040	7703678
Total Tin (Sn)	mg/kg	0.044	<0.020	0.261	0.375	0.026	0.301	0.020	7703678
Total Titanium (Ti)	mg/kg	<0.20	<0.20	<0.20	<0.20	0.21	<0.20	0.20	7703678
Total Uranium (U)	mg/kg	0.00047	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	0.00040	7703678
Total Vanadium (V)	mg/kg	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	7703678
Total Zinc (Zn)	mg/kg	13.4	14.7	10.8	9.13	13.5	10.1	0.040	7703678

RDL = Reportable Detection Limit

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Maxxam Job #: B478568
Report Date: 2014/11/04

Intrinsik Environmental Services
Client Project #: 06-01-00114
Site Location: BASELINE COUNTRY FOODS ASSESSMENT

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Maxxam ID		KN3746	KN3747	KN3748	KN3749	KN3750	KN3751		
Sampling Date		2014/08/01	2014/08/01	2014/08/02	2014/08/02	2014/08/02	2014/08/02		
COC Number		08396553	08396553	08396553	08396553	08396553	08396553		
	Units	**BT-7FS**	**BT-8FS**	**BT-9FS**	**BT-10FS**	**BT-11FS**	**BT-12FS**	**RDL**	**QC Batch**
Total Metals by ICPMS									
Total Aluminum (Al)	mg/kg	0.39	0.34	<0.20	0.30	0.27	1.94 (1)	0.20	7703678
Total Antimony (Sb)	mg/kg	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	7703678
Total Arsenic (As)	mg/kg	0.017	0.022	0.023	0.024	0.023	<0.010	0.010	7703678
Total Barium (Ba)	mg/kg	0.071	0.067	0.041	0.086	0.049	0.082	0.020	7703678
Total Beryllium (Be)	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	7703678
Total Bismuth (Bi)	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	7703678
Total Boron (B)	mg/kg	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	0.40	7703678
Total Cadmium (Cd)	mg/kg	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.0020	7703678
Total Calcium (Ca)	mg/kg	525	533	390	640	486	495	2.0	7703678
Total Chromium (Cr)	mg/kg	0.810	0.213	0.146	0.104	0.104	0.103	0.040	7703678
Total Cobalt (Co)	mg/kg	0.0095	0.0065	0.0070	0.0066	0.0043	0.0046	0.0040	7703678
Total Copper (Cu)	mg/kg	8.36	1.85	1.22	0.973	0.742	1.16	0.010	7703678
Total Iron (Fe)	mg/kg	8.7	5.7	5.5	4.5	5.2	7.9	2.0	7703678
Total Lead (Pb)	mg/kg	0.0159	0.0503	0.0043	0.0127	0.0052	0.0043	0.0020	7703678
Total Magnesium (Mg)	mg/kg	339	390	355	373	358	348	2.0	7703678
Total Manganese (Mn)	mg/kg	0.623	0.381	0.277	0.518	0.226	0.358	0.020	7703678
Total Mercury (Hg)	mg/kg	0.0597	0.0430	0.0461	0.0419	0.0503	0.0654	0.0020	7703678
Total Molybdenum (Mo)	mg/kg	0.016	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	7703678
Total Nickel (Ni)	mg/kg	0.461	0.124	0.091	0.067	0.082	0.078	0.010	7703678
Total Phosphorus (P)	mg/kg	3130	3490	3240	3380	3340	3210	2.0	7703678
Total Potassium (K)	mg/kg	4250	4910	4690	4690	4700	4760	2.0	7703678
Total Selenium (Se)	mg/kg	0.413	0.406	0.393	0.411	0.412	0.335	0.010	7703678
Total Silver (Ag)	mg/kg	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	0.0040	7703678
Total Sodium (Na)	mg/kg	384	346	360	361	400	457	2.0	7703678
Total Strontium (Sr)	mg/kg	0.368	0.396	0.261	0.462	0.306	0.287	0.020	7703678
Total Thallium (Tl)	mg/kg	0.00444	0.00574	0.00536	0.00513	0.00564	0.00192	0.00040	7703678
Total Tin (Sn)	mg/kg	0.799	0.171	0.100	0.070	0.033	0.089	0.020	7703678
Total Titanium (Ti)	mg/kg	<0.20	<0.20	<0.20	<0.20	<0.20	0.36	0.20	7703678
Total Uranium (U)	mg/kg	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	0.00040	7703678
Total Vanadium (V)	mg/kg	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	7703678
Total Zinc (Zn)	mg/kg	10.3	12.0	9.61	13.7	9.19	11.7	0.040	7703678

RDL = Reportable Detection Limit

(1) Duplicate RPD for (Aluminum) above control limit - Non-homogenous sample - Increased variability of results. Reanalysis confirmed sample inhomogeneity.

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Maxxam Job #: B478568
Report Date: 2014/11/04

Intrinsik Environmental Services
Client Project #: 06-01-00114
Site Location: BASELINE COUNTRY FOODS ASSESSMENT

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Maxxam ID		KN3761	KN3762	KN3763	KN3764		
Sampling Date		2014/08/02	2014/08/02	2014/08/02	2014/08/02		
COC Number		08396554	08396554	08396554	08396554		
	Units	**BT-13FS**	**BT-14FS**	**BT-15FS**	**BT-16FS**	**RDL**	**QC Batch**
Total Metals by ICPMS							
Total Aluminum (Al)	mg/kg	0.52	1.26	0.39	0.41	0.20	7703678
Total Antimony (Sb)	mg/kg	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	7703678
Total Arsenic (As)	mg/kg	0.018	0.023	0.025	0.022	0.010	7703678
Total Barium (Ba)	mg/kg	0.032	0.049	0.051	0.103	0.020	7703678
Total Beryllium (Be)	mg/kg	<0.020	<0.020	<0.020	<0.020	0.020	7703678
Total Bismuth (Bi)	mg/kg	<0.020	<0.020	<0.020	<0.020	0.020	7703678
Total Boron (B)	mg/kg	<0.40	<0.40	<0.40	<0.40	0.40	7703678
Total Cadmium (Cd)	mg/kg	<0.0020	<0.0020	<0.0020	<0.0020	0.0020	7703678
Total Calcium (Ca)	mg/kg	454	437	467	791	2.0	7703678
Total Chromium (Cr)	mg/kg	<0.040	<0.040	<0.040	0.146	0.040	7703678
Total Cobalt (Co)	mg/kg	<0.0040	<0.0040	0.0057	0.0074	0.0040	7703678
Total Copper (Cu)	mg/kg	0.667	0.557	0.619	1.55	0.010	7703678
Total Iron (Fe)	mg/kg	5.0	4.3	4.6	4.9	2.0	7703678
Total Lead (Pb)	mg/kg	0.0021	0.0040	0.0034	0.0086	0.0020	7703678
Total Magnesium (Mg)	mg/kg	359	373	379	344	2.0	7703678
Total Manganese (Mn)	mg/kg	0.284	0.252	0.400	0.781	0.020	7703678
Total Mercury (Hg)	mg/kg	0.0457	0.0539	0.0374	0.0467	0.0020	7703678
Total Molybdenum (Mo)	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	7703678
Total Nickel (Ni)	mg/kg	0.023	0.020	0.027	0.085	0.010	7703678
Total Phosphorus (P)	mg/kg	3240	3260	3240	3290	2.0	7703678
Total Potassium (K)	mg/kg	4770	4570	4440	4240	2.0	7703678
Total Selenium (Se)	mg/kg	0.314	0.355	0.372	0.351	0.010	7703678
Total Silver (Ag)	mg/kg	<0.0040	<0.0040	<0.0040	<0.0040	0.0040	7703678
Total Sodium (Na)	mg/kg	425	361	420	421	2.0	7703678
Total Strontium (Sr)	mg/kg	0.251	0.290	0.339	0.570	0.020	7703678
Total Thallium (Tl)	mg/kg	0.00318	0.00337	0.00417	0.00404	0.00040	7703678
Total Tin (Sn)	mg/kg	<0.020	<0.020	0.021	0.119	0.020	7703678
Total Titanium (Ti)	mg/kg	<0.20	<0.20	<0.20	<0.20	0.20	7703678
Total Uranium (U)	mg/kg	<0.00040	<0.00040	<0.00040	<0.00040	0.00040	7703678
Total Vanadium (V)	mg/kg	<0.040	<0.040	<0.040	<0.040	0.040	7703678
Total Zinc (Zn)	mg/kg	9.42	10.8	11.0	11.7	0.040	7703678
RDL = Reportable Detection Limit							

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Maxxam Job #: B478568
Report Date: 2014/11/04

Intrinsik Environmental Services
Client Project #: 06-01-00114
Site Location: BASELINE COUNTRY FOODS ASSESSMENT

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	1.7°C
Package 2	3.0°C
Package 3	1.3°C

Results relate only to the items tested.

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Maxxam Job #: B478568
Report Date: 2014/11/04

QUALITY ASSURANCE REPORT

Intrinsik Environmental Services
Client Project #: 06-01-00114
Site Location: BASELINE COUNTRY FOODS ASSESSMENT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
7703678	Total Aluminum (Al)	2014/11/04					<0.20	mg/kg	NC	35		
7703678	Total Antimony (Sb)	2014/11/04					<0.0010	mg/kg	NC	35		
7703678	Total Arsenic (As)	2014/11/04	101	75 - 125	101	75 - 125	<0.010	mg/kg	NC	35	113	75 - 125
7703678	Total Barium (Ba)	2014/11/04	93	75 - 125	100	75 - 125	<0.020	mg/kg	NC	35		
7703678	Total Beryllium (Be)	2014/11/04	99	75 - 125	100	75 - 125	<0.020	mg/kg	NC	35		
7703678	Total Bismuth (Bi)	2014/11/04					<0.020	mg/kg	NC	35		
7703678	Total Boron (B)	2014/11/04					<0.40	mg/kg	NC	35		
7703678	Total Cadmium (Cd)	2014/11/04	95	75 - 125	98	75 - 125	<0.0020	mg/kg	NC	35	94	75 - 125
7703678	Total Calcium (Ca)	2014/11/04					<2.0	mg/kg	13	35		
7703678	Total Chromium (Cr)	2014/11/04	92	75 - 125	98	75 - 125	<0.040	mg/kg	NC	35	65 (1)	75 - 125
7703678	Total Cobalt (Co)	2014/11/04	92	75 - 125	97	75 - 125	<0.0040	mg/kg	NC	35		
7703678	Total Copper (Cu)	2014/11/04	NC	75 - 125	94	75 - 125	<0.010	mg/kg	1.9	35	90	75 - 125
7703678	Total Iron (Fe)	2014/11/04					<2.0	mg/kg	NC	35	94	75 - 125
7703678	Total Lead (Pb)	2014/11/04	95	75 - 125	104	75 - 125	<0.0020	mg/kg	NC	35	95	75 - 125
7703678	Total Magnesium (Mg)	2014/11/04					<2.0	mg/kg	0.26	35		
7703678	Total Manganese (Mn)	2014/11/04	94	75 - 125	98	75 - 125	<0.020	mg/kg	17	35	90	75 - 125
7703678	Total Mercury (Hg)	2014/11/04	NC	75 - 125	108	75 - 125	<0.0020	mg/kg	6.2	35	111	75 - 125
7703678	Total Molybdenum (Mo)	2014/11/04					<0.010	mg/kg	NC	35	103	75 - 125
7703678	Total Nickel (Ni)	2014/11/04	93	75 - 125	97	75 - 125	0.019, RDL=0.010	mg/kg	19	35	89	75 - 125
7703678	Total Phosphorus (P)	2014/11/04					<2.0	mg/kg	2.2	35		
7703678	Total Potassium (K)	2014/11/04					<2.0	mg/kg	1.4	35		
7703678	Total Selenium (Se)	2014/11/04	89	75 - 125	100	75 - 125	<0.010	mg/kg	2.3	35	92	75 - 125
7703678	Total Silver (Ag)	2014/11/04	88	75 - 125	82	75 - 125	<0.0040	mg/kg	NC	35		
7703678	Total Sodium (Na)	2014/11/04					<2.0	mg/kg	5.8	35		
7703678	Total Strontium (Sr)	2014/11/04	100	75 - 125	103	75 - 125	<0.020	mg/kg	19	35	100	75 - 125
7703678	Total Thallium (Tl)	2014/11/04	98	75 - 125	106	75 - 125	<0.00040	mg/kg	NC	35		
7703678	Total Tin (Sn)	2014/11/04					<0.020	mg/kg	NC	35		
7703678	Total Titanium (Ti)	2014/11/04					<0.20	mg/kg	NC	35		
7703678	Total Uranium (U)	2014/11/04	95	75 - 125	101	75 - 125	<0.00040	mg/kg	NC	35		
7703678	Total Vanadium (V)	2014/11/04	91	75 - 125	96	75 - 125	<0.040	mg/kg	NC	35	93	75 - 125

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Maxxam Job #: B478568
Report Date: 2014/11/04

QUALITY ASSURANCE REPORT(CONT'D)

Intrinsik Environmental Services
Client Project #: 06-01-00114
Site Location: BASELINE COUNTRY FOODS ASSESSMENT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
7703678	Total Zinc (Zn)	2014/11/04	NC	75 - 125	91	75 - 125	<0.040	mg/kg	6.3	35	94	75 - 125

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

(1) Reference outside acceptance criteria - Re-analysis yields similar results (10% of analytes failure allowed).

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Maxxam Job #: B478568
Report Date: 2014/11/04

Intrinsik Environmental Services
Client Project #: 06-01-00114
Site Location: BASELINE COUNTRY FOODS ASSESSMENT

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Rob Reinert, Data Validation Coordinator

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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Burnaby: 4606 Canada Way, Burnaby, BC V5G 1K5 Ph: (604) 734-7276 Fax: (604) 731-2386, Toll Free: (800) 665-8566

CHAIN OF CUSTODY RECORD

Maxxam Job #: B478568 **COC #:** 08396553 Page: 1 of 2

Invoice To: Require Report? Yes ☑ No ☐

Company Name: Iron Ore Company of Canada
Contact Name:
Address: 2 Avalon Drive
Labrador City, NL PC: A2V 2Y6
Phone / Fax#: Ph: 709-944-8400 Fax:
E-mail

Report To:

Company Name: Intrinsik Environmental Sciences Inc.
Contact Name:
Address: 5121 Sackville St., Suite 506
Halifax, NS PC: B3J 1K1
Phone / Fax#: Ph: 902-429-278 Fax: 902-429-0279
E-mail lmarshall@intrinsik.com

PO #:
Quotation #: B13-242-AH
Project # : 06-01-00114
Proj. Name: Baseline Country Foods Assessment
Location: Labrador City, NL
Sampled by: ROK / WT/ MW

REGULATORY REQUIREMENTS:
☐ CSR
☐ CCME
☐ BC Water Quality
☐ Other
☐ DRINKING WATER

SERVICE REQUESTED:
◉ Regular Turn Around Time (TAT)
(5 days for most tests)
RUSH (Please contact the lab)
○ 1 Day ○ 2 Day ○ 3 Day
Date Required:

SPECIAL INSTRUCTIONS:
Return Cooler ☑ **Ship Sample Bottles (please specify)** ☐
Please use analysis method CRC-ICPMS metals.
All samples ending in FS - To be analyzed with skin on

ANALYSIS REQUESTED

	Sample Identification	Lab Use Only: Lab Identification	Sample Type	Date/Time(24hr) Sampled	Dissolved Metals (DM) Field Filtered? Y ☐ N ☐	Total Metals Field Acidified? Y ☐ N ☐	Please Analyse for total metals wet weight Field Acidified? Y ☐ N ☐	Number of Containers
1	BT-1FS	KN3740	Tissue	14/07/31			X	
2	BT-2FS	KN3741	Tissue	14/07/31			X	
3	BT-3FS	KN3742	Tissue	14/07/31			X	
4	BT-4FS	KN3743	Tissue	14/07/31			X	
5	BT-5FS	KN3744	Tissue	14/07/31			X	
6	BT-6FS	KN3745	Tissue	14/07/31			X	
7	BT-7FS	KN3746	Tissue	14/08/01			X	
8	BT-8FS	KN3747	Tissue	14/08/01			X	
9	BT-9FS	KN3748	Tissue	14/08/02			X	
10	BT-10FS	KN3749	Tissue	14/08/02			X	
11	BT-11FS	KN3750	Tissue	14/08/02			X	
12	BT-12FS	KN3751	Tissue	14/08/02			X	

B478568

Print name and sign *Relinquished By:	Date (yy/mm/dd):	Time (24hr):	Print name and sign Received by :	Date (yy/mm/dd):	Time (24 hr):	Time Sensitive	Laboratory Use Only: Temperature on Receipt (°C)	Custody Seal	Yes	No
Danielle Gascon	14/09/03	08:00	Jouan Chen JOUAN CHEN	2014/09/05	09:30	☐	A) 3 B) 1 C) 1	Present?	☐	☑
DGascon							Just sampled & rec'd on ice: ☐ 3,3,3 / 1,1,2	Intact?	☐	☑

*IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORDS. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

BBY FCD-00077R2_C

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CHAIN OF CUSTODY RECORD

Maxxam Job #: B478568 **COC #:** 08396554 Page: 2 of 2

Invoice To: Require Report? Yes ☑ No ☐

Company Name: Iron Ore Company of Canada
Contact Name:
Address: 2 Avalon Drive
Labrador City, NL PC: A2V 2Y6
Phone / Fax#: Ph: 709-944-8400 Fax:
E-mail

Report To:

Company Name: Intrinsik Environmental Sciences Inc.
Contact Name:
Address: 5121 Sackville St., Suite 506
Halifax, NS PC: B3J 1K1
Phone / Fax#: Ph: 902-429-278 Fax: 902-429-0279
E-mail lmarshall@intrinsik.com

PO #:
Quotation #: B13-242-AH
Project # : 06-01-00114
Proj. Name: Baseline Country Foods Assessment
Location: Labrador City, NL
Sampled by: ROK / WT/ MW

REGULATORY REQUIREMENTS:
☐ CSR
☐ CCME
☐ BC Water Quality
☐ Other
☐ DRINKING WATER

SERVICE REQUESTED:
◉ Regular Turn Around Time (TAT)
(5 days for most tests)
RUSH (Please contact the lab)
○ 1 Day ○ 2 Day ○ 3 Day
Date Required:

SPECIAL INSTRUCTIONS:
Return Cooler ☑ **Ship Sample Bottles (please specify)** ☐
Please use analysis method CRC-ICPMS metals.
All samples ending in FS - To be analyzed with skin on

ANALYSIS REQUESTED

	Sample Identification	Lab Identification (Lab Use Only)	Sample Type	Date/Time(24hr) Sampled	Dissolved Metals (DM) Field Filtered? Y N	Total Metals Field Acidified? Y N	Please Analyse for total metals wet weight Field Acidified? Y N	Number of Containers
1	BT-13FS	KN3761	Tissue	14/08/02			X	
2	BT-14FS	KN3762	Tissue	14/08/02			X	
3	BT-15FS	KN3763	Tissue	14/08/02			X	
4	BT-16FS	KN3764	Tissue	14/08/02			X	
5		KN3765						
6								
7								
8								
9								
10								
11								
12								

B478568

Print name and sign *Relinquished By:	Date (yy/mm/dd):	Time (24hr):	Print name and sign Received by :	Date (yy/mm/dd):	Time (24 hr):	Time Sensitive	Laboratory Use Only: Temperature on Receipt (°C)	Custody Seal	Yes	No
Danielle Gascon	14/09/03	08:00	Jenne Chen JUAN CHEN	2014/09/05	09:30	☐	A) 3 B) 1 C) 1	Present?	☐	☑
D Gascon							Just sampled & rec'd on ice: ☐ 3,3,3/1,1,2	Intact?	☐	☑

*IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORDS. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

BBY FCD-00077R2_C

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Your P.O. #: 4700058846
Your Project #: BASELINE COUNTRY FOODS ASSESSM
Site Location: LABRADOR CITY, NL
Your C.O.C. #: 08391185, 08391186, 08391187

Attention: Ross O'Keefe
Pinchin LeBlanc Environmental
2 Avalon Drive
Labrador City, NF
Canada A2V 2Y6

Report Date: 2014/04/16
Report #: R1553343
Version: 1

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B424729
Received: 2014/03/28, 09:10

Sample Matrix: TISSUE
Samples Received: 31

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Elements by CRC ICPMS - Tissue Wet Wt	11	2014/04/07	2014/04/09	BBY7SOP-00002	EPA 6020A
Elements by CRC ICPMS - Tissue Wet Wt	20	2014/04/07	2014/04/12	BBY7SOP-00002	EPA 6020A
Moisture	20	N/A	2014/04/08	BBY8SOP-00017	Ont MOE -E 3139
Moisture	11	N/A	2014/04/09	BBY8SOP-00017	Ont MOE -E 3139

* Results relate only to the items tested.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Amandeep Nagra, Account Specialist
Email: ANagra@maxxam.ca
Phone# (604) 639-2602

==========
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Total cover pages: 1

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Maxxam Job #: B424729
Report Date: 2014/04/16

Pinchin LeBlanc Environmental
Client Project #: BASELINE COUNTRY FOODS ASSESSM
Site Location: LABRADOR CITY, NL
Your P.O. #: 4700058846
Sampler Initials: ROK

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Maxxam ID		JE3950	JE3951	JE3952	JE3953	JE3954	JE3955	JE3956	JE3957	JE3958		
Sampling Date		2013/09/12	2013/09/12	2013/09/12	2013/09/12	2013/09/15	2013/09/15	2013/09/12	2013/09/12	2013/09/12		
COC#		08391185	08391185	08391185	08391185	08391185	08391185	08391185	08391185	08391185		
	UNITS	**W3-BB-01**	**W3-BB-02**	**W3-BB-03**	**W3-BB-04**	**W3-BB-05**	**W3-BB-06**	**W3-BB-07**	**W3-BB-16**	**W3-PB-01**	**RDL**	**QC Batch**
Total Metals by ICPMS												
Total Aluminum (Al)	mg/kg	2.08	4.51	4.81	1.64	1.45	2.22	1.41	1.51	3.21	0.20	7444329
Total Antimony (Sb)	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0010	7444329
Total Arsenic (As)	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.010	7444329
Total Barium (Ba)	mg/kg	2.55	2.89	4.12	2.80	2.85	2.78	2.39	2.46	1.23	0.020	7444329
Total Beryllium (Be)	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.020	7444329
Total Bismuth (Bi)	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.020	7444329
Total Boron (B)	mg/kg	0.65	0.69	0.87	0.67	0.53	0.47	0.67	0.94	0.87	0.40	7444329
Total Cadmium (Cd)	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	0.0021	0.0020	7444329
Total Calcium (Ca)	mg/kg	206	236	281	207	262	227	136	196	129	2.0	7444329
Total Chromium (Cr)	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.040	7444329
Total Cobalt (Co)	mg/kg	ND	0.0043	0.0067	ND	ND	ND	ND	ND	ND	0.0040	7444329
Total Copper (Cu)	mg/kg	0.577	0.815	0.699	0.688	0.899	0.619	0.446	0.633	0.371	0.050	7444329
Total Iron (Fe)	mg/kg	11	42	79	11	13	17	ND	ND	ND	10	7444329
Total Lead (Pb)	mg/kg	0.0021	0.0046	0.0028	ND	0.0031	0.0026	ND	ND	ND	0.0020	7444329
Total Magnesium (Mg)	mg/kg	73.6	89.3	102	75.0	113	97.2	53.1	71.1	59.1	2.0	7444329
Total Manganese (Mn)	mg/kg	154	113	120	146	83.4	116	111	109	43.7	0.020	7444329
Total Mercury (Hg)	mg/kg	0.0048	0.0027	ND	0.0026	ND	ND	ND	ND	0.0025	0.0020	7444329
Total Molybdenum (Mo)	mg/kg	0.020	ND	0.014	0.013	0.012	0.022	ND	ND	0.013	0.010	7444329
Total Nickel (Ni)	mg/kg	0.074	0.106	0.118	0.079	0.114	0.114	0.066	0.131	0.045	0.010	7444329
Total Phosphorus (P)	mg/kg	183	220	193	184	190	189	128	183	91.4	2.0	7444329
Total Potassium (K)	mg/kg	801	800	841	733	786	763	594	845	717	2.0	7444329
Total Selenium (Se)	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.010	7444329
Total Silver (Ag)	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0040	7444329
Total Sodium (Na)	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.0	7444329
Total Strontium (Sr)	mg/kg	0.216	0.342	0.430	0.367	1.02	0.189	0.324	0.380	0.170	0.020	7444329
Total Thallium (Tl)	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00040	7444329
Total Tin (Sn)	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.020	7444329
Total Titanium (Ti)	mg/kg	ND	0.40	0.31	ND	ND	ND	ND	ND	ND	0.20	7444329
Total Uranium (U)	mg/kg	ND	ND	0.00044	ND	ND	ND	ND	ND	ND	0.00040	7444329
Total Vanadium (V)	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.040	7444329
Total Zinc (Zn)	mg/kg	1.11	1.47	1.26	1.47	1.63	1.40	0.836	0.965	0.999	0.040	7444329

ND = Not detected
RDL = Reportable Detection Limit

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Maxxam Job #: B424729
Report Date: 2014/04/16

Pinchin LeBlanc Environmental
Client Project #: BASELINE COUNTRY FOODS ASSESSM
Site Location: LABRADOR CITY, NL
Your P.O. #: 4700058846
Sampler Initials: ROK

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Maxxam ID		JE3959	JE3960	JE3961	JE3965	JE3966	JE3967	JE3968	JE3969	JE3970		
Sampling Date		2013/09/12	2013/09/12	2013/09/12	2013/09/13	2013/09/13	2013/09/13	2013/09/13	2013/09/15	2013/09/16		
COC#		08391185	08391185	08391185	08391186	08391186	08391186	08391186	08391186	08391186		
	UNITS	**W3-PB-02**	**W3-PB-03**	**W3-PB-04**	**W3-PB-05**	**W3-PB-06**	**W3-PB-07**	**W3-PB-08**	**W3-PB-09**	**W3-PB-10**	**RDL**	**QC Batch**
Total Metals by ICPMS												
Total Aluminum (Al)	mg/kg	5.73	4.05	4.62	5.88	8.12	7.08	7.01	6.33	5.68	0.20	7444329
Total Antimony (Sb)	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0010	7444329
Total Arsenic (As)	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.010	7444329
Total Barium (Ba)	mg/kg	1.32	1.61	2.37	1.35	1.60	2.09	1.92	1.98	2.17	0.020	7444329
Total Beryllium (Be)	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.020	7444329
Total Bismuth (Bi)	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.020	7444329
Total Boron (B)	mg/kg	0.51	0.94	0.84	0.49	ND	0.53	0.74	ND	0.68	0.40	7444329
Total Cadmium (Cd)	mg/kg	0.0033	ND	ND	ND	ND	ND	ND	ND	0.0024	0.0020	7444329
Total Calcium (Ca)	mg/kg	115	132	163	125	122	141	170	173	217	2.0	7444329
Total Chromium (Cr)	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.040	7444329
Total Cobalt (Co)	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0040	7444329
Total Copper (Cu)	mg/kg	0.465	0.437	0.505	0.441	0.285	0.512	0.573	0.408	0.413	0.050	7444329
Total Iron (Fe)	mg/kg	11	16	ND	16	15	ND	ND	15	12	10	7444329
Total Lead (Pb)	mg/kg	0.0021	ND	ND	0.0022	0.0026	0.0030	ND	0.0039	0.0081	0.0020	7444329
Total Magnesium (Mg)	mg/kg	53.0	56.0	70.3	54.4	61.5	72.4	82.3	70.4	81.4	2.0	7444329
Total Manganese (Mn)	mg/kg	35.5	40.9	63.4	50.0	43.8	52.4	47.5	53.3	72.5	0.020	7444329
Total Mercury (Hg)	mg/kg	ND	ND	ND	0.0031	ND	ND	ND	ND	ND	0.0020	7444329
Total Molybdenum (Mo)	mg/kg	ND	ND	ND	ND	ND	ND	ND	0.014	ND	0.010	7444329
Total Nickel (Ni)	mg/kg	0.119	0.046	0.030	0.046	0.067	0.088	0.090	0.061	0.041	0.010	7444329
Total Phosphorus (P)	mg/kg	99.2	93.0	141	82.9	102	149	157	153	151	2.0	7444329
Total Potassium (K)	mg/kg	816	658	705	719	744	841	879	752	803	2.0	7444329
Total Selenium (Se)	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.010	7444329
Total Silver (Ag)	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0040	7444329
Total Sodium (Na)	mg/kg	ND	ND	ND	ND	6.9	ND	2.1	ND	ND	2.0	7444329
Total Strontium (Sr)	mg/kg	0.234	0.307	0.410	0.238	0.190	0.482	0.898	0.177	0.191	0.020	7444329
Total Thallium (Tl)	mg/kg	ND	ND	0.00155	0.00048	ND	ND	ND	ND	ND	0.00040	7444329
Total Tin (Sn)	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.020	7444329
Total Titanium (Ti)	mg/kg	ND	ND	ND	ND	0.39	ND	ND	0.27	ND	0.20	7444329
Total Uranium (U)	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00040	7444329
Total Vanadium (V)	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.040	7444329
Total Zinc (Zn)	mg/kg	0.908	0.914	1.05	0.990	1.10	1.14	1.08	1.20	1.43	0.040	7444329

ND = Not detected
RDL = Reportable Detection Limit

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Maxxam Job #: B424729
Report Date: 2014/04/16

Pinchin LeBlanc Environmental
Client Project #: BASELINE COUNTRY FOODS ASSESSM
Site Location: LABRADOR CITY, NL
Your P.O. #: 4700058846
Sampler Initials: ROK

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Maxxam ID		JE3971	JE3972		JE3973	JE3974	JE3975	JE3976	JE3983		
Sampling Date		2013/09/16	2013/09/13		2013/09/13	2013/09/15	2013/09/15	2013/09/15	2013/09/15		
COC#		08391186	08391186		08391186	08391186	08391186	08391186	08391187		
	UNITS	**W3-PB-11**	**W3-PB-16**	**QC Batch**	**W3-SB-01**	**W3-SB-02**	**W3-SB-03**	**W3-SB-04**	**W3-SB-05**	**RDL**	**QC Batch**
Total Metals by ICPMS											
Total Aluminum (Al)	mg/kg	6.67	4.42	7444329	1.59	0.48	0.45	0.91	0.90	0.20	7444172
Total Antimony (Sb)	mg/kg	ND	ND	7444329	ND	ND	ND	ND	ND	0.0010	7444172
Total Arsenic (As)	mg/kg	ND	ND	7444329	ND	ND	ND	ND	ND	0.010	7444172
Total Barium (Ba)	mg/kg	1.75	1.49	7444329	0.878	0.951	1.05	0.923	0.512	0.020	7444172
Total Beryllium (Be)	mg/kg	ND	ND	7444329	ND	ND	ND	ND	ND	0.020	7444172
Total Bismuth (Bi)	mg/kg	ND	ND	7444329	ND	ND	ND	ND	ND	0.020	7444172
Total Boron (B)	mg/kg	0.94	0.83	7444329	4.53	0.67	1.10	0.43	0.42	0.40	7444172
Total Cadmium (Cd)	mg/kg	ND	0.0033	7444329	0.0020	0.0052	0.0063	ND	0.0046	0.0020	7444172
Total Calcium (Ca)	mg/kg	164	155	7444329	393	216	269	229	177	2.0	7444172
Total Chromium (Cr)	mg/kg	ND	ND	7444329	ND	ND	ND	ND	ND	0.040	7444172
Total Cobalt (Co)	mg/kg	ND	ND	7444329	ND	ND	ND	ND	ND	0.0040	7444172
Total Copper (Cu)	mg/kg	0.470	0.562	7444329	0.498	0.675	0.341	0.464	0.275	0.050	7444172
Total Iron (Fe)	mg/kg	19	ND	7444329	14	ND	ND	ND	ND	10	7444172
Total Lead (Pb)	mg/kg	0.0063	ND	7444329	ND	ND	ND	ND	ND	0.0020	7444172
Total Magnesium (Mg)	mg/kg	76.6	63.1	7444329	200	160	139	152	96.5	2.0	7444172
Total Manganese (Mn)	mg/kg	49.7	35.7	7444329	1.15	0.675	0.581	1.11	0.441	0.020	7444172
Total Mercury (Hg)	mg/kg	ND	0.0020	7444329	ND	ND	ND	ND	ND	0.0020	7444172
Total Molybdenum (Mo)	mg/kg	0.013	ND	7444329	0.021	0.023	0.028	ND	0.013	0.010	7444172
Total Nickel (Ni)	mg/kg	0.047	0.089	7444329	0.144	0.047	0.047	0.065	0.051	0.010	7444172
Total Phosphorus (P)	mg/kg	172	94.3	7444329	312	198	199	216	145	2.0	7444172
Total Potassium (K)	mg/kg	832	844	7444329	2490	1620	1640	1550	1360	2.0	7444172
Total Selenium (Se)	mg/kg	ND	ND	7444329	ND	ND	ND	ND	ND	0.010	7444172
Total Silver (Ag)	mg/kg	ND	ND	7444329	ND	ND(1)	ND	ND	ND	0.0040	7444172
Total Sodium (Na)	mg/kg	ND	ND	7444329	ND	ND	ND	ND	ND	2.0	7444172
Total Strontium (Sr)	mg/kg	0.184	0.399	7444329	0.870	0.349	0.504	0.556	0.446	0.020	7444172
Total Thallium (Tl)	mg/kg	0.00047	ND	7444329	ND	ND	ND	ND	ND	0.00040	7444172
Total Tin (Sn)	mg/kg	ND	ND	7444329	0.035	ND	ND	ND	ND	0.020	7444172
Total Titanium (Ti)	mg/kg	0.44	ND	7444329	ND	ND	ND	ND	ND	0.20	7444172
Total Uranium (U)	mg/kg	ND	ND	7444329	ND	ND	ND	ND	ND	0.00040	7444172
Total Vanadium (V)	mg/kg	ND	ND	7444329	ND	ND	ND	ND	ND	0.040	7444172
Total Zinc (Zn)	mg/kg	1.41	0.927	7444329	1.98	1.53	1.07	1.19	0.937	0.040	7444172

ND = Not detected
RDL = Reportable Detection Limit
(1) - Matrix Spike outside acceptance criteria (10% of analytes failure allowed).

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Maxxam Job #: B424729
Report Date: 2014/04/16

Pinchin LeBlanc Environmental
Client Project #: BASELINE COUNTRY FOODS ASSESSM
Site Location: LABRADOR CITY, NL
Your P.O. #: 4700058846
Sampler Initials: ROK

ELEMENTS BY ATOMIC SPECTROSCOPY - WET WT (TISSUE)

Maxxam ID		JE3984	JE3985	JE3986	JE3987	JE3988	JE3989		
Sampling Date		2013/09/15	2013/09/16	2013/09/16	2013/09/25	2013/09/25	2013/09/15		
COC#		08391187	08391187	08391187	08391187	08391187	08391187		
	UNITS	**W3-SB-06**	**W3-SB-07**	**W3-SB-08**	**W3-SB-09**	**W3-SB-10**	**W3-SB-16**	**RDL**	**QC Batch**
Total Metals by ICPMS									
Total Aluminum (Al)	mg/kg	0.40	2.66	0.54	1.82	1.36	0.41	0.20	7444172
Total Antimony (Sb)	mg/kg	ND	ND	ND	ND	ND	ND	0.0010	7444172
Total Arsenic (As)	mg/kg	ND	ND	ND	ND	ND	ND	0.010	7444172
Total Barium (Ba)	mg/kg	0.986	1.59	0.886	1.14	0.390	0.761	0.020	7444172
Total Beryllium (Be)	mg/kg	ND	ND	ND	ND	ND	ND	0.020	7444172
Total Bismuth (Bi)	mg/kg	ND	ND	ND	ND	ND	ND	0.020	7444172
Total Boron (B)	mg/kg	0.77	1.22	1.65	1.19	1.42	0.59	0.40	7444172
Total Cadmium (Cd)	mg/kg	0.0109	0.0066	0.0034	0.0027	ND	0.0078	0.0020	7444172
Total Calcium (Ca)	mg/kg	418	284	361	334	278	248	2.0	7444172
Total Chromium (Cr)	mg/kg	ND	ND	ND	ND	ND	ND	0.040	7444172
Total Cobalt (Co)	mg/kg	ND	ND	ND	ND	ND	ND	0.0040	7444172
Total Copper (Cu)	mg/kg	0.454	0.446	0.442	0.434	0.342	0.413	0.050	7444172
Total Iron (Fe)	mg/kg	ND	ND	ND	10	11	ND	10	7444172
Total Lead (Pb)	mg/kg	ND	ND	ND	0.0021	0.0021	ND	0.0020	7444172
Total Magnesium (Mg)	mg/kg	125	168	169	198	155	98.9	2.0	7444172
Total Manganese (Mn)	mg/kg	0.766	0.951	0.898	0.985	1.09	0.558	0.020	7444172
Total Mercury (Hg)	mg/kg	ND	ND	ND	ND	ND	ND	0.0020	7444172
Total Molybdenum (Mo)	mg/kg	0.041	0.015	0.061	0.012	0.021	0.041	0.010	7444172
Total Nickel (Ni)	mg/kg	0.086	0.148	0.064	0.089	0.048	0.071	0.010	7444172
Total Phosphorus (P)	mg/kg	187	279	255	277	187	138	2.0	7444172
Total Potassium (K)	mg/kg	1430	1800	1380	1710	1580	1320	2.0	7444172
Total Selenium (Se)	mg/kg	ND	ND	ND	ND	ND	ND	0.010	7444172
Total Silver (Ag)	mg/kg	ND	ND	ND	ND	ND	ND	0.0040	7444172
Total Sodium (Na)	mg/kg	ND	ND	ND	ND	ND	ND	2.0	7444172
Total Strontium (Sr)	mg/kg	0.672	0.558	0.257	0.840	0.184	0.434	0.020	7444172
Total Thallium (Tl)	mg/kg	ND	ND	ND	ND	ND	ND	0.00040	7444172
Total Tin (Sn)	mg/kg	ND	ND	ND	0.050	ND	ND	0.020	7444172
Total Titanium (Ti)	mg/kg	ND	ND	ND	ND	ND	ND	0.20	7444172
Total Uranium (U)	mg/kg	ND	ND	ND	ND	0.00040	ND	0.00040	7444172
Total Vanadium (V)	mg/kg	ND	ND	ND	ND	ND	ND	0.040	7444172
Total Zinc (Zn)	mg/kg	1.76	1.57	1.74	1.63	1.41	1.34	0.040	7444172

ND = Not detected
RDL = Reportable Detection Limit

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Maxxam Job #: B424729
Report Date: 2014/04/16

Pinchin LeBlanc Environmental
Client Project #: BASELINE COUNTRY FOODS ASSESSM
Site Location: LABRADOR CITY, NL
Your P.O. #: 4700058846
Sampler Initials: ROK

PHYSICAL TESTING (TISSUE)

Maxxam ID		JE3950	JE3951	JE3952	JE3953	JE3954	JE3955	JE3956	JE3957	JE3958	JE3959		
Sampling Date		2013/09/12	2013/09/12	2013/09/12	2013/09/12	2013/09/15	2013/09/15	2013/09/12	2013/09/12	2013/09/12	2013/09/12		
COC#		08391185	08391185	08391185	08391185	08391185	08391185	08391185	08391185	08391185	08391185		
	UNITS	**W3-BB-01**	**W3-BB-02**	**W3-BB-03**	**W3-BB-04**	**W3-BB-05**	**W3-BB-06**	**W3-BB-07**	**W3-BB-16**	**W3-PB-01**	**W3-PB-02**	**RDL**	**QC Batch**
Physical Properties													
Moisture	%	85	80	84	87	86	86	84	83	87	88	0.30	7444035

Maxxam ID		JE3960	JE3961	JE3965	JE3966	JE3967	JE3968	JE3969	JE3970	JE3971		
Sampling Date		2013/09/12	2013/09/12	2013/09/13	2013/09/13	2013/09/13	2013/09/13	2013/09/15	2013/09/16	2013/09/16		
COC#		08391185	08391185	08391186	08391186	08391186	08391186	08391186	08391186	08391186		
	UNITS	**W3-PB-03**	**W3-PB-04**	**W3-PB-05**	**W3-PB-06**	**W3-PB-07**	**W3-PB-08**	**W3-PB-09**	**W3-PB-10**	**W3-PB-11**	**RDL**	**QC Batch**
Physical Properties												
Moisture	%	87	87	87	88	87	86	87	87	86	0.30	7444035

Maxxam ID		JE3972		JE3973	JE3974	JE3975	JE3976	JE3983		
Sampling Date		2013/09/13		2013/09/13	2013/09/15	2013/09/15	2013/09/15	2013/09/15		
COC#		08391186		08391186	08391186	08391186	08391186	08391187		
	UNITS	**W3-PB-16**	**QC Batch**	**W3-SB-01**	**W3-SB-02**	**W3-SB-03**	**W3-SB-04**	**W3-SB-05**	**RDL**	**QC Batch**
Physical Properties										
Moisture	%	87	7444035	81	88	83	87	88	0.30	7445482

Maxxam ID		JE3984	JE3985	JE3986	JE3987	JE3988	JE3989		
Sampling Date		2013/09/15	2013/09/16	2013/09/16	2013/09/25	2013/09/25	2013/09/15		
COC#		08391187	08391187	08391187	08391187	08391187	08391187		
	UNITS	**W3-SB-06**	**W3-SB-07**	**W3-SB-08**	**W3-SB-09**	**W3-SB-10**	**W3-SB-16**	**RDL**	**QC Batch**
Physical Properties									
Moisture	%	83	87	82	83	85	87	0.30	7445482

RDL = Reportable Detection Limit

Maxxam

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Maxxam Job #: B424729
Report Date: 2014/04/16

Pinchin LeBlanc Environmental
Client Project #: BASELINE COUNTRY FOODS ASSESSM
Site Location: LABRADOR CITY, NL
Your P.O. #: 4700058846
Sampler Initials: ROK

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7444035	Moisture	2014/04/08					ND, RDL=0.30	%	0.1	20		
7444172	Total Arsenic (As)	2014/04/09	96	75 - 125	101	75 - 125	ND, RDL=0.010	mg/kg	NC	35	118	75 - 125
7444172	Total Barium (Ba)	2014/04/09	NC	75 - 125	101	75 - 125	ND, RDL=0.020	mg/kg	10.0	35	85	75 - 125
7444172	Total Beryllium (Be)	2014/04/09	92	75 - 125	99	75 - 125	ND, RDL=0.020	mg/kg	NC	35		
7444172	Total Cadmium (Cd)	2014/04/09	97	75 - 125	101	75 - 125	ND, RDL=0.0020	mg/kg	NC	35	87	75 - 125
7444172	Total Chromium (Cr)	2014/04/09	95	75 - 125	103	75 - 125	ND, RDL=0.040	mg/kg	NC	35	31	28 - 97
7444172	Total Cobalt (Co)	2014/04/09	95	75 - 125	105	75 - 125	ND, RDL=0.0040	mg/kg	NC	35	85	75 - 125
7444172	Total Copper (Cu)	2014/04/09	NC	75 - 125	104	75 - 125	ND, RDL=0.050	mg/kg	27.8	35	88	75 - 125
7444172	Total Lead (Pb)	2014/04/09	90	75 - 125	98	75 - 125	ND, RDL=0.0020	mg/kg	NC	35		
7444172	Total Manganese (Mn)	2014/04/09	NC	75 - 125	103	75 - 125	ND, RDL=0.020	mg/kg	8.4	35	95	75 - 125
7444172	Total Mercury (Hg)	2014/04/09	86	75 - 125	119	75 - 125	ND, RDL=0.0020	mg/kg	NC	35	129(1, 2)	75 - 125
7444172	Total Nickel (Ni)	2014/04/09	96	75 - 125	106	75 - 125	ND, RDL=0.010	mg/kg	NC	35	62	58 - 126
7444172	Total Selenium (Se)	2014/04/09	100	75 - 125	101	75 - 125	ND, RDL=0.010	mg/kg	NC	35	129(1, 2)	75 - 125
7444172	Total Silver (Ag)	2014/04/09	72(1)	75 - 125	78	75 - 125	ND, RDL=0.0040	mg/kg	NC	35		
7444172	Total Strontium (Sr)	2014/04/09	90	75 - 125	96	75 - 125	ND, RDL=0.020	mg/kg	7.1	35	94	75 - 125
7444172	Total Thallium (Tl)	2014/04/09	97	75 - 125	96	75 - 125	ND, RDL=0.00040	mg/kg	NC	35		
7444172	Total Uranium (U)	2014/04/09	90	75 - 125	94	75 - 125	ND, RDL=0.00040	mg/kg	NC	35		
7444172	Total Vanadium (V)	2014/04/09	95	75 - 125	101	75 - 125	ND, RDL=0.040	mg/kg	NC	35		
7444172	Total Zinc (Zn)	2014/04/09	NC	75 - 125	104	75 - 125	0.047, RDL=0.040	mg/kg	22.5	35	81	75 - 125
7444172	Total Aluminum (Al)	2014/04/09					ND, RDL=0.20	mg/kg	NC	35	30	20 - 93
7444172	Total Antimony (Sb)	2014/04/09					ND, RDL=0.0010	mg/kg	NC	35	101	75 - 125
7444172	Total Boron (B)	2014/04/09					ND, RDL=0.40	mg/kg	NC	35	88	75 - 125
7444172	Total Iron (Fe)	2014/04/09					ND, RDL=10	mg/kg	NC	35	80	75 - 125
7444172	Total Magnesium (Mg)	2014/04/09					ND, RDL=2.0	mg/kg	27.7	35	82	75 - 125
7444172	Total Molybdenum (Mo)	2014/04/09					ND, RDL=0.010	mg/kg	NC	35	88	75 - 125
7444172	Total Sodium (Na)	2014/04/09					ND, RDL=2.0	mg/kg	NC	35	78	75 - 125
7444172	Total Bismuth (Bi)	2014/04/09					ND, RDL=0.020	mg/kg	NC	35		
7444172	Total Calcium (Ca)	2014/04/09					ND, RDL=2.0	mg/kg	0.2	35		
7444172	Total Phosphorus (P)	2014/04/09					ND, RDL=2.0	mg/kg	23.7	35		
7444172	Total Potassium (K)	2014/04/09					ND, RDL=2.0	mg/kg	5.7	35		
7444172	Total Tin (Sn)	2014/04/09					ND, RDL=0.020	mg/kg	NC	35		
7444172	Total Titanium (Ti)	2014/04/09					ND, RDL=0.20	mg/kg	NC	35		
7444329	Total Arsenic (As)	2014/04/12	101	75 - 125	103	75 - 125	ND, RDL=0.010	mg/kg	NC	35	109	75 - 125
7444329	Total Barium (Ba)	2014/04/12	NC	75 - 125	102	75 - 125	ND, RDL=0.020	mg/kg	3.6	35	77	75 - 125
7444329	Total Beryllium (Be)	2014/04/12	102	75 - 125	106	75 - 125	ND, RDL=0.020	mg/kg	NC	35		
7444329	Total Cadmium (Cd)	2014/04/12	104	75 - 125	108	75 - 125	ND, RDL=0.0020	mg/kg	NC	35	79	75 - 125
7444329	Total Chromium (Cr)	2014/04/12	101	75 - 125	105	75 - 125	ND, RDL=0.040	mg/kg	NC	35		
7444329	Total Cobalt (Co)	2014/04/12	104	75 - 125	106	75 - 125	ND, RDL=0.0040	mg/kg	NC	35	77	75 - 125
7444329	Total Copper (Cu)	2014/04/12	NC	75 - 125	103	75 - 125	ND, RDL=0.050	mg/kg	0.2	35	79	75 - 125

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Maxxam Job #: B424729
Report Date: 2014/04/16

Pinchin LeBlanc Environmental
Client Project #: BASELINE COUNTRY FOODS ASSESSM
Site Location: LABRADOR CITY, NL
Your P.O. #: 4700058846
Sampler Initials: ROK

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7444329	Total Lead (Pb)	2014/04/12	100	75 - 125	100	75 - 125	ND, RDL=0.0020	mg/kg	NC	35		
7444329	Total Manganese (Mn)	2014/04/12	NC	75 - 125	107	75 - 125	ND, RDL=0.020	mg/kg	2.3	35	85	75 - 125
7444329	Total Mercury (Hg)	2014/04/12	100	75 - 125	105	75 - 125	ND, RDL=0.0020	mg/kg	NC	35	98	75 - 125
7444329	Total Nickel (Ni)	2014/04/12	102	75 - 125	106	75 - 125	ND, RDL=0.010	mg/kg	5.9	35	61	58 - 126
7444329	Total Selenium (Se)	2014/04/12	103	75 - 125	112	75 - 125	ND, RDL=0.010	mg/kg	NC	35	133(1, 2)	75 - 125
7444329	Total Silver (Ag)	2014/04/12	84	75 - 125	78	75 - 125	ND, RDL=0.0040	mg/kg	NC	35		
7444329	Total Strontium (Sr)	2014/04/12	108	75 - 125	98	75 - 125	ND, RDL=0.020	mg/kg	11.9	35	85	75 - 125
7444329	Total Thallium (Tl)	2014/04/12	110	75 - 125	89	75 - 125	ND, RDL=0.00040	mg/kg	NC	35		
7444329	Total Uranium (U)	2014/04/12	104	75 - 125	104	75 - 125	ND, RDL=0.00040	mg/kg	NC	35		
7444329	Total Vanadium (V)	2014/04/12	102	75 - 125	106	75 - 125	ND, RDL=0.040	mg/kg	NC	35		
7444329	Total Zinc (Zn)	2014/04/12	NC	75 - 125	115	75 - 125	0.042, RDL=0.040	mg/kg	2.0	35	76	75 - 125
7444329	Total Aluminum (Al)	2014/04/12					ND, RDL=0.20	mg/kg	3.5	35	26	20 - 93
7444329	Total Antimony (Sb)	2014/04/12					ND, RDL=0.0010	mg/kg	NC	35	86	75 - 125
7444329	Total Boron (B)	2014/04/12					ND, RDL=0.40	mg/kg	NC	35	82	75 - 125
7444329	Total Iron (Fe)	2014/04/12					ND, RDL=10	mg/kg	NC	35	80	75 - 125
7444329	Total Magnesium (Mg)	2014/04/12					ND, RDL=2.0	mg/kg	0.3	35	83	75 - 125
7444329	Total Molybdenum (Mo)	2014/04/12					ND, RDL=0.010	mg/kg	NC	35	79	75 - 125
7444329	Total Sodium (Na)	2014/04/12					ND, RDL=2.0	mg/kg	NC	35	88	75 - 125
7444329	Total Bismuth (Bi)	2014/04/12					ND, RDL=0.020	mg/kg	NC	35		
7444329	Total Calcium (Ca)	2014/04/12					ND, RDL=2.0	mg/kg	0.2	35		
7444329	Total Phosphorus (P)	2014/04/12					ND, RDL=2.0	mg/kg	1	35		
7444329	Total Potassium (K)	2014/04/12					ND, RDL=2.0	mg/kg	0.3	35		
7444329	Total Tin (Sn)	2014/04/12					ND, RDL=0.020	mg/kg	NC	35		
7444329	Total Titanium (Ti)	2014/04/12					ND, RDL=0.20	mg/kg	NC	35		
7445482	Moisture	2014/04/09					ND, RDL=0.30	%	0.3	20		

N/A = Not Applicable
RDL = Reportable Detection Limit
RPD = Relative Percent Difference
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.
Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was not sufficiently significant to permit a reliable recovery calculation.
NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.
(1) - Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

Maxxam Job #: B424729
Report Date: 2014/04/16

Pinchin LeBlanc Environmental
Client Project #: BASELINE COUNTRY FOODS ASSESSM
Site Location: LABRADOR CITY, NL
Your P.O. #: 4700058846
Sampler Initials: ROK

(2) - Reference outside acceptance criteria (10% of analytes failure allowed).

Validation Signature Page

Maxxam Job #: B424729

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Rob Reinert, Data Validation Coordinator

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam

Burnaby: 4606 Canada Way, Burnaby, BC V5G 1K5 Ph: (604) 734-7276 Fax: (604) 731-2386, Toll Free: (800) 665-8566

CHAIN OF CUSTODY RECORD

Maxxam Job #: B424729 **COC** Click here to get the COC number 08391185

Invoice To: Require Report? Yes ☑ No ☐

Company Name:	Iron Ore Company of Canada
Contact Name:	IOC Accounts Payable
Address:	1 Rue Retty
	Sept Iles, QC PC: G4R 3C7
Phone / Fax#:	Ph: 418-968-7400 Fax:
E-mail	

Report To:

Company Name:	IOC / Pinchin LeBlanc Environmental
Contact Name:	Callie Andrews / Ross O'Keefe
Address:	2 Avalon Drive
	Labrador City, NL PC: A2V 2Y6
Phone / Fax#:	Ph: 709-944-8400 Fax:
E-mail	callie.andrews@riotinto.com / rokeefe@pinchinleblanc.com

PO #:	4700058846
Quotation #:	
Project # :	
Proj. Name:	Baseline Country Foods Assessment
Location:	Labrador City, NL
Sampled by:	ROK / WT/ MW/ DG

REGULATORY REQUIREMENTS:

- ☐ CSR
- ☐ CCME
- ☐ BC Water Quality
- ☐ Other
- ☐ DRINKING WATER

SERVICE REQUESTED:

- ◉ Regular Turn Around Time (TAT) (5 days for most tests)
- **RUSH** (Please contact the lab) ○ 1 Day ○ 2 Day ○ 3 Day
- Date Required:

SPECIAL INSTRUCTIONS:

Return Cooler ☑ **Ship Sample Bottles (please specify)** ☐

Please use analysis method CRC-ICPMS metals.

ANALYSIS REQUESTED

	Sample Identification	Lab Identification (Lab Use Only)	Sample Type	Date/Time(24hr) Sampled	Dissolved Metals (DM) Field Filtered? Y ☐ N ☐	Total Metals Field Acidified? Y ☐ N ☐	Please Analyse for total metals wet weight Field Acidified? Y ☐ N ☐	Number of Containers
1	W3-BB-01	JE3950	Plant	13/09/12			X	
2	W3-BB-02	JE3951	Plant	13/09/12			X	
3	W3-BB-03	JE3952	Plant	13/09/12			X	
4	W3-BB-04	JE3953	Plant	13/09/12			X	
5	W3-BB-05	JE3954	Plant	13/09/15			X	
6	W3-BB-06	JE3955	Plant	13/09/15			X	
7	W3-BB-07	JE3956	Plant	13/09/12			X	
8	W3-BB-16	JE3957	Plant	13/09/12			X	
9	W3-PB-01	JE3958	Plant	13/09/12			X	
10	W3-PB-02	JE3959	Plant	13/09/12			X	
11	W3-PB-03	JE3960	Plant	13/09/12			X	
12	W3-PB-04	JE3961	Plant	13/09/12			X	

B424729

Print name and sign	Date (yy/mm/dd):	Time (24hr):	Print name and sign	Date (yy/mm/dd):	Time (24 hr):	Time Sensitive
*Relinquished By: Wanda Taylor	14/03/26	08:00	Received by :	14/03/28	09:30	☐
Wanda Taylor						

Laboratory Use Only

Temperature on Receipt (°C)	Custody Seal	Yes	No
A) B) C)	Present?	☐	☑
Just sampled & rec'd on ice: ☐	Intact?	☐	☐

*IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORDS. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

BBY FCD-00077R2_C

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Burnaby: 4606 Canada Way, Burnaby, BC V5G 1K5 Ph: (604) 734-7276 Fax: (604) 731-2386, Toll Free: (800) 665-8566

CHAIN OF CUSTODY RECORD

Maxxam Job #: B3-B424729 COC # 08391186

ıber

Page: 2 of 3

Invoice To: Require Report? Yes ☑ No ☐

Company Name: Iron Ore Company of Canada
Contact Name: IOC Accounts Payable
Address: 1 Rue Retty
Sept Iles, QC PC: G4R 3C7
Phone / Fax#: Ph: 418-968-7400 Fax:
E-mail

Report To:

Company Name: IOC / Pinchin LeBlanc Environmental
Contact Name: Callie Andrews / Ross O'Keefe
Address: 2 Avalon Drive
Labrador City, NL PC: A2V 2Y6
Phone / Fax#: Ph: 709-944-8400 Fax:
E-mail callie.andrews@riotinto.com / rokeefe@pinchinleblanc.com

PO #: 4700058846
Quotation #:
Project # :
Proj. Name: Baseline Country Foods Assessment
Location: Labrador City, NL
Sampled by: ROK / WT/ MW/ DG

REGULATORY REQUIREMENTS:

- ☐ CSR
- ☐ CCME
- ☐ BC Water Quality
- ☐ Other
- ☐ DRINKING WATER

SERVICE REQUESTED:

- ◉ Regular Turn Around Time (TAT) (5 days for most tests)
- **RUSH** (Please contact the lab) ○ 1 Day ○ 2 Day ○ 3 Day
- Date Required:

SPECIAL INSTRUCTIONS:

Return Cooler ☐ **Ship Sample Bottles (please specify)** ☐

Please use analysis method CRC-ICPMS metals.

ANALYSIS REQUESTED

	Sample Identification	Lab Use Only: Lab Identification	Sample Type	Date/Time(24hr) Sampled	Dissolved Metals (DM) Field Filtered? Y ☐ N ☐	Total Metals Field Acidified? Y ☐ N ☐	Please Analyse for total metals wet weight Field Acidified? Y ☐ N ☐	Number of Containers
1	W3-PB-05	JE3965	Plant	13/09/13			X	
2	W3-PB-06	JE3966	Plant	13/09/13			X	
3	W3-PB-07	JE3967	Plant	13/09/13			X	
4	W3-PB-08	JE3968	Plant	13/09/13			X	
5	W3-PB-09	JE3969	Plant	13/09/15			X	
6	W3-PB-10	JE3970	Plant	13/09/16			X	
7	W3-PB-11	JE3971	Plant	13/09/16			X	
8	W3-PB-16	JE3972	Plant	13/09/13			X	
9	W3-SB-01	JE3973	Plant	13/09/13			X	
10	W3-SB-02	JE3974	Plant	13/09/15			X	
11	W3-SB-03	JE3975	Plant	13/09/15			X	
12	W3-SB-04	JE3976	Plant	13/09/15			X	

B424729

Print name and sign

*Relinquished By:	Date (yy/mm/dd):	Time (24hr):	Received by :	Date (yy/mm/dd):	Time (24 hr):	Time Sensitive
Wanda Taylor	14/03/26	08:00	[illegible]	14/03/28	09:10	☐
Wanda Taylor						

Laboratory Use Only

Temperature on Receipt (°C)	Custody Seal	Yes	No
A) B) C)	Present?	☐	☑
Just sampled & rec'd on ice: ☐	Intact?	☐	☐

*IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORDS. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

BBY FCD-00077R2_C

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CHAIN OF CUSTODY RECORD

Maxxam Job #: B424729 **COC #:** 08391187 Page: 3 of 3

Invoice To: Require Report? Yes ☑ No ☐

Company Name:	Iron Ore Company of Canada
Contact Name:	IOC Accounts Payable
Address:	1 Rue Retty
	Sept Iles, QC PC: G4R 3C7
Phone / Fax#:	Ph: 418-968-7400 Fax:
E-mail	

Report To:

Company Name:	IOC / Pinchin LeBlanc Environmental
Contact Name:	Callie Andrews / Ross O'Keefe
Address:	2 Avalon Drive
	Labrador City, NL PC: A2V 2Y6
Phone / Fax#:	Ph: 709-944-8400 Fax:
E-mail	callie.andrews@riotinto.com / rokeefe@pinchinleblanc.com

PO #:	4700058846
Quotation #:	
Project # :	
Proj. Name:	Baseline Country Foods Assessment
Location:	Labrador City, NL
Sampled by:	ROK / WT/ MW/ DG

REGULATORY REQUIREMENTS:

- ☐ CSR
- ☐ CCME
- ☐ BC Water Quality
- ☐ Other
- ☐ DRINKING WATER

SERVICE REQUESTED:

- ◉ Regular Turn Around Time (TAT) (5 days for most tests)
- **RUSH** (Please contact the lab) ○ 1 Day ○ 2 Day ○ 3 Day
- Date Required:

SPECIAL INSTRUCTIONS:

Return Cooler ☑ **Ship Sample Bottles (please specify)** ☐

Please use analysis method CRC-ICPMS metals.

ANALYSIS REQUESTED

	Sample Identification	Lab Identification (Lab Use Only)	Sample Type	Date/Time(24hr) Sampled	Dissolved Metals (DM) Field Filtered? Y ☐ N ☐	Total Metals Field Acidified? Y ☐ N ☐	Please Analyse for total metals wet weight Field Acidified? Y ☐ N ☐	Number of Containers
1	W3-SB-05	JE3983	Plant	13/09/15			X	
2	W3-SB-06	JE3984	Plant	13/09/15			X	
3	W3-SB-07	JE3985	Plant	13/09/16			X	
4	W3-SB-08	JE3986	Plant	13/09/16			X	
5	W3-SB-09	JE3987	Plant	13/09/25			X	
6	W3-SB-10	JE3988	Plant	13/09/25			X	
7	W3-SB-16	JE3989	Plant	13/09/15			X	
8								
9								
10								
11								
12								

B424729

Print name and sign *Relinquished By:	Date (yy/mm/dd):	Time (24hr):	Print name and sign Received by :	Date (yy/mm/dd):	Time (24 hr):	Time Sensitive	Laboratory Use Only: Temperature on Receipt (°C)	Custody Seal	Yes	No
Wanda Taylor	14/03/26	08:00	Chris Weng	14/03/28	09:10	☐	A) B) C)	Present?	☐	☑
Wanda Taylor							Just sampled & rec'd on ice: ☐	Intact?	☐	☐

*IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORDS. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

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Success Through Science®

Your P.O. #: 4700058846
Your Project #: BASELINE COUNTRY FOODS ASSESSM
Site Location: LABRADOR CITY, NL
Your C.O.C. #: 08391182, 08391183, 08391184

Attention: Ross O'Keefe
Pinchin LeBlanc Environmental
2 Avalon Drive
Labrador City, NF
Canada A2V 2Y6

Report Date: 2014/04/04
Report #: R1546548
Version: 1

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B424740
Received: 2014/03/28, 09:10

Sample Matrix: Soil
Samples Received: 30

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Elements by ICPMS (total)	20	2014/04/01	2014/04/02	BBY7SOP-00001	EPA 6020a
Elements by ICPMS (total)	1	2014/04/01	2014/04/03	BBY7SOP-00001	EPA 6020a
Elements by ICPMS (total)	9	2014/04/03	2014/04/03	BBY7SOP-00001	EPA 6020a
Moisture	30	N/A	2014/04/01	BBY8SOP-00017	Ont MOE -E 3139
pH (2:1 DI Water Extract)	20	2014/04/01	2014/04/01	BBY6SOP-00028	BC Env Lab Manual
pH (2:1 DI Water Extract)	1	2014/04/01	2014/04/03	BBY6SOP-00028	BC Env Lab Manual
pH (2:1 DI Water Extract)	9	2014/04/03	2014/04/03	BBY6SOP-00028	BC Env Lab Manual

* Results relate only to the items tested.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Amandeep Nagra, Account Specialist
Email: ANagra@maxxam.ca
Phone# (604) 639-2602

==========
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Total cover pages: 1

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Maxxam Job #: B424740
Report Date: 2014/04/04

Pinchin LeBlanc Environmental
Client Project #: BASELINE COUNTRY FOODS ASSESSM
Site Location: LABRADOR CITY, NL
Your P.O. #: 4700058846
Sampler Initials: ROK

RESULTS OF CHEMICAL ANALYSES OF SOIL

Maxxam ID		JE4028		JE4029	JE4030		JE4031		JE4032		
Sampling Date		2013/09/12		2013/09/12	2013/09/12		2013/09/12		2013/09/15		
COC#		08391182		08391182	08391182		08391182		08391182		
	UNITS	**W3-BB-01-SOIL**	**QC Batch**	**W3-BB-02-SOIL**	**W3-BB-03-SOIL**	**QC Batch**	**W3-BB-04-SOIL**	**QC Batch**	**W3-BB-05-SOIL**	**RDL**	**QC Batch**
Physical Properties											
Soluble (2:1) pH	pH	4.73	7439365	5.40	5.22	7436509	4.87	7439365	3.73	N/A	7436509

Maxxam ID		JE4033		JE4034		JE4035	JE4036	JE4037		
Sampling Date		2013/09/15		2013/09/12		2013/09/12	2013/09/12	2013/09/12		
COC#		08391182		08391182		08391182	08391182	08391182		
	UNITS	**W3-BB-06-SOIL**	**QC Batch**	**W3-BB-07-SOIL**	**QC Batch**	**W3-BB-16-SOIL**	**W3-PB-01-SOIL**	**W3-PB-02-SOIL**	**RDL**	**QC Batch**
Physical Properties										
Soluble (2:1) pH	pH	4.21	7439365	4.64	7436509	4.60	4.73	4.81	N/A	7439365

Maxxam ID		JE4038	JE4039		JE4058	JE4059	JE4060	JE4061		
Sampling Date		2013/09/12	2013/09/12		2013/09/13	2013/09/13	2013/09/13	2013/09/13		
COC#		08391182	08391182		08391183	08391183	08391183	08391183		
	UNITS	**W3-PB-03-SOIL**	**W3-PB-04-SOIL**	**QC Batch**	**W3-PB-05-SOIL**	**W3-PB-06-SOIL**	**W3-PB-07-SOIL**	**W3-PB-08-SOIL**	**RDL**	**QC Batch**
Physical Properties										
Soluble (2:1) pH	pH	4.85	4.81	7439365	5.13	5.83	5.00	6.30	N/A	7436509

Maxxam ID		JE4062	JE4063	JE4064		JE4065		JE4066		
Sampling Date		2013/09/15	2013/09/16	2013/09/16		2013/09/13		2013/09/13		
COC#		08391183	08391183	08391183		08391183		08391183		
	UNITS	**W3-PB-09-SOIL**	**W3-PB-10-SOIL**	**W3-PB-11-SOIL**	**QC Batch**	**W3-PB-16-SOIL**	**QC Batch**	**W3-SB-01-SOIL**	**RDL**	**QC Batch**
Physical Properties										
Soluble (2:1) pH	pH	4.52	4.65	4.51	7436509	6.35	7439365	7.27	N/A	7436509

Maxxam ID		JE4067	JE4068		JE4069		JE4071		
Sampling Date		2013/09/15	2013/09/15		2013/09/15		2013/09/15		
COC#		08391183	08391183		08391183		08391184		
	UNITS	**W3-SB-02-SOIL**	**W3-SB-03-SOIL**	**QC Batch**	**W3-SB-04-SOIL**	**QC Batch**	**W3-SB-05-SOIL**	**RDL**	**QC Batch**
Physical Properties									
Soluble (2:1) pH	pH	5.10	5.72	7436509	5.63	7439365	4.21	N/A	7436509

N/A = Not Applicable
RDL = Reportable Detection Limit

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Maxxam Job #: B424740
Report Date: 2014/04/04

Pinchin LeBlanc Environmental
Client Project #: BASELINE COUNTRY FOODS ASSESSM
Site Location: LABRADOR CITY, NL
Your P.O. #: 4700058846
Sampler Initials: ROK

RESULTS OF CHEMICAL ANALYSES OF SOIL

Maxxam ID		JE4072	JE4073	JE4074	JE4075	JE4076		
Sampling Date		2013/09/15	2013/09/16	2013/09/16	2013/09/25	2013/09/25		
COC#		08391184	08391184	08391184	08391184	08391184		
	UNITS	**W3-SB-06-SOIL**	**W3-SB-07-SOIL**	**W3-SB-08-SOIL**	**W3-SB-09-SOIL**	**W3-SB-10-SOIL**	**RDL**	**QC Batch**
Physical Properties								
Soluble (2:1) pH	pH	6.35	6.14	6.29	5.29	6.73	N/A	7436509

PHYSICAL TESTING (SOIL)

Maxxam ID		JE4028		JE4029	JE4030	JE4031	JE4032	JE4033		
Sampling Date		2013/09/12		2013/09/12	2013/09/12	2013/09/12	2013/09/15	2013/09/15		
COC#		08391182		08391182	08391182	08391182	08391182	08391182		
	UNITS	**W3-BB-01-SOIL**	**QC Batch**	**W3-BB-02-SOIL**	**W3-BB-03-SOIL**	**W3-BB-04-SOIL**	**W3-BB-05-SOIL**	**W3-BB-06-SOIL**	**RDL**	**QC Batch**
Physical Properties										
Moisture	%	16	7435706	12	16	15	17	38	0.30	7435772

Maxxam ID		JE4034	JE4035	JE4036	JE4037	JE4038	JE4039	JE4058		
Sampling Date		2013/09/12	2013/09/12	2013/09/12	2013/09/12	2013/09/12	2013/09/12	2013/09/13		
COC#		08391182	08391182	08391182	08391182	08391182	08391182	08391183		
	UNITS	**W3-BB-07-SOIL**	**W3-BB-16-SOIL**	**W3-PB-01-SOIL**	**W3-PB-02-SOIL**	**W3-PB-03-SOIL**	**W3-PB-04-SOIL**	**W3-PB-05-SOIL**	**RDL**	**QC Batch**
Physical Properties										
Moisture	%	16	15	12	10	8.9	13	11	0.30	7435772

Maxxam ID		JE4059	JE4060	JE4061	JE4062	JE4063		JE4064		
Sampling Date		2013/09/13	2013/09/13	2013/09/13	2013/09/15	2013/09/16		2013/09/16		
COC#		08391183	08391183	08391183	08391183	08391183		08391183		
	UNITS	**W3-PB-06-SOIL**	**W3-PB-07-SOIL**	**W3-PB-08-SOIL**	**W3-PB-09-SOIL**	**W3-PB-10-SOIL**	**QC Batch**	**W3-PB-11-SOIL**	**RDL**	**QC Batch**
Physical Properties										
Moisture	%	17	14	4.9	16	27	7435772	41	0.30	7435706

N/A = Not Applicable
RDL = Reportable Detection Limit

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Success Through Science®

Maxxam Job #: B424740
Report Date: 2014/04/04

Pinchin LeBlanc Environmental
Client Project #: BASELINE COUNTRY FOODS ASSESSM
Site Location: LABRADOR CITY, NL
Your P.O. #: 4700058846
Sampler Initials: ROK

PHYSICAL TESTING (SOIL)

Maxxam ID		JE4065		JE4066	JE4067	JE4068	JE4069	JE4071		
Sampling Date		2013/09/13		2013/09/13	2013/09/15	2013/09/15	2013/09/15	2013/09/15		
COC#		08391183		08391183	08391183	08391183	08391183	08391184		
	UNITS	**W3-PB-16-SOIL**	**QC Batch**	**W3-SB-01-SOIL**	**W3-SB-02-SOIL**	**W3-SB-03-SOIL**	**W3-SB-04-SOIL**	**W3-SB-05-SOIL**	**RDL**	**QC Batch**
Physical Properties										
Moisture	%	4.3	7435772	6.1	18	23	53	31	0.30	7435706

Maxxam ID		JE4072	JE4073	JE4074	JE4075	JE4076		
Sampling Date		2013/09/15	2013/09/16	2013/09/16	2013/09/25	2013/09/25		
COC#		08391184	08391184	08391184	08391184	08391184		
	UNITS	**W3-SB-06-SOIL**	**W3-SB-07-SOIL**	**W3-SB-08-SOIL**	**W3-SB-09-SOIL**	**W3-SB-10-SOIL**	**RDL**	**QC Batch**
Physical Properties								
Moisture	%	51	19	58	8.3	69	0.30	7435706

RDL = Reportable Detection Limit

Maxxam

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Maxxam Job #: B424740
Report Date: 2014/04/04

Pinchin LeBlanc Environmental
Client Project #: BASELINE COUNTRY FOODS ASSESSM
Site Location: LABRADOR CITY, NL
Your P.O. #: 4700058846
Sampler Initials: ROK

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		JE4028		JE4029	JE4030		JE4031		JE4032		
Sampling Date		2013/09/12		2013/09/12	2013/09/12		2013/09/12		2013/09/15		
COC#		08391182		08391182	08391182		08391182		08391182		
	UNITS	**W3-BB-01-SOIL**	**QC Batch**	**W3-BB-02-SOIL**	**W3-BB-03-SOIL**	**QC Batch**	**W3-BB-04-SOIL**	**QC Batch**	**W3-BB-05-SOIL**	**RDL**	**QC Batch**
Total Metals by ICPMS											
Total Aluminum (Al)	mg/kg	5750	7439348	1750	20500	7436574	3980	7439348	3290	100	7436574
Total Antimony (Sb)	mg/kg	ND	7439348	ND	ND	7436574	ND	7439348	ND	0.10	7436574
Total Arsenic (As)	mg/kg	2.13	7439348	3.66	2.65	7436574	1.77	7439348	1.15	0.50	7436574
Total Barium (Ba)	mg/kg	18.9	7439348	22.7	59.7	7436574	23.6	7439348	12.2	0.10	7436574
Total Beryllium (Be)	mg/kg	ND	7439348	0.79	1.03	7436574	0.63	7439348	ND	0.40	7436574
Total Bismuth (Bi)	mg/kg	ND	7439348	ND	ND	7436574	ND	7439348	ND	0.10	7436574
Total Cadmium (Cd)	mg/kg	0.087	7439348	ND	0.134	7436574	0.096	7439348	ND	0.050	7436574
Total Calcium (Ca)	mg/kg	361	7439348	227	321	7436574	ND	7439348	535	100	7436574
Total Chromium (Cr)	mg/kg	21.1	7439348	6.3	65.0	7436574	13.9	7439348	8.3	1.0	7436574
Total Cobalt (Co)	mg/kg	5.81	7439348	7.37	13.0	7436574	4.59	7439348	1.62	0.30	7436574
Total Copper (Cu)	mg/kg	4.28	7439348	3.37	20.0	7436574	5.72	7439348	2.31	0.50	7436574
Total Iron (Fe)	mg/kg	129000	7439348	194000	141000	7436574	147000	7439348	26900	100	7436574
Total Lead (Pb)	mg/kg	5.56	7439348	3.34	7.51	7436574	4.41	7439348	2.03	0.10	7436574
Total Lithium (Li)	mg/kg	ND	7439348	ND	11.2	7436574	ND	7439348	ND	5.0	7436574
Total Magnesium (Mg)	mg/kg	1230	7439348	225	6540	7436574	355	7439348	1160	100	7436574
Total Manganese (Mn)	mg/kg	1100	7439348	3130	2170	7436574	1680	7439348	181	0.20	7436574
Total Mercury (Hg)	mg/kg	ND	7439348	ND	ND	7436574	ND	7439348	ND	0.050	7436574
Total Molybdenum (Mo)	mg/kg	0.93	7439348	1.35	2.22	7436574	0.97	7439348	1.76	0.10	7436574
Total Nickel (Ni)	mg/kg	5.35	7439348	2.70	20.8	7436574	3.34	7439348	4.11	0.80	7436574
Total Phosphorus (P)	mg/kg	604	7439348	241	366	7436574	232	7439348	147	10	7436574
Total Potassium (K)	mg/kg	360	7439348	ND	1810	7436574	160	7439348	339	100	7436574
Total Selenium (Se)	mg/kg	ND	7439348	ND	ND	7436574	ND	7439348	ND	0.50	7436574
Total Silver (Ag)	mg/kg	0.082	7439348	ND	0.070	7436574	0.112	7439348	ND	0.050	7436574
Total Sodium (Na)	mg/kg	ND	7439348	ND	ND	7436574	ND	7439348	ND	100	7436574
Total Strontium (Sr)	mg/kg	3.98	7439348	1.75	6.92	7436574	1.97	7439348	9.76	0.10	7436574
Total Thallium (Tl)	mg/kg	0.059	7439348	ND	0.210	7436574	0.054	7439348	ND	0.050	7436574
Total Tin (Sn)	mg/kg	0.30	7439348	0.26	0.27	7436574	0.32	7439348	0.22	0.10	7436574
Total Titanium (Ti)	mg/kg	642	7439348	261	879	7436574	366	7439348	194	1.0	7436574
Total Uranium (U)	mg/kg	0.264	7439348	0.201	1.22	7436574	0.383	7439348	0.246	0.050	7436574
Total Vanadium (V)	mg/kg	40.6	7439348	23.4	38.7	7436574	26.6	7439348	11.5	2.0	7436574
Total Zinc (Zn)	mg/kg	17.6	7439348	13.5	47.3	7436574	19.0	7439348	9.9	1.0	7436574
Total Zirconium (Zr)	mg/kg	0.51	7439348	ND	2.95	7436574	ND	7439348	ND	0.50	7436574

ND = Not detected
RDL = Reportable Detection Limit

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Maxxam Job #: B424740
Report Date: 2014/04/04

Pinchin LeBlanc Environmental
Client Project #: BASELINE COUNTRY FOODS ASSESSM
Site Location: LABRADOR CITY, NL
Your P.O. #: 4700058846
Sampler Initials: ROK

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		JE4033		JE4034		JE4035	JE4036	JE4037		
Sampling Date		2013/09/15		2013/09/12		2013/09/12	2013/09/12	2013/09/12		
COC#		08391182		08391182		08391182	08391182	08391182		
	UNITS	**W3-BB-06-SOIL**	**QC Batch**	**W3-BB-07-SOIL**	**QC Batch**	**W3-BB-16-SOIL**	**W3-PB-01-SOIL**	**W3-PB-02-SOIL**	**RDL**	**QC Batch**
Total Metals by ICPMS										
Total Aluminum (Al)	mg/kg	4010	7439348	5440	7436574	4780	3200	1260	100	7439348
Total Antimony (Sb)	mg/kg	0.11	7439348	0.10	7436574	ND	ND	ND	0.10	7439348
Total Arsenic (As)	mg/kg	1.16	7439348	3.71	7436574	2.85	1.39	1.50	0.50	7439348
Total Barium (Ba)	mg/kg	28.8	7439348	12.7	7436574	10.5	10.9	7.68	0.10	7439348
Total Beryllium (Be)	mg/kg	ND	7439348	ND	7436574	ND	ND	ND	0.40	7439348
Total Bismuth (Bi)	mg/kg	ND	7439348	ND	7436574	ND	ND	ND	0.10	7439348
Total Cadmium (Cd)	mg/kg	0.075	7439348	0.067	7436574	0.066	0.065	ND	0.050	7439348
Total Calcium (Ca)	mg/kg	543	7439348	316	7436574	262	276	ND	100	7439348
Total Chromium (Cr)	mg/kg	20.1	7439348	23.8	7436574	20.6	11.7	5.9	1.0	7439348
Total Cobalt (Co)	mg/kg	2.69	7439348	4.37	7436574	4.21	4.04	2.84	0.30	7439348
Total Copper (Cu)	mg/kg	3.09	7439348	9.01	7436574	8.35	3.85	2.19	0.50	7439348
Total Iron (Fe)	mg/kg	33700	7439348	76500	7436574	78300	89200	89200	100	7439348
Total Lead (Pb)	mg/kg	8.78	7439348	8.26	7436574	7.57	4.27	2.07	0.10	7439348
Total Lithium (Li)	mg/kg	ND	7439348	ND	7436574	ND	ND	ND	5.0	7439348
Total Magnesium (Mg)	mg/kg	1870	7439348	1540	7436574	1200	673	119	100	7439348
Total Manganese (Mn)	mg/kg	163	7439348	492	7436574	429	570	615	0.20	7439348
Total Mercury (Hg)	mg/kg	ND	7439348	ND	7436574	ND	ND	ND	0.050	7439348
Total Molybdenum (Mo)	mg/kg	1.01	7439348	1.29	7436574	1.15	1.13	0.56	0.10	7439348
Total Nickel (Ni)	mg/kg	5.99	7439348	6.84	7436574	5.80	3.40	1.89	0.80	7439348
Total Phosphorus (P)	mg/kg	173	7439348	760	7436574	645	266	155	10	7439348
Total Potassium (K)	mg/kg	832	7439348	233	7436574	198	271	ND	100	7439348
Total Selenium (Se)	mg/kg	ND	7439348	ND	7436574	ND	ND	ND	0.50	7439348
Total Silver (Ag)	mg/kg	0.322	7439348	0.122	7436574	0.102	ND	ND	0.050	7439348
Total Sodium (Na)	mg/kg	ND	7439348	ND	7436574	ND	ND	ND	100	7439348
Total Strontium (Sr)	mg/kg	6.51	7439348	5.63	7436574	4.22	4.41	1.16	0.10	7439348
Total Thallium (Tl)	mg/kg	0.071	7439348	ND	7436574	ND	ND	ND	0.050	7439348
Total Tin (Sn)	mg/kg	0.49	7439348	0.37	7436574	0.40	0.39	0.18	0.10	7439348
Total Titanium (Ti)	mg/kg	616	7439348	856	7436574	837	819	296	1.0	7439348
Total Uranium (U)	mg/kg	0.202	7439348	0.626	7436574	0.603	0.253	0.188	0.050	7439348
Total Vanadium (V)	mg/kg	24.0	7439348	44.7	7436574	44.9	37.9	18.5	2.0	7439348
Total Zinc (Zn)	mg/kg	12.3	7439348	17.9	7436574	15.5	10.3	7.2	1.0	7439348
Total Zirconium (Zr)	mg/kg	ND	7439348	0.91	7436574	0.87	0.97	ND	0.50	7439348

ND = Not detected
RDL = Reportable Detection Limit

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Maxxam Job #: B424740
Report Date: 2014/04/04

Pinchin LeBlanc Environmental
Client Project #: BASELINE COUNTRY FOODS ASSESSM
Site Location: LABRADOR CITY, NL
Your P.O. #: 4700058846
Sampler Initials: ROK

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		JE4038	JE4039		JE4058	JE4059	JE4060	JE4061		
Sampling Date		2013/09/12	2013/09/12		2013/09/13	2013/09/13	2013/09/13	2013/09/13		
COC#		08391182	08391182		08391183	08391183	08391183	08391183		
	UNITS	**W3-PB-03-SOIL**	**W3-PB-04-SOIL**	**QC Batch**	**W3-PB-05-SOIL**	**W3-PB-06-SOIL**	**W3-PB-07-SOIL**	**W3-PB-08-SOIL**	**RDL**	**QC Batch**
Total Metals by ICPMS										
Total Aluminum (Al)	mg/kg	2790	7330	7439348	4330	12200	7350	5640	100	7436574
Total Antimony (Sb)	mg/kg	ND	ND	7439348	ND	ND	0.10	ND	0.10	7436574
Total Arsenic (As)	mg/kg	1.46	2.82	7439348	2.04	3.00	1.59	2.80	0.50	7436574
Total Barium (Ba)	mg/kg	8.37	11.3	7439348	10.2	71.2	19.7	48.7	0.10	7436574
Total Beryllium (Be)	mg/kg	1.18	ND	7439348	0.65	ND	ND	ND	0.40	7436574
Total Bismuth (Bi)	mg/kg	ND	ND	7439348	ND	ND	ND	ND	0.10	7436574
Total Cadmium (Cd)	mg/kg	0.086	0.066	7439348	0.059	0.164	0.053	0.154	0.050	7436574
Total Calcium (Ca)	mg/kg	ND	255	7439348	ND	2200	603	2200	100	7436574
Total Chromium (Cr)	mg/kg	12.4	29.1	7439348	14.6	53.1	27.7	32.4	1.0	7436574
Total Cobalt (Co)	mg/kg	5.17	5.07	7439348	5.49	9.90	4.03	7.05	0.30	7436574
Total Copper (Cu)	mg/kg	4.82	12.0	7439348	6.13	24.9	5.13	14.0	0.50	7436574
Total Iron (Fe)	mg/kg	198000	81500	7439348	129000	50700	31600	56200	100	7436574
Total Lead (Pb)	mg/kg	1.78	7.48	7439348	2.63	6.70	5.00	6.34	0.10	7436574
Total Lithium (Li)	mg/kg	ND	ND	7439348	ND	8.2	ND	ND	5.0	7436574
Total Magnesium (Mg)	mg/kg	ND	2120	7439348	610	7000	2570	3300	100	7436574
Total Manganese (Mn)	mg/kg	1240	478	7439348	728	1490	387	1280	0.20	7436574
Total Mercury (Hg)	mg/kg	ND	ND	7439348	ND	0.053	ND	ND	0.050	7436574
Total Molybdenum (Mo)	mg/kg	0.56	1.20	7439348	1.05	1.14	0.65	0.92	0.10	7436574
Total Nickel (Ni)	mg/kg	3.13	8.57	7439348	4.92	24.5	8.66	16.0	0.80	7436574
Total Phosphorus (P)	mg/kg	250	778	7439348	203	860	495	1000	10	7436574
Total Potassium (K)	mg/kg	ND	274	7439348	201	3170	597	1370	100	7436574
Total Selenium (Se)	mg/kg	ND	ND	7439348	ND	ND	ND	ND	0.50	7436574
Total Silver (Ag)	mg/kg	0.051	0.142	7439348	0.069	ND	ND	ND	0.050	7436574
Total Sodium (Na)	mg/kg	ND	ND	7439348	ND	ND	ND	ND	100	7436574
Total Strontium (Sr)	mg/kg	0.29	4.25	7439348	1.38	14.6	6.70	10.1	0.10	7436574
Total Thallium (Tl)	mg/kg	ND	ND	7439348	ND	0.310	0.087	0.180	0.050	7436574
Total Tin (Sn)	mg/kg	0.10	0.30	7439348	0.24	0.22	0.25	0.12	0.10	7436574
Total Titanium (Ti)	mg/kg	134	845	7439348	284	833	508	374	1.0	7436574
Total Uranium (U)	mg/kg	0.328	0.682	7439348	0.520	0.710	0.288	0.623	0.050	7436574
Total Vanadium (V)	mg/kg	14.1	42.6	7439348	23.7	32.3	24.3	21.9	2.0	7436574
Total Zinc (Zn)	mg/kg	23.6	21.7	7439348	16.6	42.2	17.6	26.6	1.0	7436574
Total Zirconium (Zr)	mg/kg	1.12	1.07	7439348	0.69	2.92	0.55	1.82	0.50	7436574

ND = Not detected
RDL = Reportable Detection Limit

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Maxxam Job #: B424740
Report Date: 2014/04/04

Pinchin LeBlanc Environmental
Client Project #: BASELINE COUNTRY FOODS ASSESSM
Site Location: LABRADOR CITY, NL
Your P.O. #: 4700058846
Sampler Initials: ROK

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		JE4062	JE4063	JE4064		JE4065		JE4066		
Sampling Date		2013/09/15	2013/09/16	2013/09/16		2013/09/13		2013/09/13		
COC#		08391183	08391183	08391183		08391183		08391183		
	UNITS	**W3-PB-09-SOIL**	**W3-PB-10-SOIL**	**W3-PB-11-SOIL**	**QC Batch**	**W3-PB-16-SOIL**	**QC Batch**	**W3-SB-01-SOIL**	**RDL**	**QC Batch**
Total Metals by ICPMS										
Total Aluminum (Al)	mg/kg	11600	5390	9750	7436574	5370	7439348	5490	100	7436574
Total Antimony (Sb)	mg/kg	ND	ND	ND	7436574	ND	7439348	ND	0.10	7436574
Total Arsenic (As)	mg/kg	1.33	1.60	2.21	7436574	1.92	7439348	1.75	0.50	7436574
Total Barium (Ba)	mg/kg	40.9	38.5	28.3	7436574	52.2	7439348	85.0	0.10	7436574
Total Beryllium (Be)	mg/kg	ND	ND	ND	7436574	ND	7439348	ND	0.40	7436574
Total Bismuth (Bi)	mg/kg	ND	ND	ND	7436574	ND	7439348	ND	0.10	7436574
Total Cadmium (Cd)	mg/kg	0.061	0.059	0.057	7436574	0.187	7439348	0.121	0.050	7436574
Total Calcium (Ca)	mg/kg	310	1120	1300	7436574	1680	7439348	2780	100	7436574
Total Chromium (Cr)	mg/kg	71.8	29.2	47.2	7436574	25.4	7439348	32.9	1.0	7436574
Total Cobalt (Co)	mg/kg	8.63	3.76	4.37	7436574	6.01	7439348	7.56	0.30	7436574
Total Copper (Cu)	mg/kg	10.1	5.16	6.28	7436574	12.8	7439348	20.6	0.50	7436574
Total Iron (Fe)	mg/kg	47200	36700	52700	7436574	44300	7439348	34700	100	7436574
Total Lead (Pb)	mg/kg	6.17	7.91	6.33	7436574	4.40	7439348	5.22	0.10	7436574
Total Lithium (Li)	mg/kg	ND	ND	ND	7436574	ND	7439348	5.7	5.0	7436574
Total Magnesium (Mg)	mg/kg	8050	3010	4270	7436574	3190	7439348	5090	100	7436574
Total Manganese (Mn)	mg/kg	214	357	390	7436574	1400	7439348	703	0.20	7436574
Total Mercury (Hg)	mg/kg	ND	0.056	0.072	7436574	ND	7439348	ND	0.050	7436574
Total Molybdenum (Mo)	mg/kg	17.8	1.84	1.07	7436574	0.81	7439348	0.87	0.10	7436574
Total Nickel (Ni)	mg/kg	24.7	8.85	12.8	7436574	14.7	7439348	19.0	0.80	7436574
Total Phosphorus (P)	mg/kg	425	258	779	7436574	725	7439348	559	10	7436574
Total Potassium (K)	mg/kg	3170	943	1050	7436574	1430	7439348	2420	100	7436574
Total Selenium (Se)	mg/kg	ND	ND	ND	7436574	ND	7439348	ND	0.50	7436574
Total Silver (Ag)	mg/kg	0.081	0.153	0.284	7436574	ND	7439348	ND	0.050	7436574
Total Sodium (Na)	mg/kg	ND	ND	ND	7436574	ND	7439348	ND	100	7436574
Total Strontium (Sr)	mg/kg	6.23	16.4	10.6	7436574	7.98	7439348	10.7	0.10	7436574
Total Thallium (Tl)	mg/kg	0.152	0.115	0.118	7436574	0.176	7439348	0.134	0.050	7436574
Total Tin (Sn)	mg/kg	0.39	0.45	0.27	7436574	0.10	7439348	0.19	0.10	7436574
Total Titanium (Ti)	mg/kg	3040	1040	655	7436574	349	7439348	515	1.0	7436574
Total Uranium (U)	mg/kg	0.324	0.619	0.600	7436574	0.448	7439348	0.534	0.050	7436574
Total Vanadium (V)	mg/kg	90.9	41.1	32.7	7436574	16.7	7439348	21.1	2.0	7436574
Total Zinc (Zn)	mg/kg	29.7	20.9	24.0	7436574	22.7	7439348	26.4	1.0	7436574
Total Zirconium (Zr)	mg/kg	1.69	0.79	0.58	7436574	1.59	7439348	1.67	0.50	7436574

ND = Not detected
RDL = Reportable Detection Limit

Maxxam

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Maxxam Job #: B424740
Report Date: 2014/04/04

Pinchin LeBlanc Environmental
Client Project #: BASELINE COUNTRY FOODS ASSESSM
Site Location: LABRADOR CITY, NL
Your P.O. #: 4700058846
Sampler Initials: ROK

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		JE4067	JE4068		JE4069		JE4071		
Sampling Date		2013/09/15	2013/09/15		2013/09/15		2013/09/15		
COC#		08391183	08391183		08391183		08391184		
	UNITS	**W3-SB-02-SOIL**	**W3-SB-03-SOIL**	**QC Batch**	**W3-SB-04-SOIL**	**QC Batch**	**W3-SB-05-SOIL**	**RDL**	**QC Batch**
Total Metals by ICPMS									
Total Aluminum (Al)	mg/kg	11700	20800	7436574	40700	7439348	3110	100	7436574
Total Antimony (Sb)	mg/kg	ND	ND	7436574	0.15	7439348	ND	0.10	7436574
Total Arsenic (As)	mg/kg	3.01	2.72	7436574	4.20	7439348	1.43	0.50	7436574
Total Barium (Ba)	mg/kg	97.7	173	7436574	271	7439348	40.3	0.10	7436574
Total Beryllium (Be)	mg/kg	ND	ND	7436574	1.13	7439348	ND	0.40	7436574
Total Bismuth (Bi)	mg/kg	ND	ND	7436574	ND	7439348	ND	0.10	7436574
Total Cadmium (Cd)	mg/kg	0.261	0.278	7436574	1.21	7439348	0.097	0.050	7436574
Total Calcium (Ca)	mg/kg	2980	3910	7436574	3630	7439348	655	100	7436574
Total Chromium (Cr)	mg/kg	59.8	96.2	7436574	135	7439348	18.3	1.0	7436574
Total Cobalt (Co)	mg/kg	14.9	18.0	7436574	54.2	7439348	4.03	0.30	7436574
Total Copper (Cu)	mg/kg	20.8	22.1	7436574	67.5	7439348	3.97	0.50	7436574
Total Iron (Fe)	mg/kg	84800	52900	7436574	90200	7439348	60000	100	7436574
Total Lead (Pb)	mg/kg	9.99	12.6	7436574	56.1	7439348	4.87	0.10	7436574
Total Lithium (Li)	mg/kg	15.7	15.2	7436574	23.3	7439348	ND	5.0	7436574
Total Magnesium (Mg)	mg/kg	7380	12700	7436574	12400	7439348	1920	100	7436574
Total Manganese (Mn)	mg/kg	1410	1830	7436574	12500	7439348	2010	0.20	7436574
Total Mercury (Hg)	mg/kg	ND	0.057	7436574	0.084	7439348	ND	0.050	7436574
Total Molybdenum (Mo)	mg/kg	2.76	3.55	7436574	8.62	7439348	1.80	0.10	7436574
Total Nickel (Ni)	mg/kg	31.4	38.3	7436574	68.3	7439348	6.75	0.80	7436574
Total Phosphorus (P)	mg/kg	565	676	7436574	879	7439348	256	10	7436574
Total Potassium (K)	mg/kg	2520	4580	7436574	6230	7439348	718	100	7436574
Total Selenium (Se)	mg/kg	ND	ND	7436574	ND	7439348	ND	0.50	7436574
Total Silver (Ag)	mg/kg	0.111	0.430	7436574	1.41	7439348	0.150	0.050	7436574
Total Sodium (Na)	mg/kg	ND	ND	7436574	ND	7439348	ND	100	7436574
Total Strontium (Sr)	mg/kg	13.3	20.9	7436574	23.1	7439348	9.74	0.10	7436574
Total Thallium (Tl)	mg/kg	0.248	0.387	7436574	2.04	7439348	0.083	0.050	7436574
Total Tin (Sn)	mg/kg	0.43	0.51	7436574	0.68	7439348	0.37	0.10	7436574
Total Titanium (Ti)	mg/kg	994	1520	7436574	1540	7439348	623	1.0	7436574
Total Uranium (U)	mg/kg	1.61	1.64	7436574	2.11	7439348	0.360	0.050	7436574
Total Vanadium (V)	mg/kg	42.7	63.8	7436574	78.3	7439348	29.7	2.0	7436574
Total Zinc (Zn)	mg/kg	47.1	100	7436574	150	7439348	25.6	1.0	7436574
Total Zirconium (Zr)	mg/kg	0.94	2.12	7436574	2.51	7439348	0.75	0.50	7436574

ND = Not detected
RDL = Reportable Detection Limit

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Report Date: 2014/04/04

Pinchin LeBlanc Environmental
Client Project #: BASELINE COUNTRY FOODS ASSESSM
Site Location: LABRADOR CITY, NL
Your P.O. #: 4700058846
Sampler Initials: ROK

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		JE4072	JE4073	JE4074	JE4075	JE4076		
Sampling Date		2013/09/15	2013/09/16	2013/09/16	2013/09/25	2013/09/25		
COC#		08391184	08391184	08391184	08391184	08391184		
	UNITS	**W3-SB-06-SOIL**	**W3-SB-07-SOIL**	**W3-SB-08-SOIL**	**W3-SB-09-SOIL**	**W3-SB-10-SOIL**	**RDL**	**QC Batch**
Total Metals by ICPMS								
Total Aluminum (Al)	mg/kg	26400	7520	10600	11000	14100	100	7436574
Total Antimony (Sb)	mg/kg	ND	0.12	ND	ND	ND	0.10	7436574
Total Arsenic (As)	mg/kg	2.02	2.43	4.45	1.53	4.04	0.50	7436574
Total Barium (Ba)	mg/kg	207	75.6	109	72.5	158	0.10	7436574
Total Beryllium (Be)	mg/kg	0.47	ND	ND	ND	0.40	0.40	7436574
Total Bismuth (Bi)	mg/kg	ND	ND	ND	0.12	ND	0.10	7436574
Total Cadmium (Cd)	mg/kg	1.24	0.156	0.266	0.122	0.695	0.050	7436574
Total Calcium (Ca)	mg/kg	9710	2150	9710	1640	18300	100	7436574
Total Chromium (Cr)	mg/kg	112	35.1	48.0	49.2	46.5	1.0	7436574
Total Cobalt (Co)	mg/kg	22.1	8.15	11.2	11.9	10.9	0.30	7436574
Total Copper (Cu)	mg/kg	73.8	13.9	14.4	8.50	38.0	0.50	7436574
Total Iron (Fe)	mg/kg	65000	29400	37100	51600	37200	100	7436574
Total Lead (Pb)	mg/kg	9.25	15.5	6.12	7.27	11.9	0.10	7436574
Total Lithium (Li)	mg/kg	29.5	6.0	12.9	8.3	8.8	5.0	7436574
Total Magnesium (Mg)	mg/kg	11600	5680	6410	7710	6710	100	7436574
Total Manganese (Mn)	mg/kg	5220	1350	882	811	3580	0.20	7436574
Total Mercury (Hg)	mg/kg	0.098	ND	0.075	ND	0.188	0.050	7436574
Total Molybdenum (Mo)	mg/kg	13.4	0.89	1.90	1.76	1.61	0.10	7436574
Total Nickel (Ni)	mg/kg	132	20.5	27.7	16.1	42.1	0.80	7436574
Total Phosphorus (P)	mg/kg	1630	565	422	186	967	10	7436574
Total Potassium (K)	mg/kg	3210	2170	430	2940	1360	100	7436574
Total Selenium (Se)	mg/kg	0.69	ND	ND	ND	2.06	0.50	7436574
Total Silver (Ag)	mg/kg	0.508	0.051	0.119	ND	0.625	0.050	7436574
Total Sodium (Na)	mg/kg	ND	ND	ND	ND	ND	100	7436574
Total Strontium (Sr)	mg/kg	33.5	9.92	18.1	10.7	26.7	0.10	7436574
Total Thallium (Tl)	mg/kg	1.15	0.198	0.179	0.213	0.304	0.050	7436574
Total Tin (Sn)	mg/kg	0.42	0.22	0.26	0.45	0.38	0.10	7436574
Total Titanium (Ti)	mg/kg	643	647	767	1500	312	1.0	7436574
Total Uranium (U)	mg/kg	3.74	0.558	3.08	0.580	8.80	0.050	7436574
Total Vanadium (V)	mg/kg	57.5	23.1	30.8	44.4	24.8	2.0	7436574
Total Zinc (Zn)	mg/kg	168	39.0	54.1	44.2	211	1.0	7436574
Total Zirconium (Zr)	mg/kg	0.63	1.16	0.82	3.44	0.83	0.50	7436574

ND = Not detected
RDL = Reportable Detection Limit

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Report Date: 2014/04/04

Pinchin LeBlanc Environmental
Client Project #: BASELINE COUNTRY FOODS ASSESSM
Site Location: LABRADOR CITY, NL
Your P.O. #: 4700058846
Sampler Initials: ROK

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7435706	Moisture	2014/04/01					ND, RDL=0.30	%	2.8	20		
7435772	Moisture	2014/04/01					ND, RDL=0.30	%	3.2	20		
7436509	Soluble (2:1) pH	2014/04/01			100	97 - 103			1.0	20		
7436574	Total Antimony (Sb)	2014/04/02	93	75 - 125	99	75 - 125	ND, RDL=0.10	mg/kg	NC	30	100	70 - 130
7436574	Total Arsenic (As)	2014/04/02	94	75 - 125	98	75 - 125	ND, RDL=0.50	mg/kg	2.1	30	100	70 - 130
7436574	Total Barium (Ba)	2014/04/02	NC	75 - 125	102	75 - 125	0.10, RDL=0.10	mg/kg	3.9	35	110	70 - 130
7436574	Total Beryllium (Be)	2014/04/02	90	75 - 125	103	75 - 125	ND, RDL=0.40	mg/kg	NC	30		
7436574	Total Cadmium (Cd)	2014/04/02	98	75 - 125	100	75 - 125	ND, RDL=0.050	mg/kg	NC	30	95	70 - 130
7436574	Total Chromium (Cr)	2014/04/02	NC	75 - 125	102	75 - 125	ND, RDL=1.0	mg/kg	2.9	30	115	70 - 130
7436574	Total Cobalt (Co)	2014/04/02	97	75 - 125	105	75 - 125	ND, RDL=0.30	mg/kg	2.5	30	103	70 - 130
7436574	Total Copper (Cu)	2014/04/02	99	75 - 125	105	75 - 125	ND, RDL=0.50	mg/kg	4.5	30	93	70 - 130
7436574	Total Lead (Pb)	2014/04/02	99	75 - 125	103	75 - 125	ND, RDL=0.10	mg/kg	1.4	35	109	70 - 130
7436574	Total Lithium (Li)	2014/04/02	96	75 - 125	101	75 - 125	ND, RDL=5.0	mg/kg	NC	30		
7436574	Total Manganese (Mn)	2014/04/02	NC	75 - 125	103	75 - 125	0.22, RDL=0.20	mg/kg	1.4	30	112	70 - 130
7436574	Total Mercury (Hg)	2014/04/02	96	75 - 125	96	75 - 125	ND, RDL=0.050	mg/kg	NC	35	93	70 - 130
7436574	Total Molybdenum (Mo)	2014/04/02	104	75 - 125	101	75 - 125	ND, RDL=0.10	mg/kg	5.8	35	116	70 - 130
7436574	Total Nickel (Ni)	2014/04/02	98	75 - 125	99	75 - 125	ND, RDL=0.80	mg/kg	3.7	30	93	70 - 130
7436574	Total Selenium (Se)	2014/04/02	95	75 - 125	103	75 - 125	ND, RDL=0.50	mg/kg	NC	30		
7436574	Total Silver (Ag)	2014/04/02	97	75 - 125	101	75 - 125	ND, RDL=0.050	mg/kg	NC	35		
7436574	Total Strontium (Sr)	2014/04/02	94	75 - 125	104	75 - 125	ND, RDL=0.10	mg/kg	9.3	35	112	70 - 130
7436574	Total Thallium (Tl)	2014/04/02	99	75 - 125	100	75 - 125	ND, RDL=0.050	mg/kg	5.1	30	100	70 - 130
7436574	Total Tin (Sn)	2014/04/02	95	75 - 125	97	75 - 125	ND, RDL=0.10	mg/kg	NC	35		
7436574	Total Titanium (Ti)	2014/04/02	NC	75 - 125	98	75 - 125	ND, RDL=1.0	mg/kg	4.5	35	119	70 - 130
7436574	Total Uranium (U)	2014/04/02	104	75 - 125	99	75 - 125	ND, RDL=0.050	mg/kg	2.0	30	98	70 - 130
7436574	Total Vanadium (V)	2014/04/02	NC	75 - 125	101	75 - 125	ND, RDL=2.0	mg/kg	5.1	30	114	70 - 130
7436574	Total Zinc (Zn)	2014/04/02	NC	75 - 125	103	75 - 125	ND, RDL=1.0	mg/kg	3.8	30	90	70 - 130
7436574	Total Aluminum (Al)	2014/04/02					ND, RDL=100	mg/kg	4.7	35	116	70 - 130
7436574	Total Calcium (Ca)	2014/04/02					ND, RDL=100	mg/kg	5.0	30	111	70 - 130
7436574	Total Iron (Fe)	2014/04/02					ND, RDL=100	mg/kg	7.2	30	112	70 - 130
7436574	Total Magnesium (Mg)	2014/04/02					ND, RDL=100	mg/kg	6.6	30	97	70 - 130
7436574	Total Phosphorus (P)	2014/04/02					ND, RDL=10	mg/kg	5.6	30	92	70 - 130
7436574	Total Bismuth (Bi)	2014/04/02					ND, RDL=0.10	mg/kg	NC	30		
7436574	Total Potassium (K)	2014/04/02					ND, RDL=100	mg/kg	6.6	35		
7436574	Total Sodium (Na)	2014/04/02					ND, RDL=100	mg/kg	NC	35		
7436574	Total Zirconium (Zr)	2014/04/02					ND, RDL=0.50	mg/kg	4.9	30		
7439348	Total Antimony (Sb)	2014/04/03	91	75 - 125	100	75 - 125	ND, RDL=0.10	mg/kg	NC	30	113	70 - 130
7439348	Total Arsenic (As)	2014/04/03	99	75 - 125	97	75 - 125	ND, RDL=0.50	mg/kg	15.8	30	102	70 - 130
7439348	Total Barium (Ba)	2014/04/03	NC	75 - 125	99	75 - 125	ND, RDL=0.10	mg/kg	4.2	35	108	70 - 130
7439348	Total Beryllium (Be)	2014/04/03	81	75 - 125	110	75 - 125	ND, RDL=0.40	mg/kg	NC	30		

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Site Location: LABRADOR CITY, NL
Your P.O. #: 4700058846
Sampler Initials: ROK

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7439348	Total Cadmium (Cd)	2014/04/03	103	75 - 125	100	75 - 125	ND, RDL=0.050	mg/kg	12.5	30	100	70 - 130
7439348	Total Chromium (Cr)	2014/04/03	NC	75 - 125	103	75 - 125	ND, RDL=1.0	mg/kg	4.0	30	112	70 - 130
7439348	Total Cobalt (Co)	2014/04/03	NC	75 - 125	105	75 - 125	ND, RDL=0.30	mg/kg	2.0	30	103	70 - 130
7439348	Total Copper (Cu)	2014/04/03	NC	75 - 125	100	75 - 125	ND, RDL=0.50	mg/kg	6.0	30	94	70 - 130
7439348	Total Lead (Pb)	2014/04/03	108	75 - 125	103	75 - 125	ND, RDL=0.10	mg/kg	4.0	35	112	70 - 130
7439348	Total Lithium (Li)	2014/04/03	NC	75 - 125	101	75 - 125	ND, RDL=5.0	mg/kg				
7439348	Total Manganese (Mn)	2014/04/03	NC	75 - 125	104	75 - 125	ND, RDL=0.20	mg/kg	4.5	30	111	70 - 130
7439348	Total Mercury (Hg)	2014/04/03	102	75 - 125	98	75 - 125	ND, RDL=0.050	mg/kg	NC	35	92	70 - 130
7439348	Total Molybdenum (Mo)	2014/04/03	NC	75 - 125	104	75 - 125	ND, RDL=0.10	mg/kg	34.3	35	121	70 - 130
7439348	Total Nickel (Ni)	2014/04/03	NC	75 - 125	108	75 - 125	ND, RDL=0.80	mg/kg	5.2	30	94	70 - 130
7439348	Total Selenium (Se)	2014/04/03	101	75 - 125	100	75 - 125	ND, RDL=0.50	mg/kg	NC	30		
7439348	Total Silver (Ag)	2014/04/03	102	75 - 125	103	75 - 125	ND, RDL=0.050	mg/kg	14.6	35		
7439348	Total Strontium (Sr)	2014/04/03	106	75 - 125	106	75 - 125	ND, RDL=0.10	mg/kg	4.2	35	116	70 - 130
7439348	Total Thallium (Tl)	2014/04/03	NC	75 - 125	100	75 - 125	ND, RDL=0.050	mg/kg	3.5	30	102	70 - 130
7439348	Total Tin (Sn)	2014/04/03	99	75 - 125	97	75 - 125	ND, RDL=0.10	mg/kg	4.7	35		
7439348	Total Titanium (Ti)	2014/04/03	NC	75 - 125	99	75 - 125	ND, RDL=1.0	mg/kg	4.7	35	116	70 - 130
7439348	Total Uranium (U)	2014/04/03	110	75 - 125	98	75 - 125	ND, RDL=0.050	mg/kg			100	70 - 130
7439348	Total Vanadium (V)	2014/04/03	NC	75 - 125	102	75 - 125	ND, RDL=2.0	mg/kg	3.8	30	114	70 - 130
7439348	Total Zinc (Zn)	2014/04/03	NC	75 - 125	99	75 - 125	ND, RDL=1.0	mg/kg	6.9	30	91	70 - 130
7439348	Total Aluminum (Al)	2014/04/03					ND, RDL=100	mg/kg	3.6	35	117	70 - 130
7439348	Total Calcium (Ca)	2014/04/03					ND, RDL=100	mg/kg	4.0	30	113	70 - 130
7439348	Total Iron (Fe)	2014/04/03					ND, RDL=100	mg/kg	3.8	30	118	70 - 130
7439348	Total Magnesium (Mg)	2014/04/03					ND, RDL=100	mg/kg	5.1	30	102	70 - 130
7439348	Total Phosphorus (P)	2014/04/03					ND, RDL=10	mg/kg	4.1	30	95	70 - 130
7439348	Total Bismuth (Bi)	2014/04/03					ND, RDL=0.10	mg/kg	NC	30		
7439348	Total Potassium (K)	2014/04/03					ND, RDL=100	mg/kg	5.1	35		
7439348	Total Sodium (Na)	2014/04/03					ND, RDL=100	mg/kg	NC	35		
7439348	Total Zirconium (Zr)	2014/04/03					ND, RDL=0.50	mg/kg	16.1	30		
7439365	Soluble (2:1) pH	2014/04/03			101	97 - 103			1.8	20		

N/A = Not Applicable
RDL = Reportable Detection Limit
RPD = Relative Percent Difference
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.
Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

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NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was not sufficiently significant to permit a reliable recovery calculation.
NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

Validation Signature Page

Maxxam Job #: B424740

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Rob Reinert, Data Validation Coordinator

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

APPENDIX F

CALCULATION OF EXPOSURE POINT CONCENTRATIONS (EPC)

F-1.0 CALCULATION OF EXPOSURE POINT CONCENTRATIONS (EPC)

A subset of the elements (mg/kg wet weight) analyzed by the lab for berries (blueberry, partridgeberry and squashberry), game (hare and grouse, separated into kidney, liver, and muscle tissues), and fish (brook trout fillet and brook trout fillet with skin) were selected for further analysis based on a screening approach which is described in Section 4.1 of the main report. The chemicals for which further evaluation was conducted are:

- Arsenic
- Aluminum
- Cadmium
- Cobalt
- Chromium
- Iron
- Manganese
- Mercury
- Selenium
- Titanium
- Thallium

Exposure point concentrations (EPCs) used in the development of the allowable serving per year for each chemical and country food item were developed based on the reported metal concentrations. For small game (i.e., hare and grouse) muscle, fish and berry tissues, when sufficient data were available (*i.e.*, at least 4 samples with concentrations greater than the reported detection limit), EPCs were represented by the 95 percent upper confidence limit of the mean (95% UCLM) of values (including both detected values and below detection limit values) as calculated by ProUCL (Version 4.1.01 by U.S. EPA, 2011) using the method recommended by ProUCL for that specific dataset. If insufficient data were available (*i.e.*, less than 4 samples with concentrations greater than the reported detection limit or less than 20% of samples were greater than the reported detection limit), the 95% UCLM was not calculated; in these cases, the maximum of all observed concentrations and all reported detection limits for that dataset was used as the EPC. The only exception to this was when a particular chemical was not detected in all samples of a particular sample type (i.e., chemical below detection limit in all berry samples, all hare samples, all grouse samples, or all fish samples). In such cases, ½ of the detection limit was used as the EPC. This occurred for the following chemicals and tissue types (See Section 3.0 for analytical results):

- Cadmium in fish (cadmium not detected in any fish fillet or fillet and skin samples)
- Thallium in hare (thallium not detected in any hare tissue samples)
- Arsenic, Chromium and Selenium in berries (these metals were not detected in any blueberry, partridgeberry or squash berry samples)

EPC are reported in Tables F-2 to F-4 and are identified as the recommended summary statistic value.

This approach was developed following guidance presented in the ProUCL user guide (http://www.epa.gov/osp/hstl/tsc/ProUCL_v5.0_user.pdf), Section 1.12, which states the following (text taken directly from ProUCL guidance document):

1. Statistics (e.g., UCL95) computed based upon only a few detected values (e.g., < 4) cannot be considered reliable enough to estimate the EPC terms having potential impact on human health and the environment.
2. When the number of detected values is small, it is preferable to use ad hoc methods rather than using statistical methods to compute the EPC terms and other upper limits. Specifically, it is suggested that for data sets consisting of less than 4 detects and for small data sets (e.g., size < 10) with low detection frequency (e.g., < 10%), the project team and the decision makers together should decide on a site-specific basis on how to estimate the average exposure (EPC term) for the constituent and area under consideration.
3. For such data sets with low detection frequencies, other measures such as the median or mode represents better estimates (with lesser uncertainty) of the population measure of central tendency.
4. Additionally, it is also suggested that when most (e.g., > 95%) of the observations for a constituent lie below the detection limit(s), the sample median or the sample mode (rather than the sample average) may be used as an estimate the EPC term. Note that when the majority of the data are below the detection limit, the median and the mode may also be represented by a detection limit value.

For this project, the guidance in bullets 1 and 2 was followed, which specified that if there were less than 4 detects OR a small sample total sample size (<10) that also has low detection frequency (<20% as the cutoff was selected for this project, but EPA provides a less conservative suggestion of <10%), a decision was to be made on a site-specific basis on how to estimate the average exposure (EPC term). In this case, the maximum observed value was selected (although it should be noted that EPA suggests that a mode or median could be used). The EPA suggests that with larger sample sizes if >95% are non-detects, you should also not calculate a UCL95 (i.e., you could calculate with at least 5% observed). In such cases for this project, a minimum requirement of 20% observed was applied (i.e., % ND could not be greater than or equal to 80%) regardless of sample size (which is more conservative than the 5% requirement).

Table F-1 Calculation of Exposure Point Concentrations in Country Foods

		Calculated in Excel with ND assumed equal to DL												
Sample type	**COPC [a]**	**N**	**Min**	**Max**	**Mean**	**90th%ILE**	**95%ILE**	**# Non-detects**	**# Detected**	**% ND**	**UCLM**	**Recommended Summary Stat Value (EPC)[b]**	**Recommended Summary Stat Type**	**Rationale**
Fish fillet and skin	Aluminum (Al)	15	0.2	1.94	0.521	1.012	1.464	3	12	20%	0.965	0.965	UCLM	
Fish fillet and skin	Arsenic (As)	15	0.01	0.025	0.018	0.0236	0.0243	3	12	20%	0.0204	0.0204	UCLM	
Fish fillet and skin	Cadmium (Cd)	15	0.002	0.002	0.002	0.002	0.002	15	0	100%	NA	0.001	1/2 DL	Cd < DL in all fish samples
Fish fillet and skin	Chromium (Cr)	15	0.04	0.81	0.209	0.3752	0.523	3	12	20%	0.302	0.302	UCLM	
Fish fillet and skin	Cobalt (Co)	15	0.004	0.0095	0.00565	0.00706	0.00782	3	12	20%	0.00635	0.00635	UCLM	
Fish fillet and skin	Iron (Fe)	15	4.3	8.7	5.83	7.58	8.14	0	15	0%	6.41	6.41	UCLM	
Fish fillet and skin	Manganese (Mn)	15	0.226	0.781	0.421	0.5896	0.6473	0	15	0%	0.493	0.493	UCLM	
Fish fillet and skin	Mercury (Hg)	15	0.0295	0.0654	0.0466	0.06012	0.0619	0	15	0%	0.0512	0.0512	UCLM	
Fish fillet and skin	Selenium (Se)	15	0.314	0.488	0.387	0.4484	0.4768	0	15	0%	0.41	0.41	UCLM	
Fish fillet and skin	Thallium (Tl)	15	0.00192	0.0063	0.0043	0.0057	0.005908	0	15	0%	0.00485	0.00485	UCLM	
Fish fillet and skin	Titanium (Ti)	15	0.2	0.36	0.211	0.206	0.255	13	2	87%	NA	0.36	MAX DETECTED	< 4 detected data points
Fish fillet	Aluminum (Al)	15	0.200	1.400	0.426	0.854	1.057	3	12	20%	0.605	0.605	UCLM	
Fish fillet	Arsenic (As)	15	0.010	0.015	0.011	0.014	0.014	7	8	47%	0.0123	0.0123	UCLM	
Fish fillet	Cadmium (Cd)	15	0.002	0.002	0.002	0.002	0.002	15	0	100%	NA	0.001	1/2 DL	Cd < DL in all fish samples
Fish fillet	Chromium (Cr)	15	0.040	0.279	0.064	0.098	0.171	10	5	67%	0.0959	0.0959	UCLM	
Fish fillet	Cobalt (Co)	15	0.004	0.007	0.005	0.006	0.006	6	9	40%	0.00521	0.00521	UCLM	
Fish fillet	Iron (Fe)	15	3.700	11.900	5.48	6.180	7.980	0	15	0%	6.45	6.45	UCLM	
Fish fillet	Manganese (Mn)	15	0.078	0.262	0.129	0.207	0.242	0	15	0%	0.154	0.154	UCLM	
Fish fillet	Mercury (Hg)	15	0.030	0.072	0.046	0.058	0.063	0	15	0%	0.0508	0.0508	UCLM	
Fish fillet	Selenium (Se)	15	0.315	0.513	0.383	0.464	0.503	0	15	0%	0.409	0.409	UCLM	
Fish fillet	Thallium (Tl)	15	0.002	0.007	0.004	0.005	0.006	0	15	0%	0.00468	0.00468	UCLM	
Fish fillet	Titanium (Ti)	15	0.200	0.200	0.200	0.200	0.200	15	0	100%	NA	0.200	MAX DL	All data < DL
Grouse muscle	Aluminum (Al)	9	0.200	1.820	0.738	1.444	1.632	2	7	22%	1.10	1.10	UCLM	
Grouse muscle	Arsenic (As)	9	0.010	0.031	0.012	0.014	0.023	8	1	89%	NA	0.031	MAX DETECTED	< 4 detected data points
Grouse muscle	Cadmium (Cd)	9	0.002	0.007	0.004	0.006	0.007	3	6	33%	0.00475	0.00475	UCLM	
Grouse muscle	Chromium (Cr)	9	0.040	0.140	0.066	0.103	0.122	2	7	22%	0.112	0.112	UCLM	
Grouse muscle	Cobalt (Co)	9	0.004	0.007	0.005	0.006	0.006	5	4	56%	0.00519	0.00519	UCLM	
Grouse muscle	Iron (Fe)	9	26.000	78.100	59.8	71.460	74.780	0	9	0%	69.0	69.0	UCLM	
Grouse muscle	Manganese (Mn)	9	0.372	0.954	0.507	0.684	0.819	0	9	0%	0.623	0.623	UCLM	
Grouse muscle	Mercury (Hg)	9	0.002	0.004	0.002	0.003	0.003	7	2	78%	NA	0.004	MAX DETECTED	< 4 detected data points
Grouse muscle	Selenium (Se)	9	0.090	0.228	0.165	0.215	0.222	0	9	0%	0.193	0.193	UCLM	
Grouse muscle	Thallium (Tl)	9	0.000	0.001	0.000	0.001	0.001	7	2	78%	NA	0.001	MAX DETECTED	< 4 detected data points
Grouse muscle	Titanium (Ti)	9	0.200	0.220	0.202	0.204	0.212	8	1	89%	NA	0.2	MAX DETECTED	< 4 detected data points
Grouse liver	Aluminum (Al)	9	0.2	11.9	2.462	4.708	8.304	0	9	0%	9.00	9.00	UCLM	
Grouse liver	Arsenic (As)	9	0.01	0.057	0.0199	0.0282	0.0426	2	7	22%	0.0412	0.0412	UCLM	

Table F-1 Calculation of Exposure Point Concentrations in Country Foods

		Calculated in Excel with ND assumed equal to DL												
Sample type	**COPC [a]**	**N**	**Min**	**Max**	**Mean**	**90th%ILE**	**95%ILE**	**# Non-detects**	**# Detected**	**% ND**	**UCLM**	**Recommended Summary Stat Value (EPC)[b]**	**Recommended Summary Stat Type**	**Rationale**
Grouse liver	Cadmium (Cd)	9	0.232	0.758	0.394	0.5676	0.6628	0	9	0%	0.496	0.496	UCLM	
Grouse liver	Chromium (Cr)	9	0.04	0.04	0.04	0.04	0.04	9	0	100%	NA	0.04	MAX DL	All data < DL
Grouse liver	Cobalt (Co)	9	0.0258	0.109	0.0532	0.07828	0.09364	0	9	0%	0.0689	0.0689	UCLM	
Grouse liver	Iron (Fe)	9	417	1410	735	1170	1290	0	9	0%	943	943	UCLM	
Grouse liver	Manganese (Mn)	9	4.45	13.3	6.77	11.46	12.38	0	9	0%	8.75	8.75	UCLM	
Grouse liver	Mercury (Hg)	9	0.0028	0.0137	0.00554	0.00946	0.01158	0	9	0%	0.00878	0.00878	UCLM	
Grouse liver	Selenium (Se)	9	0.199	0.456	0.312	0.4456	0.4508	0	9	0%	0.371	0.371	UCLM	
Grouse liver	Thallium (Tl)	9	0.0004	0.00125	0.000668	0.001066	0.001158	4	5	44%	8.97E-04	8.97E-04	UCLM	
Grouse liver	Titanium (Ti)	9	0.2	0.42	0.233	0.292	0.356	6	3	67%	NA	0.42	MAX DETECTED	< 4 detected data points
Grouse kidney	Aluminum (Al)	9	0.220	27.500	8.84	22.140	24.820	0	9	0%	35.6	35.6	UCLM	
Grouse kidney	Arsenic (As)	9	0.010	0.046	0.017	0.025	0.036	5	4	56%	0.0233	0.0233	UCLM	
Grouse kidney	Cadmium (Cd)	9	0.370	3.990	1.95	3.454	3.722	0	9	0%	2.69	2.69	UCLM	
Grouse kidney	Chromium (Cr)	9	0.040	0.204	0.073	0.110	0.157	5	4	56%	0.105	0.105	UCLM	
Grouse kidney	Cobalt (Co)	9	0.008	0.045	0.027	0.037	0.041	0	9	0%	0.0331	0.0331	UCLM	
Grouse kidney	Iron (Fe)	9	81.700	174.0	139	165.200	169.600	0	9	0%	156	156	UCLM	
Grouse kidney	Manganese (Mn)	9	3.120	22.6	6.75	10.976	16.788	0	9	0%	12.2	12.2	UCLM	
Grouse kidney	Mercury (Hg)	9	0.004	0.018	0.009	0.016	0.017	0	9	0%	0.012	0.012	UCLM	
Grouse kidney	Selenium (Se)	9	0.440	1.140	0.740	1.044	1.092	0	9	0%	0.876	0.876	UCLM	
Grouse kidney	Thallium (Tl)	9	0.002	0.011	0.005	0.009	0.010	0	9	0%	0.00716	0.00716	UCLM	
Grouse kidney	Titanium (Ti)	9	0.200	1.2	0.526	1.144	1.172	5	4	56%	0.807	0.807	UCLM	
Hare muscle	Aluminum (Al)	15	0.2	0.25	0.207	0.228	0.243	12	3	80%	NA	0.25	MAX DETECTED	< 4 detected data points
Hare muscle	Arsenic (As)	15	0.01	0.01	0.01	0.01	0.01	15	0	100%	NA	0.01	MAX DL	All data < DL
Hare muscle	Cadmium (Cd)	15	0.002	0.0056	0.00335	0.00506	0.00525	6	9	40%	0.00396	0.00396	UCLM	
Hare muscle	Chromium (Cr)	15	0.04	0.047	0.0405	0.04	0.0421	14	1	93%	NA	0.047	MAX DETECTED	< 4 detected data points
Hare muscle	Cobalt (Co)	15	0.004	0.0092	0.00567	0.0075	0.00801	4	11	27%	0.0064	0.0064	UCLM	
Hare muscle	Iron (Fe)	15	18.4	44.7	30.9	36.66	40.08	0	15	0%	33.6	33.6	UCLM	
Hare muscle	Manganese (Mn)	15	0.211	0.789	0.366	0.592	0.6707	0	15	0%	0.444	0.444	UCLM	
Hare muscle	Mercury (Hg)	15	0.002	0.005	0.00228	0.00266	0.00353	12	3	80%	NA	0.005	MAX DETECTED	< 4 detected data points
Hare muscle	Selenium (Se)	15	0.023	0.065	0.047	0.0622	0.0636	0	15	0%	0.0528	0.0528	UCLM	
Hare muscle	Thallium (Tl)	15	0.00084	0.00583	0.00248	0.004596	0.005347	0	15	0%	0.00318	0.00318	UCLM	
Hare muscle	Titanium (Ti)	15	0.2	0.2	0.2	0.2	0.2	15	0	100%	NA	0.1	1/2 DL	Ti < DL in all hare samples
Hare liver	Aluminum (Al)	10	0.2	1.03	0.383	0.607	0.8185	3	7	30%	0.537	0.537	UCLM	
Hare liver	Arsenic (As)	10	0.01	0.015	0.0105	0.0105	0.01275	9	1	90%	NA	0.015	MAX DETECTED	< 4 detected data points
Hare liver	Cadmium (Cd)	10	0.0366	0.562	0.174	0.3361	0.44905	0	10	0%	0.269	0.269	UCLM	
Hare liver	Chromium (Cr)	10	0.04	0.054	0.0418	0.0432	0.0486	7	3	70%	NA	0.054	MAX DETECTED	< 4 detected data points

Table F-1 Calculation of Exposure Point Concentrations in Country Foods

		Calculated in Excel with ND assumed equal to DL												
Sample type	**COPC [a]**	**N**	**Min**	**Max**	**Mean**	**90th%ILE**	**95%ILE**	**# Non-detects**	**# Detected**	**% ND**	**UCLM**	**Recommended Summary Stat Value (EPC)[b]**	**Recommended Summary Stat Type**	**Rationale**
Hare liver	Cobalt (Co)	10	0.035	0.0642	0.0462	0.05925	0.061725	0	10	0%	0.0516	0.0516	UCLM	
Hare liver	Iron (Fe)	10	249	719	428.2	616.4	667.7	0	10	0%	511	511	UCLM	
Hare liver	Manganese (Mn)	10	2.91	32.6	6.87	8.993	20.7965	0	10	0%	19.4	19.4	UCLM	
Hare liver	Mercury (Hg)	10	0.0025	0.0362	0.0129	0.02855	0.032375	0	10	0%	0.0194	0.0194	UCLM	
Hare liver	Selenium (Se)	10	0.082	0.345	0.207	0.2541	0.29955	0	10	0%	0.245	0.245	UCLM	
Hare liver	Thallium (Tl)	10	0.00177	0.0107	0.00458	0.009467	0.010084	0	10	0%	0.00646	0.00646	UCLM	
Hare liver	Titanium (Ti)	10	0.2	0.2	0.2	0.2	0.2	10	0	100%	NA	0.1	1/2 DL	Ti < DL in all hare samples
Hare kidney	Aluminum (Al)	10	0.2	0.46	0.333	0.442	0.451	0	10	0%	0.381	0.381	UCLM	
Hare kidney	Arsenic (As)	10	0.01	0.015	0.0105	0.0105	0.01275	9	1	90%	NA	0.015	MAX DETECTED	< 4 detected data points
Hare kidney	Cadmium (Cd)	10	0.448	11.7	4.55	8.181	9.9405	0	10	0%	10.9	10.9	UCLM	
Hare kidney	Chromium (Cr)	10	0.04	0.063	0.0423	0.0423	0.05265	9	1	90%	NA	0.063	MAX DETECTED	< 4 detected data points
Hare kidney	Cobalt (Co)	10	0.0236	0.0874	0.0498	0.07363	0.080515	0	10	0%	0.0626	0.0626	UCLM	
Hare kidney	Iron (Fe)	10	116	244	156	194.5	219.25	0	10	0%	178	178	UCLM	
Hare kidney	Manganese (Mn)	10	2.52	20.4	5.85	6.891	13.6455	0	10	0%	13	13	UCLM	
Hare kidney	Mercury (Hg)	10	0.0426	0.369	0.116	0.1836	0.2763	0	10	0%	0.174	0.174	UCLM	
Hare kidney	Selenium (Se)	10	0.422	1.24	0.947	1.159	1.1995	0	10	0%	1.08	1.08	UCLM	
Hare kidney	Thallium (Tl)	10	0.0114	0.0513	0.02	0.02799	0.039645	0	10	0%	0.0269	0.0269	UCLM	
Hare kidney	Titanium (Ti)	10	0.2	0.2	0.2	0.2	0.2	10	0	100%	NA	0.1	1/2 DL	Ti < DL in all hare samples
Blueberry	Aluminum (Al)	7	1.45	4.81	2.60	4.63	4.72	0	7	0%	3.66	3.66	UCLM	
Blueberry	Arsenic (As)	7	0.01	0.01	0.01	0.01	0.01	7	0	100%	NA	0.005	1/2 DL	As < DL in all berry samples
Blueberry	Cadmium (Cd)	7	0.002	0.002	0.002	0.002	0.002	7	0	100%	NA	0.002	MAX DL	All data < DL
Blueberry	Chromium (Cr)	7	0.04	0.04	0.04	0.04	0.04	7	0	100%	NA	0.02	1/2 DL	Cr < DL in all berry samples
Blueberry	Cobalt (Co)	7	0.004	0.0067	0.00443	0.00526	0.00598	5	2	71%	NA	0.0067	MAX DETECTED	< 4 detected data points
Blueberry	Iron (Fe)	7	10	79	26.1	56.8	67.9	1	6	14%	45.4	45.4	UCLM	
Blueberry	Manganese (Mn)	7	83.4	154	120	149.2	151.6	0	7	0%	138	138	UCLM	
Blueberry	Mercury (Hg)	7	0.002	0.0048	0.00259	0.00354	0.00417	4	3	57%	NA	0.0048	MAX DETECTED	< 4 detected data points
Blueberry	Selenium (Se)	7	0.01	0.01	0.01	0.01	0.01	7	0	100%	NA	0.005	1/2 DL	Se < DL in all berry samples
Blueberry	Thallium (Tl)	7	0.0004	0.0004	0.0004	0.0004	0.0004	7	0	100%	NA	0.0004	MAX DL	All data < DL
Blueberry	Titanium (Ti)	7	0.2	0.4	0.244	0.346	0.373	5	2	71%	NA	0.4	MAX DETECTED	< 4 detected data points
Partridgeberry	Aluminum (Al)	11	3.21	8.12	5.85	7.08	7.6	0	11	0%	6.64	6.64	UCLM	
Partridgeberry	Arsenic (As)	11	0.01	0.01	0.01	0.01	0.01	11	0	100%	NA	0.005	1/2 DL	As < DL in all berry samples
Partridgeberry	Cadmium (Cd)	11	0.002	0.0033	0.002282	0.0033	0.0033	7	4	64%	0.00259	0.00259	UCLM	
Partridgeberry	Chromium (Cr)	11	0.04	0.04	0.04	0.04	0.04	11	0	100%	NA	0.02	1/2 DL	Cr < DL in all berry samples
Partridgeberry	Cobalt (Co)	11	0.004	0.004	0.004	0.004	0.004	11	0	100%	NA	0.004	MAX DL	All data < DL
Partridgeberry	Iron (Fe)	11	10	19	13.1	16	17.5	4	7	36%	14.9	14.9	UCLM	

Table F-1 Calculation of Exposure Point Concentrations in Country Foods

		Calculated in Excel with ND assumed equal to DL												
Sample type	**COPC [a]**	**N**	**Min**	**Max**	**Mean**	**90th%ILE**	**95%ILE**	**# Non-detects**	**# Detected**	**% ND**	**UCLM**	**Recommended Summary Stat Value (EPC)[b]**	**Recommended Summary Stat Type**	**Rationale**
Partridgeberry	Manganese (Mn)	11	35.5	72.5	50.2	63.4	67.95	0	11	0%	55.9	55.9	UCLM	
Partridgeberry	Mercury (Hg)	11	0.002	0.0031	0.00215	0.0025	0.0028	9	2	82%	NA	0.0031	MAX DETECTED	< 4 detected data points
Partridgeberry	Selenium (Se)	11	0.01	0.01	0.01	0.01	0.01	11	0	100%	NA	0.005	1/2 DL	Se < DL in all berry samples
Partridgeberry	Thallium (Tl)	11	0.0004	0.00155	0.000518	0.00048	0.001015	8	3	73%	NA	0.00155	MAX DETECTED	< 4 detected data points
Partridgeberry	Titanium (Ti)	11	0.2	0.44	0.245	0.39	0.415	8	3	73%	NA	0.44	MAX DETECTED	< 4 detected data points
Squashberry	Aluminum (Al)	10	0.41	2.66	1.11	1.904	2.282	0	10	0%	1.54	1.54	UCLM	
Squashberry	Arsenic (As)	10	0.01	0.01	0.01	0.01	0.01	10	0	100%	NA	0.005	1/2 DL	As < DL in all berry samples
Squashberry	Cadmium (Cd)	10	0.002	0.0109	0.00457	0.00703	0.008965	2	8	20%	0.00624	0.00624	UCLM	
Squashberry	Chromium (Cr)	10	0.04	0.04	0.04	0.04	0.04	10	0	100%	NA	0.02	1/2 DL	Cr < DL in all berry samples
Squashberry	Cobalt (Co)	10	0.004	0.004	0.004	0.004	0.004	10	0	100%	NA	0.004	MAX DL	All data < DL
Squashberry	Iron (Fe)	10	10	14	10.5	11.3	12.65	7	3	70%	NA	14	MAX DETECTED	< 4 detected data points
Squashberry	Manganese (Mn)	10	0.441	1.15	0.865	1.114	1.132	0	10	0%	1.00	1.00	UCLM	
Squashberry	Mercury (Hg)	10	0.002	0.002	0.002	0.002	0.002	10	0	100%	NA	0.002	MAX DL	All data < DL
Squashberry	Selenium (Se)	10	0.01	0.01	0.01	0.01	0.01	10	0	100%	NA	0.005	1/2 DL	Se < DL in all berry samples
Squashberry	Thallium (Tl)	10	0.0004	0.0004	0.0004	0.0004	0.0004	10	0	100%	NA	0.0004	MAX DL	All data < DL
Squashberry	Titanium (Ti)	10	0.2	0.2	0.2	0.2	0.2	10	0	100%	NA	0.2	MAX DL	All data < DL

Notes:
%ILE = percentile; NA = not applicable, ND = not detected, DL = detection limit; MIN=minimum, MAX=maximum , UCLM = the ProUCL recommended 95% UCLM for that dataset
[a]. Total metal
[b]. 95% UCLM is recommended as a summary statistic when sufficient data is available to calculate it. If insufficient data were available (i.e., < 4 detected data points or >80% ND data); the maximum detected value or detection limit is recommended as the summary statistic unless the chemical was not observed in any samples of that media type. In this case, ½ DL is recommended as the summary statistic.

F-2.0 REFERENCES

US EPA (United States Environmental Protection Agency). 2011. ProUCL 4.1.01 Software for Calculating Upper Confidence Limits (UCLs). Office of Research and Development. http://www.epa.gov/osp/hstl/tsc/software.htm

APPENDIX G

EQUATIONS, ASSUMPTIONS AND CALCULATION OF ALLOWABLE NUMBER OF SERVINGS OF COUNTRY FOODS

G-1.0 EQUATION, ASSUMPTIONS AND DATA INPUTS TO CALCULATE ALLOWABLE SERVINGS OF COUNTRY FOODS

Allowable servings of various country foods (by tissue type) were calculated for the toddler (aged 7 months to 4 years old) and an adult (20 years and older). Exposure point concentrations (EPCs) used to determine allowable servings of country foods were developed based on the reported metal concentrations for each country food tissue type (See Appendix E). Details of the calculation of the EPCs are provided in Appendix F. Toxicity Reference Values (TRVs) used in the calculation of allowable exposure to metal (AEM) were obtained from Health Canada (2010) where available. Where no Health Canada TRV was available, a TRV from another regulatory agency was used as per) as per Health Canada (2010) guidance. TRVs for each of the metals assessed for the toddler and adult are provided in Table G-1.

Percent allowable exposure (Table G-1) is the percent of the TRV that may come from country foods. That is, exposure to country foods would not be expected to represent greater than 20% of the TRV for all metals with the exception of methyl mercury. Methylmercury was assumed to represent 100% of allowable exposure as fish is the only source of methyl mercury. For carcinogens (arsenic), exposure to arsenic in country foods is considered as incremental over background, at a 1:100,000 risk level.

Estimated number of servings of country foods by metal and tissue type are provided in Tables G-2 and G-3 for the toddler and adult, respectively. The equations used (which follow) essentially amortize the allowable daily intake for country foods (based on either 20% of the TRV, for non-carcinogens, or 100% of the TRV for methylmercury, or a risk-specific dose calculated based on a 1:100,000 risk level for carcinogens, i.e., arsenic), and calculates the number of servings a toddler or adult could have based on an assumed portion size. The equation assumes that 100% of the country foods come from the study area, and that bioaccessibility of the metals in foods is 100%.

To determine the number of servings which could occur for country foods in the area, the following equations were used:

<u>Equation 1:</u>

Allowable Exposure to Metal (AEM)(mg/kg/d) = TRV (mg/kg BW/day) x Allowable Exposure

Where:

- TRV = toxicity reference value (See Tables G-1 and G-2)
- Allowable Exposure was equal to 20% (0.2) for all metals with the exception of methyl mercury which was assumed to represent 100% of allowable exposure (1.0) and arsenic which represented 100% of the Risk Specific Dose (calculated at a 1:100,000 risk level) when evaluated as a carcinogen.

Equation 2:

Allowable Consumption of Country Foods (ACCF) kg/day =

$$\frac{\text{AEM (mg/kg BW/day) x BW (kg)}}{\text{RAF}_{oral} \text{ x C}_{game} \text{ (mg/kg) x FB}}$$

Where:

- AEM = Allowable daily exposure to metal from ingestion of local game, fish or berries (mg/kg BW/day)
- BW = Body weight (kg); 16.5 kg (toddler); 70.7 kg (adult) (Health Canada, 2012)
- RAF_{oral} = Relative absorption factor for ingestion of chemical (unitless; assumed 100%)
- C_{game} = Concentration of chemical in game, fish or berry species (mg/kg wet weight; EPC values were either the 95% UCLM, the maximum detected concentration, maximum detection limit, or ½ of the detection limit (see Section 2.3.2 in the main report or further details); arsenic assumed to be 25% inorganic)
- FB = Fraction of game, fish or berries consumed from the local area (assumed 1; which is 100%)

Equation 3:

Allowable Servings / Year (ASY) = [ACCF (kg/day) x 1000 g / kg x 365 d/y] / Serving size in g

Where:

- ACCF (Allowable Consumption of Country Foods): See Equation 2
- Toddler serving size assumed to be 75 g / 1/2 cup (from Canada's food guide daily recommended meat, fish and fruit (Health Canada, 2007; http://www.has.uwo.ca/hospitality/nutrition/pdf/foodguide.pdf));
- Adult serving size assumed to be 150 g for fish fillets, 150 g for small game muscle, 75 g for small game organs, 1/2 cup for berries (Health Canada, 2007; http://www.has.uwo.ca/hospitality/nutrition/pdf/foodguide.pdf))

Equation 4:

Allowable Servings per Month (ASM) = ASY/12

Where:

- ASY = allowable servings per year

Table G-1 Toxicity Reference Values (TRVs) and Allowable Exposure for the Toddler and Adult			
	TRV (mg/kg/d)	**% Allowable Exposure**	**Reference / Comment**
Aluminum	0.143	0.2	WHO (2014, 2010a,b)
Arsenic	0.0000056	1	Health Canada oral slope factor converted to a RSD (2010) [1]
Arsenic	0.0003	0.2	RfD from IRIS (US EPA, 1993)
Cadmium	0.001	0.2	Health Canada (2010) provisional oral TDI
Chromium	1.5	0.2	U.S. EPA (2013; 1998) oral RfD
Cobalt	0.001	0.2	MOE (2011) chronic oral value modified from ATSDR (2004)
Iron	0.7	0.2	US EPA (2006) Provisional Peer Reviewed Toxicity Value
Manganese	0.136 0.156	0.2	Health Canada (2010) UL(HC) for 7 months to 4 years Health Canada (2010) UL(HC) for 20+ years
Mercury	0.0003	0.2	Health Canada (2010) oral TDI
Methlymercury	0.0002	1	Health Canada (2010) oral TDI for children <12 years and women of child bearing age
Selenium	0.0062 0.0057	0.2	Health Canada (2010) UL(HC) for 7 months to 4 years Health Canada (2010) UL(HC) for 20+ years
Thallium	0.00002	0.2	U.S. EPA (2012) provisional peer reviewed toxicity value for thallium sulphate

Notes:
RfD = reference dose; RSD = risk specific dose; NA = not applicable; UL (HC) = tolerable upper intake level calculated by Health Canada (HC);
1. Health Canada (2010); risk specific dose is based on 1 in 100,000 risk level; calculated by dividing $1x10^{-5}$ by oral slope factor of 1.8 $(mg/kg\text{-}d)^{-1}$ (0.00001 / 1.8 = 0.000056).

Table G-2 Country Food Consumption for the Toddler (7 Months to 4 Years)								
	Allowable Consumption of Country Foods (ACCF) (kg/day)	Allowable Daily Exposure to Metal (AEM) (mg/kg/d)	Body Weight (BW) (kg)	RAF Oral	Concentration in Country Food (Cgame) (mg/kg)	Fraction of Country Food from the Area (FB)	Allowable Servings / Year (ASY)	Allowable Servings / Month (ASM)
Snowshoe Hare Muscle								
Aluminum	1.888	0.0286	16.5	1	0.25	1	9186	766
Arsenic (carcinogenic)	0.037	0.0000056	16.5	1	0.0025	1	180	15
Arsenic	0.396	0.00006	16.5	1	0.0025	1	1927	161
Cadmium	0.833	0.0002	16.5	1	0.00396	1	4056	338
Cobalt	105.319	0.3	16.5	1	0.047	1	512553	42713
Chromium	0.516	0.0002	16.5	1	0.0064	1	2509	209
Iron	0.069	0.14	16.5	1	33.6	1	335	28
Manganese	1.011	0.0272	16.5	1	0.444	1	4919	410
Mercury	0.198	0.00006	16.5	1	0.005	1	964	80
Selenium	0.388	0.00124	16.5	1	0.0528	1	1886	157
Thallium	0.021	0.000004	16.5	1	0.00318	1	101	8
Snowshoe Hare Liver								
Aluminum	0.879	0.0286	16.5	1	0.537	1	4277	356
Arsenic (carcinogenic)	0.025	0.0000056	16.5	1	0.00375	1	120	10
Arsenic	0.264	0.00006	16.5	1	0.00375	1	1285	107
Cadmium	0.012	0.0002	16.5	1	0.269	1	60	5
Cobalt	91.667	0.3	16.5	1	0.054	1	446111	37176
Chromium	0.064	0.0002	16.5	1	0.0516	1	311	26
Iron	0.005	0.14	16.5	1	511	1	22	2
Manganese	0.023	0.0272	16.5	1	19.4	1	113	9
Mercury	0.051	0.00006	16.5	1	0.0194	1	248	21
Selenium	0.084	0.00124	16.5	1	0.245	1	406	34
Thallium	0.010	0.000004	16.5	1	0.00646	1	50	4

Table G-2 Country Food Consumption for the Toddler (7 Months to 4 Years)

	Allowable Consumption of Country Foods (ACCF) (kg/day)	Allowable Daily Exposure to Metal (AEM) (mg/kg/d)	Body Weight (BW) (kg)	RAF Oral	Concentration in Country Food (Cgame) (mg/kg)	Fraction of Country Food from the Area (FB)	Allowable Servings / Year (ASY)	Allowable Servings / Month (ASM)
Snowshoe Hare Kidney								
Aluminum	1.239	0.0286	16.5	1	0.381	1	6028	502
Arsenic (carcinogenic)	0.025	0.0000056	16.5	1	0.00375	1	120	10
Arsenic	0.264	0.00006	16.5	1	0.00375	1	1285	107
Cadmium	0.000	0.0002	16.5	1	10.9	1	1	0.1
Cobalt	78.571	0.3	16.5	1	0.063	1	382381	31865
Chromium	0.053	0.0002	16.5	1	0.0626	1	257	21
Iron	0.013	0.14	16.5	1	178	1	63	5
Manganese	0.035	0.0272	16.5	1	13	1	168	14
Mercury	0.006	0.00006	16.5	1	0.174	1	28	2
Selenium	0.019	0.00124	16.5	1	1.08	1	92	8
Thallium	0.002	0.000004	16.5	1	0.0269	1	12	1
Spruce Grouse Muscle								
Aluminum	0.429	0.0286	16.5	1	1.1	1	2088	174
Arsenic (carcinogenic)	0.012	0.0000056	16.5	1	0.00775	1	58	5
Arsenic	0.128	0.00006	16.5	1	0.00775	1	622	52
Cadmium	0.695	0.0002	16.5	1	0.00475	1	3381	282
Cobalt	44.196	0.3	16.5	1	0.112	1	215089	17924
Chromium	0.636	0.0002	16.5	1	0.00519	1	3094	258
Iron	0.033	0.14	16.5	1	69	1	163	14
Manganese	0.720	0.0272	16.5	1	0.623	1	3506	292
Mercury	0.248	0.00006	16.5	1	0.004	1	1205	100
Selenium	0.106	0.00124	16.5	1	0.193	1	516	43
Thallium	0.066	0.000004	16.5	1	0.001	1	321	27

Table G-2 Country Food Consumption for the Toddler (7 Months to 4 Years)								
	Allowable Consumption of Country Foods (ACCF) (kg/day)	Allowable Daily Exposure to Metal (AEM) (mg/kg/d)	Body Weight (BW) (kg)	RAF Oral	Concentration in Country Food (Cgame) (mg/kg)	Fraction of Country Food from the Area (FB)	Allowable Servings / Year (ASY)	Allowable Servings / Month (ASM)
Spruce Grouse Liver								
Aluminum	0.052	0.0286	16.5	1	9	1	255	21
Arsenic (carcinogenic)	0.009	0.0000056	16.5	1	0.0103	1	44	4
Arsenic	0.096	0.00006	16.5	1	0.0103	1	468	39
Cadmium	0.007	0.0002	16.5	1	0.496	1	32	3
Cobalt	123.750	0.3	16.5	1	0.04	1	602250	50188
Chromium	0.048	0.0002	16.5	1	0.0689	1	233	19
Iron	0.002	0.14	16.5	1	943	1	12	1
Manganese	0.051	0.0272	16.5	1	8.75	1	250	21
Mercury	0.113	0.00006	16.5	1	0.00878	1	549	46
Selenium	0.055	0.00124	16.5	1	0.371	1	268	22
Thallium	0.074	0.000004	16.5	1	8.97E-04	1	358	30
Spruce Grouse Kidney								
Aluminum	0.013	0.0286	16.5	1	35.6	1	65	5
Arsenic (carcinogenic)	0.016	0.0000056	16.5	1	0.005825	1	77	6
Arsenic	0.170	0.00006	16.5	1	0.005825	1	827	69
Cadmium	0.001	0.0002	16.5	1	2.69	1	6	0.5
Cobalt	47.143	0.3	16.5	1	0.105	1	229429	19119
Chromium	0.100	0.0002	16.5	1	0.0331	1	485	40
Iron	0.015	0.14	16.5	1	156	1	72	6
Manganese	0.037	0.0272	16.5	1	12.2	1	179	15
Mercury	0.083	0.00006	16.5	1	0.012	1	402	33
Selenium	0.023	0.00124	16.5	1	0.876	1	114	9
Thallium	0.009	0.000004	16.5	1	0.00716	1	45	4

Table G-2 Country Food Consumption for the Toddler (7 Months to 4 Years)								
	Allowable Consumption of Country Foods (ACCF) (kg/day)	Allowable Daily Exposure to Metal (AEM) (mg/kg/d)	Body Weight (BW) (kg)	RAF Oral	Concentration in Country Food (Cgame) (mg/kg)	Fraction of Country Food from the Area (FB)	Allowable Servings / Year (ASY)	Allowable Servings / Month (ASM)
Brook Trout Fillet								
Aluminum	0.780	0.0286	16.5	1	0.605	1	3796	316
Arsenic (carcinogenic)	0.030	0.0000056	16.5	1	0.003075	1	146	12
Arsenic	0.322	0.00006	16.5	1	0.003075	1	1567	131
Cadmium	3.300	0.0002	16.5	1	0.001	1	16060	1338
Cobalt	51.616	0.3	16.5	1	0.0959	1	251199	20933
Chromium	0.633	0.0002	16.5	1	0.00521	1	3083	257
Iron	0.358	0.14	16.5	1	6.45	1	1743	145
Manganese	2.914	0.0272	16.5	1	0.154	1	14183	1182
Methylmercury	0.065	0.0002	16.5	1	0.0508	1	316	26
Selenium	0.050	0.00124	16.5	1	0.409	1	243	20
Thallium	0.014	0.000004	16.5	1	0.00468	1	69	6
Brook Trout Fillet with Skin								
Aluminum	0.489	0.0286	16.5	1	0.965	1	2380	198
Arsenic (carcinogenic)	0.018	0.0000056	16.5	1	0.0051	1	88	7
Arsenic	0.194	0.00006	16.5	1	0.0051	1	945	79
Cadmium	3.300	0.0002	16.5	1	0.001	1	16060	1338
Cobalt	16.391	0.3	16.5	1	0.302	1	79768	6647
Chromium	0.520	0.0002	16.5	1	0.00635	1	2529	210.8
Iron	0.360	0.14	16.5	1	6.41	1	1754	146
Manganese	0.910	0.0272	16.5	1	0.493	1	4430	369
Methylmercury	0.064	0.0002	16.5	1	0.0512	1	314	26
Selenium	0.050	0.00124	16.5	1	0.41	1	243	20
Thallium	0.014	0.000004	16.5	1	0.00485	1	66	6

Table G-2 Country Food Consumption for the Toddler (7 Months to 4 Years)

	Allowable Consumption of Country Foods (ACCF) (kg/day)	Allowable Daily Exposure to Metal (AEM) (mg/kg/d)	Body Weight (BW) (kg)	RAF Oral	Concentration in Country Food (Cgame) (mg/kg)	Fraction of Country Food from the Area (FB)	Allowable Servings / Year (ASY)	Allowable Servings / Month (ASM)
Blueberry								
Aluminum	0.129	0.0286	16.5	1	3.66	1	627	52
Arsenic (carcinogenic)	0.074	0.0000056	16.5	1	0.00125	1	360	30
Arsenic	0.792	0.00006	16.5	1	0.00125	1	3854	321
Cadmium	1.650	0.0002	16.5	1	0.002	1	8030	669
Cobalt	247.500	0.3	16.5	1	0.02	1	1204500	100375
Chromium	0.493	0.0002	16.5	1	0.0067	1	2397	200
Iron	0.051	0.14	16.5	1	45.4	1	248	21
Manganese	0.003	0.0272	16.5	1	138	1	16	1
Mercury	0.206	0.00006	16.5	1	0.0048	1	1004	84
Selenium	4.092	0.00124	16.5	1	0.005	1	19914	1660
Thallium	0.165	0.000004	16.5	1	0.0004	1	803	67
Partridgeberry								
Aluminum	0.071	0.0286	16.5	1	6.64	1	346	29
Arsenic (carcinogenic)	0.074	0.0000056	16.5	1	0.00125	1	360	30
Arsenic	0.792	0.00006	16.5	1	0.00125	1	3854	321
Cadmium	1.274	0.0002	16.5	1	0.00259	1	6201	517
Cobalt	247.500	0.3	16.5	1	0.02	1	1204500	100375
Chromium	0.825	0.0002	16.5	1	0.004	1	4015	335
Iron	0.155	0.14	16.5	1	14.9	1	754	63
Manganese	0.008	0.0272	16.5	1	55.9	1	39	3
Mercury	0.319	0.00006	16.5	1	0.0031	1	1554	130
Selenium	4.092	0.00124	16.5	1	0.005	1	19914	1660
Thallium	0.043	0.000004	16.5	1	0.00155	1	207	17

Table G-2 Country Food Consumption for the Toddler (7 Months to 4 Years)								
	Allowable Consumption of Country Foods (ACCF) (kg/day)	Allowable Daily Exposure to Metal (AEM) (mg/kg/d)	Body Weight (BW) (kg)	RAF Oral	Concentration in Country Food (Cgame) (mg/kg)	Fraction of Country Food from the Area (FB)	Allowable Servings / Year (ASY)	Allowable Servings / Month (ASM)
Squashberry								
Aluminum	0.306	0.0286	16.5	1	1.54	1	1491	124
Arsenic (carcinogenic)	0.074	0.0000056	16.5	1	0.00125	1	360	30
Arsenic	0.792	0.00006	16.5	1	0.00125	1	3854	321
Cadmium	0.529	0.0002	16.5	1	0.00624	1	2574	214
Cobalt	247.500	0.3	16.5	1	0.02	1	1204500	100375
Chromium	0.825	0.0002	16.5	1	0.004	1	4015	335
Iron	0.165	0.14	16.5	1	14	1	803	67
Manganese	0.449	0.0272	16.5	1	1	1	2184	182
Mercury	0.495	0.00006	16.5	1	0.002	1	2409	201
Selenium	4.092	0.00124	16.5	1	0.005	1	19914	1660
Thallium	0.165	0.000004	16.5	1	0.0004	1	803	67

Notes:
Highlighted cell indicates allowable servings were less than 24 per year.

Table G-3 Country Food Consumption for Adult (20+ Years)								
	Allowable Consumption of Country Foods (ACCF) (kg/day)	Allowable Daily Exposure to Metal (AEM) (mg/kg/d)	Body Weight (BW) (kg)	RAF Oral	Concentration in Country Food (Cgame) (mg/kg)	Fraction of Country Food from the Area (FB)	Allowable Servings / Year (ASY)	Allowable Servings / Month (ASM)
Snowshoe Hare Muscle								
Aluminum	8.088	0.0286	70.7	1	0.25	1	19681	1640
Arsenic (carcinogenic)	0.158	0.0000056	70.7	1	0.0025	1	385	32
Arsenic	1.697	0.00006	70.7	1	0.0025	1	4129	344
Cadmium	3.571	0.0002	70.7	1	0.00396	1	8689	724
Chromium	0.301	0.0002	70.7	1	0.047	1	732	61
Cobalt	2.209	0.0002	70.7	1	0.0064	1	5376	448
Iron	0.295	0.14	70.7	1	33.6	1	717	60
Manganese	4.968	0.0312	70.7	1	0.444	1	12089	1007
Mercury	0.848	0.00006	70.7	1	0.005	1	2064	172
Selenium	1.526	0.00114	70.7	1	0.0528	1	3714	310
Thallium	0.089	0.000004	70.7	1	0.00318	1	216	18
Snowshoe Hare Liver								
Aluminum	3.765	0.0286	70.7	1	0.537	1	9162	764
Arsenic (carcinogenic)	0.106	0.0000056	70.7	1	0.00375	1	257	21
Arsenic	1.131	0.00006	70.7	1	0.00375	1	2753	229
Cadmium	0.053	0.0002	70.7	1	0.269	1	128	11
Chromium	0.262	0.0002	70.7	1	0.054	1	637	53
Cobalt	0.274	0.0002	70.7	1	0.0516	1	667	56
Iron	0.019	0.14	70.7	1	511	1	47	4
Manganese	0.114	0.0312	70.7	1	19.4	1	277	23
Mercury	0.219	0.00006	70.7	1	0.0194	1	532	44

Table G-3 Country Food Consumption for Adult (20+ Years)								
	Allowable Consumption of Country Foods (ACCF) (kg/day)	Allowable Daily Exposure to Metal (AEM) (mg/kg/d)	Body Weight (BW) (kg)	RAF Oral	Concentration in Country Food (Cgame) (mg/kg)	Fraction of Country Food from the Area (FB)	Allowable Servings / Year (ASY)	Allowable Servings / Month (ASM)
Selenium	0.329	0.00114	70.7	1	0.245	1	800	67
Thallium	0.044	0.000004	70.7	1	0.00646	1	107	9
Snowshoe Hare Kidney								
Aluminum	5.307	0.0286	70.7	1	0.381	1	12914	1076
Arsenic (carcinogenic)	0.106	0.0000056	70.7	1	0.00375	1	257	21
Arsenic	1.131	0.00006	70.7	1	0.00375	1	2753	229
Cadmium	0.001	0.0002	70.7	1	10.9	1	3	0.3
Chromium	0.224	0.0002	70.7	1	0.063	1	546	46
Cobalt	0.226	0.0002	70.7	1	0.0626	1	550	46
Iron	0.056	0.14	70.7	1	178	1	135	11
Manganese	0.170	0.0312	70.7	1	13	1	413	34
Mercury	0.024	0.00006	70.7	1	0.174	1	59	5
Selenium	0.075	0.00114	70.7	1	1.08	1	182	15
Thallium	0.011	0.000004	70.7	1	0.0269	1	26	2
Spruce Grouse Muscle								
Aluminum	1.838	0.0286	70.7	1	1.1	1	4473	373
Arsenic (carcinogenic)	0.051	0.0000056	70.7	1	0.00775	1	124	10
Arsenic	0.547	0.00006	70.7	1	0.00775	1	1332	111
Cadmium	2.977	0.0002	70.7	1	0.00475	1	7244	604
Chromium	0.126	0.0002	70.7	1	0.112	1	307	26
Cobalt	2.724	0.0002	70.7	1	0.00519	1	6630	552
Iron	0.143	0.14	70.7	1	69	1	349	29
Manganese	3.541	0.0312	70.7	1	0.623	1	8616	718
Mercury	1.061	0.00006	70.7	1	0.004	1	2581	215

Table G-3 Country Food Consumption for Adult (20+ Years)								
	Allowable Consumption of Country Foods (ACCF) (kg/day)	Allowable Daily Exposure to Metal (AEM) (mg/kg/d)	Body Weight (BW) (kg)	RAF Oral	Concentration in Country Food (Cgame) (mg/kg)	Fraction of Country Food from the Area (FB)	Allowable Servings / Year (ASY)	Allowable Servings / Month (ASM)
Selenium	0.418	0.00114	70.7	1	0.193	1	1016	85
Thallium	0.283	0.000004	70.7	1	0.001	1	688	57
Spruce Grouse Liver								
Aluminum	0.225	0.0286	70.7	1	9	1	547	46
Arsenic (carcinogenic)	0.038	0.0000056	70.7	1	0.0103	1	94	8
Arsenic	0.412	0.00006	70.7	1	0.0103	1	1002	84
Cadmium	0.029	0.0002	70.7	1	0.496	1	69	6
Chromium	0.354	0.0002	70.7	1	0.04	1	860	72
Cobalt	0.205	0.0002	70.7	1	0.0689	1	499	42
Iron	0.010	0.14	70.7	1	943	1	26	2
Manganese	0.252	0.0312	70.7	1	8.75	1	613	51
Mercury	0.483	0.00006	70.7	1	0.00878	1	1176	98
Selenium	0.217	0.00114	70.7	1	0.371	1	529	44
Thallium	0.315	0.000004	70.7	1	8.97E-04	1	767	64
Spruce Grouse Kidney								
Aluminum	0.057	0.0286	70.7	1	35.6	1	138	12
Arsenic (carcinogenic)	0.068	0.0000056	70.7	1	0.005825	1	165	14
Arsenic	0.728	0.00006	70.7	1	0.005825	1	1772	148
Cadmium	0.005	0.0002	70.7	1	2.69	1	13	1
Chromium	0.135	0.0002	70.7	1	0.105	1	328	27
Cobalt	0.427	0.0002	70.7	1	0.0331	1	1039	87
Iron	0.063	0.14	70.7	1	156	1	154	13
Manganese	0.181	0.0312	70.7	1	12.2	1	440	37
Mercury	0.354	0.00006	70.7	1	0.012	1	860	72

Table G-3 Country Food Consumption for Adult (20+ Years)								
	Allowable Consumption of Country Foods (ACCF) (kg/day)	Allowable Daily Exposure to Metal (AEM) (mg/kg/d)	Body Weight (BW) (kg)	RAF Oral	Concentration in Country Food (Cgame) (mg/kg)	Fraction of Country Food from the Area (FB)	Allowable Servings / Year (ASY)	Allowable Servings / Month (ASM)
Selenium	0.092	0.00114	70.7	1	0.876	1	224	19
Thallium	0.039	0.000004	70.7	1	0.00716	1	96	8
Brook Trout Fillet								
Aluminum	3.342	0.0286	70.7	1	0.605	1	8133	678
Arsenic (carcinogenic)	0.129	0.0000056	70.7	1	0.003075	1	313	26
Arsenic	1.380	0.00006	70.7	1	0.003075	1	3357	280
Cadmium	14.140	0.0002	70.7	1	0.001	1	34407	2867
Chromium	0.147	0.0002	70.7	1	0.0959	1	359	30
Cobalt	2.714	0.0002	70.7	1	0.00521	1	6604	550
Iron	1.535	0.14	70.7	1	6.45	1	3734	311
Manganese	14.324	0.0312	70.7	1	0.154	1	34854	2905
Methylmercury	0.278	0.0002	70.7	1	0.0508	1	677	56
Selenium	0.197	0.00114	70.7	1	0.409	1	480	40
Thallium	0.060	0.000004	70.7	1	0.00468	1	147	12
Brook Trout Fillet with Skin								
Aluminum	2.095	0.0286	70.7	1	0.965	1	5099	425
Arsenic (carcinogenic)	0.078	0.0000056	70.7	1	0.0051	1	189	16
Arsenic	0.832	0.00006	70.7	1	0.0051	1	2024	169
Cadmium	14.140	0.0002	70.7	1	0.001	1	34407	2867
Chromium	0.047	0.0002	70.7	1	0.302	1	114	9
Cobalt	2.227	0.0002	70.7	1	0.00635	1	5418	452
Iron	1.544	0.14	70.7	1	6.41	1	3757	313
Manganese	4.474	0.0312	70.7	1	0.493	1	10888	907
Methylmercury	0.276	0.0002	70.7	1	0.0512	1	672	56

Table G-3 Country Food Consumption for Adult (20+ Years)								
	Allowable Consumption of Country Foods (ACCF) (kg/day)	Allowable Daily Exposure to Metal (AEM) (mg/kg/d)	Body Weight (BW) (kg)	RAF Oral	Concentration in Country Food (Cgame) (mg/kg)	Fraction of Country Food from the Area (FB)	Allowable Servings / Year (ASY)	Allowable Servings / Month (ASM)
Selenium	0.197	0.00114	70.7	1	0.41	1	478	40
Thallium	0.058	0.000004	70.7	1	0.00485	1	142	12
Blueberry								
Aluminum	0.552	0.0286	70.7	1	3.66	1	1344	112
Arsenic (carcinogenic)	0.317	0.0000056	70.7	1	0.00125	1	771	64
Arsenic	3.394	0.00006	70.7	1	0.00125	1	8258	688
Cadmium	7.070	0.0002	70.7	1	0.002	1	17204	1434
Chromium	0.707	0.0002	70.7	1	0.02	1	1720	143
Cobalt	2.110	0.0002	70.7	1	0.0067	1	5135	428
Iron	0.218	0.14	70.7	1	45.4	1	531	44
Manganese	0.016	0.0312	70.7	1	138	1	39	3
Mercury	0.884	0.00006	70.7	1	0.0048	1	2150	179
Selenium	16.120	0.00114	70.7	1	0.005	1	39224	3269
Thallium	0.707	0.000004	70.7	1	0.0004	1	1720	143
Partridgeberry								
Aluminum	0.305	0.0286	70.7	1	6.64	1	741	62
Arsenic (carcinogenic)	0.317	0.0000056	70.7	1	0.00125	1	771	64
Arsenic	3.394	0.00006	70.7	1	0.00125	1	8258	688
Cadmium	5.459	0.0002	70.7	1	0.00259	1	13285	1107
Chromium	0.707	0.0002	70.7	1	0.02	1	1720	143
Cobalt	3.535	0.0002	70.7	1	0.004	1	8602	717
Iron	0.664	0.14	70.7	1	14.9	1	1616	135
Manganese	0.039	0.0312	70.7	1	55.9	1	96	8
Mercury	1.368	0.00006	70.7	1	0.0031	1	3330	277

Table G-3 Country Food Consumption for Adult (20+ Years)								
	Allowable Consumption of Country Foods (ACCF) (kg/day)	**Allowable Daily Exposure to Metal (AEM) (mg/kg/d)**	**Body Weight (BW) (kg)**	**RAF Oral**	**Concentration in Country Food (Cgame) (mg/kg)**	**Fraction of Country Food from the Area (FB)**	**Allowable Servings / Year (ASY)**	**Allowable Servings / Month (ASM)**
Selenium	16.120	0.00114	70.7	1	0.005	1	39224	3269
Thallium	0.182	0.000004	70.7	1	0.00155	1	444	37
Squashberry								
Aluminum	1.313	0.0286	70.7	1	1.54	1	3195	266
Arsenic (carcinogenic)	0.317	0.0000056	70.7	1	0.00125	1	771	64
Arsenic	3.394	0.00006	70.7	1	0.00125	1	8258	688
Cadmium	2.266	0.0002	70.7	1	0.00624	1	5514	459
Chromium	0.707	0.0002	70.7	1	0.02	1	1720	143
Cobalt	3.535	0.0002	70.7	1	0.004	1	8602	717
Iron	0.707	0.14	70.7	1	14	1	1720	143
Manganese	2.206	0.0312	70.7	1	1	1	5368	447
Mercury	2.121	0.00006	70.7	1	0.002	1	5161	430
Selenium	16.120	0.00114	70.7	1	0.005	1	39224	3269
Thallium	0.707	0.000004	70.7	1	0.0004	1	1720	143

Notes:
Highlighted cell indicates allowable servings were less than 24 per year.

G-2.0 CONSIDERATION OF MIXTURES

There are currently no regulatory benchmarks (beyond those chemical groups that have established toxic equivalent factors such as dioxins, furans and polycyclic aromatic hydrocarbons) by which one can evaluate whether exposures to a given mixture from a given source (or multiple sources) could pose a human health concern. Health effects from mixtures are typically assessed by assuming additive effects of chemicals with similar exposure characteristics (*e.g.*, acute exposure; chronic exposure) and similar toxic effects (*e.g.*, reproductive effects; kidney effects, etc.), but should also consider mechanism of action, where information is available (Health Canada, 2012).

Table G-4 presents the critical health effects within various target organ systems associated with the TRVs for the chemicals evaluated in this assessment. For those metals having unique target organ effects (e.g., strontium was the only chemical whose critical health effect was rachitic bone effects), no consideration of mixture additivity is provided.

Based on the critical health effects associated with the selected TRVs for chemicals evaluated, the following metals can be considered to act on the same target organ (Table G-4):

- Aluminum, cadmium and inorganic mercury – kidney effects
- Aluminum, manganese and methylmercury – neurotoxicity

To determine whether the metals acting on the same target organ should be evaluated on an additive basis, further investigation was conducted. Metals identified as sharing the same critical health effect (based on the TRV selected) but having differing mechanisms of action were not considered on an additive basis. Where the mechanisms of action were considered similar or the mechanism of action was unknown, the metals were assumed to be additive and some discussion is provided on how this may impact the allowable number of servings for a particular tissue type.

Table G-4 Toxicity Endpoints for Chemicals Evaluated in Assessment

	TRV (mg/kg/d)	Critical Health Effect	Source
Aluminum	0.143	Reproductive and developmental, neurological, liver and kidney effects	WHO 2014 (2010a,b)
Arsenic	0.0000056 [a]	Cancer: bladder, lung, liver	Health Canada (cancer) (2010)
	0.0003	Hyperpigmentation, keratosis and possible vascular complications	IRIS (non-cancer) (US EPA, 1993)
Cadmium	0.001	Kidney effects (renal tubular dysfunction)	Health Canada (2010)
Chromium $^{3+}$	1.5 mg/kg/day [b]	Reduced absolute weight of livers and spleen (rats)	U.S. EPA (1998)
Cobalt	0.001	Bone marrow effects (polycythemia)	MOE (2011) chronic oral value modified from ATSDR (2004)
Iron	0.70	Adverse gastrointestinal effects (humans)	U.S. EPA (2006) provisional peer-reviewed TRV
Manganese	0.136 0.156	CNS effects (Parkinsonian-like Neurotoxicity)	Health Canada (2010) UL(HC) for 7 months to 4 years and 20+ years, respectively
Mercury	0.0003	Nephrotoxicity	Health Canada (2010)
Methylmercury	0.0002	Neurotoxicity	Health Canada (2010) oral TDI for children <12 years and women of child bearing age
Selenium	0.0062 0.0057	Selenosis	Health Canada (2010) UL(HC) for 7 months to 4 years and 20+ years, respectively
Thallium	0.00002	Hair follicle atrophy (based on no observable adverse effect level)	U.S. EPA (2012) provisional peer reviewed toxicity value for thallium sulphate

G-2.1 Aluminum, Cadmium and Inorganic Mercury

The target organ for aluminum, cadmium and inorganic mercury is / includes the kidney. Cadmium is the limiting metal in hare and grouse kidney since it tends to accumulate in this tissue type. The allowable servings of hare and grouse kidney per year based on cadmium concentrations is 1 and 6 for the toddler and 3 and 13 for adults, respectively (Table G-2 and G-3). Allowable servings were higher in game meat livers (e.g., 60 and 32 for hare livers and 128 and 69 for spruce grouse livers), and markedly higher in all other tissue types (See Tables G-2 and G-3).

Inorganic mercury was not found to be the limiting metal in any tissue type examined (Table G-2 and G-3). Allowable servings of spruce grouse for a toddler based on inorganic mercury concentrations ranged from 28 per year (snowshoe hare kidney) to 964 per year (snowshoe hare muscle). Allowable servings for the toddler of spruce grouse were 549, 402 and 1205 servings

per year (for liver, kidney and muscle, respectively), whereas berries were over 1000 servings per year (Table G-2 and G-3).

Allowable servings per year of the various country foods to aluminum was much higher ranging from 4277 to 9186 in hare liver and muscle, respectively; 65 to 2088 in grouse kidney and muscle, respectively; 2380 and 3796 in fish fillet and fish fillet with skin, respectively and 346 to 491 in blueberries and squashberries respectively.

While potential additive effects of aluminum, cadmium and mercury could occur through the ingestion of hare or grouse kidney or liver, critical data related to a number of key factors affecting absorption of these metals in these tissue types within the human gut (such as bioaccessibility, among other factors) are not available. The calculation of the number of servings assumes all metals are 100% bioaccessible, which is likely an overestimate. Based on the number of servings calculated for hare kidney related to the presence of cadmium in this tissue (toddler servings/year =1), it is possible that concurrent exposure to mercury could reduce this serving count further, however, uncertainties in the assessment are high, due to the conservatisms mentioned previously.

G-2.3 Aluminum, Manganese and Methylmercury

Aluminum, manganese and methylmercury were identified as being neurotoxicants (Table G-4). As methyl mercury will not occur in mammalian tissues or fruits, it is not necessary to evaluate potential additivity of methylmercury and manganese in these tissue types.

Manganese, while present in fish tissue collected for this study at detectable levels, is orders of magnitude less toxic than methylmercury (TRV for manganese is 0.136 mg/kg/day (for toddler) compared to 0.0002 mg/kg/day for methylmercury). If the effects of manganese and methylmercury in fish tissue were considered on an additive basis, the conclusions of the assessment would not change given the low toxicity of manganese compared to that of methylmercury.

As discussed in Section G-2.2, allowable servings per year of aluminum are high (with the lowest being 65 servings per year in grouse kidney for the toddler).

Allowable servings per year in fish and game meat were also high for manganese with the lowest being 113 servings per year (in hare liver) up to 14,183 servings per year (in fish fillets). Manganese was the limiting metal in blueberries and partridge berries (at 16 and 39 servings per year, respectively). Allowable meals per year of blueberries and partridge berries were 627 and 346, respectively. While potential additive effects of aluminum and manganese could occur country foods, given the large number of allowable servings per year, this would not likely be of concern.

G-2.0 REFERENCES

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APPENDIX H

VALIDATION OF MEASURED VERSUS MODELLED COUNTRY FOOD TISSUE EXPOSURE ESTIMATES USED IN THE HUMAN HEALTH RISK ASSESSMENT

H-1.0 VALIDATION OF MEASURED VERSUS MODELLED COUNTRY FOOD TISSUE EXPOSURE ESTIMATES USED IN THE HUMAN HEALTH RISK ASSESSMENT

Not all of the analytical results for the country food tissue samples reported in this document, had been received by the time the Wabush 3 mine HHRA (Intrinsik, 2014) was completed. As such, tissue concentrations were estimated using computer models rather than measured data in the HHRA to estimate baseline exposures in some cases. This appendix provides a validation of the risk estimates generated using estimated country food tissue concentrations presented in the HHRA, compared to risk estimates generated using the measured tissue concentrations from the baseline country food tissue sampling.

Table H-1 presents a comparison of the baseline Hazard Quotients (HQs) (for the toddler and adult, respectively) using the estimated and measured data. HQs for the estimated tissue data were previously provided in Section 4.0 of the HHRA (Intrinsik, 2014). The results of this comparison indicate that there is little difference between the HQs using measured or estimated country food tissue concentrations. While there were differences between measured and estimated data, the country food pathway was not generally a driver in the HQ values, and hence, HQs do not substantially change when measured tissue concentrations were used. The changes to the HQs would not change the conclusions of the HHRA.

Table H-1 Comparison of Baseline Estimated to Baseline Measured HQs

	Toddler		Adult	
	Baseline Estimated	**Baseline Measured**	**Baseline Estimated**	**Baseline Measured**
Aluminum	0.54	0.55	0.083	0.090
Benzo(a)pyrene	0	0	0	0
Chromium	0.00022	0.00027	0.000032	0.000057
Iron	0.72	0.85	0.11	0.18
Manganese	0.19	0.12	0.069	0.035
Silica	NC	NC	NC	NC
Titanium	NC	NC	NC	NC

Notes:
NC = not calculated

In Section 4.0 of the HHRA main report (i.e., Table 4-15, pg. 56 and Table 4-21, pg. 65), HQs were presented for the toddler for the i) Baseline and Incremental Project; and ii) Baseline and Future Build scenarios. Tables H-2 and H-3 provide the recalculated toddler HQs for the i) Baseline and Incremental Project; and ii) Baseline and Future Build scenarios using the measured rather than estimated baseline data. Results are shown in Table H-2 for the cross country trails and Table H-3 for the predicted future site dust deposition of 55.2 g/m^2/year as these were the scenarios with the greatest exposures. As is shown in Tables H-2 and H-3, HQs were less than or equal to 1.0 for all chemicals and scenarios.

Table H-2 Toddler Hazard Quotients (HQs) for Measured Baseline, Predicted Incremental Project and Predicted Future (Baseline + Project)

Predicted Future Site Dust Deposition ($g/m^2/year$)	*Chemical*	*TRV*	*Toddler HQ*		
			Baseline Measured	*Incremental Project*	*Baseline Measured + Incremental Project*
X-Country Trails	Aluminum	RfD	0.55	0.0067	0.56
	Benzo(a)pyrene	SF	0	3.41E-08	3.41E-08
	Chromium	RfD	0.00027	0.000012	0.00028
	Iron	RfD	0.85	0.043	0.89
	Manganese	RfD	0.12	0.0054	0.13
	Silica	NA	NC	NC	NC
	Titanium	NA	NC	NC	NC

Notes:
NA = Not available; NC = Not calculated; TRV = toxicity reference value; HQ = hazard quotient, RfD = reference dose; SF = slope factor
HQs are rounded to 2 significant figures

Table H-3 Toddler Hazard Quotients (HQs) for Measured Baseline, Predicted Future Build and Predicted Future (Baseline + Future Build)

Predicted Future Site Dust Deposition ($g/m^2/year$)	***Chemical***	***TRV***	***Toddler HQ***		
			Baseline Measured	***Future Build***	***Baseline Measured + Future Build***
55.2	Aluminum	RfD	0.55	0.029	0.58
55.2	Benzo(a)pyrene	SF	0	1.5E-07	1.5E-07
55.2	Chromium	RfD	0.00027	0.000052	0.00032
55.2	Iron	RfD	0.85	0.19	1.0
55.2	Manganese	RfD	0.12	0.024	0.14
55.2	Silica	NA	NC	NC	NC
55.2	Titanium	NA	NC	NC	NC

Notes:
NA = Not available; NC = Not calculated; TRV = toxicity reference value; HQ = hazard quotient, RfD = reference dose; SF = slope factor
HQs are rounded to 2 significant figures

In summary, the use of the measured rather than estimated country food tissue concentrations in the HHRA modelling would not affect conclusions of the Wabush 3 HHRA.

H-2.0 REFERENCES

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